**Alma Mater Studiorum – Università di Bologna**

CHANCES.
PRACTICES, SPACES AND BUILDINGS IN CITIES'
TRANSFORMATION.

Curator: Prof. Arch. Annalisa Trentin
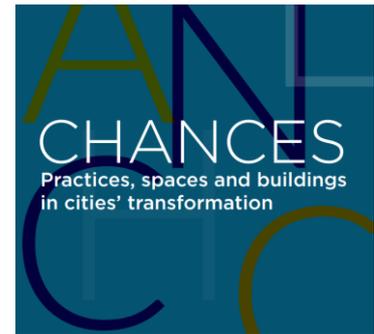
International Conference, 24th October 2019

CHANCES was an international conference that aimed to explore, from a multidisciplinary perspective, the fragile but continuous urban transformation through the effective contribution of culture, nature and technology.

The conference wanted to provide a deeper understanding of urban transformations' research and practices, focusing on the use, re-use, design, renovation and innovative governance and management of public spaces, urban commons and buildings.

The organizing committee believes that these thoughts will largely contribute to shape and increase sustainable design, construction and planning in constant cities' transformation.

The selected contributions were built on reflections and studies concerning current or historical approaches that are changing or drastically changed the cities we lived in.

The Conference has been organised by the PhD in Architecture and Design Cultures -

Department of Architecture - University of Bologna

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The scientific committee is composed by the editor in chief of SCIRES-IT and the members of

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XXXIII PhD cycle, Architecture and design cultures.

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TRACK 1 / DESIGN AND PRACTICES

Society should be a great laboratory in which social forms are experimented, new solutions and meanings are produced. Practices and relationships in continuous transformation generate the different times of the city and shape its spaces. People, in their various expressions, play a key role in the creation of new and renewed processes and systems connected to local business networks, stimulating the design to differentiated and complementary scales (from micro to macro). They enhance participation of the communities, creating impact through concrete initiatives, playing a role of mediation and anticipating future scenarios. This section introduces contributions about actions, projects and design practices for transforming cities driven by the behaviour of citizens and favoured by design driven processes.

REMEMBRANCE ARCHIVES

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Abstract

The article proposes a reflection on the design role and a speculative project about the topic of temporality in the digital city. The notion of socio-technical system (Whitworth 2009) is used to show how in a society characterized by high technological density the city model could approach the one of a factory (Armando & Durbiano 2019). In a socio-technical system the capillarity of the interactions between men and machines is central in beating the rhythm of the subjects' behaviors acting its space. Furthermore in the contemporary landscape the analytics systems producing predictions introduce an additional temporal layer (Hansen 2015) used as a filter to read and design these behaviors (Pentland 2019) and the city planning. Artificial intelligences, synthesizing the data harvested, produce precognition simulating behaviors in the digital in order to anticipate them in the analogical. It is claimed that within these temporal loops only an incremental optimization is possible and that to design exclusively through this filter could cause a folding of time that would lead the city to live in a temporal bubble, whereas the city lives on many different temporal lines contributing to the imagination and to the collective memory (Gregotti 1966). Therefore design has to address this challenge bringing the question of the memory at the project's center (Zannoni 2018). A speculative project called Remembrance Archives is proposed. Remembrance Archives aims to hack the temporal bubble by the injection of data drawn from the past of the city history that will alter the regular output of the artificial intelligences predictive models in unexpected ways, practicing an actual work of remembrance through which people will interact with the city memories as a source of new meanings and imaginary.

«Look carefully nonetheless, as this might appear at first glance like a destructive critique of technology in the city. It is not. Technology is culture; it is not something separate; it is no longer "I.T."; we cannot choose to have it or not. It just is, like air... So the goal is entirely constructive, and to shift the debate in a more meaningful direction, oriented towards the raison d'etre of our cities: citizens, and the way that they can create urban culture with technology» (Hill 2013)

1. Introduction

The paper suggests a reflection about design in relation to the introduction of digital technologies on the urban scale through a counter-representation of urbanization process as is ideologized (Wachsmuth 2014) in the smart city model. The counter-representation will exaggerate intentionally the relationship between the temporality seen through this model and the behaviors of people who cross the city space.

According to Rob Kitchin (2014), in the smart city model the I.T. infrastructure is the main managing tool of a city where a technocratic vision is promoted: any aspect is measurable and any issue, even social complexity, can be solved by computation. Therefore, it's proposed the analogy between the smart city and a factory made of technology and social features, that is a socio-technical system. Then is formulated a hypothesis linked to a risk scenario[1]: that planning the urban space, exclusively relying on the smart city model, can lead the city and its inhabitants to live in a time bubble, the result of which would be to deplete the resources available for innovative design. It will then be claimed, proposing a speculative project, that design has to care about memory as a way to allow a richer interchange between the city and possible behaviors[2] within its environment.

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[1] See also the project Standard-Deviation (http://standard-deviation.eu/#home)

[2] The textual apparatus is presented with a graphic proposal inspired by the optical poems of Man Ray and the artistic language of the "cancellation" of Emilio Isgrò, which illustrates the meaning of what is written. If the automated process of information synthesis acts as a filter, the risk is that projects will be generated based mainly on the optimization of a partial selection of what it is. We would thus be allowed to access only certain portions of geography of meanings already predisposed

Fig. 1
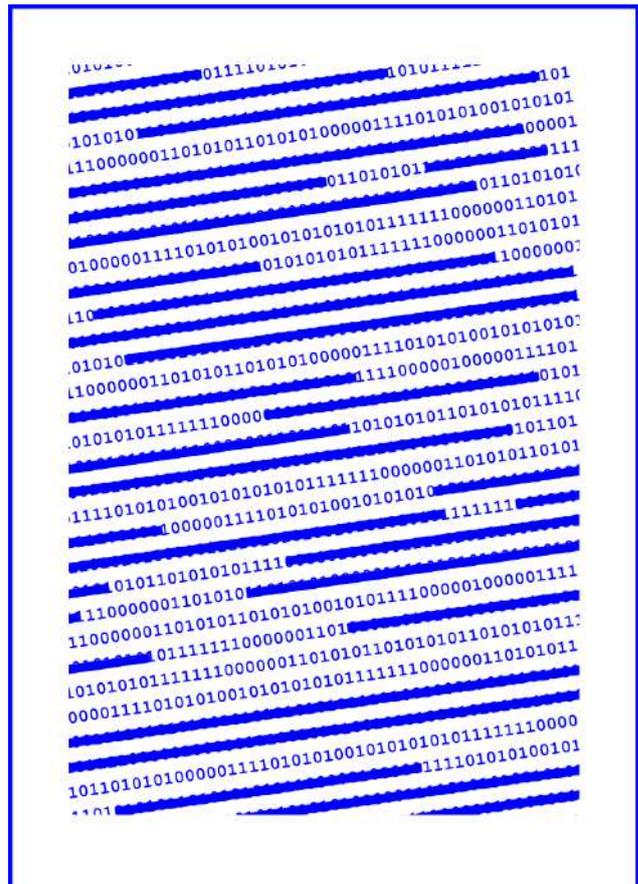
Fig. 2

2. City and socio-technical system

The term socio-technical system was proposed in a research carried out by the Tavistock Institute in the 1950s (Whitworth 2009) to designate those organizations and systems of production, in that case a coal mine, where the close interconnection between social and technical aspects, both material and administrative, turns out to be the key factor to set the performance of the overall system[3]. This meaning, here charged with a negative connotation[4], serves the purpose to emphasize that

those social systems where IT components are spread and omnipresent are optimized by these same components that allow the fragmentation and automation of functional and social dynamics. With the current technology growth, both in terms of quantity - sensors and smartphones are everywhere - and quality - nowadays software mediates and performs cognitive processes as well mechanical ones – it is possible to suggest looking at the urban environment like a socio-technical system.

A socio-technical system - as is meant here - presents two relevant aspects: the first is that it can be considered as a closed environment, isolated from the external events, like the one of a factory[5], even though more complex. The second is that the rhythm

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[footnotes]

to accept only a specific and predetermined number of behaviors. We pass from cancellation of the textual apparatus (Fig. 1) to a data one (Fig. 2) to that of the urban topography (Fig. 3).

[3] This definition has evolved in the so-called Science and Technology Studies (STS) (Callon 1987) where it indicates how society and technology adapt to and change each other.

[4] Negativity serves the purpose of this article. It is not claimed that the study and the project on the socio-technical system has

not great importance. Instead, we claim that its effectiveness and its positive connotation are linked to a specifical context.

[5] In the article wrote by Kitchin (2014) are included two definitions of smart city: one is given herein; the other one refers to a development model based on knowledge economy, creativity and innovation. We could assume that the attempt to optimize these factors in a system of production leads to a factory city seen as a factory of creativity.

of events taking place inside it, including the behavior of people crossing its space, is largely
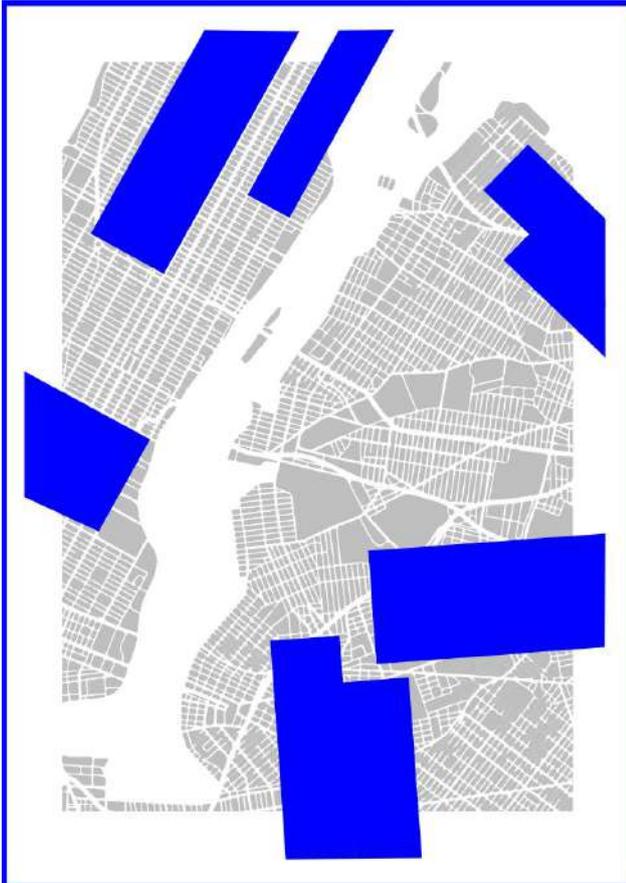
Fig. 3

marked by man-technology interaction. As Ulrich Krohs points out «the structure of society will be influenced by the design of the machines used by its members and by the design of the socio-technical systems that are embedded in it». (2008, pag. 235)

3. The consequences of the city as a socio-technical system

The result of the first aspect, that is, being a closed and strictly constrained space, is that in this kind of city time goes by in an unchanging environment: according to Armando and Durbiano (2019), this feature is at the heart of a planning which, in order to solve the matter of adaptation to the same environment, aims to the optimization of the existing and not to any potential change. In the case of a city this environment must then be artificially preserved unchanged, since the city is affected by contingency and transformations through the passage of time (Cornoldi 2005).

To understand the outcome of the second aspect, that is, how the interaction between man and technology sets the rhythm and behavior of people, it is needed to introduce the IT infrastructure at the heart of the smart city, that is data collection and analysis systems. Here, different kinds of sensors and other data collectors such as smartphones, become a measuring tool to control and learn about urban space, for example, «location-aware sensors in urban transportation networks are generating a wide variety of data which has spatio-temporal network semantics. Examples include temporally detailed roadmaps, GPS tracks, traffic signal timings, and vehicle measurements» (Venkata & Shashi 2017, p.127), which are then used to plan the urban space.

4. Artificial Intelligence and temporality

Artificial intelligence, as a tool of automated analysis and synthesis of the data collected from the sensors described above, is the key factor of temporality: its main feature is to make predictions to plan decisions and lead to behavioral choices likely to be the most suitable for specific goals (Pentland 2019). Therefore, in some way, it aims at manipulating time for planning purposes. Artificial intelligence learning technologies are based on the possibility for the machine to be able to identify patterns within data sets. This ability is used as a prediction tool; this means that when the machine identifies some pattern between data, it is then able to predict the chance that certain events will occur under the same conditions – that is patterns - they had already occurred in the past (Mackenzie 2015). One of these learning models, widely used for example by the recommendation systems for browsing in the web is that of *filtering* (SongJie 2010): starting from the profile of a user and analyzing a number of indicators such as his choices, location and preferences, it will direct the user to a new web content, which other users with a similar profile have already enjoyed. Filtering is, therefore, a prediction system - it is likely that this user will find this content interesting – able to lead to some behaviors and influence farther choices. The recommendations proposed, however, will inevitably converge towards a closed set of contents: after having ordered some architecture books on Amazon we will begin to see among the recommended books only other architecture texts and so on. In this way, the filtering operates a selection that is at the same time a block

to novel contents and serendipitous discovery, to the exposure to opinions different from one's own and therefore to the dialectical possibility of any transformation.

5. A behavioral geography

Now let's imagine this same mechanism on an urban scale. To do this it is directly reported what Foursquare, one of the most active companies in the field of location-based data, says about itself and its objectives. The following extracts have been taken from an article published on the Medium.com portal on March 1st, 2017 by Steven Rosenbaltt (https://medium.com/foursquare-direct/unlocking-the-power-of-place-for-marketers-and-developers-introducing-pilgrim-sdk-by-foursquare-ee879c502088) to promote a new feature for sharing with third-party companies the data collected by the proprietary technology of Foursquare – Pilgrim - which turns the smartphone where the Foursquare application is installed into location-based tools. «Pilgrim recognizes when a person has stepped into a pizza joint, so Foursquare City Guide can send a tip about the best pie to order — before they've even picked up a menu». It is recognizable here the reference to the power of the application to influence and manipulate time, it is clearly stated that they will know when and before: «Foursquare also uses this technology to understand societal shifts and trends on an anonymized and aggregate level. We know when Americans start craving Filipino food and how store closures impact Americans' shopping habits» and that it will act at the right time «…so that brands and marketers will be armed with the ability to send messages to their users at the right time and right place… This all improves the customer journey, too, as consumers continue to expect smarter and more relevant brand experiences, always». It is also worth reading the way these companies ask their potential customers to imagine the scenario of the city in the near future, basically something that can be broken down into commodifiable segments of space and time: «Imagine these scenarios: a traveler walks out of a hotel lobby, ready to explore a new city, so the hotel's app pings them with suggestions of places they'll love nearby (the closest yoga studio for the yogi, the local brewery for the beer-lover). A coffee chain can alert nearby loyal customers about a free latte promotion; a department store might ping its app users when they

enter the store about items on-trend and on-sale; a mobile game might change based on where you play it; or a photo app can remind you to capture a photo when you're at a popular scenic view at sunset. This is just the beginning of what's possible when the magic of Foursquare location intelligence technology is built into other great consumer apps».

Whoever enjoys this service contributes to a behavioral geography arising from data, not only outlined by Foursquare but also by Booking, Facebook, TripAdvisor and so on, where a place that visitors have seen many times and have appreciated is recommended - with a ranking of priority - on the smartphone, nowadays the main orientation tool in the urban environment. In the same way, other private and public I.T. systems aim at optimizing various urban subsystems such as traffic, electricity and pollution management, but «smart city technologies do not just mean more efficient ways of delivering municipal services. Rather, these digital tools and the new resources of data they have generated the power to profoundly alter the way cities look and function» (Lorinc 2018, page 8). Let's see how.

People are increasingly tested by the socio-technical system they interact with and end up becoming a source of information for those devices that will make use of this information to shape behaviors in such an ongoing feedback loop. According to Flusser (1985/2011) every apparatus has a program that affects the behavior of the society as if it were part of a feedback loop mechanism; in the case of the permanent monitoring system that surrounds the city, this feedback loop has to do with temporality «as discussed earlier, the velocity of Big Data greatly exceeds that of traditional survey research. As such it theoretically provides greater opportunities for the real time monitoring of social, economic and environmental processes» (Johnson & Smith 2017, page 117).

6. The filter bubble

The set of sensors open up a dimension of experience, on a temporal and spatial scale, inaccessible to human sensitivity (Hansen 2015), which is used for the management and manipulation of the present by means of predictions, a logic close to the filtering algorithms described above, and which aims at optimizing the existing environment the way it has been measured and recorded via data.

However, the filtering algorithms have been severely criticized (Rouvroy 2013): if behaviors are anticipated by the suggestions received, which are based on past habits and their correlation to similar habits, people will interact in an environment that will become more and more tailored to them, but this customization will lead to a subsequent profiling that will only further bend the possibilities in the same direction of an adaptive optimization. Recalling what was previously written on the factory, this is indefinitely possible only in a closed space, away from the contingent and the unexpected. Ideally, perfect optimization would be possible only in a condition in which time has stopped, that is where the real-time measurement of events coincides with their anticipation, where the environment is forever unchanged and makes a complete forecast possible and accurate. In this representation, it is therefore argued that by temporality manipulation this apparatus aims to isolation and environmental immobility.

After all, the loop described above is a form of this condition; indeed, it has been defined *Filter Bubble* (Pariser 2012), a filter that only ends up seeping through what someone already knows while taking out what is different or unexpected, that is any kind change whatsoever. What would it mean for the city to lay in the bubble? Also, what would it mean for the urban environment to be planned only through this filter?

7. Desire, memory and imagination

From the perspective purely related to design[6], that underpins this article, the urban environment has been as the result of a «collective process, slow and detectable in a long term» comparable to the language (Rossi 1968, p.11, own trans.). Therefore, a complex and stratified aggregation of historical deposits characterized by an endlessly change, abandon and reconstruction, an overlapping of temporal waves with different frequencies that represent the collective memory, which plays

together with imagination a key role in the project of the city (Gregotti 1966). This relationship between memory and imagination has to be at the heart of projects aiming at changing the space where people live, which is unsafe in the case scenario supposed above.

If environmental transformations are regulated by the filter bubble what does the imagination become? Can optimization be a fertile source of imagination? Even in the case of the now famous Deep Dream software, the machine only reproduces images generated reiterating the same pattern recognition loop rather than creating something new (Mordvinstev & al. 2015). According to Gregotti, the creative aspect starts with perception and memory to achieve something that does not yet exist: «this practice is the search for a new order, a new possibility, a new experience» (1966, p. 27, own trans.).

Memory, as repository of time, becomes imagination through a process of re-elaboration, contextualization and new interpretation of the mnestic material: when we remember we modify our memories, superimposing new data and new meanings, which thus become the substratum of our identity as a continuous and endless project of ourselves. Imagination that memory nourishes looks like that sense of possibility of which Robert Musil wrote: «Whoever has it does not say, for instance: Here this or that has happened, will happen, must happen; but he invents: Here this or that might, could, or ought to happen. If he is told that something is the way it is, he will think: Well, it could probably just as well be otherwise. So, the sense of possibility could be defined outright as the ability to conceive of everything there might be just as well, and to attach no more importance to what is than to what is not» (1930/1996, pages 13-14, own trans.).

Therein also lies the difference between desire as a dispositif (Agamben 2006) - we are made to desire something, as it happens with marketing tips we receive through filtering - or desire as an innovative force that breaks things the way they are. Gaston

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[6] A key point we have not examined here is that linked to the evolution of contemporary power practices. As Salvatore Iaconesi argues «These elements – bubbles, algorithmic governance of information and information spectacularization -, thus, may bear the possibility that individuals progressively inhabit a controlled infosphere, in which a limited number of subject is able to determine what is accessible, usable and, most important of all, knowable. This power asymmetry also implies

the fact that users can systematically be unknowingly exposed to experiments intended to influence their sphere of perception to drive them to adopt certain behaviors over other ones» (2017, p. 4). See also the projects on *data commons* like decodeproject https://decodeproject.eu/ that deal with ownership and data availability, control and privacy.

Bachelard in an essay on the relationship between space and imagination (1958) deals with the so-called *desire lines* (*les chemins du désir*) or desire path, the footprints on the grass witnessing the passage of people who choose to cross a space in an alternative way with respect to the planned route: a challenge for the established order, the expression of a yearning, the trace of a sense of possibility rather than a sense of reality. These signs are comparable to a change in behavior, which over time becomes stratified in the urban space, an urban space turning into the remembrance of the desires that have contributed to shaping it, remembrances that are here interpreted as the possibilities of different futures.

The representation that has been presented is intentionally partial: its purpose is to encourage reflection. Society cannot be fully a socio-technical system (Krohs 2008), and the purpose of data analysis algorithms is not only filtering nor their effect on a systemic scale is predictable, but how Krohs wrote "designing [...] an artifact co-designs society, but does not necessarily end up with the intended result" (241). Therefore, it has been only imagined a risk scenario where the outcome leads to a negative utopia to push for different approaches and stimulate designers' imagination. This proposal does not keep out technology since it is unrealistic to think that technology can be abandoned or break the business and development models that it promotes.

8. Remembrance Archives

Instead, designers ought to consider this aspect, bringing the memory to the heart of the project (Zannoni 2018) precisely to use it in an alternative sense to that of mere efficiency. One of these alternatives, which we investigate from a speculative point of view (Dunne & Raby 2013), is *Remembrance Archive*. Partly inspired by the Time Machine project (Kaplan 2015), based on an impressive digitalization of the city's historical heritage, the idea at the heart of Remembrance Archive is to make the past an agent that hack the filter bubble of eternal present described, through data obtained from different timelines representing the history of the city, as if they were memories that the city itself recalls and

that break the real-time loop. This brings with it the possibility that from these deep timelines emerges that sense of possibility of which Musil speaks as an alternative to reality. Not *a* past, but *the many* different pasts stratified in the urban space become a resource to shape the future[7]. Managing today's mobility mixing the real-time data with data about the habits of inhabitants from the past century of the city could, speculative speaking, enhance serendipitous discoveries of alternative perspectives of the city's topology, an so on.

In the television series Westworld (2016) produced by HBO and drawn from the homonymous film by Michael Crichton (1973), robots are designed to entertain visitors in a theme park. They always do the same things in a constant loop: every time they die, often with violence, the remembrance of what happened is erased and they are reprogrammed to restart doing the same things. The first robot that will not follow commands is the one that, perhaps due to a programmers' mistake, will keep in of its repetitive life cycles the remembrance of one of the previous cycles: memory thus becomes the first principle of identity and identity becomes the principle to claim the freedom to make their own choices. In the same way, this principle can be applied to Remembrance Archives: memories of the past melt with today's memories, remembrance of a multi-voice identity that alter the output of computational analysis and artificial intelligence predictions, surfacing in the instructions of a behavioral regulation eventually messed up and open again to imagination and different possible futures.

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[7] See also the Time Machine Project manifesto "Big Data of the Past" (https://documents.icar-us.eu/.../05/time-machine-manifesto.pdf)

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ON BUILDING SITE IN EARLY MODERN FERRARA. URBAN TRANSFORMATION OF THE DUCAL CITY IN THE SECOND HALF OF XVITH CENTURY THROUGH TWO ARCHIVAL SOURCES ABOUT HUMAN BEHAVIOUR, ECONOMICAL ASPECTS AND CONSTRUCTION PROCESS IN ARCHITECTURAL PRODUCTION

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Abstract

Two unpublished archival sources from Estense Archive gives us some interesting elements about the building site practice in Ferrara in second half of XVIth century. The first source is a letter written in 1560 by a ducal officer at the head of *Munizione e Fabbriche*, the office that controlled all the building activities in the city, to the Duke Alfonso II d'Este. It's a supplicatory letter that Alfonso dal Corno wrote to justify the orders given to craftsmen on building sites. It's a very important information source, because it explains us a particular building site process and gives us a lot of information about practical building techniques. The second one, is a building regulation written in 1572 about the Ducal Officer behaviour on building site and about practical organization and economical management of building activity in the city. These sources gives us a clear portrait of design practices in relation to city transformation, in particular about specific aspects and roles:
- human behaviour: the relationship between patron and architect, between architect and craftsmen;
- economical aspects: purchase, provision and management of construction materials and manpower;
- construction processes: application, trasformation and innovation of building technique and its relation with practical treatises of the time.
These elements can confirm the existence of a strong design culture that has drastically influenced the transformation of the city of Ferrara in XVIth century and beyond.

1. Introduction

In XVIth century, Este court was a huge and sophisticated organizational structure and not only a creative and dynamic place for artists and scholars. Guerzoni's prosopographic studies (Guerzoni, 2000) help us to understand the administrative framework and its uninterrupted evolution for increasing offices logistic and economic efficiency. Regarding ducal architectural production the related office was *Munizioni e Fabbriche*[1] that administrated building process from material provision to building site execution[2]. Despite contemporary studies (I'm mentioning only a few: Franceschini, 1993, 1995, 1997; Tuohy, 1996; Marchesi, 2011, 2015) have widely clarified the leading role of this office in construction site management, from Castello vecchio to Castelnuovo, from city walls to suburban residential places also called *Delizie* up to Erculean Addition palaces, is not yet clear if and how much this administrative department influenced technical aspects about craftmen work, practical execution and architectural solution choices. Who decided how to build? Who was construction site manager? It was Munizioni e

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[1] *Munizioni e Fabbriche* Office was created in 1465 by Borso d'Este (Marquis of Ferrara, Modena e Reggio from 1450 to 1471 and first Duke of Ferrara, Modena e Reggio from 1471) starting from a merger between other small offices related to building sites and building maintenance in the city, building sites and building maintenance outside the city, shipyard and ship maintenance.

[2] Office employees controlled many bulding sites open inside and outside the city, they controlled repository material provisions (timber for construction, ironware, gunpowder, etc), they managed building activities and supervised kilns activities in relation to brick and lime production.

Fabbriche Supervisor or Architect? Which of the two was more taken into account by the Duke?

These two archival documents from Estense Archive in Modena (for the transcriptions see pharagraphs 5.1 and 5.2), gives us a little help to understand human relationships and economical and tecnical aspects inside this particular scenario: Este patron's building production in the second half of XVIth century. The first one[3] is a supplicatory letter from Alfonso Dal Corno[4] (Munizione e Fabbriche Supervisor) to Duke Alfonso II[5] wrote on July, the 18th, 1560; the second one[6] is a proposal for a regulation about Munizione e Fabbriche Office wrote on March, the 4th, 1572 by Fattore Generale Guido Coccapani[7] to Alfonso Dal Corno.

2. On building site: some informations about "colare la calcina", a problematic building technique

The first one it's a supplicatory letter (Figure 1) that Alfonso dal Corno wrote to Alfonso II d'Este to justify the orders given to craftsmen on building sites; its purpose was not to describe a technique but to hold his position at work[8]. Through his words we can collect a lot of information about a practical building technique called *colare la calcina*, that has never been found, as far as I know, in other documents related to building tradition in Ferrara. It's a very important information source, because it explains us a particular building site process.

Colare la calcina it can be translated with the definition "to filter the lime": this process causes an outflow of the liquid part of lime from a granular substance, thus separating the good quality lime from the crushed stone that didn't cook well. This

process has must be done in two tanks digged into the ground on two different levels (Figures 2, 3). A grill separates the two tanks allowing the liquid material to flow from the upper tank to the bottom tank. This process is more difficult than the simpler slaking, because slaking consists in mixing limestone and water in a simple tank with no discard (Figure 4).

Let's return to the letter to analyze what Alfonso dal Corno wrote to justify his behaviour and also to collect more information about this procedure. The letter sais that Alfonso ordered his craftmen to slake the lime despite the architect's order to filter the lime, because in any type of building, polite and vernacular no one filters the lime[9], this tecnique is not custom inFerrara[10] and because this technique is more expensive than the other because it needs more craftsmen and more time[11].

In the letter appears also the name of the first architect of the Duke: Galasso Aghisi[12]. It's Galasso that reveals Alfonso dal Corno's fraudulent behaviour to the Duke. Galasso Alghisi confirmed his opinion also in his treatise on fortification[13]. In his third book he wrote that the filtered lime obtained by the correct practice is better, more resistant and ideal for brickwall constructions, plasters and wall-finishes. He also specified that from this correct practice we can obtain a smaller quantity of lime but of a very good quality[14].

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[3] Archivio di Stato di Modena, Camera Ducale Estense, Fabbriche e villeggiature, 1, 1560, carte sciolte, 18 luglio 1560. See Annex 1.

[4] Messere Giovanni Alfonso dal Corno "Superiore alla Munizione": employee of Ercole II d'Este from 1555 to 1559, and employee of Alfonso II d'Este from 1560 to 1578 for a total of 24 years in Este court (Guerzoni 2000).

[5] Alfonso II d'Este Duke of Ferrara, Modena e Reggio dal 1559 al 1597.

[6] Archivio di Stato di Modena, Camera Ducale Estense, Fabbriche e villeggiature, 1, 1572, carte sciolte, 4 marzo 1572. See Annex 2.

[7] Magnifico Illustrissimo Signore Guido Coccapani, "Fattore Generale": employee of Alfonso II d'Este from 1567 to 1592 for a total of 26 years and after "Cameriere segreto" for Cesare d'Este from 1609 to 1627 for a total of 19 years. Guido Coccapani was Earl since 1611 (Guerzoni 2000).

[8] Some observations about this letter are in Ceccarelli 1999.

[9] "et in hogni sorta di lavori et più nobili et ignobili e tutti fano le lor fabriche senza colare la calcina". See Annex 1 (1r).

[10] "non si costuma in Ferrara". See Annex 1 (1r).

[11] "si fa maggior spesa per colarla per volervi maggior suma di homini che si vole a impastarla et il tempo molto piu si alunga". See Annex 1 (1r).

[12] Galasso Alghisi da Carpi (c.1523-1573), ducal architect for Ercole II d'Este amd after for Alfonso II, was a leading figure in the XVIth century in Ferrara. He was ducal architect from 1558 until his death, in 1573. Before his career in Ferrara he worked in Loreto, Macerata and especially in Rome for pope Paolo III, in Farnese palace building site and in city walls building site in Borgo district. For Giorgio Vasari, Galasso was a qualified architect:"uomo di bellissimo ingegno, e di tanto giudizio nelle cose di architettura, che per quanto si vede nell'ordine de' suoi disegni, avrebbe mostro, più che non ha, il suo valore, se in cose grandi fosse stato adoperato" (Ceccarelli 1999).

[13] *Delle Fortificazioni di M. Galasso Alghisi da Carpi Architetto dell'Eccellentissimo Signor Duca di Ferrara Libri Tre*, MDLXX.

[14] "E tal forte di calce sarà purgata, di modo che sarà migliore di ogni altra per murare, per smaltare, ò intonicare, et meno crepparà; percioche piglia vigore, e nervo in modo che ad ogni cosa sarà de l'altra piu perfetta, e buona: et men quantità ne porterà la fabrica il doppio, et quello che piu importa la farà perfettissima: percioche meglio si stende, et fa presa mirabile, l'opera riesce piu vaga, et polita, et con

One of the building-site described in this letter is that for the foundation structure of Loggia di Piazza: in Dal Corno opinion, the controversial choice to filter the lime had caused some debates[15]. This case it's probably the known Loggia di Corte building site: the new ducal palace designed by Galasso Alghisi, where, realistically, the architect applied the tecnique to filter the lime, that he will positively describe in his treatise few years later. Cronology of events can confirm this supposition: according to Ceccarelli (1999), "this building site started with a huge expenditure in the spring of 1559 and it stopped few months later for unknown reasons" and Alfonso dalCorno write in July of 1560 and he refers to event in the past.

Duke reply to the letter, if there has ever been, has yet to be discovered and we don't know to whom the Duke gave more attention; moreover we don't have other sources that can help us to know which tecnique has spread in ferrarese building tradition.

But, through the different opinions of the ducal officier and the architect we can understand the gap between practice and theory: on one hand, the ducal officier chooses the cheaper solution that is more convenient for the Duke, in terms of money and building site direction, on the other hand the architect chooses the best solution in terms of building quality.

3. *On building site: increasing performance through regulation*

The other archival document is a proposal of a regulation of Munizione e Fabbriche department. It has been sent by the Duke through his Fattore generale[16] to Munizioni e Fabbriche Supervisor (Figure 5). This attempt wasn't the first one: just ten years after its establishment there was the first attempt of regulation[17], wrote in 1475 with the aim to cut down building material robbery and craftsmen cheating. Through 17 paragraphs we can get many information about building site functioning in Ferrara in the second half of XVIth century, especially on economic aspects, human behaviour, technical culture. Between the lines come out some particular themes as:

- o Supervisor's technical role: he must control the correct use of construction material and the right behaviour of craftsmen in building-site area;
- o Craftsmen's different role in relation with their employment contract tipologies;
- o Fattori Generali's decision-making roles: they decide all the economic aspects in building production; what and when to buy, how much to pay about workers and materials.

As regards Munizione e Fabbriche Supervisor, assigned tasks were: wharehouse materials inventory, reused and recycled materials inventory (materials from demolitions)[18], building site activities supervision by daily inspections in all workplaces in the city[19], monitoring activities on craftsmen's work and materials storage and preservation[20]. As regards craftsmen work, this supervision activity, which must be carried out without warning, had two different effects: it stimulated speed for workers paid with a contract time basis[21] (lavoro a opera) and it stimulated precision for workers paid with a piece-work contract[22] (lavoro a somma)[23]. As regards materials,

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men fatica, e tempo si mette in opera. La calce colata resta poi egualmente purgata, e netta da ogni trista materia, di maniera che come è detti fa la fabrica bella, polita, vaga e buona, per che riescono le mura incredibilmente forti, come ne ho fatto assai". G. Alghisi, *Delle Fortificazioni*, book III, chapter VIII, p. 346.

[15] "Si manifestarno nel fare li fondam[en]ti / d[el]la loggia di piazza che per colare quelle calcine sè butato via / una grossa suma di calcina la quale è stata longo tempo / drio il muro d[el]la fossa. Cosa che dava da dire a tutti quelli / che passavano da ivi et si dolevano che si comportase sitanto danno". See Annex 1 (1r).

[16] The Fattore generale was the most important position inside administrative structure of Este Court: his action field was practically unlimited because every economical aspect of the Court was controlled by him. It was the "Duke alter-ego". See Guerzoni 2000.

[17] Archivio di Stato di Modena, Camera Ducale Estense, Fabbriche e villeggiature, 1, 1475, carte sciolte. Published in Zevi 1960, 559-560.

[18] "Che'l superior sia tenuto di fare fare inventario di tutti i legnami et ferramenti / che usciranno di ciascuna demolitione che si facesse di fabrica". See Annex 2 (3r).

[19] "Che'l superiore sia tenuto ogni dì almeno una volta [...] / vedere le fabriche che si faranno ne la città et quelle di fuori almeno due volte la / settimana". See Annex 2 (2r).

[20] "Che'l superiore habbia d'havere mira et intelligenza continua perchè la materia sia / prepparata et disposta come conviene, nè sia robbata di sù i luoghi ove si lavora / et convertita in uso altrui". See Annex 2 (2v).

[21] "Lavoro a opera" was a contract time basis. It was equivalent to a work day, regardless of work quantity.

[22] "Lavoro a somma" was as a piece-work. A piece work is any type of employment in which a worker is paid a fixed piece rate for each unit produced or action performed regardless of time.

craftsmen could not provide at materials withdrawal and transport and they had to stay in building site area to wait provisions[24]; supervisor had to keep watch on materials and on timber frameworks pieces that must to be return in wharehouse after use[25], furthermore he had to gauged and assessed bricks and stones from demolition sites[26].

While technical aspects has been entrusted to office supervisor, all economical aspects were related to fattore generale: he decided office purchases, prices, wages, and he controlled, through accounting records compiled by supervisor, materials quantities. In this proposal of regulation we can read a lot of paragraphs related to economic management, clearly prevailing over those related to architectural and technical items. This role was often dominating the supervisor one. Supervisor was obliged to submit at Fattore generale any technical choise related to building sites, workers, materials for strictly economical evaluations. According to fact, technical aspects and architectural choices were strongly influenced by economical reasons.

4. Conclusions

The two archival sources enucleate in this paper give us a scenario strictly connected to economical concerns: we're talking about one of the most prestigious and significant context for architectural culture in XVIth century and yet we can't finding in these documents a respectful portrait of an architect. This role seems completely excluded from any activities in building production.

For this reason is really interesting to make a comparison between this proposal of regulation and the similar one wrote in 1472: if in the most recent, we don't have any information about a technical figure as an architect or an engineer, in the ancient one, these roles are in the middle of the organization structure about building process. The "inzignero di corte" (court engineer, later called architect) managed all technical aspects of building site process, toghether with office supervisor: he visited building site daily[27], he gave directions to supervisor about materials to purchase, he controlled provisions in building sites and related use[28]; he authorized supervisor for assignment of the works to craftsmen[29], he measured and evaluated reuse materials[30]. He worked, toghether with supervisor in a special room, and not in the wharehouse or in different place[31].

So, in the first proposal we can read a significant attention toward architect technical and professional skills, in the second one this role undergoes a deep resizing and we can clearly perceive the importance of economical aspects and of roles more nearly to the court structure. These sources gives us an interesting portrait of design practices in relation to city transformation about human behaviour, economical aspects and construction processes and we can read it as a tangible confirmation of the economic saving strategy implemented by Este court in the second half of XVIth century. In a broader scenario these sources are a typical evidence of the deep change in architectural processes and technical innovation occurred in the last XVIth century: application, trasformation and innovation of building technique were oriented towards a production strategy based on velocity and quantity instead reinassance vision, based on the high fine quality and on a slow process production.

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[23] "Acciò che lavorandosi ad opere i mastri habbiano da solecitarsi, et ad usar diligenza / di condurre i lavorieri perfettamente se gli faranno à summa, potendo essi dubi / tare di essere soprapresi da lui allo improviso". See Annex 2 (2r).

[24] "Che'l superiore no permetti che alc[un]o deli maestri loro operarij ne garzoni possano / andare da mercanti a trare legnami, ferramenti, nè altra materia c'habbia / ad essere posta in opera da loro, ma vi faccia provedere dele cose necessarie / gli uffitiali dela monit[io]ne i quali habbiano da fare portar su i luoghi ove biso / gnerà le dette provisioni". See Annex 2 (2r).

[25] "Che le asse et altri legnami occorenti all'armature / siano ripportati finiti le fabriche alle monit[io]ni per potersene servire in altro ser[vi]tio". See Annex 2 (2v).

[26] "Che'l superiore habbia da intravenir alli assaggi delle muraglie et marmi per fare / notta dele misure per marmi p[redet]ti et prezzi loro". See Annex 2 (2v).

[27] "Prima fare che lo inzegniero nostro continuamente cavalcasse a li logi nostri dentro e de fuora e per tuti li nostri paixi e logi dove nui femo fabricare". See Annex 3.

[28] "El dicto inzegnero nostro habia ad andare a quelli logi et intendere e vedere se sono benfacti et se le robe che g'eno sta' mandate". See Annex 3.

[29] "Volemo che esso offitiale non possa mettere tale opere senza lizentia de lo inzegnero nostro". See Annex 3.

[30] "Volemo che le siano amexurade e assazade e estimade e per li pretii che serano estimate con li dicti maistri e inzegnero e offitiale". See Annex 3.

[31] "uno logo lì abille e bono per lui e per lo inzegnero nostro a tegnire li conti nostri". See Annex 3.

5. Archival Sources

5.1 Annex 1

Lettera dal Superiore della Munizione Alfonso Dal Corno al Duca Alfonso II d'Este, 18 luglio 1560.

(Archivio di Stato di Modena, Camera Ducale Estense, Fabbriche e villeggiature, 1, 1560, carte sciolte, 18 luglio 1560)

1560. Il sup[erio]re della Monitione 18 di Luglio

Allo Ill[ustrissi]mo Et Ex[cellentissi]mo S[igno]r Il S[igno]r Duca / di Ferrara S[igno]r et patro mio sing[ularissi]mo / a Belriguardo
(1r)

Ill[ustrissi]mo et Ex[cellentissi]mo S[igno]r Duca S[igno]r et patro mio singular[issi]mo / Il S[igno]r Lucio Sacretario di V[ostra] Ex[cellentissim]a mi fece commisio[ne] per parte della Ex[cellenti]a V[ostr]a che io / dovesse dare tutte le cose che bisognavano per colare le calcine a m[e]s[sere] Galasso / aciò si potesse far fare co[n] più prestecia la fabricha, alla qual comissio[ne] / senza alcuna resistenzia io feci dar modo da fare et esseguire lo / intento suo. Di puoi mè perve[nu]to ale horechie che esso m[e]s[sere] Galasso sè doluto / co[n] V[ostr]a Ex[cellenti]a di me che no[n] voglio che si facia colare le calcine e di qui / ò pensato che sia nata questa comissio[ne]. Però Ill[ustrissi]mo et Ex[cellentissi]mo S[igno]r Duca mè / parso co[n] la p[re]s[en]te fare assapere a V[ostr]a Ex[cellenti]a la verità perchè io mi so[no] mosso / per no[n] volere che si colassero le calcine. Io vegio Ill[ustrissi]mo S[igno]r tutta la città / di V[ostr]a Ex[cellenti]a che no[n] cessa mai di fabricare da hogni tempo de l'anno / et in hogni sorta di lavori e fra nobili et i gnobili e tutti fanno / le lor fabriche senza colare la calcina. Ne si vede la fabricha d[el]le / mura d[el]la cittade tutte essere fatte senza colare la calcina / e il cast[el]lo vechio e il novo e brevemente tutto ciò che si vede de / fatto o si fanno hoggi di esser senza questa spesa e manifattura / di colar calcina. Mi si pol credere che per altro no[n] si costuma / i[n] Ferrara se no[n] perchè il colarla e co[n] danno di [...] d[el]le fabriche / et che siano la verità le mi[e] parole. Si manifestarno nel fare li fondam[en]ti / d[el]la loggia di piazza che per colare quelle calcine sè butato via / una grossa suma di calcina la quale è stata longo tempo / drio il muro d[el]la fossa. Cosa che dava da dire a tutti quelli / che passavano da ivi et si dolevano che si comportase sitanto danno / e perchè al p[re]s[en]te questo no[n] advenisse mi era

parso di vedere che no[n]si / si colassero queste calcine perchè no[n] solo sincorre nel danno da / calcina ma si fa maggior spesa per colarla per volervi maggior / suma di homini che vi vole a impastarla et il tempo molto / piu si alunga perchè quello che si faria i[n] otto giorni no[n] si farà / i[n] dodici co[n] il colarla. E aciòchè le mie parole no[n] siano / colte che da qualche passio[ne] o i [n]vidia o malivolentia / si volta //
(1v)

Si movano. V[ostr]a Ex[cellentissim]a si degnarà per sua i[n]nata bontà di intendere da / homini periti di carte se le mi parole ò detto per l'utile di V[ostr]a Ex[cellenti]a / o[p]pure per malignitade et odio che io porti ad altrui. Essè io dicho / la veritade ben prego e supplico a V[ostra] Ex[cellentissim]a che la ac[c]etti per verità a / utile suo. Essè altrimenti sia procederà che credendomi di / giovare a V[ostr]a Ex[cellenti]a li darò danno per più no[n] sapere e no[n] per / malicia alcuna nè per passio[ne] alcuna / E quale Ex[cellentissi]mo S[igno]r maggior passio[ne] che io debbia avere di questa / che per il vedermi essere agravato d[e]l caricho d[el]la municio Duc[al]e / e bisognarmi sotto scrivermi a hogni sorta di spese et di robbe / comprate et essere fatti li libri d[el]la municio a nome mio / et essere obbligato apresso dio et a V[ostra] Ex[cellenti]a di render conto per / il goberno d[el]la municio et no[n] la lassar correre alcuna / spesa che li sia dan[n]osa e qua[n]do io no[n] li possa perdere / al ma[n]cho farlo assapere a V[ostra] Ex[cellenti]a et di puoi si facia qua[n]to / a quella pare. E chi serà quello che coraggio mi voglia reprendere / se io no[n] voglio che si facia alcuna sorta di spesa senza mia / saputa essendone obbligato come [h]o sopra detto et che prima / siano statte ordinate dalla Ex[cellenti]a V[ostr]a però Ill[ustrissi]mo et Ex[cellentissi]mo S[igno]r / io prego et supplico V[ostr]a Ex[cellenti]a che venga per certo che hogni mio / pensiero è tutto rivolto al servizio alla satisfaccio[ne] al utile di / V[ostr]a Ill[ustrissi]ma S[ignori]a alla quale co[n] le debbite rivere[n]tie basio lombra/ di suoi piedi. Di Ferrara Il di 18 lu[gl]io 1560 / Di V[ostr]a Ill[ustrissi]ma Ex[cellenti]a umile et devotto suo / Alfonso dal Corno //

5.2 Annex 2
Proposta di riforma dell'Ufficio della Munizione inviata dal Fattore Generale Guido Coccapani al Superiore della Munizione Alfonso dal Corno (?),4 marzo 1572.

(Archivio di Stato di Modena, Camera Ducale Estense, Fabbriche e villeggiature, 1, 1560, carte sciolte, 4 marzo 1572)
(1r)

Il S[ign]or Duca n[ost]ro S[igno]re mi comandò hieri che si dessero a v[ostra] s[ignoria] questi ordini / ch'ella ha posto sopra le moniti[o]ni de le fabriche, del castello, et deli / polveri e armarie, acciò che tolga ordini dà lei da rimettersi in / una[l]tra direttiva alla [...]fatt[or]e Gen[eral]e in comissione di farli / publicare et esseguire per li superiori et ufficiali di detta / monit[io]ne. Però si consenterà di parlarlene, et espedirla, perché / quanto più si sta torna ogni hora à maggiore suo danno, / conchè le bacio la mano, e me le racco[man]do in gra[ti]a. / Di Fattoria il dì IIII di Marzo del MDLXXII / Servitore di V. S. D[u]ca / Guido Coc(capani) //
(2r)

Ordine proppoposto per l'uffitio d[el]le monit[io]ni delle fab[rich]e, castello, di legnami e di guerra / Che'l superiore de la Monitione habbia di trare in consegna per inventario et [...] / [...] ogni quantità et qualità di robbe che sono al pr[esen]te in essere ne la monit[io]ne e / di quelli esservi tenuto a rendere conto partitamente / Che'l superiore non possa fare alc[un]a sorta di spesa per conto del uffitio suo senza espres / sa comissione di S. C. o suoi m[agnifi]ci Fattori Generali / Che'l superiore non possa accordare pretij di quali si voglia fabrica o lavoro nè / d'altra materia spettante a quella senza part[ecipatio]ne dei detti Fatt[o]ri, co[n] quali s'hab / bia da consultarsi intorno alle fatture che occo[r]rerà d'haversi a fare, se sarà meglio / o ad opera o à summa et secondo che sarà trovato più profittevoli a S.C. far / effettuar, havendosi sempre da convocar le principali maestranze, et dare le / fabriche a quei di loro che faranno migliori partiti / Che'l superiore no permetti che alc[un]o deli maestri loro operarij ne garzoni possano / andare da mercanti a trare legnami, ferramenti, nè altra materia c'habbia / ad essere posta in opera da loro, ma vi faccia provedere dele cose necessarie / gli uffitiali dela monit[io]ne i quali habbiano da fare portar su i luoghi ove biso / gnerà le dette provisioni / Che'l superiore sia tenuto ogni dì almeno una volta senza ordini fermo del quando / vedere le fabriche che si faranno ne la città et quelle di fuori almeno due volte la / settimana se non havrà giusto impedimento, del quale n'habbia d'avisar i p[redet]ti Fatt[o]ri / acciò che lavorandosi ad opere i mastri habbiano da solecitarsi, et ad usar diligenza /

di condurre i lavorieri perfettamente se gli faranno à summa, potendo essi dubi / tare di essere soprapresi da lui allo improviso, et faccia che quello uffitiale che / n'havrà carica le visiti spesse volte il dì, sì perchè la fabrica no[n] patisca d[el]le / cose necessarie, si perchè habbia ad essere uno sprone alle maestranze di solicitudine / per quelli che si fanno ad opere et per quelli che si fanno à summa di condurle fidelm[en]te //
(2v)

Che'l superiore habbia d'havere mira et intelligenza continua perchè la materia sia / prepparata et disposta come conviene, nè sia robbata di sù i luoghi ove si lavora / et convertita in uso altrui et che le asse et altri legnami occorenti all'armature / siano ripportati finiti le fabriche alle monit[io]ni per potersene servire in altro ser[vi]tio / di S.C. usando in questi casi fedele diligenza / Che'l superiore sia tenuto a tenere conto sepparato di ciasc[un]a fabrica che si faccia et / nottare la spesa sepparata su i man[da]ti che si faranno da pagare di settimana in / settimana, et quelli fare registrare come si fa hora, suso un libbro / Che alc[un]o dei suoi uff[icia]li non possa levar den[a]ri [...] che vanno alla Thisauraria per / pagarli alle opere o maestranze, ma quelli et questi segli vadano a pigliare / dal Thesauriero / Che'l superiore habbia da intravenir alli assaggi delle muraglie et marmi per fare / notta dele misure per marmi p[redet]ti et prezzi loro, et per ove sono comprati di volta / in volta / Che'l superior sia tenuto fare fare creditori i mercanti sempre chi avrà lignami / o ferramenti da loro colla notta particolare dela lunghezza et qualità de / legnami et per ove se ne vuole servir et similmente d'ogni sorti di ferram[en]ti / acciò che i p[redet]ti Fattori possano certificarsi di quello ch'è debito loro di fare / et poi nottarvi i pretij firmati, come è detto, di loro saputa, et sia tenuto / contrapporvi al credito loro i pagamenti che andrà facendo loro di volta in volta / per li m.ti che farà loro / Che'l superiore sia tenuto visitar o far visitar ogni di senza ordine ordinario le opere / che le monit[ion]i del castello, di legnami, et dell'armarie et polveri per veder se vi si / lavora con solicitudine, et se vi si fa altro che per ser[vi]tio di S.C. non volendo / ella che in alc[un]a di dette monit[io]ni si possa fare fare cosa alcuna per chi si voglio senza //
(3r)

espressa licenza di detti Fattori / Che gli uffitiali de le monit[io]ni di castello, polveri et armerie siano tenuti dare il / sabbato le liste de le opere predette

de la settimana al superior p[redett]o per porle nel m[astr]o / gior[na]le co[n] le altre spese, nè possano detti uffitiali porvi opere ne fare spesa alc[un]a / senza saputa di detti Fatt[or]i eccetto che per ordine del S[igno]r Cornelio o M[agnifi]co Castellano / per conto di polveri o simili cose da guerra carica loro il che però habbiano dà / fare sapere detti uff[itial]i a detti Fattori, acciò che parendo loro si possano chiarire / che sia vero o no, che ciò si faccia per loro comissione, et detti uff[itia]li siano tenuti / tenere conto de le liste de le opere et d'altre police de pagam[en]ti che diricciassero al / superiore, acciò che sia come uno scontro / Che'l superior habbia di trovarsi per tempo ogni matina, salvo giusto impedim[en]to / da esser fatto sapere a detti Fatt[or]i come è detto, al suo ufficio dela monit[io]ne perchè si / possa havere copia di lui, et andare da essi caso che si havessero bisogno / Che'l superior sia tenuto di fare fare inventario di tutti i legnami et ferramenti / che usciranno di ciascuna demolitione che si facesse di fabrica, et caricarsene con / darvi una lista di volta in volta alli Fatt[or]i predetti per farvi quello che serà debito / loro / Che'l superior sia tenuto fare notta particulare d'ogni rissolut[io]ne che si piglierà di / fabricar con nottar il dì dela deliberat[io]ne il modo et qualità di detta fabrica co[n] / lo scortinio dela spesa che v'anderà, acciò che S.C. et suoi Fatt[or]i p[redet]ti possano / essere certi che d'una fabrica che si farà per lui non se ne faccia sotto di quella /

per altri nè la materia destinata ad una fabrica vadi all'altra, et si faccia confussione / Che rissolvendo S.C. di fornirsi allo ingrosso di legnami et ferramenti il che sar / rebbe molto utile pel vantaggio che se ne havrebbe, il superior sen'habbia dà / caricar con specificat[io]ni del numero, lunghezza et grossezza di legnami, et sorti di / ferramenti per dovervi dare particolar conto et per ove seranno smaltiti //

(3v)

Che'l superiore ogni anno sia tenuto meter in cam[ar]a il conto del suo maneggio in quella / guisa che si potrà, acciò che si possa vedere come passano le cose di questo membro / havendo ad effettuare quello ordine esso et suoi uff[itia]li circa alla fatt[ori]a de così che / sarà loro dimostrato dal mastro del conto per la cam[ar]a duc[al]e sotto la carica del q[ua]le / detti Fattori deputeranno detto membro //

(4r)

Che'l superior possa ellegersi tre o più uffitiali / per sicurezza et attitudine del suo maneggio, i q[ua]li / S.C. faccia pagare con salario tra tutti di lir trentasei al mese, et / ad esso superior stia il tenirli or cacciarli de l'uffitio con far dar / loro quello castigo che porterà la giustizia se fallaranno nel ser[vi]tio / di S.C. et tutti et cacciati habbia da farvi consapevoli i p[redet]ti / Fattori //

5.3 Annex 3

Proposta di riforma dell'Ufficio della Munizione senza autore, senza data, 1475 c.

(Archivio di Stato di Modena, Camera Ducale Estense, Fabbriche e villeggiature, 1, carte sciolte)

From Zevi 1960

Al nome de Dio 1475.

In prima a ontare a queste magnarie a nui pareria fare como qui dessoto nui diremo, videlicet:

Prima fare che lo inzegniero nostro continuamente cavalcasse a li logi nostri dentro e de fuora e per tuti li nostri paixi e logi dove nui femo fabricare e che lui vedesse et intendesse quando li castaldi, capitanii e tavernari, passaduri e passi dimandano che l'è necesso fabricare, intendere li logi e per lui fare la discretione e previssione ordinatamente de cossa in cossa in cossa et a nui reddure in scritto acciò che nui intendiamo quello se vole fare e le necessitade de quelle e mandare a quelli logi le robe de che ne serano fate le previssione per uno nostro offitiale affidato et depurato a simile exercitio e a tegnire li conti ordinatamente de dì in dì et de logo in logo e le robe de ogni sorte, che lui mandarà a tali logi et a li officiali nostri de quelli logi, che habiano a respondere de dì in dì e de volta in volta, quelle robe ge mandarà dicto offitiale de comissione nostra et de lo inzegnero nostro a ciò se intenda se mancamento ge serà, se serano li nochieri o caraduri a chi consignarà dicte robe el dicto nostro offitiale o el mancamento del dicto offitiale o de chi serano tali mancamenti, acciò che nui possiamo ponire quelli che serano in tali mancamenti et mandate che serano dicte robe, siano mandati li maistri marangoni muradori e facti che siano tali lavori, el dicto inzegnero nostro habia ad andare a quelli logi et intendere e vedere se sono benfacti et se le robe che g'eno sta' mandate, se tute eno messe in opera a tali lavori, per intendere e cognoscere li mancamenti che eno a quelli talli

lavori e se le robe fosseno malemesse o tute o parte.

Item che se caxo fosse che avanzasseno robe, come sono asse, lignami, feramenta se debiano mandare a li altri nostri logi, dove bixognasse per fabricare o veramente lassarle a quelli logi e consignarle a quelli nostri officiali de qualli logi per eventario de man de dicto nostro inzegniero a provo de esso officiale de quello logo e cossì de man de esso offitial a provo de dicto nostro inzegnero

Item perché li nostri lavoreri dentro de la terra che nui habiamo nostro dovere de prede, calzina, cupi e altri lavoreri de fornaxa, che esso offitiale sia tenuto e obligato andare a le fornaxe a fare levare dicti lavori de fornaxa a li nochieri overo caraduri, per modo che li fornaxari non ne ingani né de calzina né de altri lavori a li logi et fabricato che sia, se debia vedere se dicte prede e calzina et altri lavori sono intrati in dicti lavori, perché se intenda se mancamento ge serà et de chi serà la colpa

Item che el dicto offitiale sia tenuto andare etiam con li maistri marangoni e muradori che lavorano a le nostre fabriche, a levare lignami e asse de ogni sorte e ferramente e altre cosse necesse, a mandare come dessopra ho dicto e tegnire li conti per ordine, per modo e via quando serano livri dicti lavori, se possano intendere se serano messe le robe in dicti lavoreri e se mancamenti ge serano e a chi se dirà dare la colpa

Al facto de la nostra monitione de provedere a li mancamenti che se ge fano in quella, volemo che tute le robe se trovano in dicta monitione zeneralmente de ogni sorte se ne habia a descrivere per man de uno de li nostri nodari de la Camara nostra, uno eventario et una copia a presso de esso offitiale et poy lui ne habia a tegnire bono e dilligente conto a dispensarlo segondo li lavoreri che accaderà e poi lo inzegnero nostro habia a intendere e vedere dilligentemente se dicte robe serano state tute messe in opera a li nostri lavori, a ciò se possa intendere se mancamenti ge serano et etiam per lo simile se habia a fare come dessopra è dicto, se robe nove avancesse a li lavori per nui ordinati, se debiano consignare a li offitiali deputadi a quelli logi, per eventario, come dessopra è dicto, et etiam mostrare la dispensa quando serano messe in opera

Item al facto de le opere manoale di fachini bastaxi e tale zente, volemo che esso offitiale non possa mettere tale opere senza lizentia de lo inzegnero nostro et anche volemo che esso inzegnero e offitiale dagino queste tale cosse, che se solevano dare a opera, li dagino a soma a li marangoni muradori sopra de loro in portare e fare portare via loro ogni monditia fora da li pallazi, per modo se possa cargare suxo li cari, cossì come loro hano a soma a rompere muri, ussi, fenestre e desfare coperti solari e reffare, habiano anche sopra de loro a fare netare e governare dicte stantie e pallazi, perché donde nui spendemo soldi X, nui non spenderemo soldi 5 de marchesani.

Item se se fesseno lavori non se aspettasseno né a muradori né a marangoni, volemo che se togli per dicto offitiale insieme con lo inzegnero homini et darge tali lavoreri a soma et non a opera et che esso officiale faci li suoi bolletini a li dicti che lavorarano a somma e che loro se vadino a scodere li suoi dinari et che dicto offitiale non li habia a piare, né ad impazarsene a la pena de ducati X d'oro, che vadi a la Camara nostra.

Item se accadesse che nui volessemo desfare lavoreri vechi, como eno caxe, sollari e altri lavori e reffarli, volemo se ge dagino a soma a tute soe spexe de dicti maistri e volemo che tali lavoreri vechi como è de cupi, lignami, asse, feramente e prede e altre robe se trovarano in dicti lavoreri che se desfarano, in dicti lavoreri volemo che le siano amexurade e assazade et estimade e per li pretii che serano estimate con li dicti maistri e inzegnero e offitiale, per quelli pretii che le serano estimate ge siano lassate a dicti maistri, perché loro ge harano custodia e dilligentia e cura, perché a nui n'erano malemesse et non ne cavavemo uno terzo de quello che le valevano.

Item volemo e intendemo che esso offitiale nostro da la monitione habia in la Camera nostra a lo offitio de factori nostri de le possessione, uno logo lì abille e bono per lui e per lo inzegnero nostro a tegnire li conti nostri, perché volemo che quello che se fa, se intenda pallam et non volemo che esso offitiale stagi a tegnire li conti lì a essa monitione, perché in quello logo, tuto el dì, se tegneva taverna in fare dexenari e zizate e cum fornaxari, marangoni, muradori, chioldarolli et altri artexani in forma che esso offitiale non facea se non quanto volevano dicti artexani et questo in nostro grande danno, però volemo che esso offitiale stagi dove stano li altri nostri offitiali a lo offitio de dicti factori nostri de le possessione, a ciò se intenda pallam quello che ogni hora e ogni dì se fa per dicto offitiale. Laus Deo et cetera.

Fig. 1: Letter from Alfonso Dal Corno to the Duke Alfonso II d'Este (title page). Archivio di Stato di Modena, Camera Ducale Estense, Fabbriche e villeggiature, 1, 1560, carte sciolte, 18 luglio 1560.
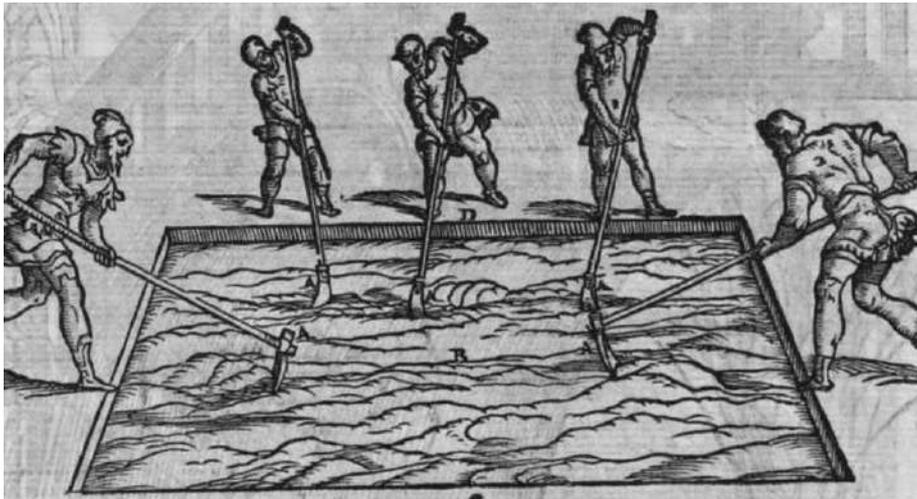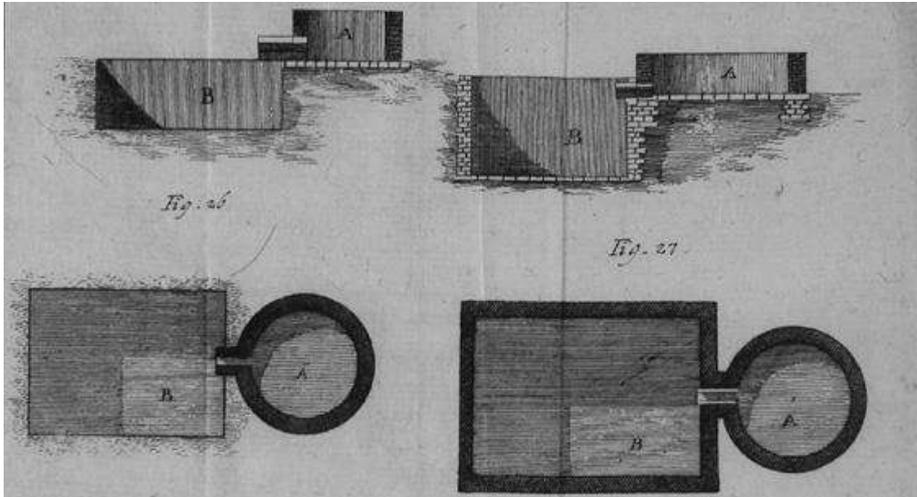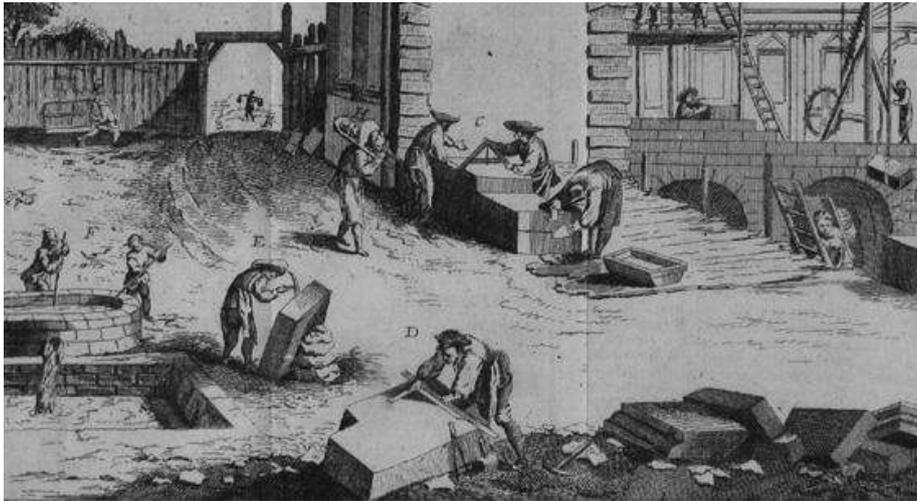
Fig. 2, 3 (above and in center): "Fosse per l'estinzione della calce" (Pits for lime putty production). Images from "Dizionario delle arti e dei mestieri" (Arts and Crafts Dictionary) di F. Griselini, Venezia 1755.
Fig. 4: "Figura del modo di macerar la calce", (Representation of slaked lime). Image from "Della Architettura di Giovan Antonio Rusconi ", Venezia 1590.

Fig. 5: Proposal for a regulation about Munizione e Fabbriche Office from Guiod Coccapani to Alfonso Dal Corno (title page). Archivio di Stato di Modena, Camera Ducale Estense, Fabbriche e villeggiature, 1, 1560, carte sciolte, 4 marzo 1572.

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CITIES: SETTINGS FOR DEMOCRACY.
From Tigre (Argentina) to Turin (Italy) context. An action-oriented working methodology.

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Abstract

The work focuses on the concept of the city as an organism most capable to absorb the need of inclusion, therefore the most suitable context to develop democratic processes. The city should no longer be defined as a specific spatial object, but rather as a dynamic entity in a continuous and unpredictable evolution. The urban context is a collective project, produced through collective actions and struggles: it's never an achieved condition.

The proposed study formulates actions for ex-MOI Village in Turin (Italy), starting from the participative work carried out in 2016 in the Municipality of Tigre (Argentina) at the end of the "Habitat and cooperation" course run by the Polytechnic of Turin.

Turin and Tigre could seem very different, but if we look at some urban situations (ex-MOI Village and Tigre sur district/Nueva Esperanza settlement) their distance is almost purely geographical.

Both contexts are fragmented and struggling, lacking of aggregation spaces. Community policies need to be adopted to define a territorial identity. The working methodology, presented in Tigre and reproducible in the ex-MOI context, considers actions to face urban and housing problems, starting with discussion groups and workshops with stakeholders. Three different types of surveys (social, technical and metric) are also implemented.

Different interesting results were achieved in Tigre: the collection and elaboration of a great amount of data; the highlighting of a critical situation; the synergy between social actors involved and the official recognition of the Nueva Esperanza informal settlement.

Which lesson can be learned in order to read ex-MOI context and design actions for it?

An attentive attitude is fundamental to start a participative session, the empowerment passes through the enhancement of the sense of identity and the promotion of local skills. In fragile situations the *human capital* can be more valuable than any other kind of resource.

Keywords (max 4)

City, community, participation

1. Introduction

Our times are characterized by increasing migration movements and modern society has to face the challenges deriving from this phenomenon. The city today asks for new forms of representation, a new imaginary.

The re-appropiation of urban space by the citizens and the communities, who inhabit it is a central topic involving architects, designers, and countless experts from diverse field, working together.

This study proposes a working methodology to face situations of informality, or at least of social desease, as the ex-MOI reality in Turin (Italy), with the aim to improve human habitat with a bottom-up approach.

The reference case study took place from an internship of twelve professionals at the end of a course in "Habitat and cooperation" run by the Polytechnic of Turin and the Municipality of Tigre (Argentina).

The case studies of Turin (Italy) and Tigre (Argentina)could seem very different, but they don't. Very often we refer to informal phenomena, such as favelas and slums, as something that does not concern us as First World Country, far and therefore not of our interest. But if we look at our past, but also at our closest present, it is a difficult thesis to be sustained.

According to the report "Fuori campo" - drafted by *Medici senza frontiere* starting from 2015 - at least ten thousand people are forced to live in informal settlements across Italy: abandoned industrial areas, slums, along rivers, under bridges

or at border crossings. Therefore, even without considering informal settlements, in contemporary big cities exist a lot of poor and ghettoized contexts.

2. Contexts

Informal and marginalized contexts are becoming a substantial part in human settlements.

The phenomenon of massive urban development is upsetting the contemporary metropolis like an unstoppable race which, according to UN Habitat's forecasts, will lead at least two billions people to live in unstable contexts in the next twenty years.

Informal and poor settlements, often situated at the edge of the urban suburbs or, sometimes in downtown, mean for many people escaping from difficult realities the opportunity to find a job or let their children go to school.

At the same time, it means also living in narrow and unstable spaces, often not integrated in the service network and cut out from the social network due to both inward and outward barriers, imposed by dynamics of segregation found in a national, social or cultural motivation.

It is therefore necessary to address socio-economic issues such as poverty, urban development, inequality and social housing.

2.1 Tigre Sur: Nueva Esperanza asientamento informal

In a huge country like Argentina, the population is shrinking around large urban centers. Tigre is not an exception. Subdivided in the continental part of Rio de La Plata and part of the islands, in the continental part of the region there are three types of plot (*barrio abierto, barrio cerrado, asientamento informal*) whose diversity and separation are phisically marked.

Tigre is a municipality in the north area of Buenos Aires, whose district is characterized by a significant contrast between barrios cerrados and villas miserias, private neighborhoods and informal settlements, both marked by a clear spacial element: the wall, the margin, the clear border with the rest of the unlimited city.

40% of Tigre territory is occupied by *barrios cerrados* and by 3% by *asientamentos informales*. The presence of these types of plot has been dizzying ascent over the last fifteen years. A *barrio*

cerrado is an enclosed neighborhood with physical limits, some are just fenced groups of houses, others are totally self-sufficient comunities with the presence of all the needed services.

On the other hand, an *asientamento informal* is an informal settlement with a very high population density and low quality of construction. There are no services, especially primary ones such as sewer and lighting supplies.

The work was focused on the informal settlement (asentamiento informal) of Nueva Esperanza, in Tigre Sur district.

Fig. 1: Tigre Sur: Nueva Esperanza settlement

Tigre Sur (the southern area of the town) is specifically marked by another element: urban vacuums. Previous industrial spaces, deprived of their ancient nature and function, have become repulsive.

It hasn't a good connection with the near districts; it's enclosed between two railroads, contains a lot of degraded and abandoned ex-factories and lacks in public spaces.

The resulting perception is like an insecure ghetto.

Here, during 2006, rose Nueva Esperanza informal settlement, whose population comes almost from Peru. The main social groups are single mothers without job, large families whose men work mainly in building sector and some dealer inside the settlement. The average age is on 25,6 years, many people are affected by health problems, linked to humidity and lack of ventilation.

The inhabitants of Nueva Esperanza distrust the interaction with the neighborhood, are afraid to be relocated by the institutions and lack awareness in the possibility of empowerment in acting as a community.

Fig. 2: Tigre Sur: urban vacuums and Nueva Esperanza settlement localization

According to the carried out census (August 2016), in Nueva Esperanza there are 354 people (172 males and 182 females), 107 families. The covered area is about 3877 m2, every inhabitant has about 11 m2 available

2.2 Turin: Ex MOI Village

Fig. 3 : Turin: Ex MOI Village (photo by Federico Tisa)

The proposed context where to apply the experimented working methodology in Tigre is the ex Olympic Village of Turin, or the ex wholesale fruits and vegetables market (called ex-MOI). The area is located in the southern part of the city of Turin, along the road Giordano Bruno, in front of Lingotto commercial gallery, divided from it by a railroad, that pass through the nearby station.

The story of these area is quite old and complicated.

For the Olympic game the whole area was involved in a big project, that included the realization of the Olympic Village, three plots of residential bulidings characterized by repetition of the same type (block of flats of about 6 or 7 floors) and by a lot of pedestrian public areas.

The building works lasted a year. Between this period and the end of the Olympic Games two plots were bought by the regional agency for environmental protection (Arpa – plot 4), and by the territorial social housing company (Atc – plot 5).

During the Olympic Games the village hosted athletes for more or less two weeks and then was left empty.

Serious structural problems emerged, revealing the poor quality of the buildings. Consequently nobody has ever wanted to invest in them. The remaining residential plot 8 (plot 3) has a more difficult history. Only between 2012 and 2013 eight of the twelve buildings have been converted into social housing, a youth hostel, student residences and offices of CONI (Italian National Olympic Committee).

Four buildings remained abandoned since 2013, when a lot of refugees, arrived in Turin and excluded by immigration programs, in particular "Emergenza Nord Africa" one, started the informal occupation.

Refugees have managed to develop, beyond temporary houses, small shops and a school, "La Scuola", a classroom stocked with books, a chalkboard and mismatched tables and chairs

In January 2015 the Court of Turin issued a order for the eviction of the immigrants living there.

In June 2015 new programs were announced to redevelop the area: a great social housing operation in the heart of the former Moi and a research and technology center for the city universities.

Today three of the four buildings have been vacated, only one remains, the clearing out is provided for November.

The social complexity that characterizes the area today has sharpened some aspects that have to be solved: the area is confined as a result space whose planning has never been carried out, bounded on the sides by two expressway streets, via Giordano Bruno and via Zino Zini, with a lot of different funcions that coexist together.
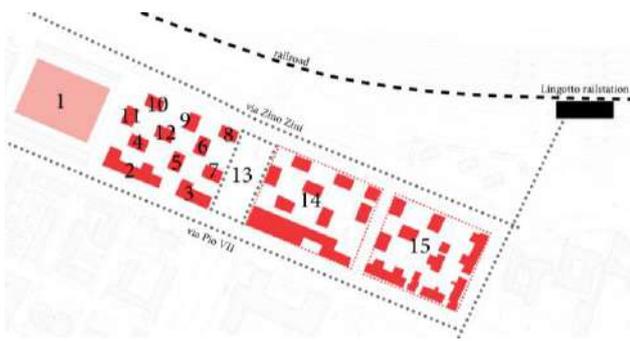
Fig. 4: Ex-MOI area: properties subdivision
1. ex wholesale market hall; 2. social housing; 3.4.5.6. occupied buildings; 7.8.9. housing emergency projects and students; 10.11 CONI; 12. Hostel; 13. Square; 14. ARPA properties; 15. ATC properties

A square located between the ARPA building and the plot number 3, characterized by the presence of occupied buldings, appears as an area daily crossed by people, an empty space mainly lived as a junction/crossing point, not as a place to stay, except for some event organized by some local association.

3. Action oriented, community polices and aims

How to intervene? Trying to rebuild the social fabric and the awareness of being part of a community. How? Regenerating the city where this community live, both in its public spaces and in private ones. It is necessary to involve different actors - public institutions, private institutions and citizens, to give a long term response.

Community policies, conducive to everyone's interest, have to be adopted to create a territorial identity in which each individual recognizes himself. Territorial identity allows to trigger careful processes for places and improve life quality. Working together optimizes the energies and multiplies the opportunities: citizen networks become the pinpoint that influence the community in a widespread and positive way.

Informal settlements are an emergency on a global scale, but at the same time they are also the outcome of a resilient and daring humanity, able to give up on everything, putting itself on the line in new and unknown lands, hoping for redemption to receive/self-create a chance. The creativity and strength typical of this segment of people are often choked by feelings like caution and bias. Opening the margin, giving creative tools, may generate the

self-restoration of a shared identity and a suitable physical context for human needs. Working with people from barrio Nueva Esperanza and organizing small participated activities with them, gave a feedback about the strength of this community and their pronounced aptitude to actively take part in the improvement of their own habitat.

The working method aims on one hand to promote activities attempted to improve the housing conditions of the informal settlement of Nueva Esperanza and on the other hand to promote the sense of belonging to the community and its integration with the surrounding environment. The purpose is to avoid the phenomenon of ghettoization.

The goal is to create a physical and social breach in those margins and barriers activating a process of social gathering/integration and empowerment to bring positive, direct results in the physical underlayer of the formal and informal town.

Community policies have to be adopted to create a territorial identity in which each individual recognizes himself. Territorial identity allows to trigger careful processes for places and improve life quality. Action-oriented projects show how design is essentially about the production of space, not as fixed and abstract reality but as something actively and contingently produced. As such, design is understood as an impure and discrepant practice, as a way to address urban challenges from the perspective of excluded groups in contested urban spaces.

Collaborative models and bottom-up initiatives have already existed for many years, but are only just now receiving recognition due to financial crisis (reduction in private and public investments) and to the potential of Internet, which keeps lines of communication costantly open, fostering exchange of knowledge.

The desire to guarantee a "democratic" approach allowes in the first instance to increase the number of informed citizens of the projects and transformations imagined by technicians at different levels. The information, first, the comparison, then, allowes to reach the "meeting points", a sharing of the choices undertaken. Ultimately, the choice to implement a transparent dialogue with citizens also has positive effects in terms of consensus towards the institutions.

The purpose of a participatory planning experience, almost unanimously shared, is to

promote the emergence of new ideas through discussion and the creation of a shared collective knowledge. Therefore, participation must not, and cannot, be reduced to the defense of partisan interests or to the instrumental and demagogic research of consensus on already defined choices. In order to be able to speak of true participation, it is necessary to choose appropriate methods and tools, suited to the purpose.

4. Survey and design methodology

4.1 The case study of Tigre Sur: a working participative method

The collected materials and the offered ideas, come from a field experience held by a group of architects and engineers who surveyed a whole informal settlement in its physical and social dimension, mapping its inhabitants' origins and abilities, their aptitude to change, their will to participate.

The initiative to act in this context started by the Municipality of Tigre, in particular by the direction of urban and housing offices. In 2014 the Municipality thought a special management district called "Tigre Sur" which presented different territorial problems. In 2016 Municipality got in contact with the Polytechnic of Turin, in particular with the team of professionals of the course of "Habitat and cooperation", who developed a diagnostic of the sector in order to develop a plan that contribute to the improvement of the habitat of the informal settlement called Nueva Esperanza and the creation of a cooperative network between different residents of the district.

A lot of local actors were involved in this project, both from the private and public sector: in addition to the municipalit and the Polytechnic of Turin, neighborhood sporting clubs, senior center, associations and the community of Nueva Esperanza.

Working methodology is characterized by three underlying principles: interaction, inclusion and participation. Through them, good participatory planning, conflict mediation practices can be studied and structured, applying appropriate technologies. The goal is to enhance the resources in the area to promote the improvement of living conditions through the pro-active involvement of local communities, leveraging the inherent

resilience of community itself. The territory of Tigre Sur, first of all, needs aggregation spaces to fix the fragmentation that characterizes it.

Different participatory techniques were chosen, mixed and combined: it is necessary to construct sequences of techniques suited to the context. Families of specific techniques and methodologies must be chosen from time to time and variously combined, in relation to a series of parameters that depend on the particular conditions in which the process takes place.

In the first place a SWOT analysis of the context has to be done. Also known as the TOWS Matrix, it is a strategic planning tool used to evaluate strengths, weaknesses, opportunities and threats of a context as a base to decide what kind of intervention has to be adopted. The analysis concerns the internal and external environment of the studied community.
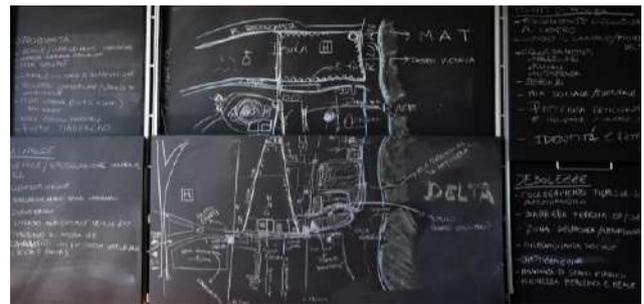
Fig. 5: SWOT analysis done ay Polithecnic of Turin during the course of "Habitat and Cooperation"

The second used technique is the participant observation, in which the observer interacts with the observed context, provoking reactions and / or identifying himself with the situation.

Neighborhood walking is another participatory method that can be used as an "active listening" technique of the territory. At the base of this technique is the idea that it is fundamental to recognize and enhance the competence of the inhabitants with regard to their living environment: ordinary knowledge, not professional and not technical, but which derives from the fact that they live that territory every day, they enjoy as a "living environment" where they live, work or have relationships and social networks. The inhabitants' perception of their own neighborhood or landscape is therefore a type of knowledge of which "one cannot do without" in a process of territorial

transformation, because it is a knowledge that the professional cannot possess.

Another typical aspect of the neighborhood walk is the recognition of the importance of not only ordinary knowledge, but also perceptive, spatial, an "active knowledge" that takes shape in "going to see for yourself". Going through a place together, crossing it and trying to recognize and highlight its own way of living that space, means enhancing ways of staying together and communicating based on reporting experiences, specific observations, elements that affect everyone and are considered revealing.

The neighborhood walk presupposes and affirms in practice a reciprocal relationship between professionals and inhabitants, which excludes relations of dominance-dependence, both on the one hand and on the other, which rather recognizes a "mutual intelligence", a possibility of learning from both sides.

The walk is generally the incipit of the public part of the process precisely because, through simple moments of sharing such as walking, it creates the opportunity to build and expand the network of local subjects involved in the process, to start a collaborative climate among the designers, the inhabitants and the various actors present in that territory. To make effective the neighborhood walk, it is important that it be preceded by a careful phase of interviews with some local interlocutors, as was done in Tigre with the Municipality and local associations, inhabitants and informal groups. In this way, is not only easier to spread the invitation to articipate in the walk on the territory, but above all the foundations are laid for a greater availability of active involvement, based on trust and collaboration.
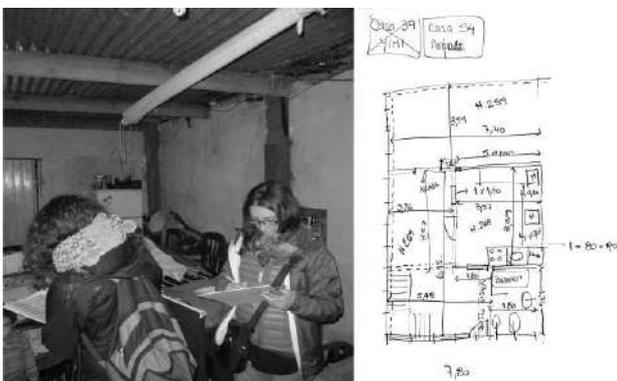
Fig. 6: Nueva Esperanza settlement: technical and social survey

The next step is the metric (if needed) and social survey thorugh technical campaign and interviews concerning personal issues, informations about work, mobility, perception of neighborhood security, dwelling and expectations about it.

After these steps of analysis the pattern language method is adopted to identify an abacus of types of public spaces and solutions for housing problems that help the inhabitants to visualize the possible transformations.

Finally, through participatory tables and local forums, identified solutions are presented, shared and examined, also with other actors. They involve people already interested in urban and social transformation problems (often representatives of groups or associations). These are moments of discussion on specific topics, generally consisting of cycles of meetings that develop and deepen some problems and identify possible solutions.
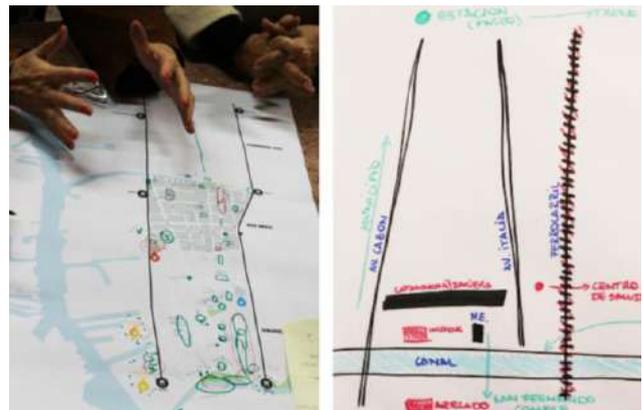
Fig. 7: Tigre Sur: a participative table and a map drawn by an inhabitant of Nueva Esperanza settlement

Specifically, in Tigre, were elaborated proposals, developed with the population, consisting in **five actions** that concern:

1. roads and crossroads – in their connotation as places of aggregation and no longer just a space for mobility - can be, at the same time, places where to pass and stay where it is possible;
2. toolbox: a flexible and reversible solution of fully equipped public space that can contain anything (from children's games to workshop equipment) and can be moved anywhere;
3. community services: upgrading of public spaces through activities and temporary facilities (such

as local fairs), to make places alive and attractive for all;

4. urban art raids: a manifesto that is immediately representative of the identity of the place.

5. urban strategies: through which public and private actors find a regulatory compromise, and therefore reproducible, allowing a more balanced use of spaces.

Fig. 8: Tigre Sur a participative table: woman analysing a proposed action

From an urban point of view the project introduced also a physical element called "community spot" to be put in empty lands, in order to produce empowerment dynamics and a urban and domestic renewal.

The community spot arised from an administrative act, carried out by the municipality, to guarantee to the citizenry empty or abandoned spaces. This community spot may be a well-structured multifunctional building for the community. For the pro-active citizenry it wants to be an incitement to be promoted starting by small receptors of the urban needs and potentialities able to answer, through the creation of knowledges and abilities network, one of the main social emergencies in Tigre: the lacking integration between the inhabitants of the informal settlements and the citizens of the rest of the city.

Finally, the problem of housing inequalities has to be addressed: unsafe housing generates vulnerable people. This reality has to be investigated in all its aspects. What emerged is a high housing density - 6 inhabitants per house with houses of 50sqm - lack of primary urbanization works; lack of healthiness due to shortage or total absence of windows; internal demaged surfaces; lack of escape routes and safe places for social life;

lack of awareness of their skills and potentialities; absence of a social network of mutual assistance. For the improvement of housing, a physical and social recovery of the community must be implemented: physically with small demolition and *in situ* reconstruction, and spot interventions and improvements on missing or incorrectly made items; and socially by implementing information and training policies on the correct use of materials and building technologies, promoting community consultation and participation to achieve shared solutions.

These steps represented the possibility of creating a "social network" involving local associations, active citizens and the inhabitants of Nueva Esperanza promoting activities on field to rise the level of the attention by the Municipality. Last event organized, a participative workshop in the street alongside the settlement, was a great test in this direction. The street became a meeting space were, for the first time, people from other districts and local associations, involved in social issues, came and took the opportunity to discuss about the present and the future of the area. According to the urban actions proposed during the participatory design sessions, the municipality allowed that the activities could be carried out on public roads, decreasing the vehicular traffic in the street and expanding the recreation space. During the day different activities were done, allowing older neighbors and children to "gain the street" for their own use, counting on the support of the municipality.

Interventions such as those proposed do not stay on three separate levels but are part of a single urban, identity, community and social reconstruction process. The validity of the participative method and the design objectives should not necessarily be verified only at the end of the process, but also *in itinere*, for example through "road tests" of community activities. The outcomes can be positive.

In 2017 the municipality officially recognized the Nueva Esperanza settlement as "Barrio", which strengthens the identity of the neighborhood avoiding its ghettoisation.

To talk about ongoing policies, the metrical and the social survey are now used by the Municipality as basis for analysis and urban strategies about the regulation of Nueva Esperanza: the working method has generated a precedent for the future actions

that the Municipality could carry out in this or another neighborhood.

4.2 Feasibility in Turin context: the ex-MOI Village

The ex MOI village represents an appropriate field where this methodology could be applied.

One reason is linked to the complexity of the situation characterized by different realities that demonstrate a lot of resistence to speak to eachother, not only inside the ex Moi village itself, but also between the area and the surroundings ones. This part of the city infact is full of physical, social and cultural barriers, perceived and real and of abandoned areas. All these characteristics make this context very similar to Tigre Sur one.

Another reason is the currently underway decision of Turin Municipality to vacate the occupied building, promising an inclusion project for people living there.

At the end of 2019, according with the institutional program, all the occupied building will be empty. Without commenting the management of the situation since the origin of the neighborhood, the end of the program will represent a new point zero, an opportunity to demonstrate the feasibility and the necessity of a participative approach, considering the failure of the traditional top-down one that, linked to political and economical problems, brought to a situation of abandon.

5. Results and possible scenarios

Different interesting and relevant results were achieved. It is possible to emphasize, from a technical point of view, the great amount of documentation and data elaborated and given to the municipality about the neigborhood, meanwhile, from a social point of view, an important outcome of the various meetings with the community was the measure of the change predisposition of the majority of the inhabitants. It means that they actively participated to the actions focused on improving their living conditions. Furthermore the activities with the communities gave public attention to the situation of the settlement, its needs and potentialities. The synergy between different social actors involved, allows to recognize the importance of every one of them in the territory and the possibility of their collaboration, reinforcing the idea that it is very

important to work on the identity of the place and its residents to avoid ghettoization.

The empowerment passes through the enhancement of the sense of identity and the promotion of local skills. In fragile situations the *human capital* can be more valuable than any other kind of resources.

Moreover, the bond generated with the neighbors strengthened the relationship between institutions and the different social actors. These favorable situations demonstrated the importance of citizen participation, and the cooperation with the academic world that qualifies the work of governments.

6. Conclusions

Two types of considerations could be done, one from a technical point of view and the other one looking at the achieved or probable results of a participated design process.

The use of different technique mixed eachother bring to interesting result. In particular the use of drawings and schemes to show possible future scenarios or to get informations from stakeholders is very useful and immediate. Maps represent a very good support to speak about problems and opportunities of a territory and to locate them and are a known medium from more or less everybody. In addition, participative methodology reperesents a democratic way to face problems, guaranteeing of solutions that last during the time.

This brings to re-consider the role of tecnicians (professionals as architects and engineers, scholars and administrations in the city planning, in particular referring to the fragile and poor urban area.

"Architects should formulate appropriate answers in the form of responsive architecture, an architecture of engagement that has the capacity to reconsider and recalibrate design process within contemporary urban condition, which could be called "un-designed" or even "un-designable"". *(Camillo Boan, Caroline Newton and Giorgio Talocci, 2016, p.51)*

Architects, as all tecnicians already mentioned, have to break away from the concept of the city designed from one master plan, with topdown design approaches, expecially in increasingly informal urban contexts. Such cities' fabric hold the potential for extraordinary design innovation and

exceptional architectural achievement and shouldn't be considered as finished places. Rather, they are a dense entity of social interactions and exchanges constantly creating change, constantly emerging.

Participative approach is the key. Democracy needs time, as everything that have to be long-lasting.

Fig. 9: Tigre Sur: a street organized event

Fig. 10: Ex MOI: collective sharing street moment

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Waste as a Commons: Shared Practices of Materials Reuse for the Design of the Built Environment

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Abstract

Technological progress and the diffusion of waste separation arisen in the last decades have made possible the acknowledgement of the inherent potentialities of urban solid waste in environmental and economic terms. Waste is gaining a primary role in the spatial, social, economic and cultural metabolism of the city; in the framework of the renewed attention recently devoted to the topic of the urban commons, the definition by Bollier stating that a commons arises «whenever a given community decides that it wishes to manage a resource in a collective manner, with a special regard for equitable access, use and sustainability» (2007) is assumed as a premise to affirm that waste is part of the urban commons, as increasingly at the center of formal and informal urban practices rely on it as a common resource. Architects, designers, urban activists as Assemble, Rural Studio, Rebiennale have already proven the potential of material waste coming from construction sites, spatial renovations and demolitions to pursue a communal shaping process of an inclusive and sustainable urban environment. Many small-scale urban regeneration projects are based on the shared experience of materials reuse, as the ongoing renovation of Mulini di Gurone (VA) in the project of Casamatta Circuar Hub managed by environmental association Legambiente. Mentioned case studies are conducted from a critical position not accepting the status quo of citizens as customers (Streeck, 2012), employing waste as a tool to outline common spaces, intended as physical urban spaces and relational spaces designed according to shared values.

1. Introduction

In the short story *La poubelle agréée*, written in Paris between 1974 and 1976, Italo Calvino describes the act to move the domestic trash bin in the public street, where sanitary workers will collect its content, as the first step of a social pact, the «first gear of a chain made of decisive operations for the common cohabitation» (1992). Calvino states the undeniable publicness of trash, as far as produced in the privacy of the domestic environment.

After decades of capitalism, in Europe as well as in most countries around the world, waste produced by overconsumption is more and more a common concern. At the same time, the last five decades after the industrialization on large scale and the post-war economic boom have get European citizens acquainted with the view of trash; moreover, the technological progress and the diffusion of waste separation arisen at different pace around Europe have been making the relationship with waste closer and clearer. Since private citizens were called to take responsibility for their own waste and to deal in the private household with one part of the public urban waste disposal chain, waste has been progressively handled with less repulsion. Divided into categories according to the nature of the components, its composition is known, and its handling is performed with a new awareness, opening some cracks in the removal and discomfort around waste identified by Kevin Lynch (1991) in the subtle and disturbing connections among death, aging, decay, consumption, eating and discharging, cleanness and filth.

Together with the rising awareness of the global resource scarcity and the consequent efforts to devise new systems to manage natural stocks, the contemporary intimacy with waste has enabled a better knowledge around discarded goods, materials

and resources, unveiling on one hand the environment threat they represent when out of control and acknowledging, on the other, the inherent potentialities of waste in environmental and economic terms, reevaluating consumption forms and paces.

In this framework, new production and consumption paradigms as Circular Economy are raising, presented as a flexible framework recognizing mutual relations among global issues and proposing to address them as a whole. The main idea behind the circular model is to employ waste as a resource, using the value retained in waste within production processes in order to close resource cycles and optimize materials, products and procedures (Ellen MacArthur Foundation, 2015), making them more efficient. The waste to be employed "as a resource" according to the circular paradigm is both tangible and intangible: it includes the discarded material output of processes as well as wasteful uses of products and inefficiencies leaving much space for optimization. Under this perspective, Circular Economy and similar paradigm often encompass urban practices already performed freely and spontaneously in the built environment: rooted customs never formalized, contemporary or repurposed traditional uses, subtle changes of habits deeply embedded in local contexts, most of the time implying the sharing of goods and the involvement of a community. These formal and informal urban practices rely on waste as a common resource.

2. *Waste as a Commons*

At different paces, the reuse of waste is gaining a primary role in the spatial, social, economic and cultural metabolism of the city. A disruptive change was introduced by the rise of sharing economy and the idea to exploit inefficiencies and redundancies, as those widely diffused in the organization of contemporary city: the average European car is parked 92 percent of the time and the average European office is used only 35–50 percent of the time, even during working hours (Ellen MacArthur Foundation, 2015). Sharing economy has unveiled the potentialities inherent in underused goods producing innovative patterns of use relying extensively on these solutions. These new patterns redefine the relationship among citizens and consumption: sharing physical assets lowers, defers or erases the need to own specific items exclusively

and increases the awareness in terms of use of material resources.

This optimization orientation interests waste and unwanted resources as well. Beside traditional customs as the exchange of secondhand goods as vehicles and furniture, many innovative urban practices are rising. These practices recognize the economic, social and environmental value retained in waste as a useful tool for the definition of a more sustainable and more inclusive urban environment. Waste is sometimes employed as a tool for unofficial forms of welfare, seeing for example Berliners leaving on purpose their empty bottles and cans on windowsills and bins' edges to allow those in needs to collect them and obtain the deposit for the empty container (*pfand*) or ticket crossers, leaving their valid public transport hourly ticket at the stop after their journey, letting others use it again. Groups as ReFoodgees (Praticò, 2019), a European network made of European citizens, refugees and asylum seekers, work in markets to recover and redistribute unsold and overripe fruits and vegetables before they are thrown away, making the weekly market a place of support, inclusion and work for those in social and economic vulnerability. Again, waste represents a weapon of communal self-affirmation against an established order, bringing the natural, social and economic global ecosystem towards collapse: in Repair Cafés, citizens learn to repair their broken electric appliances to fight the imposed planned obsolescence with the simplest of the practices; countless apps, online communities and groups have the sole purpose to put people in contact to exchange unwanted goods, for economic necessity, environmental awareness or for the value they see in prolong the life of still efficient items.

These practices are often moving in grey, unregulated areas or explicitly working against set rules, with light violations committed in the name of free use of waste, a resource that, as commonly created and not explicitly reclaimed by anybody, can be commonly managed. In the framework of the renewed attention recently devoted to the topic, waste can be considered part of the urban commons, based on the definition by Bollier stating that a commons arises «whenever a given community decides that it wishes to manage a resource in a collective manner, with a special regard for equitable access, use and sustainability» (2007). More and more citizens are among those «popular intellectuals» (Illich, 1983) reclaiming the right to

self-determination outside a top-down capitalistic logic seeing «citizens as customers» (Streeck, 2012) and seeing in waste a common resource to commonly manage for the common good, moving «on the periphery of conventional politics» (Bollier, 2007). Their activity is laying the groundwork for a new politics, physiologically in line with current conditions, building alternative consumption paths and shaping the relational spaces of urban environment in accordance with these needs.

3. Construction Waste and Shared Practices of Material Reuse

Material waste coming from construction sites, spatial renovations and demolitions has a great potential as common resource for the shaping of an inclusive and sustainable urban environment. These resources employed within communal process led by architects, designers, urban activists, proving how the value retained in waste can trigger regeneration processes of urban spaces as well as orient from scratch development procedures. The British collective Assemble, from a position between design and activism, develops projects widely relying on the use of poor and often waste materials and self-construction. This approach aims to reconnect with ancestral building craft and, at the same time, perform an act of resistance against «the reduction of architecture to a "rentable" commodity» (Zaera-Polo, 2016) through the close engagement with the communities they work within and their involvement in the design and building process. For the workshop and performance space OTOProjects, realized in Dalton in 2013, they employed demolition rubble found on the site as main construction material to realize a single, monolithic volume for experiential and educational performance (Assemble, 2013). The project was built by six local volunteers, working with the collective for the local development.

The Venetian group Rebiennale conducts an interesting collaboration with Venice Biennale's curators, working to reemploy discarded materials coming from Art and Architecture exhibitions in participative process of urban regeneration of the local contexts. In 2016, during the XV Architecture Biennale *Reporting from the Front*, they collaborated

with the architects from Rural Studio (Aravena, 2016), the design studio led by teachers and consultants at Auburn University, in the West of Alabama, developing, together with groups of students, projects devoted to local communities in need, stressing the social responsibility of architecture through sustainable, zero-mileage architectures, with upcycled materials, designed according to local inspiration. In cooperation with housing Venetian activists, Rebiennale elaborated specific material and furniture requests for the renewal of an Asc – Assemblea Sociale per la Casa's dwelling in the neighborhood Casette: particle boards, insulating panels, bed bases. Rural Studio provided the materials through their exhibition funding; before delivering these materials to the refurbishment project, the architects employed them to realize their installation to the Architecture exhibition, *The Theater of the useFULL*. The realized installation was conceived to be totally reusable, producing no waste, designed together with local actors committed for social purposes and devoted to the immediate need of the Venetian context.

The reuse of material waste is sometimes at the basis of urban development processes. In the Netherlands, Circular Economy is employed as development strategy on several testing grounds, where creative entrepreneurs are employing building waste as construction material within the process of designing innovative neighborhoods: Buiksloterham[1] neighborhood in Amsterdam and Hof van Cartesius village in Utrecht constitute case studies of urban spaces build around the idea of sharing resources for a sustainable form of urban living and this idea is put into practice in the very design of dwelling and common spaces, designed and constructed sharing tools, time and knowledge and employing waste as a common resource to build «alternative kinds of growth» (Russo, 2014).

4. Casamatta Circular Hub

Many small-scale urban regeneration projects are based on the shared experience of materials reuse, as the ongoing renovation project of Mulini di Gurone (VA) driven by the project *Casamatta Circular Hub*, managed by environmental association

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[1] In relation to Buiksloterham neighborhood, see Zanotto, F. (2018). Circular Economy and the Built Environment: Zelfbouw in Amsterdam. Addressing Resource Scarcity

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Fig. 1: Aerial photography of Mulini di Gurone (VA), 2017.

Legambiente Varese. Casamatta's spaces are part of Mulini di Gurone, a village inscribed in a circular dam built in 2009 to protect the historical settlement from the overflows of Olona river. Mulini di Gurone has been at the center of Legambiente Varese's interest since 1994, when the association, together with some citizens, began a civil action against a paint factory guilty of polluting groundwater in the nearby Malnate, two years before.

The court condemned the industry and defined a compensation to Legambiente and the group of citizens, who decided to invest the money on the care for their territory, choosing to focus on the precious area of Mulini di Gurone. The environmental equilibrium of the naturalistic area around Gurone was periodically destroyed by the frequent, uncontrolled overflows of Olona river and historical settlement was threatened with being delocalized by the very plan to build a system of dams to manage river's overflows, which would have involved the flooding of the hamlet. Gurone's residents firmly opposed to this plan, then expanded with the construction of a circular dam around the settlement, built in 2009 (Fig. 1 and 2).

After the building of the dam, Legambiente Varese bought the building of Casamatta (Fig. 3) with the idea to turn it in a hostel and a space of environmental and ecological education. The project revealed to be financially unsustainable and in 2012 Legambiente decided to make of Casamatta an objective of the association, to be developed with minimum resources throughout time, keeping the initial purposes: realize an accommodation and educational facility, pursued according to the association's philosophy. With this goal, in the next years the renovation process of Casamatta's spaces has been following specific principles: the main idea is to build minimum devices to make the space usable, employing waste materials.

In the spring of 2017, the first construction moment took place. Within a public event, the local community was called to participate in a self-construction workshop at Casamatta held in two parts. The first part was aimed to build furniture for Casamatta with discarded wood donated by artisans and a partner company producing wooden houses. The process was led by an architect that acted as a facilitator of a process involving stakeholders and

Fig. 2: View of Mulini di Gurone (VA), surrounded by the circular dam, 2017.

people with no specific backgrounds, interested in being part of the common construction of a place catalyzing shared values. At first, participants experienced an education moment: main notions about circular economy and a collective image on the topic of material reuse was shaped by lectures from architects and professionals. The second step was in preparation of the design phase: a communal check of available material was carried on collecting information about the resources to be used in the process. Then, the design phase proceeded with roundtables involving participants and architects, designers, carpenters, blacksmiths and makers, commonly designing furniture on paper constantly checking conditions, sizes and features of the available materials to adjust the design to the actual situation and negotiate with other tables the use of resources. Once the design felt adjusted, the construction phase started, supervised by involved professionals. During this first phase, a table with attached seats, stools, chairs and a container bench were constructed by participants, the first

Fig. 3: The entrance of Casamatta

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Fig. 4: A moment of the communal process for the construction of furniture for Casamatta

equipment to furnish Casamatta and make its space usable for community events devoted to the knowledge and care for the territory.

The second part of the construction process was aimed to build a communal oven, in the same point where the original oven was (then demolished). The idea to build a communal oven in Camatta was aimed to realize a facility open to the public, able to trigger, through the sharing of food and cooking activity, inclusive social processes that could activate Gurone's urban spaces.

The construction of the oven started with a preliminary design outlined by Legambiente, exposed to local community for a certain amount of time, in order to collect feedbacks. In the meanwhile, the necessary materials to construct the oven where spontaneously offered by the involved community: refractory bricks were the sole materials that were purchased. The beams came from demolished parts of Casamatta, while the Marseillais tiles and the trusses for the covering came from acquaintances, who donated them after a private dismantling. After the construction, conducted again through a communal process led by an architect and involving part of the local community, the oven that has been built is totally different from the one that was outlined before the process: the project changed on the basis of the materials which become available in the local context. At the beginning, the design for the oven did not involve a marble slab that was donated during the process and was employed to realize the cooking basis of the oven.

The refurbishing project is now involving an architecture firm, which is preparing a SCIA – *Segnalazione Certificata di Inizio Attività*, the official document to notify to the municipality the start of a building process. The firm is now working to understand how to proceed with the refurbishment of Casamatta experimenting with reused materials for the building renewal in accordance with construction laws: the mandatory *Energetic Report*, referring to former law 10/1991, requires to verify the measures adopted in the refurbishment project to contain energetic consumption and to certify the performances of the building and the plants. To use reclaimed materials for a building renewal means not being able to satisfy these requests: these materials have most of the time uncertain origins or they have been produced in different historical moments under different regulations; their previous usages may have altered their features; they are not guaranteed and certified by manufacturers.

Fig. 5: One of the chairs built with reclaimed wood during the communal process at Casamatta

Fig. 6: The communal oven built at Casamatta

5. Conclusions

The illustrated case study unveils potentialities and criticalities in the common use of waste materials for the design of the built environment. A first remark relates to the process: when aimed to the effective construction of a structure, building components or piece of furniture, the involvement of an architect and a designer in the process appears to enhance the efficiency of the whole work. In this kind of procedures, the architect assumes a programmer role: as defined by Carlo Ratti (2014), he or she becomes a "choral architect", catalyzing the different scales of the project and acting as an editor, taking top-down decisions thanks to their competences, in a curatorial role. A second remark is about the normative conflict raised by the employment of reclaimed materials in refurbishment projects of buildings: the difficulty to certify reused materials, with no clear provenience and performances, constitutes an important barrier to the extensive reuse of material waste in the construction sector. The challenge of this practice is to obtain the practicability without satisfying the previous requirement of certification. A possibility to overcome this problem could be rely to post factum evaluations, certifying the performance of a building refurbished employing reclaimed materials once the work would have already been realized. This possibility exposes designers, builders and owners to the risk to not obtain the required certification. This barrier could be easily overcome in the future by the implementation of specific tools, as the material passport suggested by the Dutch architect Thomas Rau: this tool would collect all data about a material and would allow to catalog them with the objective of «preservation, reuse and also saving on costs, whereby reducing and, finally, eliminating waste» (Rau in Totaro, 2017). A third remark relates to the effectiveness of the employment of waste as a resource in the communal shaping of the built environment: the illustrated case study demonstrates as waste can be an effective tool to outline common spaces[2], intended as physical urban spaces and relational spaces designed according to shared values.

Fig. 7: The storage of reclaimed materials at Casamatta

Fig. 8: A piece of furniture commonly designed and constructed at Casamatta

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[2] In relation to this see the definition of common spaces given by Stavrides (2015): «common spaces are those spaces produced by people in their effort to establish a common world that houses, supports and expresses the community they participate in».

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"But eyes are blind. You have to look with the heart". IBA Berlin 1979 – 1987, the drawing as tool to read and disclose.

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Abstract

"It is only with the heart that one can see rightly; what is essential is invisible to the eye." (Costanzo, 1991, p.14)
On the occasion of his direction of the Berlin International Bauausstellung (IBA 1979-1987) the German architect Josef Paul Kleihues referred to the fable of Antoine de Saint - Exupéry to encourage architects to awaken the values of ingenuity and imagination. He emphasized the Imago, as a point of reference and stable values at the base of human consciousness. the problem is based on the dialectic between tradition and modernity, the field of experimentation on which he himself elaborates the concept of "*critical reconstruction*". According to the architect, the rediscovery of the laws of the historic city is a decisive instrument for Berliners to recognise themselves in it. Another important concept which Kleihues placed at the base of his guidelines is the "*poetic rationalism*" presented during the Triennale di Milano exhibition entitled "*The cities of the world of 1988 and the future of the metropolis*". On this occasion he maintained that "t*he possibility of a new rationalism exists only when the deterministic tendency is questioned by poetry*". (Kleihues, 1989, p.57)
Through this "*poetic rationalism",* he criticises the excessive bourocracy that condition and limit the creative process.
One of the most interesting areas of the Berlin International Bauausstellung is the Südliche Friedrichstad.
It is interesting to take into account the rules imposed by Josef Paul Kleihues about the manence of the exhisting layout and the reconstruction of the continuity of the facades along the plot perimeter and to see how the architects Aldo Rossi and Rem Koolhaas stand about these principles. The proposed study investigates their interpretation of the concept of "*poetic rationalism"* through drawing, considered by the author as a fundamental interpretative, creative and cognitive activity.

Keywords

Identity, Reconstruction, Drawing, Technique of representation

1. The Scenario: International Building Exibition Berlin (IBA 84)

Since 1974, in Berlin, an important international architecture exhibition has been organized: the Internationale Bauausstellung (IBA).
Under the direction of the German architect Joseph Paul Kleihues, the exhibition aims to realize a series of concrete and exemplary interventions proposed by the most important contemporary architects. (Figure 1)
In particular, in the words of Kleihues, the IBA 84 focuses on the "*critical reconstruction of the city*" (Cassetti, 2016, p.129) which, in its vision, must take up and re-propose the urban form of the traditional city.
The post-modernist theories established in the second half of the Seventies through the thought of figures such as Vittorio Gregotti, the Leon brothers and Rob Krier and the same Kleihues combine the analysis of the space of the traditional European city with an almost mimetic resumption of the forms that characterize it.
The street, the square and, above all, the perimeter block are the protagonists of urban plans and projects of this architectural trends.
As Cassetti remembers "*in the 1980s Berlin became a real international forum for debate on the space rules that so far had ruled the composition of the city and the discussion of the Modernism's fundamentals*" (Rossi, 1995, p.120).
Kleihues and Siedler, after starting and directing the debate since 1977 in the newspaper "*Berliner Morgenpost*", promote a unified plan for the Innerstadt with IBA 84.
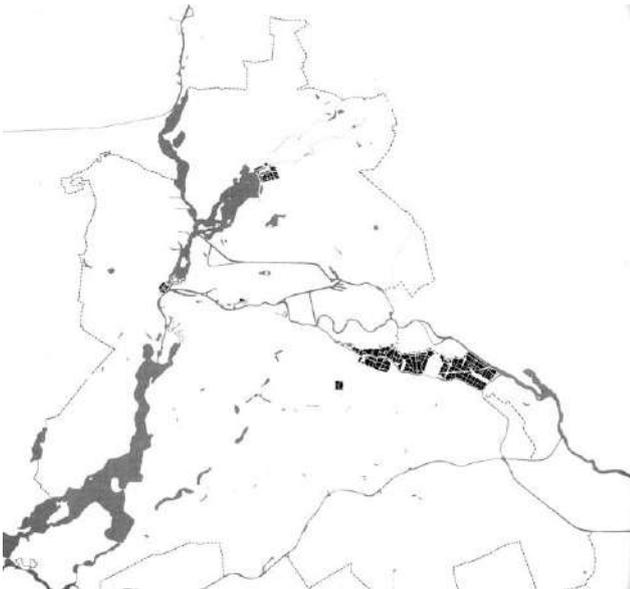
Fig. 1: International Baustellung 1984, Demonstration area, Berlin West. (Kleihues, 1981, p.72)

Fig. 2: Friedrichstadt around 1955 (Kleihues, 1981, p.249)

IBA 84 intends to intervene on the oldest parts of West Berlin, partly destroyed by war and later overlooked by urban planning or modified according to the principles of the Modern Movement, considered by Kleihues to be just as destructive.

The exhibition becomes a great and ambitious attempt to renew the traditional city, to restore or rebuild the blocks, to recover them or redesign them. The goal is to change the traditional city and make it suitable for new housing needs, as indicated by the sub-title of IBA 84 "*Living in the city center*".

Southern Friedrichstadt was destroyed by an air raid in February 1945. In the first two decades of the post-war period, what was left remained victim of an incomprehensible mania for construction – destruction processes.

"Absourd motorway projects, widening and rerouting of streets, and new edifices springing up like mushrooms devastated this urban area so that one would hardly recognize it". (Kleihues, 1987, p.128)

Nevertheless the urban plan of Friedrichstadt offers numerous clues about its Baroque origins.
The topographical layout of the historic city no longer exists. (Figure 2)
The visual axes are no longer recognizable and to the north, the wall "suffocates" the city.

"In Maurilia the traveller is invited to tour the town, and thereby to study a number of postcards showing the town as it once used to be: the same square with a hen in the middle of it instead of the bus-terminus, with a bandstand instead of the pedastrian overpass, two young ladies with white parasols in place of the ammunition factory. In order not to disappoint the present-day inhabitants, the traveller is obliged to find words of praise for the town he sees on the postcards, and to prefer it to the modern town; he has to take care, however, that his regrets about the changes that have taken place do not exceed certain formal and accepted limits". (Kleihues, 1986, p.128)

In this area, a historical analysis is fundamental for the future development and for the revaluation of Friedrichstadt. (Figure 3)

" But eyes are blind. You have to look with the earth".

IBA Berlin 1979-1987. The drawing as tool to read and disclose.

Fig. 3: Friedrichstadt around 1980 (Kleihues, 1981, p.269)

This analysis must also take into account the needs of the users, so that in addition to the architectural components, this urban area can preserve and renew its identity.

The four blocks at the intersection of Koch and Friedrichstrasse could be seen as a benchmark of the area. (Figure 4)

Fig. 4: Block 10. Digital reconstruction by Giulia Bertola.

Here, the guidelines for the reconstruction of South Friedrichstadt and the principles of international building apply.

"*Making provisions for high quality of life in the city centre, related to varied forms of utilization within a limited area, demands a certain amount of commitment, consciousness, historical knowledge and artistic energy*". (Kleihues, 1981, p.269)

In September 1980, the restricted call competition, for the area at the intersection of Kochstrasse and Friedrichstrasse, entitled "L*iving and working in Friedrichstadt*" is announced. (Kleihues, 1981, p.270)

The work consists in the complete reorganization of the area in terms of urban planning and to formulate suggestions based on the historical plan of the city that can modify the dismembered aspect of South Friedrichstadt.

Urban consistency is missing, there are some shortcomings in building development and discontinuity in the alignment of roads.

The goal is to restore the original width of the streets, close the urban voids, restore street corners, offer different types of apartments, offering the possibility of experimenting with new forms of life: living and working in the same environment.

The principle is to alternate living spaces with those dedicated to work: artisan laboratories and small commercial spaces, combining built spaces with green spaces and private gardens, thus improving the quality of life in Friedrichstadt.

This part of the city is characterized by a dense regular mesh of roads and the constant repetition of perimeter blocks. Despite the post-war interventions Kleihues is able to read the strength of the original plan that he intends to restore through the proposals of the competitors, who are asked for an intervention limited to the size of the block. The essential regulatory principles of the competition are: the permanence of the urban texture and the size of the roads and the reconstruction of a continuous front of the perimeter blocks.

This area, full of contradictions, represents a challenge for Kleihues to experiment a "*critical reconstruction*". (Kleihues, 1986, p.128)

1.1 The Critical Reconstruction of Südliche Friedrichstadt

When Kleihues speaks of "*critical reconstruction of the city*", he maintains that "*conventions developed in the course of Europe's history that helped to shape her architectural and urbanistic culture*" but at the same time "*that each city*

possesses its own peculiar quality which results from its own history and, proceeding therefor, a specific way of relating to architecture and urbanism". (Kleihues, 1986, p.128)

Considering architectural and urban conventions that can be applied universally to all European cities is likely to lead to the decay of urban culture and the city as a place to live.

This has led to insecurity in urban planning practices and housing programs.

The idea of reconstruction, however, risks degenerating into "*nostalgia*".

"We must therefore strive to promulgate a new broader understanding of reconstruction. The city is a three-dimensional model, and this conception is inescapably bound up with the ground plan predetermines the idea of the three-dimensional model, and this conception is inescapably bound up with the ground-plan". (Kleihues, 1986, p.128)

The ground floor is the element on which the city is founded.

"To strive for clarity", Taut said, *"means, in the field of housing: to semplify, to seek rational solutions to technical and design problems, to express the ground-plan in the architecture – in short, yo exercise restraint".* (Kleihues, 1986, p.129)

1.2 *Josef Paul Kleihues and the Poetical Rationalism*

The concept of poetic rationalism is represented by Kleihues during the Milan Triennale in 1988 "*Word cities and the future of the metropolis*. (Kleihues, 1989, p.57)

In this occasion, he argues that *"the chance for a new rationalism only exist, if the deterministic tendency is questioned and placed in anew light through the risk of poetry".* (Kleihues, 1989, p.57)

And he refers to the fable of Antoine de Saint - Exupery, to encourage architects to awaken the values of ingenuity and imagination linked to their lost childhood.

Growing up we risk putting aside our most playful and creative part considering it a useless thing.

"'Yes," I said to the little prince. "The house, the stars, the desert, what gives them their beauty is something that is invisible!'". (Costanzo, 1991, p.14)

He also criticizes the progressive impoverishment of the values of architectural research:

"one of the errors of functionalist appears to lie in the fact that this logically unbridgeable gap between the world of sensory perceptions and the world of concepts and utterances in easily ignored in discussion on architecture. the ambivalence between ratio and imago, not only as correlating entities but as interdependencies of our work, at least relativizes the absolute quality of the concept of rationalsm and its claims for architecture and urban planning". (Kleihues, 1981, p.62)

So one of the prerequisites of architecture besides or even in contrast to knowledge and education is cultural innocence.

New vital buildings and cities can only be created through historical and cultural experience, from careful studies, from observation, questioning and listening.

The projects presented in the IBA have experimented with the concept of *"critical reconstruction"* and *"Poetical Rationalism"* and paved the way for a new grammar of architecture.

Below are two in-depth approaches on Block 10, interesting to deepen.

One, very different from each other: the reactionary one by Rem Koolhaas and the conservative one by Aldo Rossi.

2. *Rem Koolhaas and the New Sobriety*

In the context of the IBA 84 the action of Rem Koolhaas is in counter-current towards the rules of the Call. He moves against Kleihues's theories. His project is not realized.

"Berlin is a laboratory. Its historical richness resides in the prototypical sequence of its models: neoclassical city, early metropolis, modernist testbed, war victim, Lazarus, Cold War demonstration, etc. First bombed, then divided, Berlin is now centerless, a collection of centers, some of which are voids". (Rem Koolhaas, 1986, p.449)

Koolhaas takes up the principles of Modern architecture.

It has been persistently criticized for its insistence on starting from scratch, its foundation on the tabula rasa. The area of Friedrichstrasse offers the advantage of already having been razed.

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IBA Berlin 1979-1987. The drawing as tool to read and disclose.

Koolhaas does not want to restore the closed nineteenth-century blocks.

He takes up some elements like the voids created by the bombings, the post-war reconstruction, the wall that delimits and divides the city and the architecture of Berlin between the two wars.

It also refers to famous projects, a symbol of modern architecture omitted by Kleihues.

These projects can be seen in an aerial view of the plan of the Friedrichstrasse district, in which are visible interventions by Mies Van der Rohe, Ludwing Hilberseimer and Eric Mendelsohn. (Figure 5)
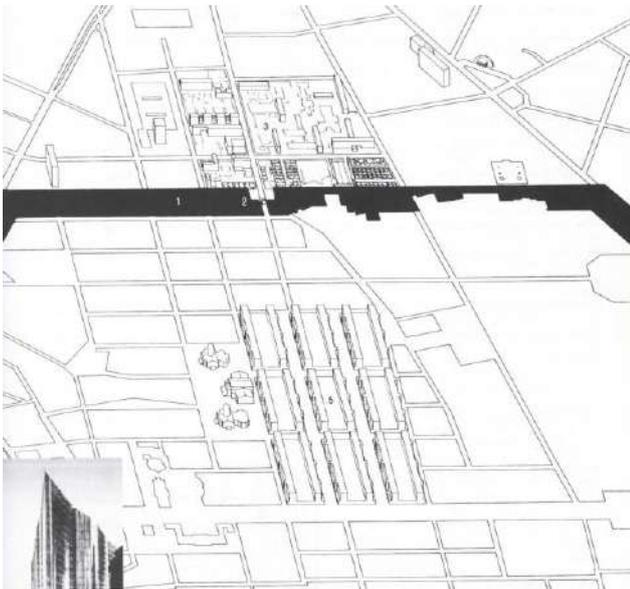
Fig. 5: Rem Koolhaas, OMA, plates for IBA 84.

This to analyze the strengths and qualities of these texture and the new environments that they could still generate.

This image is the expression of the concept of "*New Sobriety*".

Koolhaas defends the Modern movement and the Functionalism in his controversial text "*Our New Sobriety*".

He mentions Raymond Hood:

"*The plan is of primary importance, because on the floor are performed all the activities of the human occupant"*. (Koolhaas, 2000, p.327)

Koolhaas defends the programmatic approach of the modern tradition, but believes, however, that due to the unstable conditions of the world in which we live and because of the new needs of contemporary society, the functions can never have a single form.

He criticizes *Contextualism*: it is not possible to recover the formal urban qualities of the historic city

through a single creative act. The qualities of the historic city are the product of different phenomena that have occurred over the centuries.

During the Venice Architecture Biennale entitled *"The Presence of the Past"* and directed by Paolo Portoghesi in 1980, Koolhaas argues that historical and typological architecture can only lead to an *"Arsenale di Procuste"*. A place where people are guided to a unique way of thinking and acting, preventing a free and continuous social transformation.

Calling the overall project "*Wrecked*", Koolhaas denotes past and present obsolete urban ideologies. The Friedrichstrasse area offers the advantage of having already been razed to the ground.

Koolhaas experiments how new types of buildings, foreign to the context, can coexist with a classic road layout and with existing architecture.

The table presented in the competition and his drawings reflect his *"programmatic architecture"*. (Figure 6)

They are symbolic and have no context references.

The context of the four-block competition site is determined by the eighteenth-century grid, the remaining structures generated by the grid and post-war reconstruction.

In Koolhaas' project, while the old buildings are defined by the street, the new ones are spread and dissolve. (Figure 8)

Ideologies of the recent and remote past, which are now all equally wrecked.

Fig. 6: Rem Koolhaas, OMA, plates for IBA 84, Axonometric view of Bloks 4,5,10,11, 1980.

"*A project for Kochstrasse/Friedrichstrasse should impose a concetual framework, beyond the literalness of the street plan, that relates the existing buildings, whether or not they conform to the grid, ad creates anchors for new insertion. Without this framework, a retroactive concept that makes sense out of the existing randomness, both the old architecture with its pathos of decay and the postwar architecture with its aura of forgotten optimism will remain in limbo.*" (Koolhaas, 1995, p.259)

Fig. 7: Block 10. Rem Koolhaas's project. Digital reconstruction by Giulia Bertola.

Block 10, almost square in shape, the layout of the new buildings is only suggested but not defined. (Figure 7)

Koolhaas inserts street-walls fragments and a series of new blocks and slabs, placed freely within the urban plot, that incorporate the existing buildings into a composition that he called "*pier-and-ocean*". (Koolhaas, 1995, p.261)

Through the parellel actions of reconstruction and deconstruction, such a city becomes an archipelago of "architectural" island floatig in a post-architectural landscape or erasure, where what used to be city is replaced by a highly charged nothingness. The kind of coherence that the metropolis can achieve is not that of a homogeneus, planned composition. It can be, at the most, a system of fragments, a system of multiple realities; in Europe, the remnant o the historical core may well be part of such a system.

Fig. 8: Crossroad Friedrichstrasse – Wilhemstrasse – Kochstrasse. Rem Koolhaas's project. Digital reconstruction by Giulia Bertola.

3. *Aldo Rossi and the process of knowledge*

Aldo Rossi's project is an urban-scale construction.
The understanding of the city of Berlin is the premise to the design process.
He adheres to the principles of the competition and with his project attempts to enhance the existing architecture, working on the principle of continuity between the new and the existing.
As Paul Kleihues accuses modern architecture of not having respected the existing, depriving the city of its original compactness.
In particular, it respects road alignment by building buildings along the perimeter of the area, reconstituting Friedrichstadt and enhancing existing buildings.

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IBA Berlin 1979-1987. The drawing as tool to read and disclose.
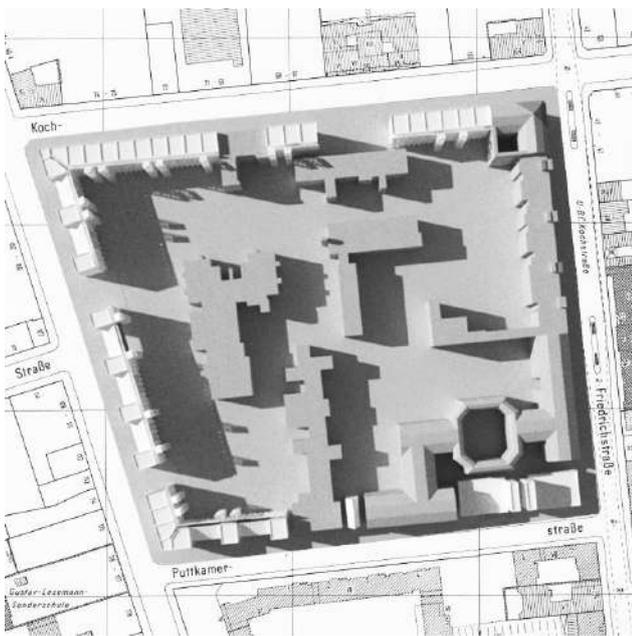
Fig. 9: Block 10. Aldo Rossi's project. Digital reconstruction by Giulia Bertola.

year facilities can be shifted to Wilhelmstrasse". *(Kleihues, 1981, p.294)*
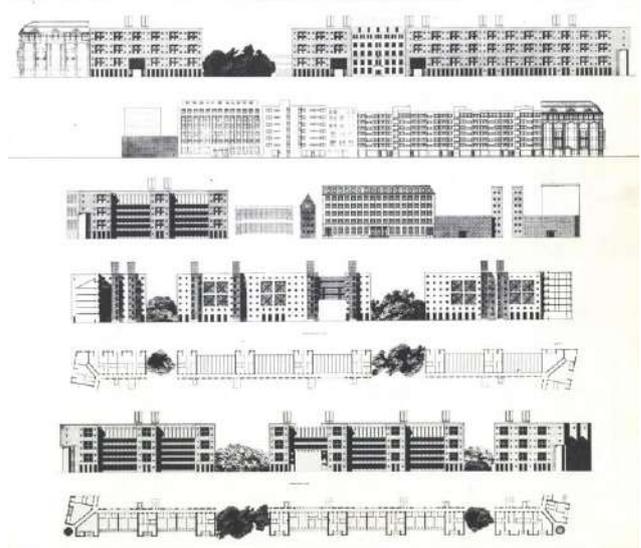
Fig. 10: Aldo Rossi, plates for IBA 84, 1980.

Another element on which he pays attention is the continuity of the facade. It, through the insertion of cuts and openings, allows the increase of the permeability between the outside and the inner courtyard.

Aldo Rossi, takes into consideration the historical image of Friedrichstrasse thus respecting the road axis, assumed as an ordering element of the architecture, and the average height, for the perspective continuity. (Figure 10)

The project consists of several residential units porches on the ground floor and open to the gardens and buildings within block 10. (Figure 9)

The building incorporates the still recognizable architectural lines of the ancient building.

The continuity with the surrounding architecture is given by the choice of building materials, typical of Berlin constructions: brick and glass, green copper roofs punctuated by the elevator towers.

This architecture at the two extremes of the Wilhelmstrasse is marked by two large white columns: elements of urban reference and landmarks of the city. A clear reference to the Filarete column in Venice.

"*For competition participants this means that in planning a new layout for the area of the block interior consideration can be given to provision of public paths through the block and that the main entrances to the kindergarten and the play school*

The main entrance to the area is located on the Wilhelmstrasse and is characterized by a large portal. The buildings follow the gallery layout on the internal side of the block. On the outside of the facades each apartment has a loggia and the courtain wall used to allow maximum flexibility of use. (Figure 11)

Aldo Rossi's design principles emerge also in the graphic expression. The project tables are made in collages and placed next to the plants of a Schinkel engraving.

The design principles that emerge in Block 10 are described in his text "*The architecture of the city".*

In the book he considers the city as the territory of architecture and represents the reality in which we have the most complete representation of the human condition.

To understand architecture it is necessary to describe the city. And only after having analyzed it is it possible to build. To build it is necessary to know. Knowledge is the foundation of architecture.

Fig. 11: Crossroad Friedrichstrasse – Wilhemstrasse – Kochstrasse. Aldo Rossi's project. Digital reconstruction by Giulia Bertola.

For Aldo Rossi *the locus* is *"the singular and universal relationship which exists between a certain local situation and the buildings that are in that place".* (Moneo R., 2005, p.139)

The locus is many things at once, it is a set of relationships.

Rossi recalls that all these relationships are equally important for creating a successful architecture, inside and outside the city.

The city is a set of elements in tension between theme.

The role of the new buildings is to resolve these tensions by going to make the order where it is not.

It is necessary to look for the founding element present in every place, working on already existing models of the city, through the study of the historical city and understand which elements discard and maintain and which could be innovative for the place.

Enhancing certain elements also allows us to leave room for the "*singularity*", for what is unique and exclusive.

They are visible signs in space and contain all the meanings that society entrusts to them.

For Aldo Rossi it is not possible to design without first possessing a "*knowledge*". He strongly believes in the importance of theoretical research.

He takes up Leon Battista Alberti, who leads him to reflect on the relationship between theoretical research and practical activity: the theoretical analysis represents the basis of professional experience.

"The city, which is the object of this book, is understood within it as architecture. When I speak of architecture I don't mean exclusively the visible image of the city and the whole of its architecture, but rather architecture as construction. I refer to the construction of the city in time". (Moneo, 1998, p.108)**.**

4. Drawing as an investigative and communication tool

The case of the IBA 84, represents for the author an important opportunity to demonstrate how drawing could be a fundamental gnoseological means during operational and creative processes going beyond the simple observation of archive footage.

Design is intended as a manual practice that requires time, technical skills and concentration.

Drawing intended as a process of study that precedes (through phases of conception and design) crosses (through the creation of sketches and compositive schemes) and follows (through simulation and verification phases) any artifact whether it's thought, designed or built.

This process implies a capacity of concentration of the gaze: when the eye looks at a certain thing to draw it, it almost immediately picks up the elements that require greater attention.

In this way a journey is initiated between knowing and building, in which elements that we tend not to see are brought to the fore. As the hand traces the signs, the brain analyzes and reworks.

This method was applied to understand the design approaches of Rem Koolhaas and Aldo Rossi and their points of view in relation to the concepts of poetic rationalism and critical reconstruction.

Some relevant elements of the project developed through the practice of drawing were: the continuity

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of the façade with respect to the existing buildings, the maintenance of the historical layouts, the average height of the buildings and the different choices of positioning of the volumes within the Block 10.

soft and dull colors, dominated by the black of graphite.

The images shown are axonometric representations performed through the use of tracing paper and colored pencils of different thicknesses then
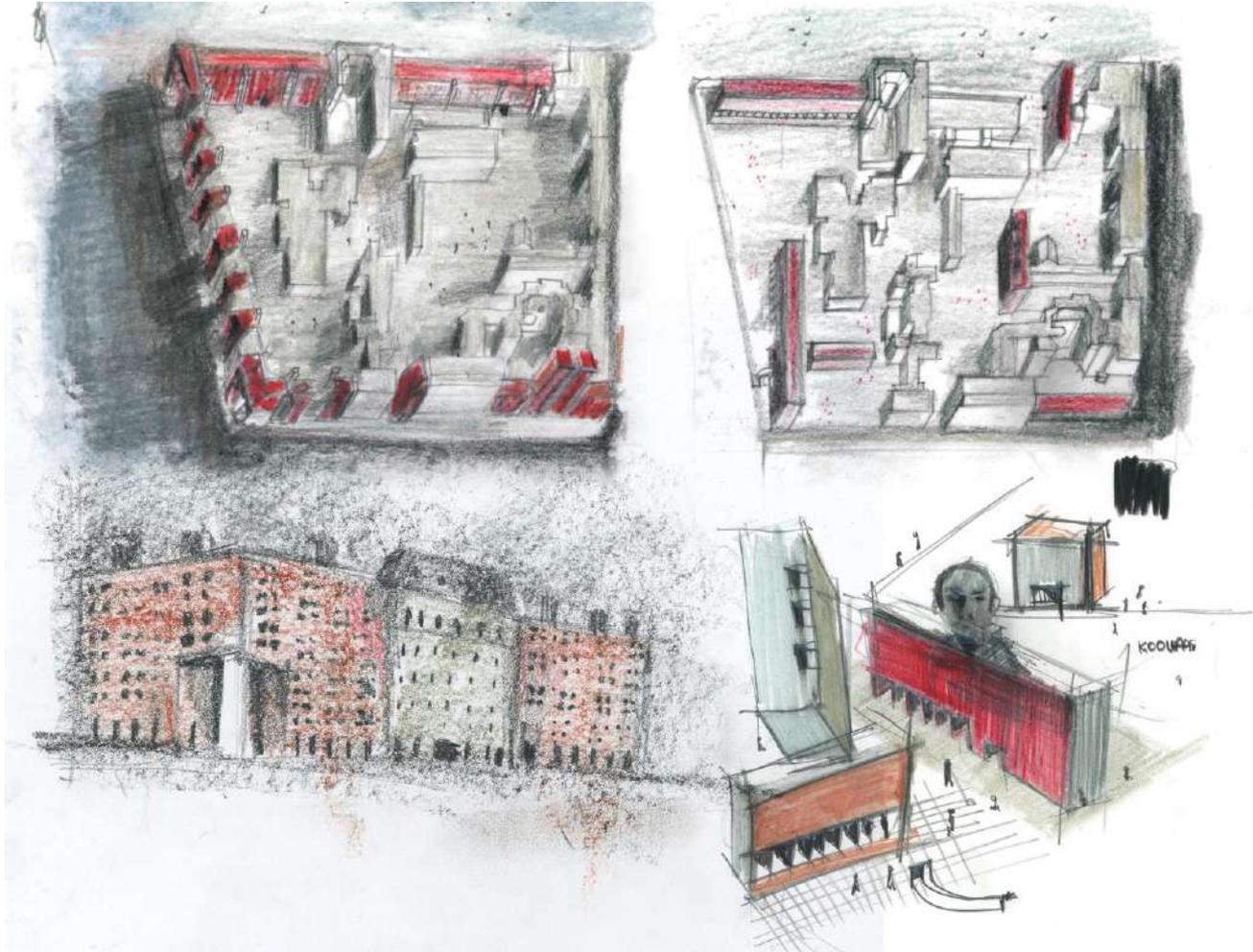
Fig. 12: Interpretative sketches of Rem Koolhaas and Aldo Rossi's projects. Sketches by Giulia Bertola

In the first interpretative sketches and in the choice of representation techniques, the own perceptions inevitably emerge when dealing with the case of the IBA 84 competition. (Figure 12)

Perceptions that are expressed and summarized through the choice of graphic techniques, color, pressure, speed, rhythm and lenght of the sign drawn on white sheet.

There are many aspects that usually influence the graphic representation, in this case for example: the historical and urban context of Berlin in the 1980s and the personalities of the architects considered.

This has led to a melancholic representation: dreamlike landscapes of lyrical-poetic style made of

overlapped to make the comparison between two architects.

All summarized and subsequently made more understandable thanks to three-dimensional reconstruction.

3D views (Figures 8, 11) consist of the coexistence of the existing buildings of Block 10 and those planned by Rem Koolhaas and Aldo Rossi.

Images that allow a comparison between the two projects thanks to the alternate choice of the same perspective views. All characterized by a graphic continuity through a precise chromatic choice and by the application of the digital collage technique.

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REGIONAL HUB FOR TEMPORARY RE-USE. METHODS AND PRACTICES TO SUPPORT URBAN REGENERATIONS STARTING FROM EXPERIENCES DEVELOPED IN THE EMILIA-ROMAGNA REGION.

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Abstract

Emilia-Romagna is manifesting great interest in the area of **temporary re-uses**, identifying it as a good practice to support urban regeneration; it connects the offer of empty spaces and urban areas to be re-planned thanks to demands for social quality and relational goods, giving birth to new forms of appropriation in terms of **proximity** and **usability**, **increasing the use of spaces** in urban pattern and standards, and strengthening the concept of **incrementality** in urban transformations.

The acknowledgement of this practice's value is stated by Regional law n.24/2017 "Regional regulation on spatial planning, management and land-use", where a first article (art. 15) **promotes the register of properties**, allowing municipalities to identify the ones available for temporary use (at least 5 years) and another one (art. 16) that **admits and facilitates temporary use** in urban plans even through the simplification of norms.

By recognizing regional experiences, it is possible to identify how differently this practice is used: to foster interest in abandoned areas through the creation of **Spot Events**, to **create innovative way of working or living together**, to **reduce complexity** and accompany **urban transformation processes**. The last common denominator is community involvement, urban regeneration's key factor for success.

The proposal for a regional Hub for Temporary Re-use aims at collecting **lessons learned** and **creates tools, culture and networks** capable of improving errors and developing the potentiality of instruments. The paper gives evidence of regional best practices, defining first of all **the Hub activities and services**, identified with a participatory process involving different regional sectors, municipalities, associations and professionals.

Keywords

Urban Regeneration, Temporary Use, Regional Hub

Premise

The long-term transformation and the effects produced by the crisis have exacerbated territorial discontinuity processes. The concepts of fragmentation and discontinuity dominate the debate on the contemporary urban planning condition and mark the passage from an urban growth paradigm to an approach of re-signification and reorganisation of the existing space that presupposes a change of perspective, in that it must give meaning and perspective through continuous modifications made to the city or, more specifically, innovating on the level of government capacities and the management of urban dynamics.

Besides, the need to decidedly orient policies toward the reactivation of the physical and social patrimony appears evident not only to contrast the effect of widespread pushes that require a high consumption of lands and environmental costs that are no longer sustainable, but in relation to the same transcalarity of the settlement geographies, with the affirmation of different forms of polycentrism and porosity, inside of which a predominant spatial isotropy succeeds the traditional hierarchy: with a tendency to surpass the confines between urban and extra-urban and the growing importance of proximity space that was geographic and becomes cognitive, organisational and social.

In this transitory context that continues to evolve, urban and territorial regeneration may constitute a potentially demanding and paradigmatic response in the attempt to restore order to processes and to the new conditions of urbanity, while bringing to the forefront different scenarios of reference, beginning with the most recent and consolidated ones of urban renewal and requalification, to then pursue new ends and methods in what already exists:

o with respect to the **production of material goods and urban welfare services**, which are flanked by the production of intangible assets

and relational assets for purposes of general interest;

o with respect to **urban transformation processes**, first demanded of dominant players at the helm of traditional public/private relations, to then be followed by a wider range of actors with diverse participatory dynamics, making the decisional processes more complex and multiform;

o the outline of the **composition of resources** destined for the interventions, separated into public and private, is associated with forms of integration and mixes of resources, both economic and non-economic, deriving from the contribution of social capital and new social finance instruments.

This involves trends that, although partial, mark the start-up of changes destined to impact urban policies and the governance of the cities, beginning with a growing demand for representation of the subjects that have, in different ways and from different positions, to do with urban practices: from the necessary role of co-planning that derives from the most advanced experiences in participation, to the centrality that is assuming the value of use over that of exchange in the reappropriation of the sites, to the emergence of a demand for horizontal subsidiarity and the welfare experience from the lower levels.

The offer of space for urban regeneration is in some way strongly linked to the emergence of a **demand for social quality and relational goods** towards new forms of **reappropriation**, in terms of:

o **proximity and relations**, where the offer of space concerns to a lesser extent accessibility and usability (which in any case remain relevant to the definition of the spatial and functional ranking), and more so relations with the urban structure and the multifunctionality of relations;

o **density of the building and social fabrics**, by means of continuity and the combination of actions and material and immaterial interventions;

o **urban assets**, as elements that are less parametric and represent more the unification of the various types of urban spaces (square, street, etc.) and interaction between the public and private spheres;

o **incremental modality** in the production and use of spaces, where a pre-eminent role demanded of the public works project both as a reference of urban renewal actions as well as an opportunity to restore the efficiency of spaces in daily use.

The process of re-appropriation of spaces and the regeneration experiences are organised through initiatives that take into consideration the demands of the community. The experiences and significances reached imply the need to go beyond the categories represented by the terms formality/permanence/legality to finally structure surveys on the capacity to sustain the social and creative re-use processes.

1. *Regional experiences*

In this complex offer of spaces, associated with the reflection of new paradigms of sustainability and regeneration in urban policies, there are also the experiences and practices of **temporary use**.

The engagement that these experiences create, and with it the value of care, makes it possible to develop that sense of appropriation highlighted and necessary to "fill" the space, to create sociality, and to increase civic activism. One of the more relevant effects of temporary re-use is that of making the inhabitant an "active subject", even an actor that, with daily experience in a territorial context, is capable of reading its problems, identifying potential resources, and acting to apply solutions, from which he or she may benefit directly.

During this phase, these tend to be practices closer to social than to urban planning innovation, traceable to social interaction processes that are generally sparked at lower levels and use the constitutional values of social capital, whose principle elements are concentration over time and the prompt localisation of the interventions.

The theme of temporariness makes it possible to experimentally and provisionally prototype those that will then be the possibilities of strategic vision to be pursued in the transformation, in that this is a process that takes place over an extended period of time. The **experimental element** is therefore another of those upon which the quality of temporary re-use is founded.

At the same time, the sites occupied by temporary uses tend to be subject to constant changes, depending on the influence exercised by urban processes, giving rise to the need to call attention to the construction of **minimal landscapes**: finalizing the role and use of the micro-urban

planning in the municipal project, aiming less at creating something new and more on what can be done with what one has, that can be pursued through the creative reinterpretation of spaces with simple adaptations of the structures.

In this context, the practices of temporary re-use, due to their informal nature, may constitute an opportunity to facilitate the imagination and enable the optimisation of time and resources, verify the feasibility of a project or of an initiative, and correspond to a high personalisation of the interventions, or of their capacity to provide responses to concrete requests for activities and services and not passively suffer the degradation and depreciation of the assets.

Furthermore, as the subjects involved in the usage of the spaces are constantly present on the territory, they generally have the advantage of readily intercepting stimuli and opportunities to be developed within the project in relation to the conditions of the context and interests present.

Through temporary re-use methods, the city and public spaces are easier for the citizens to exploit with occasional interventions, restoring likewise the opportunity to contribute to the definition of the future city and evaluate the reaction of the users along the way and the practice, which may then be subject to modifications to be made according to the feedback received.

Meanwhile, the development of these practices solicits an articulated reflection on the **project**, in terms of its capacity to define the operating conditions and ensure that the actions are coherent with the overall vision of regeneration; then on the level of **public policies**, to make these new forms of spatial production with their hybrid confines more recognisable and position them between the institutional and informal levels, in the presence of new categories of social subjects, making it possible to connect the spaces of daily projects with the institutions.

It is therefore important to understand and, where it is worthwhile, to appreciate the influence of informal actors in the planning of urban space. The very actions of the citizens who often anticipate formal re-use projects, contribute to the creation of spaces where innovative practices take shape thanks to shared projects, guided by the principle of self-determination.

During this phase, the examples of temporary re-use in the region of Emilia-Romagna still appear

partially embryonic, certified at experimental and operative learning levels, although with different degrees of maturation and experience. The interest they generate is mainly due to the capacity of contingent aggregation and the consequential operational models. These are potentially experiences that, in different offers and types of re-use, are capable of generating or consolidating an intense flow of relations on the proximity scale and are capable of dialogue with the city.

In the context of different valences and purposes of the ongoing experiences, mainly traceable to ex-production structures, ex-commercial activities and services, what stands out is how these can essentially be regrouped according to different types of re-use, depending on the objectives to be attained, as defined in the table below (CAPRIOTTI P., 2019):

Tab. 1: Different types of re-use, depending on the objectives to be attained

STAND-IN	Temporary use has no long-term consequences on the space. Its only function is to cover the space between the previous use and the future one, with a solution involving a custodial function.
FREE FLOW	The use continues, moving towards new locations according to the opportunities available.
IMPULSE	The use is decisive in the planning of that given place.
CONSOLIDATION	The temporary use is functional to is consolidation in the space.
CO-EXISTENCE	The temporary use co-exists with the new use assigned to the space.
PIONEER	The success of the temporary use generates a growth of permanent uses in the surrounding context.
SUBVERSION	The temporary use is an instrument of disturbance and contrast to the transformation to the point of impeding it.
DISPLACEMENT	A permanent use is temporarily shifted to be able to recover the building before returning to its original location and may generate effects on the reinvigoration of the project.

For the purposes of this initial recognition, the articulation reported in the table is simplified,

dividing the experiences into three groups initiatives/spot events (which can be found under the categories of "stand-in", "free flow", "impulse" in the table) regeneration spaces and processes.

1.1 Initiatives/Spot Events

These are occasional moments and particular, in that the re-use assumes the function of demonstrating possible uses, targeting especially animation and the involvement of specific subjects (ex. children, the elderly, etc.). Its main purpose is to rediscover abandoned urban places and spaces, unused and abused, to repropose the identity and sustain the relaunching of the urban metabolism. The interest of these initiatives, which is usually minimal and diffused, is also linked to the capacity of engagement as well as to the centrality that is attributed to the initiative, to the innovative relationship between structure and place with the environmental characters that connote them, like in the case of empty shops in historic districts and of consolidated urban fabrics. Among the most interesting and structured experiences of this type are those linked to **social street** practices (among the various **historic ones in Bologna** and **via Regnoli** in Forlì) where virtuous reactivations against the decline of parts of the historic district are triggered through cultural and social activities, those of the relaunching of commercial activities with the use of shop windows (tried and proven examples are the **Temporary Windows** in Faenza and **Vetrine vestite ad arte Bagnacavallo** (Bagnacavallo artistic window dressing), which are interesting also for the "mobilization" of a variety of subjects like Confesercenti (Italian confederation of traders and hotel owners), Schools, Artists). Using municipal events like fairs, festivals, open days, cultural and social initiatives, at periodic and regular intervals, is one way to link the theme of re-use with a methodology of intervention in progress that can foresee the gradual adaptation of spaces in relation to the calendar of events within the structure itself. With this working progress method, the intention is to verify the continual feasibility of interventions and uses of spaces by taking into account the indications deriving from previous phases. These practices, in addition to maintaining the level of interest and engagement, rely on innovative materials and actions that from time to time are implemented, intensifying relations and reinforcing the role of

these places in their settings of spatial and functional reference. As a usage method, they are configured as accessories for innovation practices oriented toward social and environmental sustainability. Examples of this typology are those of the **Ex Tiro a Segno** (ex-shooting range) and **Frames di Paesaggio in Ravenna**, the **Mercato Coperto** (Indoor Marketplace) **in Ferrara**, and the **Teatro Comunale** (Municipal Theatre) **in Luzzara**,

1.2 Regeneration of Spaces

The more structured and advanced of these include the historic experiences **in Bologna**, from the **ex-San Donato train station** to the **Senza Filtro, Le Serre, Instabile Portazza**, **the Pop-Up Darsena and Orti Urbani (**Urban Gardens**) in Ravenna**, the **ex-ATR in Forlì**, the **ex-Polveriera** (munitions depot) **in Reggio Emilia**, **Spazio Grisù and Wunderkammer in Ferrara**, **OvestLab and via Carteria in Modena**, where temporary re-use is linked to a planning of activities and multi-purpose initiatives that are part of an organisation and a professional logic, adapted to meet market needs and therefore more closely related to the institutions and new entrepreneurial and social formats.

These are examples involving mostly marginal areas of the urban fabric, prevalently using production buildings that are mostly abandoned and awaiting transformation. The size of these areas, which are no longer useful to a market in crisis, opens up the possibility of making them available instead to "low cost" interventions during a phase of transition. For the purpose of citing a particular operation that began as temporary and then consolidated this method of intervention for the purpose of recovering a service, it would be interesting to consider the case of the **Teatro Sociale in Gualtieri**: a construction site that is still open, where works are advanced by citizens and artists, a resource has been reactivated, innovating not only the practice of recovering the building, offering more flexible spaces suited to variable configurations, but also the form of management and the cultural proposal offered.

1.3 Processes

Of particular interest is the story of the first experiences in Bologna where the landmarks for these types of practices were established and that in some way, from antagonists for primary needs, were transformed into subjects of management of an

abandoned patrimony while responding to the offers of spaces within a city-wide projects to then assume a role of privileged representative of the public on social and urban policies, eventually acting as promoters of innovative projects. These included that of the "**Distretto Popolare**" for **the Metropolitan Area** and **Dumbo of the Ravone area in Bologna**. The theme of temporary re-use, in its practices and in its impact, was determined, in this case, in order to fuel, through testing and auditing phases with the reality and its changes, a strategic path of social innovation, in which the importance of the process is detected: like the level of accountability translated into the capacity to adapt to changes produced in spaces in real time. Next to these types of offerings and re-use practices, there are also different intermediate situations that are less typical and with variegated utilitarian valences to support the solution of social problems and criticalities (above all living units), within which the space is proposed in adaptive terms on a daily basis, giving rise to unprecedented forms of integration, for which the formal/informal confines are extremely weak. In this sense, the formal environment, inside of which the project intended as a regulatory tool is contained, stands in dialogic relation to informal processes and actions. It is therefore opportune, through a flexible project capable of recognising and structuring the space, to favour the appearance of informal practices.

Given the success of these practises and recognising their role in the social cohesion and recomposition processes, a growing interest was observed on behalf of local institutions, especially with the first issuing of the **Regulations on Public Assets** and notices for the **manifestation of interest** toward private parties to arrive at the identification of a patrimony available for temporary re-use (**Municipalities of Ravenna, Savignano sul Panaro, Casalgrande, Bertinoro, Urban Innovation Foundation of Bologna, Consortium for Production Activities Areas and Services of Modena, etc**.).

The **assignment of spaces** is also intertwined with manifestations of interest. In Bologna for example, inside the Laboratory promoted by the Urban Innovation Foundation; in this context the fabric of the associations, particularly rich and pro-active, meets and exchanges ideas with historic self-management organisations. So the topic under discussion was that of the recognition of subjects who propose projects, although they may not be a

legal entity. This debate gave rise to the **Bancarotta Srl** project that suggested that a new direction be taken in terms of assignment; the proposal was born of the meeting of 15 informal associations, collectives, and groups after the Municipal government posted a tender for an ex-bank, small and run-down, in Bolognina. These subjects, who had participated in the **Laboratorio Spazi** of the City of Bologna, having seen the tender announcement at the end of 2018, instead of competing among themselves to obtain the space, joined together to work on the design/construction of a new social space for various open and self-managed activities, embarking on a road other than participation, where it is the project and not the subject that is deserving of the assignment.

For some administrations, evidently those in which the experiences of the previous paragraphs are older, temporary re-use was partially assumed as a component in public policies and plans made from a viewpoint of experimentation and verification in the management of the demand for transformation. The following cases are emblematic.

In **Modena**, re-use was intended as a catalyser with the objective of regenerating a historic road in the historic centre (already the object of a pilot recovery plan under law 457/78) that was in a phase of decline, aiming to re-use the abandoned spaces through a public tender (agreed upon between the Municipal government and the property owners) and finalised at favouring the introduction of new businesses (with a rental fee agreed upon for a period of 3 years), compatible with the typological characteristics and with the surrounding buildings. With this operation, the Municipal government intended to verify both the tenacity of the public/private relationship in a degraded but still socially vital area, measuring the responsiveness to the adaptation to new activities, and the ingredients capable of activating regeneration, like those favouring the introduction of new subjects with initiative and innovative ideas capable of taking care of the patrimony entrusted to them, promoting the integration between different activities and creative materials to make the offer of potential uses (commercial, artistic, artisanal, social, etc.) plentiful and varied, promoting the involvement of the residents through initiatives of purpose. This experience, which began with great initial momentum, is perhaps today to be reconsidered for its lack of a management plan capable of

coordinating and updating the set of activities, as well as its suffering from poor communications.

In the case of **Ravenna**, the re-use working progress of the **ex-Tiro a Segno and the Pop-Up area** appeared to function in compliance with the provisions of the Thematic POC (Municipal Operational Plan) of the **Darsena Urbana**, and therefore the same POC introduced the regulation of both the targeted localisation of the sites eligible for potential temporary re-use and some legal provisions on the reinstatement of the structures and use of the spaces, promoting the role of maintenance and the recycling of the materials.

In **Reggio Emilia**, with the assumption of a notice finalised at the development of temporary re-use initiatives in the historic district and in the **S. Croce Quarter**, the Municipal government, beginning with a series of ongoing experiences and the same requalification projects of the area of the **ex-Reggiane** (dating back to the same period as the S. Croce quarter), attributed a strategic significance to re-use practices for the purpose of urban regeneration, favouring some urban sectors and, in the same way, by verifying the effectiveness of these correlated topics to the new social and economic conditions, promoted new relationship models between public and private that were activated during the actuation of the projects and the management of activities, extending the relation from traditional subjects to representatives of the third sector and social stakeholders. In this experience, the Municipal government, assuming temporary use as a valid policy, presented itself as a figure of intermediation between owners and managers, committing to both to find resources (for example, those made available by the Bando Periferie - a tender for the development of city

outskirts) to ensure the safety of the property to be included in the temporary re-use project.

Even the city of **Bologna**, in terms of provisions and incentives established as founding principles with a resolution [1] called for the possibility of modulating the TARI (waste disposal tax) in relation to surfaces in excess of 2000 sq.m: this was intended to favour the transitory use of buildings waiting for urban planning interventions on abandoned businesses, when the property is not used entirely.

In regulatory practices up until now, reference has been made to existing methods and instruments of intervention, establishing the possibility of using them integrally and intelligently: the tools for maintenance (deriving from Law 164/14 also to evaluate the effectiveness and the same criticalities), the recycling of materials, the culture of the spaces, etc. and to prospect a higher level of integration between the social components and urban planning and spatial ones.

Passing from experimentations born of affection, one attains experiences where multiple skills are required and new professionalisms are born and developed, capable of gathering and translating the citizen's petitions, recognising the value of sites adapted to meet new needs, mediating between a variety of stakeholders and introducing them to each other. The so-called "Activator" figures were born, working to put others (citizens, agencies, associations) in a condition to use the asset, articulating and taking care of the projects in terms of physical/architectural aspects as well as social and welfare ones. Their role facilitates the triggering of the domino effect on ample and complex areas and makes it possible to recognise and identify working methods, as in the table below (CAPRIOTTI P.):

Tab. 2: Outlining of the topical phases of the operational process

SCOUTING	Identification of places and their potential	
DIALOGUE	Discussion and mediation role among the various stakeholders	Owners
		Administrations
	Use tools to safeguard the various interests of the parties involved	Civil/citizen associations
	Facilitate the building of networks	
REVITALISATION	Facilitate the concept of re-use. Indicate the parameters and the legal basis to guarantee the actuation of the projects. Transfer knowledge of previous experiences.	
MONITORING	Highlight and call attention to the value produced compared to the strategic dimension of the intervention	Social Value
		Property Value
		Environmental Value (public health)

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[1] Art. 17ter resolution n. 115610/2019.

Technique and innovation constitute new modus operandi: the **circular methodological approach** (initial preparatory phase, with the defining of task force skills, objectives, community of reference and actors; the engagement, that accompanies the process during various phases and that foresees moments of opening and welcoming of new levers and energies; a shared work program, widely diffused through instruments and platforms to make it transparent; prototyping; implementation; monitoring, followed up by measuring the impact) favours inclusiveness and fluidity of the processes, and like in the Civic design method (Di Siena, D.), this approach (identified as the act of doing) is integrated with the recourse to stimulation of the collective intelligence to analyse the human/territory relationship (thinking) and with a reflection on settlement systems in terms of network structures and eco-systemic relations (collocating/localising).

From the quick verification of the ongoing experiences, presented briefly above, it is evident that temporary re-use, given its characteristics of changeability and differentiation, constitutes such an important test bench for the plan and the policies of the next generation that the same Regional Urban Planning Law n. 24/17 absorbed it as a tool within the provisions on urban regeneration in Chapter II.

2. The tasks assigned by Emilia-Romagna Regional Law 24/2017

Clarifying, as did the **Emilia-Romagna Regional Law 24/2017**, temporary use as a recognised practice was certainly one way to lend substance to such intentions and give merit to the experiences of one's own territory, redirecting the job to planning tools.

The Albo degli immobili resi disponibili per la rigenerazione urbana (**Register of properties** made available for urban regeneration) established with **Art. 15**, makes it possible to identify, from among assets suitable for potential re-use, ones that are available while waiting for a more substantial and complex transformation. Among these, in addition to public assets, there are also private ones that the administrations may be able to have available, provided there is an agreement, temporarily or for at least 5 years (paragraph 3, letter C).

From the first reconnaissance surveys (Capriotti, P.), the data collected on 31 administrations (of which 6 are regional capitals) indicates some difficulties that

emerged in the institution of the registers, to the point that only one fifth made the effort to set one up. The reasons can mostly be traced to the aspects of innovation introduced by the law that requires the administration to have available resources in terms of quality (on disciplinary skills) and quantity (dedicated staff, instruments).

Art. 16 highlights the value of the practice within urban regeneration, as driving force of the valorization of abandoned spaces and the development of various types of initiatives (economic, social, and cultural); it is in the face of such **acknowledgement of value** and of the **public interest produced**, that Art. 16 allows **simplifications**, like the waiving of the declaration of change of use and the possibility of actuation without permits in the absence of construction works. To take advantage of such simplifications, the law requires that the building code regulate the use and define, in a standard agreement, the regulations and causes of decline with the managers. For the selection of the managers, the law speaks of tenders that target the third sector and subjects listed in specific registers as required by current laws. In reference to the simplifications and the forms of incentives for the purpose of attracting private parties, the administrations that respond to the surveys cited above, aim fundamentally toward three axes of major intervention, like the simplification of procedures, urban planning waivers with additional building quotas and tax reductions.

Both the articles, even without clarification, entrust the **municipal administrations with a strategic role in these operations**, where they figure as owners of the asset, and therefore are called upon to act to find managers of the initiatives, but also act as intermediaries, or subjects who, in the name of value and acknowledged collective interest, act to introduce private subjects to the managers. This final aspect highlights the need to coordinate the availability of various stakeholders involved and in any case make the processes transparent. It must therefore be understood if the organisation of the planning offices must be structured with the suitable skills.

In making reference to articles of regional laws, the jobs assigned in relation to temporary use are all under the Municipal government. As per paragraph 6 of Art. 17 referred to at the Architecture Examinations, one can however imagine a role of the

Regional government as a support to the local administrations that desire to act on these practices, beginning with the one relative to temporary uses, precisely with the idea of place/tool, as part of the HUB concept, where collecting, evaluating, and valorizing the lessons learned and existing practices, creating shared culture on the theme, favouring a horizontal collaboration in a network, among stakeholders, to develop the potential of the instrument and limit, or at least not repeat, inevitable errors.

3. Towards the constitution of a regional Hub for temporary re-use

Active re-use experiences in the Region are an example, even if not exhaustive, of the rich panorama of value that was produced and led to the legal identification of this practice in the Regional Law LR24/2017.

This recognition is indubitably a decisive step, although there are still many questions to be analysed, before the relative practices can be used effectively, and become tools and standard practices within the regeneration and transformation processes of our cities.

In general, the lesson learned from the experiences analysed highlights how the commitment of the promoters and activators, often limited to inside the contingent prospects, often are unable to succeed in implementing potential change effectively.

It would therefore appear worthwhile to work on the awareness and sense of these practices, that cannot always be assimilated as a whole, to make it possible to valorize the interventions on an urban and social scale in the regeneration scenarios in a broader sense, thereby preventing them from being limited to isolated or episodic attempts, and that they are instead integrated into a broader urban vision through exemplary projects of a different way of building a city, that also looks towards social innovation and the production of new usage values of places and buildings.

From this reflection, the idea of building a **HUB for temporary use**, that can be functional for defining a set of conditions useful for the start-up and consolidation of the experiences in terms of contamination and network setup. A think tank, but also a "physical" and operational space that, with a vision on a regional scale, builds shared knowledge,

promotes training and information, favours the development of networks of stakeholders and provides tools useful for facilitating the processes.

Fig. 1: Stakeholder at work to define the Hub

An ambitious project that cannot be born by those at the top, which is why the Region started by listening to the territory, first by interviewing a selected focus group, then with a participatory initiative that invited subjects operating on the entire regional territory and from different working environments, with the objectives of:

o **Analysing the theme** and sharing a common language
o Beginning to **socialise** experiences and facilitate networking
o **Identifying the needs** and co-planning the necessary activities on a short-mid term period
o Sharing a **roadmap** of the future hub

A positive response to the invitation and the wealth of skills represented by the participants in the participation day demonstrated on one hand that there is widespread interest in this issue, and on the other hand that potential stakeholders appreciate moments of exchange where common goals can be compared and they can take up the challenge.
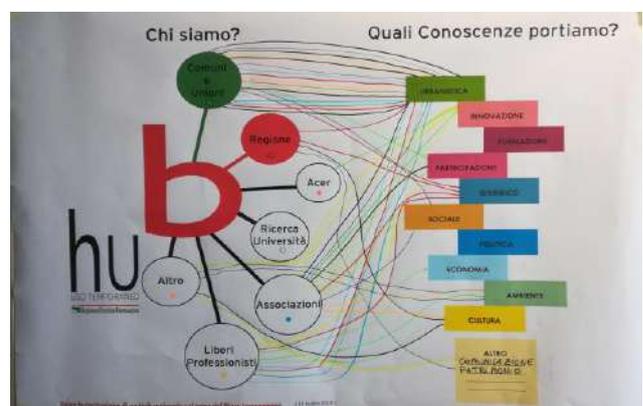
Fig.2: Composition of the participants in the initiative

In brief, the results of the debate have given rise to coherency and continuity in the recognition of values expressed by temporary use, values in physical, social, and economic terms. Above all on the level of social value, retracing the emphasis on the great capacity for **community development** and with it networks, but also growth of **co-responsibility** assumed by the citizens and administrations. Not secondary, on the economic and physical levels, the faculty to reinterpret the context, visibly and invisibly highlighting memory and innovation, imagining non-standard uses for the city and new, more resilient economies in times of crisis.

Discussion also gave rise to a rich choice of **actions** that could be taken, with different degrees of feasibility. **Knowledge** above all as a starting point to facilitate the choices made and the sharing of

practices started up in the Region out into the open and identify them; a strategic action that would immediately ensure the knowledge of subjects, objects, and processes and that would facilitate the meeting between "who knows how to do things and who would want to do things", between public and private, in the sharing of knowledge.

Another fundamental and closely connected theme is training. **Training** aimed above all at technicians of public administrations and professionals, but also at figures in the world of economy, judicial offices and social organisations (bankruptcy officers, offices responsible for police force, public order and relative administrative services, third sector, banking institutes) to be involved in targeted and specific focus groups and/or seminars. Training for the purpose of creating

Fig. 3: World Cafè. First ideas being discussed on value, tools and problematic aspects

information. Among the most common proposals to be dealt with immediately, the critical **mapping** that monitors the ongoing practices and offers an evaluation of the properties available for reuse, public mostly but also private ones (through trusteeship for example), to put the supply and demand in contact with each other. It must be evaluated whether or not to increase the existing data banks, given the recognition of offers of existing platforms, of services and possibilities offered, to make a decision based on the visibility and capacity of the implementation that they can guarantee over time. Some administrations, like the one in Ferrara, made themselves available following their mapping experience to provide input for the initial analysis and highlight critical aspects to be considered.

In the short term, and to begin reasoning on mapping, the proposal is to launch a **Call** to bring the

specific professional figures, of "**territorial activators**" who are bridges between administrations and citizens, facilitate the procedures and become figures of reference for the hub as actual community managers.

Another potential tool might be a **vade mecum** with fewer rules or guidelines, which would make it possible to orient and streamline procedures and provide collections of documents and typical acts to support the administrations.

Last but not least, **communication**: boosting the capacity to arrive extensively and throughout the territory to spread knowledge, explaining to people what is happening and raising awareness among citizens, also through territorial contact points.

For these actions, while the stakeholders are numerous and potentially all-inclusive, the key partners and most commonly found are ANCI

(National Association of Italian Municipalities), Universities, third sector Forums.

So what is strategic in this context is the role of the Region, that with the hub can assume a directorial role and be a key resource in that it is capable of making available internal transversal and multidisciplinary skills, but also and duly to open itself outward, constituting a **control room** capable of reaching panels of varied and articulated subjects: a **table and a community of practices** in which subjects participate, competent in their responsibilities and knowledge, who can standardize the necessary procedures and know-how.

One risk to be avoided is the institutionalisation of a practice that boasts of adaptability and spontaneity as its source of wealth and engine behind creativity and innovation.

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WAKING UP THE SLEEPING GIANTS. A 2ND CHANCE

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Abstract

The multidisciplinary network Urbact 2nd Chance has been working in the last two years to define solutions and practices to reactivate abandoned spaces in our European cities with a focus on larger buildings and complexes. Rehabilitating these sleeping giants means to improve energy efficiency, providing spaces for what is needed in the city due to their size and supporting the appropriation by users, not only in favour of private interests, but also as urban commons. In this direction, the project aimed at developing processes in different cities whereby people start taking over the building with more suitable uses, promoting co-design activities to define the framework of the reuse and sustain it for the benefit of the community. In the general belief that it is necessary to co-build the city with communities, reinforcing local democracy, the network implemented tools coming from the design culture, such as social innovation design, that can contribute to the cities' transformation by socializing the dimension of the project and developing a collaborative approach as key factor to ensuring successful reactivation projects. Participation improves feelings of ownership, and builds a strong base for intervention in the community. The action plans developed by the local support groups in the network converged upon one point: time must be taken into account when designing the process, as a lever of quality of life and active citizenship, to involve resources and people from the beginning in the reactivation process. The project becomes a process, adapting itself to the circumstances. The key activities and main challenges, displayed as results at a network level, help us address an issue increasingly widespread in our cities, and also explore new tools, as proto-type events, to generate awareness among citizens and give real practical, albeit temporary, experience of reactivation, proved to be extremely effective.

Keywords (max 4)

Urban commons, design for social innovation, temporary reuse.

1. The role of the sleeping giants

The large abandoned or underused complexes and buildings, urban voids, placed in our cities in central or marginal parts, are sleeping giants, whose potential represents a dimension to be explored for the possible impact at different scales, locally on the neighbourhoods, but also and above all, due to their size, at an urban level.

Rehabilitating these sleeping giants means to provide spaces for what is needed in the city: these buildings offer the possibility of simultaneously housing a functional mix for several communities of interest, thus putting together a large platform of potential users of the reactivated space. All sleeping giants are potential community centers, not only in favour of private interests, but also as urban commons.

The recycling and reuse of these abandoned urban spaces can be one pathway for greater resource efficiency and more sustainable growth, making an important contribution according to the circular economy principles. Urban renewal leads to more resource-efficient cities by using the grey energy of the existing building stock instead of building new ones, and by improving the energy efficiency of the buildings through their rehabilitation. This supports a more efficient use of urban resources: land and energy. In Italy, as in other European regions, the real estate bubble before 2009 has clearly led to an irreversible overconstruction of a territory that used to retain a high rate of land use. The following economic crisis of the last decade has produced diverse spectrums of underused and abandoned urban spaces, as a consequence of the post-industrial age effect, the decline of manufacturing industry, suburbanization, changing urban policies and planning strategies. (Ricci, 2016)

For the purposes of a deeper understanding of the main key factors of cities' transformation, it is clear that urban regeneration needs identity elements and good stories to tell, able to inspire people. The sleeping giants represent an opportunity in this sense as media communication objects, because they are landmarks and identity

anchor points, with their stories, and, most of the times, with significant cultural heritage values.

Communication can be a powerful tool to inspire cities: policymakers, first of all, can consider new ways of approaching this challenge, try out practices and improve their own policies, as well as citizens who are an essential part of this process. The engagement of the community through communication is at the basis of a collaborative approach as the key to ensuring successful reactivation projects, because participation improves feelings of ownership and builds a strong base for the intervention in the community. Bringing a broader range of people to the planning process provides access to a broader range of perspectives and ideas, but also reaches more people with information and can involve important players from the outset.

Communication improves the dialogue between institutions and citizens, and it is crucial in order to attain this goal; the local administrations have to listen to the voice of citizens, keeping their expectations realistic, and giving answers to their questions, by involving different skills for a more sustainable city.

However, if, on the one hand, the size represents a great potential to transform these giants in objects of desire through media campaigns, and to involve new resources, on the other they are often too large and too expensive to be redeveloped at one time. The long time needed to start the reactivation may imply a further decay of the building, bringing problems connected to security hazard and aesthetic quality to the fore: such a long period of abandonment increases social and economic losses and causes further negative impacts on its surrounding.

The European Urbact III Action planning network 2nd Chance, made up of ten European cities including Genoa and Naples, has worked over the past two years on the challenge of reactivating these spaces for sustainable urban development, considering them as places potentially dedicated to public use, for the identity role they know how to express in revitalizing the context in which they are embedded. The challenge of the multidisciplinary network of policy makers, urban planning technicians, mainly from administrative offices, with a small part of academics, has been to identify and compare innovative ideas for reactivation able to include local communities as a resource, through a

series of co-design activities to define the most suitable uses for everyone's benefit and how to finance and manage them.

The awakening of the sleeping giants is, and will be, decisive for the reactivation of parts of the cities, according to an idea of the city that bring back the public space to center stage. It is on the relationship between giant's form that remains and its recognisability in the dimension of the city that one can construct or reconstruct the empathy between the individuals and the community, necessary to generate social spaces. In this, the size of the giants and their history in the city has a relevance that goes beyond their physical reality and gives them the role of spaces dedicated to the public, of stages of the great collective rituals, whether they are events, celebrations or happenings.
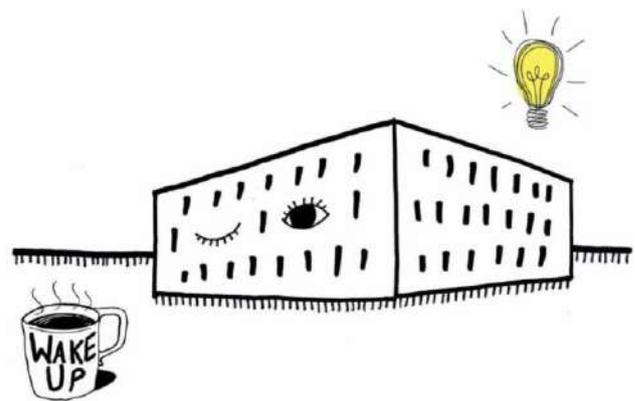
Fig. 1: This image, contained in An URBAN GUIDEBOOK for the Reactivation and Reuse of larger vacant building edited by the 2nd Chance network, have been elaborated by M.L.Nobile, communication officer in the Lead Partner Team – Comune di Napoli, and it is based on the iconic image of Robert Venturi "I am a monument" (Learning from Las Vegas, 1972)

However, if on the one hand the giants participate in the evolution of the city over time in a permanent way, sometimes having an impact on it as fundamental elements, on the other the sense of community is celebrated in temporary events, conversely. It is this tension between the condition of absolute permanence and ephemeral and absolute temporariness that gives rise to the intertwining of theory and experimentation that structure this work and the different projects that come out of it.

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2. Antinomies

2.1 Permanent / Ephemeral

The 2nd Chance project is a reflection on what has been and what will be, on the idea of waste and renewal, a concept that extends to the local economy, to citizens' oriented administrative tools. The idea of reading the antinomy between permanent and ephemeral, the leitmotiv of the network cities' proposals, constitutes the most original element of the project, because it links an innovative experimentation in tools and approaches to the cultural sediment of the city, triggering virtuous circles and bringing into play values linked to culture, nature, technology and creativity, with a possible cross-sectional benefit for the whole city and its future vision.

But if the dichotomy of permanent and ephemeral, as well as the one between memory and change underlines this project of the sleeping giants, actually it brings with it other dualisms that allow us to frame the theme of urban regeneration from a conceptual point of view.

In order to talk of regeneration, it is necessary that a complex social process has taken place capable of producing contextual and lasting socio-spatial effects over time (Ostanel, 2019), above all if the public space becomes an available resource capable of anchoring empowerment processes and social activation.

One of the most far-sighted tools to do this is precisely that of enhancing the roots, local stories, memories of a territory, without embalming the memory, but generating processes that take roots in the past, giving strength to the present.

"These are projects capable of creating a living thread with the stories of a place aiming at a sort of innovative continuity that concerns both the social - the use of a space - and the symbolic - the sense of a space - and the material context (the architecture of a space)" (Cancellieri, 2019).

It is precisely from this and other dichotomies that the main themes emerging from the stories and shared paths of our giants in the European cities of the network emerge, in particular the case developed in Genoa of the Gavoglio barracks, a former military base with warehouses and administrative buildings, dating back to 1835-1920, whose ownership passed recently to the Municipality of Genoa from the State after the presentation of an overall redevelopment plan.

2.2 Local / Global

A rationale in 2nd Chance network, as it happens worldwide in the successful practices of urban regeneration, is that it is necessary to meet, involve, activate and empower local stakeholders linked to the giant. This does not imply a choice to act exclusively at a local scale; the most effective practices are also nourished by external resources, both by being inspired by outside references and by taking advantage of the skills and dedication of external stakeholders at different scales. This is a constant rule highlighted by the exchange practices at international level of the cities attending the Urbact III Action Planning network. In the Genoese case, the strong and prolonged pressure over time of the citizens who rightly, after so many years of exclusion, wanted to find spaces for socialization within the giant, was the impulse to start a process that led to the creation of a great green park within the area for the experimentation of nature-based solutions for mitigating the effects of climate change. The sleeping giants can potentially become green infrastructures, as placed in portions of cities that are often environmentally compromised, especially if located nearby central areas.

2.3 Participatory / Cutting edge

If on the one hand expert and active local actors are the ones who can make a path sustainable over time, on the other hand participation, evolved today into a more mature and less ideological phase, can be complex, long, ambivalent, and often poorly pragmatic. The reactivation actions on sleeping giants produce design practices able to transform cities according to the needs and behaviour of citizens, but only if favoured by design driven processes. In this direction, the participatory processes do not work without process facilitation, understood not only as "post-it design", but as a steering role, to indicate visions, imagine solutions and directions able to transform the city with a project, including and dragging local communities along with the whole city. "Design is a specific culture and design experts should be selected for their creativity and trained to use that creativity to

transform their design culture into visions and proposals" (Manzini, 2015, pag.66).

Participatory practices should be more than anything else a laboratory where to experience new paths. During the activities of the 2nd, Chance network, the former Gavoglio barracks in Genoa was the test field for responsive and gaming technologies to rethink participatory co-design processes with people (Markopolou, 2019). The aim of the experimentation was to integrate citizens and communities more actively in the design of their spaces through innovative digital tools with intuitive and interactive interfaces that have been currently further developed for real application in other H2020 platforms.

2.4 Short-term spontaneity / Long-term institutionalization.

Together with the spreading of bottom-up regeneration experiences in recent years, it is evident at the same time that these spontaneous processes often found themselves having problems of sustainability and continuity over time. Precisely for this reason, there is a need for institutional forms that can enhance these processes of appropriation, also in order to make these experiences wider and more effective. In the reactivation of the sleeping giants, short-term spontaneity has a key role, but the complexity of the mandatory interventions means that time has become an increasingly strategic variable. In the reactivation process it is essential to determine from the beginning the forms of reuse to involve resources and people. Temporary use can act as a driver and incubator for urban development, testing new uses, showing opportunities, and engaging communities. In many cities all over, grassroots organisations started experimenting with temporary use, and local authorities have sometimes actively looked for ways to facilitate this innovation; common rules do not however apply to temporary use, leading to an unusual freedom from the constraints of mainstream management or exploitation of spaces. In this kind of interventions, this trend should be developed and time taken into account during the design of the process. Time also becomes of relevance to the project and can be a powerful lever of quality of life and active citizenship (Bocco, 2012). The process has to be

designed and, while maintaining a strong and defined strategy, it should evolve into a fluid paradigm that adapts itself to the circumstances.

2.5 Public / Private

The 2nd Chance network focused on bringing knowledge and ideas together to learn and exchange information about using vacant buildings as common goods and their management as reactivated buildings. This challenge must be addressed by creating strong partnerships between public and private sectors, despite appearing with different purposes of intervention.

With the lack of financial resources post crisis, the modus operandi of the public administration in dealing with large urban requalification projects has radically changed, limiting itself to coordination and management of private investors.
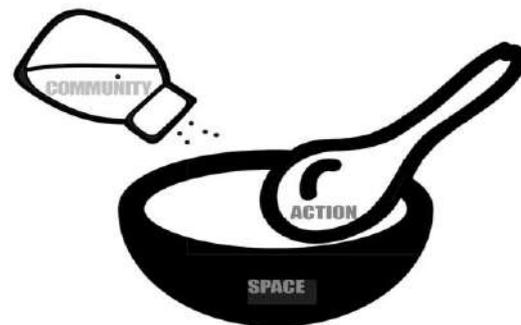
Fig. 2: The basic ingredients of the creative reuse actions on abandoned spaces. Illustration by C. Olivastri.

At a time when forms of public investment are constantly decreasing, those who activate processes of urban regeneration have to connect very distant worlds, negotiating objectives of interventions. New forms of public-private relationship are de facto constituted, and knowing how to design in complex environments also means managing relationships, being able to find sources of financing and knowing how to evaluate and communicate the impact of one's interventions.

The definition of the new uses in the reactivation takes on a fundamental role in this negotiation, a moment in which the different stakeholders, public and private, are involved together. In reusing the abandoned heritage, as a general rule we witness that the content is in principle more important than the container, or that the container without content loses all or part of its

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legitimacy of reuse, despite the priority of the cultural values tied to the sleeping giants.

3. Case study: the former Gavoglio barracks in Genoa.

Urbact is a cooperation programme aimed at international exchange and promotion of local action plans for sustainable urban development in an economic, environmental and social context. The project involving the former Gavoglio barracks aims to exploit the potential of large abandoned building complexes in order to foster the recovery of huge parts of the city through participatory models. The basic principle is that the reuse must be rooted in the local context of the sleeping giant and the distinctive traits of the Genoese neighbourhood have made our case part of this network of cities in order to elaborate reactivation strategies and methods at a European level.

There are three main reasons why Genoa was chosen to take part in 2nd Chance, which inspired the network while working together on the challenges with other partners from all over Europe.

A real giant: the size of the former Gavoglio barracks is huge, but is nevertheless an unknown place: for many years the large building complex that covers over 50,000 square meters lies tucked away straight behind Genoa's main railway station, but only the inhabitants of neighbouring districts have visual contact with its vast and now abandoned buildings, and have always called the complex sleeping giant.

Since the neighbourhood lacks parking spaces, green areas, public spaces, walkways and all kinds of facilities, the main challenge of reactivation consists in offering spaces and opportunities to overcome the current complete absence of urban commons for the district where the abandoned former barracks are set in the middle of surrounding neighbourhood areas.

Interest of citizens: participation has a long history in relation to the former Gavoglio barracks. Since the end of last century the sleeping giant, placed in the middle of a working-class district, has been the target of the pressing demands of citizens. The high population density gives a strong motivation to citizens of this area to take active part in improving the quality of their life. Therefore, the neighbourhoods can act as strong anchor partners and actors in actively supporting and enhancing appropriation and the development of strategic uses of this site for the further creation of common good. The benefits will be the enhancement of space and opportunities for recreation, leisure, work and start-ups for individuals and communities in the neighbourhood.

Environmental challenge: the reactivation of the former barracks represents a truly contemporary environmental challenge related to climate change: Genoa is plagued by frequent flooding that has resulted in significant destruction in the past, primarily due to intense rainfall on a highly urbanized landscape. Genoa's Lagaccio district is a central and densely populated area characterized by disorganized post-war urbanization mainly formed by residential, multi-storey buildings and derelict sites, and it has big water management issues. The Gavoglio barracks present a hydro-geological restriction due to the fact that the complex entirely occupies a steep small valley, below a water catchment area of an ancient, man-filled lake, and is surrounded by dense urbanization.

After two years of meetings and seminars among the cities of Dubrovnik, Brussels, Liverpool, Maribor, Lublin, Caen, Naples, Chemnitz, Porto and Gijon, six key points emerged that are useful to meet the main challenges of reactivation of sleeping giants: from feasibility studies to strategies to attract stakeholders and make citizens aware of the common good, from opening buildings and spaces to the public, even temporarily, to the inclusion of people in the process of reactivation and, finally, the definition of recovery strategies in small steps that are politically shared and capable of attracting financing from alternative resources, since public administrations in times of crisis have difficulty making huge investments. These activities turned out to be particularly useful in the different cities in order to tackle complex challenges such as the bad state of maintenance of buildings, the absence of safety standards, the impossibility of adapting the building due to various constraints, and the lack of resources and political will for reactivation.

The University of Genoa with the Department Architecture and Design and a group of citizens and associations that followed the path coordinated by the municipality elaborated an action plan that aims

to eliminate the limit represented by the perimeter of the barracks and connect it both physically and virtually with the city, from abandonment to a permanent living lab, a physical and digital bridge between the inhabitants and the administration. This project aims to solve issues connected to the lack of communication and the possible connections among things, people, thoughts and strategies and the possibility of putting together information and sharing it, communicating what is going to be done and what has been done.

4. Lessons learnt

The co-design of the city or the idea of the "Co-City" (Iaione, 2016) has become prevalent because there is a large need for co-governance arrangements in our society, in order to foster social innovation in urban welfare provision, spur collaborative economies as a driver of local economic development, and promote inclusive urban regeneration of deprived areas. Public authorities play an important enabling role in creating and sustaining the co-city. The design experts have at the same time a key role in activating, sustaining and orienting processes of social change toward sustainability.

Starting from this assumption, social innovation identifies a method for implementing complex processes with the result of producing a change in the social and urban context of a city, capable of producing effects in the action of both institutions and citizens and other social actors. In order to fulfil this goal, the existing resources of those places are the starting point.

In this direction, many researches in design for social innovation are trying to design action formats aiming to make things happen by implementing processes of co-design alongside communities that want to reactivate the contexts in which they live (Meroni, Fassi & Simeone, 2013).

For the research team involved in the Urbact III network, it has been an opportunity to reflect on the process, outcomes and interaction with stakeholders, in order to frame an action format that can be further evolved and replicated for a more effective intervention.

The contribution of design for social innovation in waking up the large abandoned European buildings is important to gather a cohesive community able to put together and enact innovative and structured solutions. In this process, community engagement and co-design workshops with stakeholders play a fundamental role. It is a new skill that requires vision, communication, facilitation and prototyping of solutions to ensure that communities of active citizens can transform into social innovators, making a significant contribution to build a more sustainable city.

The challenge must be tackled through multidisciplinary tools and approaches belonging to different design disciplines and territorial management activities, as well as to the culture of temporary reuse of abandoned and underused spaces. These new and professional figures should be able to start processes of reuse of the existing building heritage and open empty spaces, which are abandoned or underutilized, public or private properties, in order to reactivate them with creative communities and associations, start-ups and small businesses.

Mandatory steps are needed in this process: it starts with raising awareness of the identity of the sleeping giant in order to involve stakeholders. The goal is to find and activate potential social innovators. The stakeholders are mapped and balanced in order to have an active participation able to bring into the process different points of view and interests. The need is to involve as many people as possible to kick off a debate about the ideas and receive inputs. Some of the people engaged in this phase may become ambassadors of the ideas within broader communities.

At a later stage, a roadmap must be defined together with the stakeholders as a way to identify a topic for action. This step is about establishing direct contact with the community and defining a vision and a scenario. The most pro-active agents of the community might become the main stakeholders of the project or its driving force, but they have to be identified and involved in order to work side by side. The aim of Urbact action planning networks is to co-design action plans for the project with this local support group, defining clearly timing, roles and the process itself.

Despite the fact that this plan will be validated only after subsequent co-design activities and a clearer idea of the solutions, it is of great importance to draft it as soon as possible in the process, so as to carefully plan the use of resources, timespan of the project, expertise and activation of stakeholders.

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The Urbact method provides for a constant comparison of progress in the co-design activity of the different cities, thus allowing them to share problems and solutions to experiment.

As Ivan Tosics, the network expert, highlights in the final guidebook of the 2nd Chance network, Urban Guide-book for the Reactivation and Reuse of larger vacant buildings, the comparative analysis of the cases of ten cities with the involvement of experts, municipal officers and citizens' associations, brought important results for cities open to innovation. As general principles, it must be taken into account that:

- the reuse of empty buildings is a process with many temporary steps towards potential final solutions and is due to the fact that the reactivation of such a building in one big step and by just one investor is rather unlikely to happen;

- the process brings together a continuously changing community that always needs to stay open to involve as many stakeholders as possible in relation to the final goal, because it requires the wide support of a variety of stakeholders and a step-by step approach;

- the reactivation of a sleeping giant needs to be handled by the city administration, as some risks have to be taken in order to achieve good results;

- previously undisputed public tasks, such as safety and fire hazards, have to be approached in a totally new way, based on shared responsibilities, as well as innovative legal tools and institutional practices to be tested with a common-oriented urban strategy.

This means that cities should bravely test new approaches to explore this huge opportunity, both in reawakening the city and in strengthening local democracy.

The 2nd Chance city partners have undertaken various activities to ignite the reactivation process of their target buildings and sites. The following activities have been identified as crucial key activities, because almost all of the ten cities have addressed them.

1. Understand the current state of the building and history
2. Make stakeholders and citizens aware of the building
3. Open the building
4. Engage stakeholders in the reactivation process

5. Develop a reactivation strategy embedded in the city development strategy
6. Check for alternative financial resources

Fig. 3: Illustration by M.L. Nobile, communication officer in the Lead Partner Team – Comune di Napoli.

In these activities, there are a few challenges that were common ground whether the buildings were listed or not: the difficulty to adapt the building to current standards and requirements, due to the highly degraded state and to limited financial resources for rehabilitation, while, at the same time communication was hard to be accomplished in activating and involving politicians in the process and properly communicating the process outside.

5. Tools

In the two and a half years of 2nd Chance project activity, some examples of good practices were gathered in which the design-oriented activity carried out plays a fundamental role and can be identified with a specific output, such as, e.g., a series of events, communication campaigns, coordinated works on visual identity, services or visualizations of a reactivation process. Some of these cases were discussed in depth and became a source of inspiration for the partner cities in terms of process and communicative skills. Especially in the disciplinary context of design for social innovation, however, it has been an opportunity to explore which tools are ready to use for the purpose of enhancing their role of identity-anchoring points. First and foremost, the use of prototype events has proved to be extremely effective as a means of generating awareness among citizens about the sleeping giant and, at the same time, providing real

practical, albeit temporary, experience of reactivation.
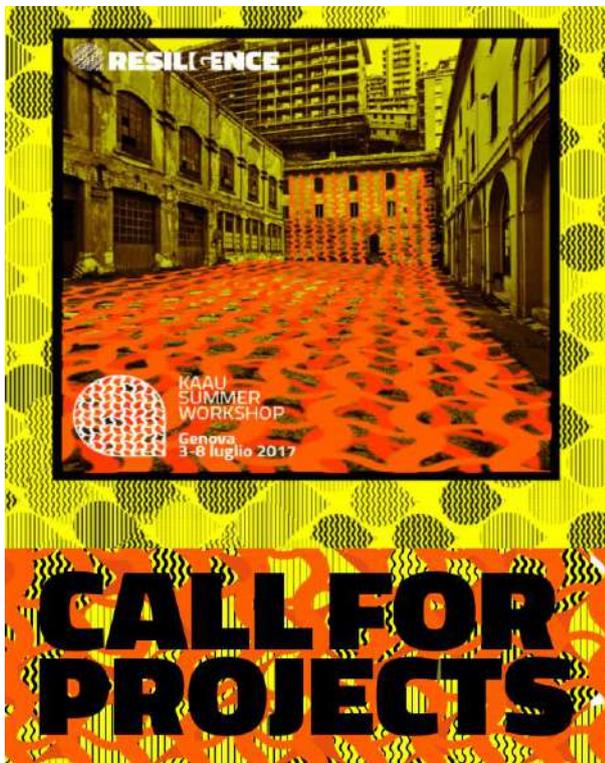
Fig. 4: Call for Projects KAAU Summer Workshop - within the researches KAAU and URBACT, together with Lab Recycle and ADD (PhD in Architecture and Design) UNIGE- for designers and citizens to propose installations inside the former Gavoglio barracks, in order to promote a different use of spaces and urban architectural heritage. Graphics: A. Ronco Milanaccio

Through these events, citizens can become proactive and part of the process, failing which reactivation could not take place. Prototype events enhance participation of the communities, creating impact through concrete initiatives.

In this push for innovation, the role of design-driven processes is fundamental to give a formal quality to processes in which new reactivation instruments are experimented and all aspects of reuse are tackled, from safety to coordinated image, to communication, in an entirely new way based on shared responsibility. Design contributes to the innovation drive with its tools and proper skills that make it suitable to tackle this complexity and give a formal quality and coherence to processes, beginning with the skill of managing complex groups in co-design activities (Rizzo, 2009) to evaluation, communication or prototype event organization skills (Fassi & Sedini, 2017).

Some specific categories of tools for participatory design are particularly efficient for reactivating strategies.

• Prototyping events: A prototype is something real that happens and implies socio-material relations. That is why the prototyping action is always connected to an event where not only products/spaces/services are shown, but where relations are taking place helped by the use of toolkits. It is certainly not possible to talk of a prototype event without considering that prototyping implies producing objects that enable participant actions and behaviours in spaces to be reactivated and become the focal point of the event.

In the Genoese sleeping giant, as first output of the Urbact activities, an event was proposed in 2017, the KSW-KAAU Summer Workshop, in which people could enter the site and experiment what was happening in it. In order to open the site as much as possible, a call for projects was made to invite citizens, students and professionals to take part into the action.

The barracks complex was opened to the public for a week, to attract the interest of new stakeholders and to present the findings of the first phase of the local support group activities involving a larger audience in the debate on the redevelopment scenario.

Students invited from other European universities and the local community were asked to perform installations in the former barracks, to prove that an unused urban space can become a powerful aggregator of collective energies. In particular, ephemeral installations were required to be realized with recycled materials, able to encourage the interaction of space-users through integrated devices and with the application of new technologies.

Other cities have put into practice art festival strategies, such as Chemnitz in Germany, which promoted Begehungen, an independent art and culture festival dedicated to promoting young artists in abandoned areas and buildings, organized by a non-profit association for which the abandonment it is perceived not only as a problem in the city but also as a great opportunity.

Sports events, too, are opportunities for reactivation, although extremely temporary. In another Urbact project - MAPS – in 2016, the city of

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Cartagena in Spain has decided to include its sleeping giant, the castle of Los Moros, in the Ruta de las Fortalezas, a sports event able to attract 38,000 people from all over Europe, to run and visit the system of fortifications that in the past defended the city.

• Co-design workshops: Co-design could be done through several levels of people involvement, and the workshop includes their direct and proactive engagement by using applied visual techniques in different steps.

1. Project Archeology   2. Radio documentation of users

3. Radio studio as platform for stakeholders   4. Sketching of solutions
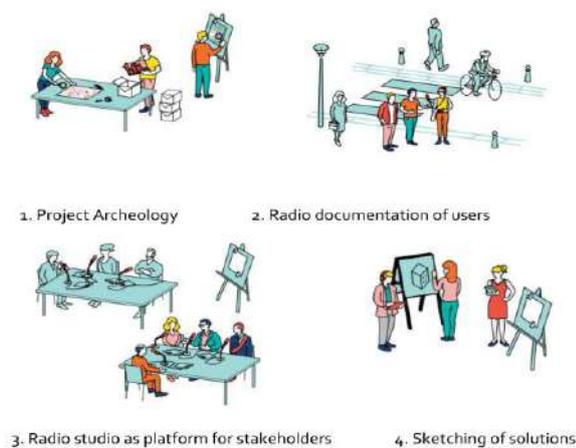
Fig. 5: Bruxelles (BE) | The Lobby 104 project workshop methodology | 2018 | City of Bruxelles, Partner 2nd Chance Network – URBACT III.

The huge spread of design thinking methods and creative processes aimed at including complex and multidisciplinary groups in the definition of solutions helps in this sense. The designer is therefore a professional who is competent to lead this activity not just for the process part in which other skills are useful, but especially for his ability to visualize and carry out solutions that enable the direct experience of people involved, thus transforming an idea into an experience-based and relational activity.

The city of Brussels, dealing with an abandoned office building, called Arlon 104 in the mono-functional European Quarter, applied a methodology for these workshops that mimics a radio documentation studio.

Interviews with various stakeholders were taken to showcase different points of view, understand the perception of users, and grasp user expectation and needs. The spread of the documentary before workshops helped to support the idea generation

with focus on quick implementation of projects and sketching of solutions. The radio studio, a common medium of the media industry, probably the closer to people, can become a platform for stakeholders to share ideas and draft different solutions.

• Calls for projects: by enlarging the range of solutions through the collection of several ideas focused on a specific topic. This tool enables the creation of a network of proposals and comparison among them and helps innovation to be used at a bigger scale. Calls for projects are usually open to a wide range of stakeholders, including professionals, who respond to a specific brief with some outcomes to be assessed by a committee based on the requirements outlined.

In the city of Naples Cantiere Terrazzo was a huge artistic installation on the roof of the former Military Hospital, the sleeping giant to reactivate. This surface was transformed into a 1.500 square meter canvas, an open-air art studio in a public place, but visible only from certain points of the city. The project was promoted by the Municipality and received the curatorship of the Donnaregina Foundation for Contemporary Arts – Madre: a conceptual way to showcase the openness of the building without entering it.

In Porto, the real estate development agency organized a photo contest in the Santa Clara district as part of the local action plan to wake up the sleeping giant, a small part of the old town, privileged territory for urban rehabilitation of Porto, classified as a world heritage site. The competition is aimed at developing the sense of belonging and participation of its inhabitants, involving the artistic community and the citizens.

• Social media strategy: by disseminating the results to increase use and awareness of specific issues and solutions. It supports the spread of information related to design actions in a local context, enabling them to be used as best practices and generate a high number of interactions.

Both the call for projects and the social media strategies are actual communication campaigns that have their own visual identity and coordinated image to be managed dynamically and in ways that can be transformed quickly, and they require openness to a new world (Mirti, 2013).

The city of Caen in France, with a typical French attitude in communicating the policy of public

investments, settled inside the sleeping giant's complex a public building called The Pavillion. It offers a variety of actions promoted by social media campaigns, such as the presentation of projects, discussions, educational workshops, bicycle and canoe trips, etc. to explain and discuss the future of the area. The Pavilion offers a variety of events to involve more global considerations and to be enriched by national and international references through architecture biennials, exhibitions and international conferences, and, finally, to raise awareness of Caen's sleeping giant.

As the spread of crowdfunding methods proves with economic issues, social media campaigns can help more than other ways in collecting any kind of resource: for example, Critical Concrete in Portugal is an academic and social initiative that renews places socially relevant through theoretical and practical educational programs. The summer school program is suitable for all those interested in the theory of sustainable architecture, involving them physically in the construction works. In this process, participants plan and entirely restructure places of social interest.

Despite the academic context in which these research projects have originated, the approach adopted was, from the beginning, orientated to make things happen as soon as possible by putting in place different forms of prototyping and starting to learn from potential mistakes and failures (Brown, 2009).

What follows is a collection of some inspiring examples that have taken place or are taking place in the lifespan of the project, and that refer to experiences connected to the network, demonstrating the experimental approach that was put in place to tackle the theme of reawakening the sleeping giant. In the description of cases, the focus has been on identifying and describing types of output to which the action carried out led, because the result of a design action is always a product. The heterogeneity of products of project actions or ideas is a clear example of the infinite possibilities of intervention and invention that an important theme like the reawakening of sleeping giants brings with it.

6. Conclusions

Italy is crowded with millions of empty buildings, underused or abandoned, a building stock that

represents a major challenge, but also an extraordinary opportunity for reactivation and regeneration for many areas of the country. The experiences of urban regeneration based on active involvement of the inhabitants are spreading. Even more interesting is the emergence of a demand for regeneration interventions built around forms of social innovation, to collect all the possible resources in a time of economic crisis.
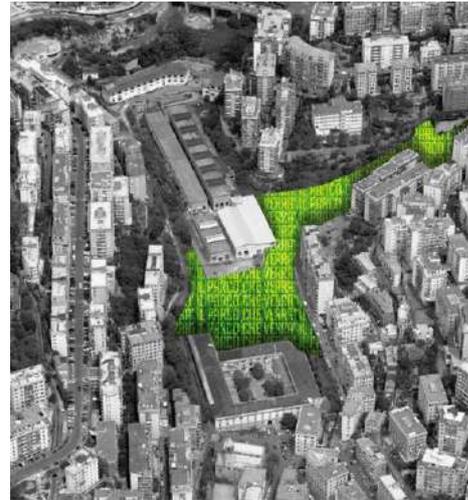
Fig. 6: The launching of the web platform www.gggavoglio.it. Invitation postcard by C.Olivastri.

As social innovation is not a magic wand, implementing this kind of urban regeneration interventions requires new skills able to intersect different disciplines, actors and tools and to implement communication and storytelling. In this sense, prototype events and other engagement tools are increasingly more strategic in order to involve stakeholders and collect resources that might come out form the context of the action. The sleeping giants and their permanence in the city have a relevance that go beyond their physical reality and lend them the role of spaces dedicated to the community, which meaning can be enhanced through temporary and ephemeral events. Sleeping giants are a good story to tell in the city and communication takes on a fundamental role in this process, a communication/action that really manages to involve people and make them participate in reactivation practices. It is necessary not just to look at the built environment, but at places, highlighting the relations that make them liveable.

This is an operation that requires new skills compared to those circulating today, in universities,

CHANCES

Waking up the sleeping giants. A 2nd chance

in the professional world, and in institutions. The research has raised many paradigmatic questions, but due to the life span of the project it has in many ways left some pending.

The inclusion of communities in the reactivation of public space for a better quality of life is also an aspect that needs innovative urban governance solutions for public space, based on technological platforms and data-collection methods, as cutting-edge prototypes, and therefore requires often careful research and implementation, intertwining of theory and experimentation with an attitude that comes out of the structure of this work[1].
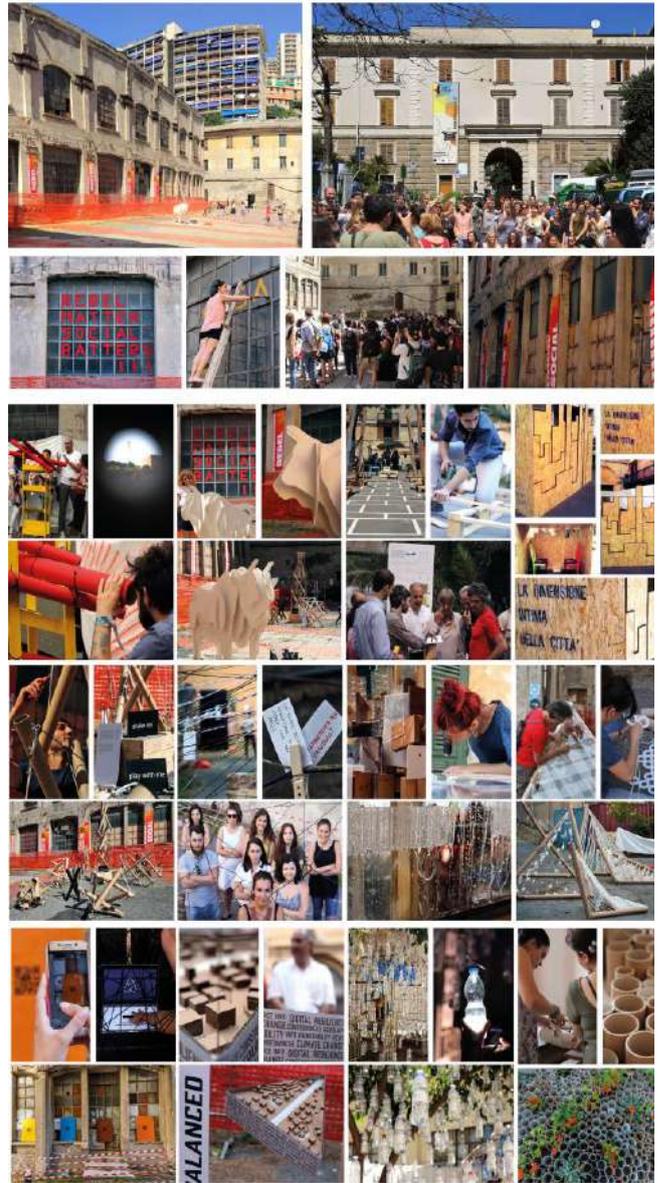
Fig. 7: KSW-KAAU Summer Workshop in 2017. Activities carried out in the open week in the Ex Caserma Gavoglio in Genoa.

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[1] This paper refers to themes and actions developed in URBACT III Action Planning Network: *2nd Chance. Waking up sleeping giants* and described in *An URBAN GUIDEBOOK for the Reactivation and Reuse of larger vacant buildings* edited by Nils Scheffler - Project Lead Expert - supported by N.Masella, M.L. Nobile and the project Partners.
Lead Partner Team: URBACT Projects and Networks on Integrated Urban Development Policies - Central Direction Urban Planning and Management - UNESCO Site.
The 2nd Chance network outputs are available in English online on the site www.urbact.eu/2nd-chance
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CHANCES

Practices, spaces
and buildings
in cities' transformation

TRACK 2 / SPACES

*Public spaces and urban commons play a fundamental role in cities'
transformation and regeneration. Culture, nature, and technology
can strongly contribute to increase the social, environmental and
economic value of urban public spaces.*
*This section introduces contributions about strategies, plans and
practices for the use, re-use, transformation and regeneration of public
spaces. This track will welcome inputs from the past, the present and
the future of public spaces potential, functions and uses.*

FEELING THE PUBLIC SPACE

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Abstract

Urban Public space could be seen as a changing scenography in which society represents itself. Contemporary architecture, in particular, is based on temporary and multifunctionality principles which tend to deprive the public spaces from their own meanings, hidden under layers of symbols and information.

Particularly in historic city centres, the identity of specific places is lost, as well the citizens' consciousness, which leads to an improper use of space mainly caused by the absence of an architectural culture.

In this sense, the ultimate goal for architecture is to be educative in explaining the reason why it was conceived. The question that arises spontaneously is therefore: Which approach leads the public space to a pedagogical dimension? A multidisciplinary listening, urban analysis and investigations allow to reach a historical knowledge. Then, by purifying the superfluous and highlighting significant elements is possible to obtain a contemplative dimension. Finally, the addition of a specific project stimulates the interpretation and so the comprehension of the place, generating a teaching of architecture, instead of through captions or explanations, through "osmosis". Probably nothing better than art would be able to interpret and describe the society we live in and so the (public) spaces that define it. Art, in this sense, as Abstract Expressionism taught us, could help architecture in activating the subconscious of the user, who, through an emotional process, is educated by it. Artists like Daniel Buren, Christo, Joseph Kosuth, and the whole "Fluxus" phenomenon investigated the internal sense of art in relation to its social fruition. This process allows citizens to feel the public space and understand its potentiality, recognizing it, at last, as a common good.

Keywords

Identity, Education, Public Art

1. Introuduction

With this paper I try to investigate the educational dimension and the strength that architecture has in influencing spontaneous and non-spontaneous behaviours. The goal is to find design and legal methods capable to improve public spaces in terms life quality of its users. The recognition and transmission of architecture, through the use of the architecture itself, attempts to stem an absence of architectural culture and an increasingly improper use of its spaces. The question I'm trying to answer is: How can the physical space succeed in educating its users?

The essay can be divided into two levels: a theoretical one, of universal value, and a practical one, which falls concretely in projects mainly focused on the historical centre of Bologna and its so-called U zone, which is the university district that expands from the via Zamboni and via Petroni intersection. The district of the Emilia-Romagna capital is considered to be particularly problematic as a place characterized by neglect, vandalism and social conflicts. Public space, in this sense, should be considered as a resource to promote education to the civic sense of its inhabitants.

A plurality of changes in society and in the city has in fact determined a slow and inexorable decline of public spaces, both from a physical and a social point of view.

On the other hand, with the growing number of committees, groups and associations that care about its custody, public space has become the target of social actions that claim its value as a common good.

To stimulate the reconquest of these abandoned environments, both spontaneously, from a bottom-up process, both from the administrations, giving it a physical liveability and a renewed social cohesion, the strategy should be to make them visible to the eyes of all its users, and so to create critical awareness in the inhabitants about what a place could be, or it was, but that today is not.

The reading of the paper should take into account these two levels of interpretation. The text elaborates general concepts that could be applied to different urban realities, as a theoretical guideline for

Fig. 1: Fondazione Rusconi – Resettlement of Via delle Moline, Bologna - Groundplan.

Fig. 2: Fondazione Rusconi – Resettlement of Via delle Moline, Bologna - Vision.

implementing regeneration processes. While the images, and the actual captions, represent elaborated projects, following the aforementioned principles, for the Bolognese context. The projects presented are related to proposals developed with Rusconi Foundation, during the Workshop "Le 5 Piazze" held together with ROCK project and during the Workshop "Transient Memories", organized by the University of Bologna. Each of them is presented through a technical drawing, few words that encompasses the project idea, and an evocative image of the completed project.

1.1 Bologna as a context

The city of Bologna has always been a magnet for creativity, fertility and exuberance that has led the city to be labelled as a place of "alternative" living. As often happens in the big cities, it has always been rich in different citizenships: Bologna university city, Bologna market town of the municipalities that surround it, Bologna city of fairs and entertainment, Bologna city of immigration. «Since the 1980s, however, each of these attributes seems to give more specific characters to individual groups than to mix them on the basis of sharing a common

residence» [1]. The social character is reflected by the physical character of its public spaces: the squares, porches and parks of the historic centre are perceived as heterogeneous places, sometimes chaotic, which in their acceptance of plurality of subjects and uses, civil and less, tend to buy the meaning of "degraded". But what does it mean? In asking concerned citizens, we are never able to give a precise definition of this term since everyone tends to accuse "the other" of being responsible for the problem and therefore no one describes himself as an improper user of the public space. In the case of Piazza Verdi, **«**the students often [complain] towards the municipal administration, so the punkabestia against the daily presence of the police, so the citizens' committees and many residents towards the homeless»[2]. The result is therefore a different perception of the identity of the space by each different type of user, leading to a difficult, if not impossible, cohabitation. Often the contention of a public space takes place through the attribution of a city identity that some groups claim to the detriment of others.

«Since September 2005 the image of Bologna as a city of degradation has emerged from the Gates and has become a subject of national debate. [...] The

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[1] Rossini, E., Scandurra, G., Tolomelli, A. (2009). *Piazza Verdi, Bologna. Percezioni, rappresentazioni e differenti usi dello spazio pubblico.* Ricerche di Pedagogia e Didattica, 4, 2.

[2] Ibidem.

Fig. 3: Fondazione Rusconi – Rearrangement of Piazza Rossini, Bologna - groundplan

Fig. 4: Fondazione Rusconi – Rearrangement of Piazza Rossini, Bologna - vision

chronicles are increasingly focused on the complaints of committees and individual citizens»[3].

From a physical point of view, in the last twenty years, the urban layout of this city, starting right from the historic centre, has been radically transformed. The need for such changes, moreover, responded to a demographic composition transformation, particularly appreciable with students. As a result, the «historic centre is being increasingly emptied of administrative functions and, in addition, the cultural and university hub is being decentralized»[4]. These processes are certainly one of the causes of the disorientation feelings that many residents who are looking for a renewed sense of territorial identity have.

1.2 The contended city

The city, by its nature, is the meeting place of variety, of the combination of potential and different intentions. Over the years, many districts of Bologna have become home to different groups and cultures where every reality remains isolated from the others. The university district, in particular, is one of these places where there is a "strange cohabitation", in which several cities meet, touch each other but, in the end, avoid each other. The structure of this area

of historic city reflects the need to offer conditions for the meeting, trade, integrating different functions and offering services through architectural elements such as the square, the porch, the market, the church etc. but the social structure no longer allows the creation of these intrinsic relationships of good living.

Public space interventions often have, as their primary focus, the qualification through actions that suggest it as an extension of the commercial space or as a simple extension of the domestic space, ignoring the cultural dimension of the context in which it is inserted. This approach fosters fragmentation and privatization with a consequent weak of the social values implicit in the concept of citizenship.

The public space, instead, is life, marked by «the unpredictable destinations that an urban environment, designed for a series of precise functions, chooses to oppose to planned ones, in a mostly unexpected overthrow of rituals and finality» (Franco Purini, 2001). The historic centre is, on the one hand, an incubator of cultures, on the other, the territory of the encounter-clash between different social groups where the conflict becomes the soul of the "public space". It is the conflict between the private dimension and the collective dimension,

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[3] Scandurra, G., Giuliani, F. (2006). *Quo vadis, Bologna?.* Metronomie anno XIII Giugno- Dicembre 2006

[4] Ibidem.

Fig. 5: Fondazione Rusconi, Workshop "le 5 piazze" –
Temporary installation for Piazza Puntoni, Bologna -
groundplan
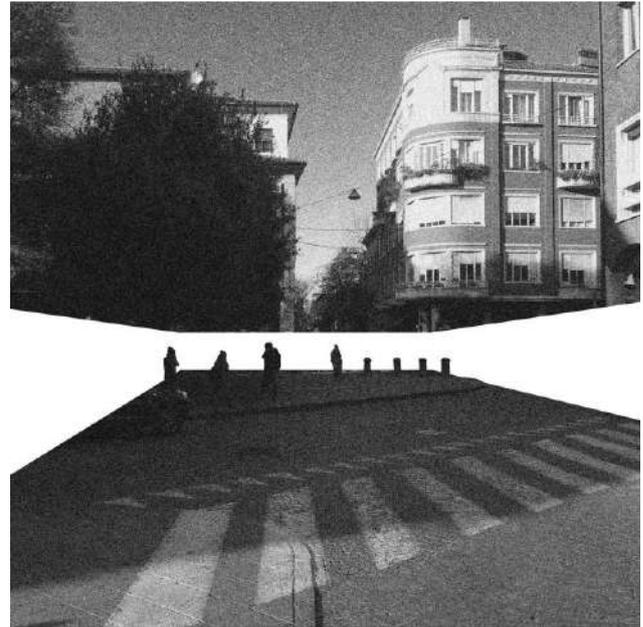
Fig. 6: Fondazione Rusconi, Workshop "le 5 piazze" –
Temporary installation for Piazza Puntoni, Bologna -
Vision

between inclusion and exclusion, between rules and diversity.

If nostalgically many citizens still think about the university area as a reality where struggles have always had strong solidaristic and political connotations, the clashes that have recently taken place in this district only express the individual need to control the quality and quantity of individual space and life time.

Sometimes encouraging private actions on public soils makes them more perceived as a common good. The city, through a better designed and defined public space, can become more just and democratic. Urban space, in this sense, is an opportunity for the coexistence of extremely different populations who claim their "right to the city" in equal measure.

2. *For a pedagogical public space*

Every architecture should be educative, that is to represent the reason why it was conceived, but also to represent ourselves in the moment in which we live it.

Architecture has always been explained and described through essays, articles and magazines. Countless words are spent every day to explain a specific project, or to investigate a specific design philosophy of a more or less well-known architect.

The contemporary scenario of the story of architecture is dominated by "museum" systems: they explain, through photos, texts and sketches, the space created and the elements that are difficult to directly catch in the project. In this way, the "concept", the idea, the representation becomes almost more important elements than the building itself.

If we also consider that only a very small percentage of these words reach the eyes of those who live the place, we suddenly recognize the necessity of teaching without using a dialectic explanation. The inhabitants of any city who meet in a new designed square do not ask about the meaning of the design choices. They simply live it, and probably most do not even notice the change from the previous solution.

This is why the teaching of architecture should take place, instead of through captions or explanations, through "osmosis", due to the mere fact of existing. It is a teaching through shared empathy. The space in representing itself, and therefore in self-awareness, it becomes empathic with its users. It carries out a process of liberation, self-denouncing itself and inviting its occupants to respect its own identity and to recognize it.

Fig. 7: Workshop "transient memories". University of Bologna – Project for a new memorial in the Bologna Central Station – Axonometry
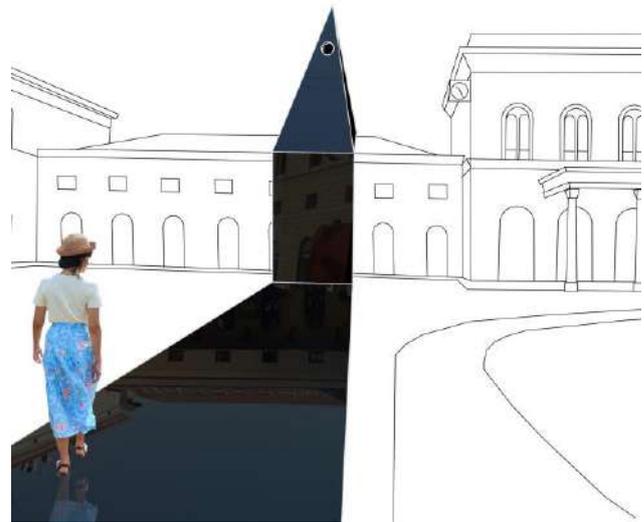
Fig. 8: Workshop "transient memories". University of Bologna – Project for a new memorial in the Bologna Central Station – Vision

The art of planning possesses a collective character which makes it possible to create a similarity between Architecture and Politics. They are

both disciplines with an ethical nature, and their purpose is to educate the community and produce benefits for it. But in the era of political disaffection, there is also a de-awareness of what we are as inhabitants. We have allowed power (ie politics) to lose its form and finally we let it renounce at art and architecture. At this juncture, the temporary uses of spaces are an automatic evolution: the places that have lost an inherent identity, and so, they have lost their awareness, consequently losing the reason for their existence, they molded, selling themselves to the best temporary buyer. Today's architecture, whose principles are largely based on the character of temporariness and multi-functionality, tends to strip the places of the city from their original meaning through an overpopulation of symbols and information, generating depersonalized and incomprehensible voids. This is why it is necessary to suggest a re-reading of a specific place by "cleaning" it from what is superfluous to its understanding.

The recognition and transmission of architecture, through the use of the architecture itself, attempts to stem an absence of architectural culture and an increasingly improper use of its spaces.

SPEME develops these themes in the field of memory. Its objective is to preserve and transmit a traumatic past, making the memory active and transformative, thus investigating creative methods for the transmission of memory. SPEME tries to go beyond the concept of museum as a static and passive element, and sets its goal in making it an experiential and confrontational place.

The memorial is, in fact, an example of architecture (or installation) that more than any other is realized for pedagogical purposes. Its design aims to encourage the user to understand and remember a specific event. It must be a place that uses an expressive language that refers to sentiment and at the same time «does not allow the development of everyday banalities»[5]. This is the case of projects such as the monument to the political and racial Deported of Carpi, designed by BBPR, or the memorial for the victims of the 2nd of August, at the central station in Bologna.

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[5] Kleihues, J.P. (1984). *A non-Place: Competition Designs for the Prinz Albrecht Palais in Berlin*, Lotus International, 42/2.

Molecolarità   Interazione

Vivibilità   Simbolo
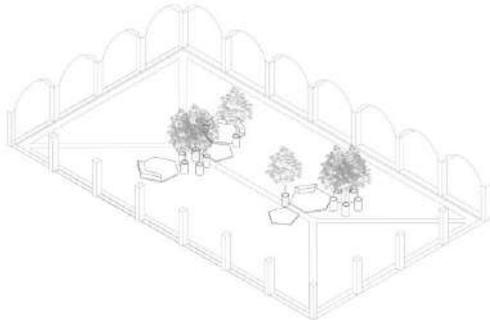
Fig. 9: Fondazione Rusconi, Workshop "le 5 piazze" – Temporary installation for Piazza Scaravilli, Bologna - Axonometry

Fig. 10: Fondazione Rusconi, Workshop "le 5 piazze" – Temporary installation for Piazza Scaravilli, Bologna – picture of the realized project

However, the memorial cannot be a simple monument that, through a rhetorical figure, allows us to remember the traumatic event: the infinite production of images, in fact, has led to a collective disinterest about their meaning and spiritual sense. For this reason a memorial should generate experience or, even better, be itself an experience and action in space by the citizens, materializing the phusical, as well as social attraction between inhabitants. as happens in Peter's memorial to the Jews in Berlin Eisenman or, better yet, in the memory museum at the ESMA in Buenos Aires: headquarters of the Argentine dictatorial repression. It was the place where the well-known Argentine Desaparecidos who were against the dictatorial regime were held, tortured and killed. Today it has become a memory museum of those atrocious sufferings, without even using any architectural project. The Museum, in this case, is the building itself, in its harsh reality. It, as a place where atrocities took place, provokes empathy in the visitor that passes through it, generating a coincidence between content and container.

Relationship is participation and participation is, consequently, the relationship of parts that have something in common between them and that goes beyond them. The monument, in this case, becomes the action in space, remembering that « once we assign monumental form to memory, we have to some degree divested ourselves of the obligation to remember»[6].

As like as a memorial tells and educates the memory of a specific event, in the same way strategies can be put in place to re-read a place. One of these strategies, in an initial phase, is what we can call "cleaning": purifying the superfluous and highlighting significant elements of the public space it is possible to obtain a contemplative dimension from which perceive the real meaning of

architecture. In this sense, the regenerative action is intended as the elimination of urban inconsistencies/obsolescences which insist both on the public sphere and on the private sphere, in order to bring out what helps to recognize the stratifications, the historical evidences, the quality of the public space and the rank of the city.

In particular, the incongruous or improper used elements are highlighted. This uncontested diffusion of incoherent elements feeds a negative perception of public space producing as an immediate

[6] Young, E. J. *The Texture of Memory: Holocaust Memorials and Meaning*. Yale University Press.

consequence a disinterest and a repulsion to the voluntary use of places. Uneven floors, road signs, unused post boxes, chains and bollards, poorly maintained green areas, unused light poles, etc. are all elements that make the public space lacking in quality. This also means tracing the identity of each of those spaces and working to extrapolate it from a heterogeneous context where the stratification of superfetation has made it difficult to understand.

In this context, an important tool for the local administration, capable of keeping alive the stimuli that arise from the "conflict" for the public space, is the construction, through participatory methods, of integrated redevelopment projects. Through this tool it is possible to give voice and impulse to a network of associations that work and live in the territory. This dialogue, between innovation (of associations) and relevant institutions is often very difficult but it is necessary in order to build common languages which, through the added value of co-creation and co-design skills, help to define new public services aimed at increasing the awareness of the inhabitants, without necessarily resorting to direct teaching actions, such as seminars or neighbourhood walks, which remain, however, fundamental, but envisioning, in perspective, a strategy to reoccupy spaces now denied or underutilized due to their distorted perception.

The users, the inhabitants, the students, who every day pass through, stop and live a certain space do not ask questions about the meaning of that place, because fundamentally they do not know it, they do not know the "hidden treasures", they do not know its history. So what does "taking care" of a place mean? it means making clear the fact that these spaces have contents that go beyond the street, the walkways, but are reflected on the facades, inside the buildings, in the courts.

At the same time, in addition to the physical elements, the projects must focus on the relational and social aspects (aggregation, conflict, etc) the public space generates. The square, actually, can be seen as an infinite abacus of all the possible temporary actions in the city, between those who pass, those who remain, those who take care of space, those who dirty them, etc.

It is therefore clear that in this path the competences deriving from experiences related to themes such as urban regeneration or redevelopment of spaces, which various associations have been able to convey to the territory, will have a fundamental role, because the game will be played on the field of urban commons management, aspiring to an inclusive, collaborative and safe coexistence.

2.1 Art as a medium

This evolution toward awareness could be generated by the artistic phenomenon, in that in the artistic process and in its creation political interests can be recognized as it tends to give an ideological reading of the work, while, in the opposite direction, certain political interests stimulate and encourage certain artistic creations through what are now called cultural policies. The relationship between art and politics is intrinsic in their being.

But are the public spaces of cities that are, or have been important from a historical / political point of view, influenced, or have they influenced artistic and cultural currents of any kind (music, painting, photography, cinema ...)?

The 40s were years of great scientific discoveries, such as quantum mechanics, psychoanalysis and the discovery of the subconscious. It is precisely because of these innovations that there was a radical change in the perception of civilization and the perception of the ego within society. There was an increased self-awareness, as if to indicate a new humanism. In fact, Jung and Freud are extremely inspiring characters for the abstract expressionism artists. They intend, following the theories of the two philosophers, to activate the subconscious of the observer through his own work of art.

During the cold war years, abstract expressionism was imported into Europe by the CIA, the so-called "long leash" method was used. It consisted in abundantly financing the artists of abstract expressionism to try to tame the minds of European bourgeois intellectuals by showing the spiritual, artistic and cultural vitality of American capitalist society against the greyness of the Soviet Union culture and art. It was one of the most striking and significant cases of the so-called "cultural policies".

Consequently, in 1960, Conceptual Art was born in Paris, where the elimination of any emotional significance of the exposed object is the basis for judging the work itself. The first artist to have used the "conceptual" definition programmatically was Joseph Kosuth. His intent was to propose works whose purpose was not aesthetic enjoyment but the

activation of thought. The artistic evolution of this movement has followed a line of progressive "reductions" or "privations" until being able to exhist without even the presence of the work of art.

From a branch of conceptual art, in England, the phenomenon "Fluxus" was born, which investigated the internal sense of art in relation to its social enjoyment. For Fluxus everything is art. Nothing is art. No one is an artist. All are artists. But if every man is an artist, there must be a freedom to subjectivity. Freedom of art that leads you to not define it in any pre-established order. In this way, art joins the experience of everyday life.

From this point of view, the citizen of a city, in his everyday aesthetic experience, can become an artist, using the city and its interactions as a medium to produce art, just as Situationism predicted, that is the realization of actions, which had a premeditated beginning, and an unpredictable result, thus giving much more importance to the creation process than the final product.

Public space, understood as a scene in which multiple actors come together to make use of it, is a place of conflict between different subjective interests. Planning must take these subjectivities into account and act without leaving a trace of one's own passage, without imposing oneself and without proclaiming oneself. The design process must therefore be as close as possible to the methodology of artistic production of abstract expressionism: activating the subconscious of the inhabitant and use it to transmit a lesson in civilization and in the correct use of space itself. The urban regeneration of public spaces should have as its main purpose, as it has already been said, that of turn didactic a place to which, previously, no cultural, historical and social value was attributed. In doing so, the relationship between institutions and active citizens becomes fundamental to generate architectural and/or artistic projects that explain the hidden heritage of our cities.

2.2 The common goods

But how can regeneration projects be implemented? What are the legal tools that can be used? The common goods, in Italy, are regulated by specific laws or by juridical figures such as the TRUST or the foundation. What are common goods? From the Rodotà commission, in 2011, we start talking about "Acqua Bene Comune" as a slogan of the

referendum campaign for "the elimination of the capital invested from the items of calculation of the tariff of the integrated water service". After all, water, more than any other good, has all the useful features to communicate the need to find a new set of rules for public goods. The great success of the consultation was the basis of the great fame that the concept of the common good would have acquired shortly thereafter, becoming the recognizable brand of many and different debates.

From that moment, the commons came out of the juridical perimeter in which they had found the first accommodation and became categories of the politician. Nevertheless, the governance of common goods, but first of all their identification and classification, is a subject that is still open on the legal and administrative level. Individual civic agreements between self-governing communities and public administrations will be able to give life to a new legal model.

In Naples, for example, the public participated government of water for the common good has included a control body also composed of users of the water service in the governance of the company, while in Rome, the management of the Teatro Valle is addressed, starting from a work on a private law body, the foundation.

In the process of evolution of common goods, the regulations are now approved in many Italian cities. The city of Turin has also adopted its Regulation for the care and regeneration of urban common goods: the European Co-city project aims to offer a vision of the administrative law of common goods but also to imagine a balanced interaction between the public and community. In particular, in Turin, it has been expressly stated that the collaboration agreement cannot constitute a juridical form through which the Municipality get rid of public performance obligations.

The management meetings and other self-government tools that, for example, are contained in the Regulation of the common assets of the city of Chieri, allow us to get rid from the notion of "active citizenship" in favour of "civic communities" ". The theme to be addressed, therefore, concerns the definition of the relationships between the self-governing communities and the management of common assets and public administrations. Private law can play an important role in this debate, providing the tools to build civic collectivism as a sort of ecosystem in which to generate innovation

processes that are no longer attributable to public power.

In addition, the figure of the open common good Foundation, the Community land trust, is introduced in Italy. The Community land trust was an instrument adopted by various local communities in the United States in the aftermath of the 2008 crisis where public administrations transferred some land and other buildings ownerships to the communities.

The proposal to use the Trust as a tool to achieve goals and delegate the governance of common goods could be a solution for administrations that do not have the founds to keep the evolution of assets under direct control, according to a scheme in which the trustee is a private law body characterized by open and democratic government rules.

But who comes first? The organized municipality, therefore the institution, or the community of active citizens? The administration should, in this case, strip its powers over the assets, leaving the field open to the possible development of a new plural subjectivity that can, in its autonomy, represent a safeguard against the protection of the asset. The leading role of the reference communities should therefore produce new institutions that are opposed, in the shared interest of safeguarding the asset.

Private law, like public law, provides useful tools for the management of urban common goods. The foundation can therefore represent an important institution for the management of urban common goods.

The management of common goods is anything but simple. Maintaining their quality cannot be delegated only to active citizenship and associations, but the entire community must be aware of the potential that remains unheeded in our cities and therefore struggle to ensure an urban quality maintenance.

3. Conclusions

The contemporary debate in terms of urban redevelopment has highlighted different forms of expression such as urban plans, visions, studies, social forums, exhibitions, etc. that have placed at the centre of their attention the physical city and its capacity, if appropriately stimulated by the project, to produce opportunities to improve daily life in the direction of greater well-being, security, health, justice.

The historic centre of Bologna, with its variety of users and uses, is fully part of this scenario of physical and social regeneration. The different associations, the various workshops and the bottom-up practices that aim to give voice to the needs of citizens are the lifeblood for supporting and implementing the various urban projects.

The process described in this paper aims to stimulate this regeneration scenario and therefore suggest methods to nourish a practice of redemption of public spaces by citizens: The cleaning, first of all, of chaotic environments, reveals a hidden quality. The participation and dialogue between the different actors that occupy the space makes them interested in it. The use of the artistic method for the realization of installations, projects, even temporary, exposes the public space in comparison with new spatial dynamics. The population acquires, finally, awareness of the place, claims its use, recognizing its value as a common good.

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TOWARDS A SUSTAINABLE TURNING POINT OF THE URBAN PROJECT.
THE ROLE OF PUBLIC SPACE IN ADAPTING CITIES TO THE EFFECTS OF CLIMATE CHANGE[1]

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Abstract

Contemporary urban planning is nowadays getting involved into thematics related with the slow and unceasing city transformations. This circumstance, highlights the need for overcoming the sectoral approach to urban complexity, in favor of a more integrated one (Macciocco, 2015), but at the same time it also shows the great opportunity of making a sustainable change, from a polysemic point of view, in the urban transformation and regeneration strategies which involve contemporary cities and territories.

The territorial context to which reference is made is the urban area; the challenge is about the adaptation to the physical, social and economic transformations that characterize the contemporary city; the methodology applied is the Urban Project. In this regard, particular relevance is given to the design of public space and its relevant role for the construction of urban quality (Mariano, 2012; Mariano, 2015). The contribution focuses on urban transformations induced by the effects of climate change, with specific reference to the increasingly frequent floods: highlighting their effects, in terms of design, on public space, and analyzing some good practices that have managed to transform the calamitous event into an urban development engine (Mariano; Marino, 2018 a, b).

The paper proposes a critical reflection on two case studies: the "Water Square" in Benthemplein (Rotterdam), and the "Climate tiles" project in Copenhagen. These represent two different ways of intervening on public space, in which urban regeneration becomes a tool for ecological reconversion of city areas compromised by the effects of climate change. This analysis, through an inductive process, aims to identify some theoretical-methodological and operational references to be tested in urban contexts affected by calamitous events, through an ecological approach of the Urban Project procedure.

Keywords

Urban and sustainable project; Public spaces; Climate change

1. Urban transformations and regeneration strategies

The contribution lies within the research activities carried out by the authors on issues related to the mitigation and adaptation policies of urban areas to the territorial effects produced by Climate Change (UNISDR, 2012; UNFCCC, 2015). These policies, which are located within the broader strategies of urban regeneration and resilience (Davoudi, 2012), imply the need to identify environmentally sustainable urban forms, capable of responding to the fragility and vulnerability of contemporary territories through actions of reconnection and of reconfiguration of morphological and environmental components (Musco & Zanchini, 2014; Mariano, Marino, 2019).

The need for a greater ability to observe the dynamics taking place in the contemporary city, (Corboz, 1998; Ascher, 1995; Indovina, 2014), characterized by low settlement density, a weak infrastructural system and the presence of a discontinuous and inhomogeneous system of built parts and open spaces, requires, with respect to the past, the development of new skills and new methodological and operational references. This is both for the purpose of interpreting the phenomena in progress, both for outlining strategies and tactics able to direct and design increasingly complex realities and to govern, at the same time, a resilient metamorphosis of the contemporary city (Gasparrini,

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[1] The contribution is the result of a shared reflection by the two authors. However, paragraphs 1 and 2 are to be attributed to Carmela Mariano and paragraphs 3, 4 and 5 to Marsia Marino.

2017) and a sustainable transformation of the territory (UN, 2017), intended as a compromise between the three needs of the challenge of economic development, of social equity and of the preservation of natural and cultural heritage.

An integrated intervention strategy (EC, 2007) on urban and metropolitan territories that implies «an overcoming of the sectorial approach in favor of an integrated approach to urban complexity» (Maciocco, 2015), through a series of actions adapted to the speed of urban transformations, able to innovate tools and procedures of the plan and the project and to define a new paradigm for urban planning policies, a process method able to stimulate large processes of transformation of the city and of its public spaces.

These actions are also desired by the guidelines of the European Commission (EU, 2016), which identifies 12 thematic priorities on which converge urban regeneration strategies. «Not only an urban planning strategy, which therefore mainly affects the physical and functional reorganization of the city, but also a project of social inclusion and economic and cultural development, as well as of ecological regeneration, central elements without which the city cannot be reborn» (Oliva & Ricci, 2017).

One of the foundations of this strategy is the construction of the "public city" (Ricci, 2017), intended as a project intervention on the open collective spaces system, residual areas, public services, abandoned areas, both in urban contexts of the historic city , both in the most marginal areas of the modern periphery.

An heritage of spaces that today represents, in virtue of their physical configuration and of the possibility of rethinking them in the network, the great potential in the regeneration processes of urban fabric (Mariano, 2013 a,c), thus playing a fundamental role in the reconstruction of the fragmentation of territories and in designing the connective fabric that structures and articulates the urban form (Mattogno, 2002).

In the contemporary city, whose physical form is the result of the processes of metropolitanization (Campos Venuti, 2005; Indovina, 2009), spaces without quality and identity follow one another in sequences which do not interact with the context, assigning to the empty spaces the simple role of interrupting the path, rather than urban places (Mariano, 2012). For this reason, as many authors claim (Morandi, 1996; Piroddi, 2000; Tsiomis, 2005),

the square is an urban product in danger of extinction and the traditional chain of public space (street - square - central places) no longer works while, on the contrary, there is a process of strong fragmentation and privatization of public space (Mariano, 2013b).

In this context of reference, the construction of public space requires, therefore, in consideration of the conceptual and typological evolution, which is not anymore attributable to the traditional spatial cathegoriesof the storical and modern city, the activation of different approaches and tolos with respect to the past, starting exactly from a structural reading of the transformation dynamics that affect contemporary cities and territories, where public spaces require longer construction processes to confer urban space the quality of contemporary urbanity (Belfiore, 2013).

It is no coincidence that in the most recent and successful experiences of urban transformation and regeneration, the intervention on public spaces is part of an innovative range of planning and design tools, first of all the Urban Project (Macchi Cassia, 1991; Balbo, 1992; Gasparrini, 1999) which gives public space the central role of generator element of urban quality (Ferretti, 2012; Ferretti & Mariano, 2014 a).

«The presence of people, the occurrence of events, activities, stimuli, solicitations are by far the highest quality index of public spaces» (Gehl, 1991).

2. Sustainable urban project and new public spaces

The comparison with the complexity of the new territorial reality of the contemporary city «more changeable, and therefore more uncertain, in which it is difficult to foresee and anticipate (Ascher, 2005), highlights the need to identify a urbanism that is more strategic and better to adapt to unforeseeable situations and to unforeseen events and to stimulate the «adaptive capacity of cities with respect to all the components of the vulnerability that decline the risk in its changeable forms» (Moraci & Fazia, 2015).

Regenerating contemporary cities and territories, in the general context of economic recession and scarcity of financial resources, means considering the complexity of the urban phenomenon and trying to give operational answers through flexible procedures open to the participation of public and private subjects. It means «be less definitive in projects in the illusion of their perfection

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and instead try to give orientations, think less of completing, close a cycle that accompanies the movement, fix less a forced future and rather sketch visions, possible scenarios. Be careful to let becoming, to listen to the impulses of urban life and to nourish this with the actions of urban intervention» (Charbonneau, 2014).

The changed conditions of the contemporary city in the last decade, after several cycles of growth, highlight the need not to proceed with large project operations projected over the long term and characterized by very high investment costs, but require reflections and urban projects oriented to the transformation of the existing city and inspired by the logic of *faire la ville sur la ville* (Grumbach, 1998), recomposing the city starting from a project of careful valorization and transformation of the existing cultural and historical heritage, carrying out interventions that respond to the principles of the sustainable city and implementing new strategies to mitigate the effects of climate change and to increase adaptability and resilience abilities.

The strategies to be implemented should be oriented towards proposing simple, fast and good quality solutions, which in some cases fall within the definition of aménagements d'anticipation (Charbonneau, 2007) and which are characterized by a particular attention to the local dimension of the project intervention, based on a gradual, incremental action, open to the involvement of a pluralist audience of transformation actors (Charbonneau, 2013, 2014; Gabellini, 2013; Bonfantini, 2018) also through the use of temporary uses of open spaces available (Mariano, 2015).

In this context, the recourse to the Urban Project (Marcelloni, 2005; Ferretti & Mariano, 2014b) is still configured as the most appropriate planning tool for the design of the contemporary city, not as a project of urban expansion but as a project of transformation on the existing city, with the aim of reorganizing, completing, giving new "qualities" to already substantially built parts, assuming the construction of public space as a means for a formal recomposition and an identity integration of the fragmented fabrics of the contemporary city (Ricci, 2017; Carta, 2013).

The urban project is a method to design and carry out physical transformation interventions that are typical and relevant to the contemporary city. This procedure is characterized by highly complex operational contexts of the decisional and implementing subjects and the relationships they have; by a considerable fragmentation of the questions to which the interventions must respond; by a strong articulation of the kind of necessary actions: reuse, replacements, additions, completions; by the centrality that it confers to public spaces that are the most unprofitable and at the same time decisive urban components for raising the quality of the contemporary city (Tsiomis & Ziegler, 2007).

Therefore, the urban project mainly deals with the space, the equipment, the networks and the public or public use services. Through these actions and interventions the urban project determines the physical form of interventions and urban space.

The urban project is, therefore, a method of construction of the project capable of accommodating and directing a succession of contributions in the long term, a procedure which, due to its nature (Sola Morales, 1989), presents degrees of flexibility capable of adapting the design of public spaces to new social practices and to the new needs of the city, overcoming the concept of a sedimented and compact space, such as that of the historical and modern city, and imagining new types of public space in line with the transformations of the contemporary city (Marcelloni, 2005).

In this context, the contribution proposes a reflection on the impacts of climate change on the territory that are progressively increasing the fragility of human settlements, with particular reference to the urban contexts affected by the effects of increasingly frequent floods and focuses on the effects, in terms of design, of public space, illustrating some best practices that have succeeded in transforming the calamitous event into an engine of urban development and a generator of urban quality (Mariano, Marino 2018 a, b).

The paper proposes a critical reflection on two case studies, the "Water Square" in Benthemplein, in Rotterdam and the "Climate tiles" project in Copenhagen, which represent two methods of intervention on public space in which urban regeneration becomes a tool of ecological reconversion of city passages compromised by the effects of climate change. This analysis, through an inductive process, aims to identify some theoretical-methodological and operational references to be tested in urban contexts affected by calamitous events, through an ecological approach of the Urban Project procedure.

3. From the perception of risk to a rediscovered ethics in urban landscape planning

One of the conceptually most significant innovations of the European Landscape Convention (2000) was to establish an univocal definition of what "Landscape" is, definitively clearing the field of any purely naturalistic, aesthetic and qualitative meaning that until then had been given , defining the latter as «an area as perceived by people, whose character is the result of the action and interaction of natural and/or human factors» (European Landscape Convention, 2000). From this it derives, on the one hand, the pivotal role of human perception as judgement parameter, on the other the correlation between anthropic interventions and environmental factors of reference.

This introduces the concept, both current and controversial, of the perception of risk in those landscapes compromised by the effects of climate change that alter pre-established equilibria in places intended by definition as safe habitats, as produced by man for man: cities. In light of this, the contribution focuses, as previously expressed, on urban transformations induced by the effects of these changes, with specific reference to the increasingly frequent floods. The aim is to understand how the aforementioned interrelationship between natural and anthropic factors may be able to reconstitute a perception of safety within the urban landscape in the presence of extreme meteorological phenomena.

In these terms «intervening on the landscape means inserting an artifice into nature, manipulating it in order to protect it, to transform it or to manage it, as well as favoring a socially significant use» (Manifesto per il paesaggio, 2013).

As can be seen from article 1 of the first chapter of the CEP on the concept of "Landscape planning", that is the set of «strong forward-looking action to enhance, restore or create landscapes» (European Landscape Convention, 2000), the crux of the matter lies in the project scales. Urban planning has for a long time been blamed for leaving out detailed elements that determine the identity of the place, for architecture the opposite thesis, namely not to sufficiently consider the relationships between the different components of the urban fabric (Marino, 2017), placing itself in contrast with the need for foresight expressed in the CEP.

The urban project procedure, in this sense, is able to make a significant contribution, actually implementing a recomposition between the urban and architectural scale (Ferretti, 2012) by performing a series of actions that we could define by "successive approximations", attributing to the public space the dual role of connective element of the built and primary component for the perception of urban quality, an operation that actually puts "the Landscape at the Center".

What expressed so far, it opens up to another interesting reflection, related to the field of philosophy.

In fact, the landscape itself is «main object of philosophical reflection» and cannot be « adequately understood and safeguarded if one refuses to take into consideration its aesthetic dimension» (D'Angelo, 2010).

In this case, the attention falls precisely on a possible role of aesthetics in relation to the concept of risk and to the perceptive modification of a landscape following violent natural phenomena (Ricci, 2003) taking into consideration its ability to acquire value in the presence of a bodily and emotional human involvement, thus characterizing the concept of aesthetics abovementioned, as "ecological aesthetics".

«If we were to develop this aesthetic dimension of ecology, we could engage with it, dealing with reproductive processes and the future design, that is renaturation, re-cultivation of the destroyed nature, not simply the regulation of functional ecosystems, but of the configuration. [...] of a human world-environment» (Böhme, 2010).

The overt awareness of the vulnerability and fragility of the territory, therefore, implies a capacity for government and public action, in a perspective of urban-territorial intervention, based on an integrated ecological approach (Aragona, 2013), which is interdisciplinary and inter-scalar, able to adapt both to the vast area and to the urban and local area (Ricci, 2017).

It is precisely in this perspective that the effects of climate change offer, in the opinion of this thesis, the great opportunity to operate an ecological reconversion of our cities in which public space assumes a role of primary importance as an identifying element of urban nuclei.

In the specific case of the now increasingly frequent floods and the consequent need to manage water within the urban context it is necessary to

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make a change of perspective in which cities and territories must be rethought by assuming water as an identifying generator element of a new urban form, making use of the Urban Project procedure (Macchi Cassia, 1991; Gasparrini, 1999; Tsiomis, 2007; Ferretti, 2012). The latter in fact, in consideration of its procedural nature, appears to be the most appropriate planning tool for intervening in such contexts, adopting the paradigm of resilience according to an ecological approach to territorial planning, which evaluates as priority elements the flexibility and diversity (Boller, 2017).

The strategies of urban regeneration, based on the above-mentioned criteria, represent, therefore, the field of experimentation for the characterization of the identity of those that are being configured, in various European and international contexts, such as the "new" landscapes of water (Maciocco, 2015; Mariano & Marino, 2018), in a perspective in which the built environment is able to adapt to the calamitous events and to the dynamic nature of the transformations of the landscape, in the perspective of the self-preservation of the habitat and of the coexistence of anthropic and natural elements, with the awareness that «to build means to collaborate with the land, to impress the sign of man on a landscape that will remain forever modified, to contribute to that slow transformation that is the life of the city itself» (Yourcenar, 1951).

In this frame of reference the concepts of aesthetics and ethics come close to each other and find their re-composition in a desirable sustainable turning point of the urban project.

In the following paragraphs two case studies of sustainable, or more specifically resilient, projects will be presented, in which public space plays a fundamental role in adapting the city to the effects of climate change, placing itself, as a matter of fact, as a key element for a new-found perception of city security in the presence of extreme weather events. These are two North European realities, the first in Rotterdam, specifically the "Water Square" project in Benthemplein, the second in Copenhagen, where the "Climate tiles" project will be the object of attention.

4. "Water Square" in Benthemplein. An integrated design that combines urban quality and environmental sustainability.

The constant increase in precipitation and in general of extreme weather events, is affecting the

Netherlands to an ever-increasing extent, so much so as to wonder how much the cities, especially the coastal ones are climate-proof.

In this regard, the city of Rotterdam is emblematic, as at the same time one of the safest in the world and one of the most vulnerable to extreme weather events, given its position in the Dutch Delta. How is Rotterdam prepared for what can be defined as the new "urban issue", or rather that of city climate adaptation? One could say in the most far-sighted way possible, also from an economic point of view, considering climate change not as a threat, but rather as an opportunity to make the city resilient, attractive and economically stronger, this through a sound understanding between the public and private sectors, which, not surprisingly, represents one of the pillars of the urban project procedure (Rotterdam climate initiative. Climate proof, 2013).

The concept of "Water Square" in Benthemplein in Rotterdam, a project completed in 2013, is simple, a large colored square in the middle of the piazza, with the dual function of a key element of the urban redevelopment of the area and a generator of an effective project of rainwater collection that avoids an overload on the city's sewage system in the presence of extreme rainfall.

When the rains are very strong the "lowered square" collects rainwater to return it to nature; when the climate is favorable and there is no precipitation, it becomes a recreational space, where students from the schools adjacent to the area spend most of their free time.

Fig. 1: Photo by Rende Petersen, kindly granted by "De Urbanisten" studio.
Retrieved from:
http://www.urbanisten.nl/wp/?portfolio=water-square-tiel

Fig. 2: Photo by Milad Pallesh, kindly granted by "De Urbanisten" studio.
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http://www.urbanisten.nl/wp/?portfolio=water-square-tiel

Fig. 3: Final design, kindly granted by "De Urbanisten" studio.
Retrieved from:
http://www.urbanisten.nl/wp/?portfolio=water-square-tiel

The project is based on an intense participatory process between the municipality of Rotterdam, the designers of the intervention, the Dutch studio De Urbanisten, the local community and the students of the schools in the area, testifying to how this type of interventions on public space of cities, need a Bottom-up approach for a long-term success. Three workshops were organized in which possible uses, desired atmospheres and how rainwater could influence city life were discussed.

The result of this process of confrontation was that the square should have been a dynamic place, with plenty of space for playful-recreational activities, green spaces, but above all where the generator element, namely the water, should have been visible in the his run along the square on the appropriate channels.

The intervention consists of three basins at different heights that collect rainwater, but also the one coming from the drainage channels of the surrounding buildings, to reinforce the need for integration of the project with the urban context in which it is inserted, another key point of the procedure of the urban project. Two of these basins receive water at each precipitation, another, which is deeper, fills up only in case of persistent rains. Thanks to a skilful design of the slopes, the water is channeled into the basins by means of stainless-steel gutters.
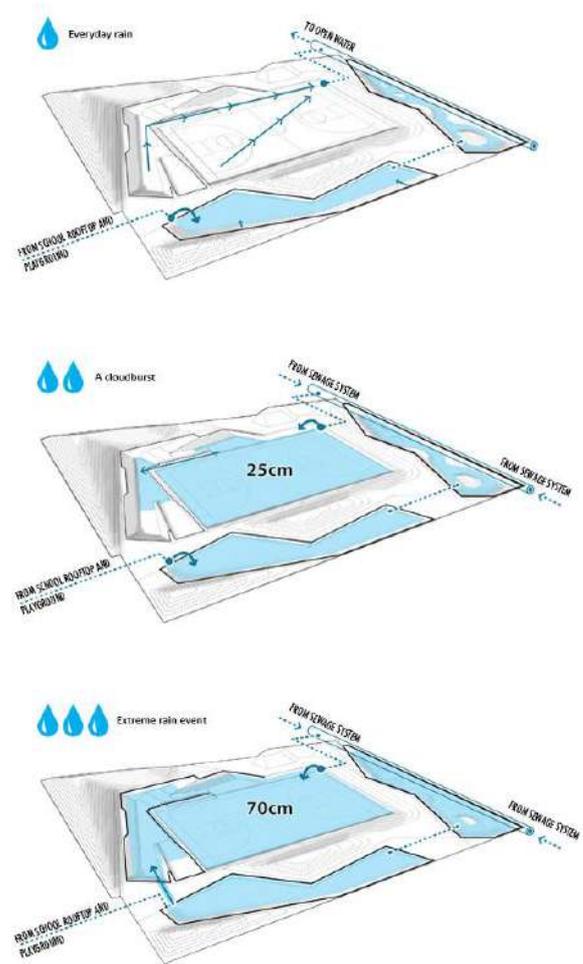
Fig. 4: Sketches, kindly granted by "De Urbanisten" studio.
Retrieved from:
http://www.urbanisten.nl/wp/?portfolio=water-square-tiel

To make the intervention an exemplary case of ecological regeneration, and to reinforce the concept of interrelation between ethics and aesthetics expressed in the previous paragraph, two elements of landscape architecture, a water wall and a rain

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well, bring rainwater into the square. The rain well was designed as a point of arrival for the stainless-steel channel, which raised from the ground brings water from the roofs of nearby buildings. The water wall instead transports the water to the deep basin with a cascade rhythm directly proportional to the amount of water of the precipitation in progress.

Fig. 5: Photo by Rende Petersen, kindly granted by "De Urbanisten" studio.
Retrieved from:
http://www.urbanisten.nl/wp/?portfolio=water-square-tiel

Once the rain is over, the water of the two less deep basins flows into an underground storage device and slowly penetrates into the water table. In this way the soil receives the necessary amount of water and can cope with periods of drought, favoring vegetation which also contributes to reducing the heat island effect typical of cities.

The water collected in the deeper basin flows into the city's water system within 36 hours (thus avoiding the formation of pools of stagnant water) without entering the sewage system.

Also from the chromatic point of view the intervention is an admirable example of urban regeneration.

The choice and combination of colors underlines the function of the square; the areas that will suffer flooding have a blue hue, everything that carries water is in polished stainless steel. This means that gutters are catalysts for attention.

Fig. 6: Photo by Jan Bouwhuis, kindly granted by "De Urbanisten" studio.
Retrieved from:
http://www.urbanisten.nl/wp/?portfolio=water-square-tiel

The Benthemplein watersquare is part of the interventions designed for the entire Zoho creative district (whose complection is expected by 2020) in the framework of the Rotterdam Climate Change Adaptation Strategy project. (De Urbanisten, 2013).

Fig. 7: Photo by Milad Pallesh, kindly granted by "De Urbanisten" studio.
Retrieved from:
http://www.urbanisten.nl/wp/?portfolio=water-square-tiel

5. Climate tiles. The project that teaches you to walk on water

The common thread that links the most significant interventions of space transformation aimed at a resilient adaptation of cities to the effects of climate change is the positive approach to the crisis dimension. Regardless of the project scale. In this regard Flemming Rafn Thomsen, partner of Tradje Natur affirms «The climate changes is both a gift and a wake-up call from above. The nature is suddenly more visible and are in these years mobilizing an understanding of that we with our settlement, way of life and consumptions of resources have triggered far-reaching and irrevocable changes for our surroundings. In a

positive way, this momentum should be used to create humane, eventful and thereby sustainable cities»[2].

The second project analyzed is exactly of the based Danish firm Tradje Natur, based in Copenhagen, and it is called "Climate Tiles", not properly an urban project, but more of a design project for public space, extremely useful in understanding how, this component of the city can and has the task of becoming, on the one hand, an instrument of civil awareness to the effects of climate change, on the other, a filter through which the city flourishes, reacts to "acute shocks" (100 Resilient Cities, 2019) creating a peaceful coexistence between the anthropic and the natural element. We are talking about an outdoor tile, designed for future sidewalks capable of handling the extreme and increasingly frequent rainfall that is pouring into our cities.

The pilot project was realized in the summer of 2018 in the Nørrebro area of the city of Copenhagen, along the road adjacent to the headquarters of the Tradje Natur studio. It consists of a 50 m long sidewalk to study the effectiveness and functioning of the climate tile and verify the response during the different seasons of the year.

The data collected will be used to make final changes to the tile before sending it to industrial production and to the market. On the topic Jeppe Ecklon, project manager of the project declares «We have chosen Heimdalsgade, that is close to our own office, cause the street today can be experienced as a sad and unattractive parking street where the Café on the corner is the only consolation. The café has shown great interest in using the sidewalk outside the café as an outdoor living room, extending the café's serving area. We expect that the café's passion for entrepreneurship and the Climate Tile system and its quialities can create an attractive space in one of Nørrebro's gray streets. We wish to show the world that climate adaption is not just about hidden technology, but also a chance for everybody to participate in the improvement of our everyday spaces, where we learn to understand the city's hidden infrastructure at the same time as it offer greater life quality».[3]

Fig. 8: Photo, kindly granted by "Tradje natur" studio. Retrieved from: https://www.tredjenatur.dk/portfolio/klimaflisen/

The purpose of this intervention is to collect rainwater from roofs and sidewalks, to allow its reuse and to manage the overload on the sewage system in periods of extreme rainfall, thus reducing water damage. In this way, the supply of water to the existing sewerage network of the city is considerably reduced and allows savings on new installations and extensions of existing water management.

This is allowed by an underground piping system that channels the water, first of all towards the surrounding plants, but water collection systems are planned also for different uses.

Fig. 9: Photo, kindly granted by "Tradje natur" studio. Retrieved from: https://www.tredjenatur.dk/portfolio/klimaflisen/

In winter, moreover, in order to allow the water to flow out and pass through the holes in the flooring, the tiles are salted, to prevent the water inside the holes to freeze; during the salting period the

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[2] Designers' statement about the "Climate tiles" project. Retrieved from: https://www.tredjenatur.dk/portfolio/klimaflisen/

[3] See footnote 12.

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collected water is directed directly to the sewer system.

The Plug function is able to manage the water from the surface and has the shape of small holes, in which elements of urban decor may be eventually inserted or be used for planting tree species. These tiles are designed for a 50-year cycle, so as to ensure long-term management of climate challenges.

Fig. 10: Photo, kindly granted by "Tradje natur" studio.
Retrieved from:
https://www.tredjenatur.dk/portfolio/klimaflisen/
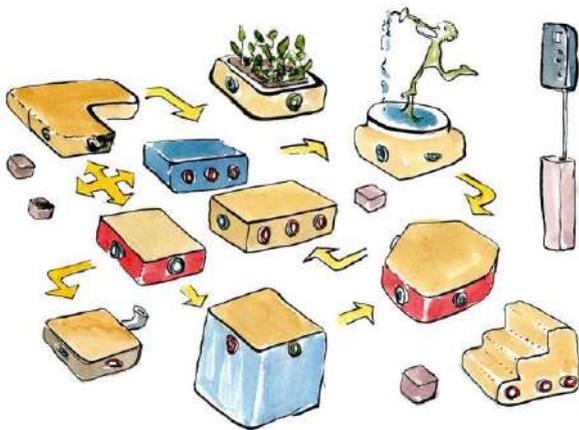
Fig. 11: Sketch, kindly granted by "Tradje natur" studio.
Retrieved from:
https://www.tredjenatur.dk/portfolio/klimaflisen/

The goal is to create a smart tile with low-tech and high-tech plug-ins. On the merits, sensors could be inserted in the holes that can read and send information on the current water level both to the water network and to the citizens. In this, all citizens will be informed and aware of climate adaptation measures in the city.

Copenhagen has more than 700 kilometers of sidewalks, thus several million square meters. All cities have sidewalks, even the smallest and most dense. The potential of this project is easy to understand; in New York there are 20,000 kilometers of sidewalks and stormwater management is undoubtedly a political priority. (Tradje Natur, 2018).

The innovative scope of this project is to guarantee adequate rainwater management, while at the same time adding more value to the city. With reference to the role of the perception of the urban landscape expressed in the paragraph "From the perception of risk to a rediscovered ethics in urban landscape planning", it is clear how interventions of this kind contribute to rediscovering a perception of safety, from the part of citizens, fundamental to quality urban.

In the authors' opinion, this project appears particularly interesting because it represents an emblematic case of interaction between design elements traditionally attributable to defined design scales. It is clear that the urban question of adaptation needs a visionary ability capable of considering the city as an organism, designing from small to large scale and vice versa, considering the appropriate interrelations between the different constituent elements.
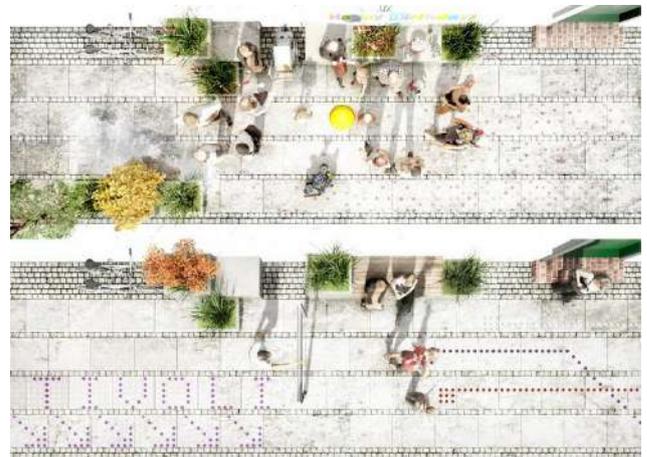
Fig. 12: Final design, kindly granted by "Tradje natur" studio.
Retrieved from:
https://www.tredjenatur.dk/portfolio/klimaflisen/

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URBAN REGENERATION THROUGH ALTERNATIVE PUBLIC SPACES

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Abstract

Many cities developed, or were founded, as trading centres; trade is vitally important for these cities, hence their need to remain open organisms accepting change over time and space, to avoid an otherwise inevitabile decline.

When cities are expanding and dilating their boundaries they are less likely to prosper than when they attempt to imagine themselves within their perimeters. This recreation of the city within its boundaries is a common characteristic of present-day European cities which are passing through a period of transition.

Recognizability is linked to difference, to the non-homologation of all places. So urban identity is determined by the correlation between differences, from which derives an unrepeatable originality. The relational space of the contemporary city is a sort of flexible territory, devoid of figurative recognition, but full of potential for service.

In modern open cities, the spaces between buildings have become mere distancing mechanisms with no character. The ever-increasing amount of urban space and free land required for vehicles to circulate and park makes it difficult to properly formalize the essence of these spaces, protagonists despite everything, which simply remain empty. This de-qualification of open spaces stridently signals the loss of a principle of city construction: cities are increasingly divided into voids; this symbolizes the waste of existing resources and also highlights the absence of content. The ungovernability generated by the constant transformation processes within the built-up area, is such that the only possible resource for redefining the image of the city is a vacuum.

We must therefore ask ourselves what the many squares overlooked and exploited as car parks can become, the road service areas with the advent of the electric car and the affirmation of e-commerce, such as the replacement of obsolete buildings in urban centers they can create unpublished public spaces, as peripheral specialized districts can redeem themselves with alternative spatiality, as the promotion of public mobility can also promote spatiality, as the various forms of urban art can in a widespread manner redevelop entire cities, including suburbs. Even destructive events such as earthquakes can suggest the reconstruction of public spaces in an alternative way.

1. Urban regeneration

1.1 Pulsations and transformations

Cities are the fruit of our past and an instrument for building our future: they display the history and culture of a community, they reveal the conditions for economic and social development and they accept, sometimes unwittingly, the seeds of change that become evident over time.

Modern cities have seen an inversion of their spatial relationships: the open spaces in the closely-knit fabric of nineteenth century cities have been replaced by buildings erected in open countryside and connected to networks.

For some time cities have been manipulated in ways that are alien to architectural practice; comprehensive urban plans are no longer adopted. Indeed nowadays the exception, continually confirmed, has become the norm, the custom, the design guide-line: urban design has disintegrated.

The city has long ceased to exist as a cohesive entity derived from a gradual accumulation over time; rather it seems to be the fruit of its temporal disarticulation, made up of continual discontinuity.

Today's city is no longer a city, it is no longer a stratification but a summation; it is no longer made of places but simply of spaces; it is no longer a place of community but a haphazard intermingling of inhabitants.

Furthermore the lack of recurring elements in urban areas makes it inevitable that project designs are isolated and unrelated; it is impossible to conceive an urban project in modern cities.

Thus, while the populations in metropolitan cities expand, their density steadily decreases, causing them to lose their constituent verve and to be transformed from a formal space into urban

phenomena, a mere accumulation of spaces. These are the limits of the bourgeois city, where increased

Such growth manifests itself only as a quantitative dilatation of inhabited areas, an expansion that causes a progressive loss of structural connections between the parts as cohesion and intensity of use decline: in practice, growth without expansion or expansion without development.

The very different component parts of historical cities are easily identified, but can still be amalgamated in a unitary whole; in contemporary cities, where the various parts are very similar, the overall view is so chaotic that it makes urban contexts confusing, with the sole exception of their historic centres which remain easily recognizable.

Contemporary cities are incoherent conglomerates of functions without structures, the fortuitous result of a myriad of isolated decisions, rather than urban organizations.

1.2 Centrality and suburbs

Recent data highlight the consolidation of transport and communication systems, increasingly via ether rather than on land. This may lead to a change in land use (freeing up land?) as well as spatial condensation.

These new forms of transport and communication will tend to progressively free people from the need to concentrate in limited spaces - a clear counter-trend to high-density urban living.

Physical proximity is increasingly irrelevant for accessing, consuming and participating; this detracts meaning from the city which is no longer seen as a palimpsest of the rationalization and overall manifestation of social relations.

This means that network and dedicated interconnections tend to have the upper hand over local interdependencies as factors driving urban development, to the point where the city, considered as a community with a limited territorial base, loses cohesion.

Metropolitan areas are therefore increasingly inhabited by people who tend to dialogue with the outside world, rather than with fellow citizens (there may be dialogue with fellow citizens but without meeting them in person) and this results in

urbanization lowers the ratio of city dwellers to country   dwellers.

groups of people being segregated in smaller and smaller fragments of territory.

The extraordinary building expansion in recent years has led to an irregular and seemingly random choice of building sites and this makes it hard to identify the different parts of the urban landscape and to recognize their hierarchy.

As the need for focal points for installing urban functions declines, these functions have been dispersed throughout the territory; it seems that everything can be located anywhere.

The concept of proximity, on which cities were founded, is no longer based on the concept of physical distance, but on accessibility, considered to be a localizing factor that acts in time rather than in space, and on the development of polarities, that organize the new settlement systems, that overlap with traditional polarities: the proximity to network nodes, therefore, as they become the principal strategic factors for transformation.

In a short time, we have moved away from closed, circular. public spaces to the rectilinear dimension of movement and now we are moving towards hybrid, multi-purpose spaces which will result in cities progressively losing their materiality.

The post-industrial city is thus inhabited by isolated communities in which individuals build their sociality through many "communities of interests", participating simultaneously in multiple communities and activities in which spatial proximity plays no role.

1.3 Voids and absences

Recognizability is linked to difference, to the non-homologation of all places. So urban identity is determined by the correlation between differences, from which derives an unrepeatable originality.

The relational space of the contemporary city is a sort of flexible territory, devoid of figurative recognition, but full of potential for service. This means that contemporary social complexity generates the proliferation of a multitude of identities.

These identities generate an enormous number of specific interest groups, a typological "explosion", that increasingly evades classification, configuring

cities as the sum of independent and often conflicting elements.

In modern open cities, the spaces between buildings have become mere distancing mechanisms with no character.

The ever-increasing amount of urban space and free land required for vehicles to circulate and park makes it difficult to properly formalize the essence of these spaces, protagonists despite everything, which simply remain empty.

This de-qualification of open spaces stridently signals the loss of a principle of city construction: cities are increasingly divided into voids; this symbolizes the waste of existing resources and also highlights the absence of content.

Contemporary cities have been transformed from unitary and well-defined places into banal and disordered piles of discontinuous fragments, even though they are connected online; collective places *par excellence* have been reduced to the algebraic sum of individual places.

When buildings become independent and the space between them becomes ever larger, a conflict arises between the overall sense, the city of belonging, and the sense of the single artifact.

In contemporary projects, form no longer structures relationships but dissolves into frenetic, intermittent appearances of disordered images.

The cities that are emerging are nothing like the historic city, but they are still "coexisting cities", with their intertwining diversity and contrasting visions.

These simultaneous - and unstable - coexistences support the hypothesis of the city as an event, given the difficulties of defining its form.

The ungovernability generated by the constant transformation processes within the built-up area, is such that the only possible resource for redefining the image of the city is a vacuum.

Urban areas, therefore, are not identified by individual spaces but are articulated in a series of relationships between spaces, which are proposed as shreds of city whose usefulness to urban life is available for individual interpretation.

The concentration, continuity and closure typical of places, today echo with the rarefaction, discontinuity and opening of non-places: this is changing the destiny of cities.

Cities are no longer expanding so there is no pressing need to shape and control their expansion

process, but rather to reorganize their extended territories: to impress an urban form upon these territories using orientation signs and paths, so as to reconfigure the emptiness of the territory that is not yet a city.

2. Alternative pubblic spaces

Urban regeneration therefore necessarily passes through the redefinition of public spaces, depending above all on the "voids" that urban places manifest: the many indefinite voids of the modern city that must reconfigure its mobility systems as well as the voids of meaning and functions new that the many improvised or incomplete urban realities need to identify themselves.

First and foremost are the urban realities of the hinterland of the big cities and of the geographies of urban spread / dispersion that seem more in need of providential interventions on public spaces, thus denouncing also the "distance / inaction" of the city effect. (Figure 1)

Fig. 1: Oslo Opera House, a square in the water

2.1 The expropriated square

An original square forgotten by its country has seen the meeting centers move elsewhere: the rediscovery of this "abandoned" place has guided the project in the search for all possible historical, spatial and functional relationships, to give back an identity role, a meaning, even before a formal design.

This is the most ancient place of Contarina in Porto Viro (RO), the founding one, where it all started: the involved urban spaces bring along with themselves scenery and elements that characterize the landscape.

The space of the square was used solely to accommodate a public car park and to connect two roads transversely, with an entire private block abandoned and now almost completely recovered. The "empty" space has been "filled" in a symbolic way, becoming a useful social meeting space for the community: a system of equipped pedestrian squares, available for different activities, socialization and meeting, with attractive installations, of great connotative and formal evidence and a continuous typological diversity.

A strong integration has been sought between all the components of the project: flooring, greenery, equipment, lighting, with organic material and color choices (present in the buildings of the town).

The alternation of the mixtures of the architectural concretes used for the flooring and in the fixed furnishings directly refers to the design of the cultivated fields, transforming the square into a large "ideal garden", a farmyard as it once was. The boundary between space of use and plastic space is constantly confused in a redevelopment intervention that is a "unicum": from the materiality of the soil it fades into abstraction towards the sky.

The project is articulated in a system of open spaces, strongly interrelated with each other and of great formal evidence.

The typological-constructive module of 5 linear meters is assumed as the dimensional matrix of the project. The green of the vegetation is used to evoke the measured and dilated landscape of the Po river delta, with an important scenic presence, thus marginalizing parking on both sides. (Figure 2-3)

Fig. 2: piazza Garibaldi in Porto Viro, an internal landscape

Fig. 3: piazza Garibaldi in Porto Viro, details of custom furniture

2.2 The new mobility and logistics

The parts of historicized cities have always had difficulty in coexisting with the modern mobility and logistics systems that have been imposed on them, revealing an evident conflict of cohabitation.

We are conquering, with increasingly fast stages, an epochal revolution on the whole system of territorial mobility of people and things: the use of drones for the delivery of mail and parcels (last mile) will greatly reduce the traffic on the ground increasingly congested by e-commerce and it can be open for interfacing with the autonomous private vehicles (auto-delivery).

Therefore, new mobility is not just technological innovation, but a change in lifestyles, means and services, ways of doing business and governance of the common good, represented by urban space and service infrastructures.

As the car has shaped the city of the 20th century with all its distortions, the new mobility systems of the new millennium could redefine the use of urban space with a new, more balanced footprint.

The new mobility could allow us to drastically reduce the total number of vehicles in circulation (with the interchange and the continuous use of these) and to free large areas of the city, for example the parking spaces, which could be destined to others. uses, and areas of service to the car as a hub of widespread freight delivery.

A possible pogural projection of these scenarios was attempted with a simulation on the city of Florence. The city's fuel service stations, selected and converted to new mobility as well, could be the landing points for the final drone delivery.

These areas inside the city can also conveniently serve for taxi-drone services, delivery of returns and more, as new identity figures of a re-balanced cohabitation.

In this scenario, the motorway service stations will become more similar to interports, exchangers serving not only travelers but also and above all portions of metropolitan areas, small cities and territorial areas of influence, creating a system of "Cells" of relevance. (Figure 4-6)

Fig. 4: design proposal for drone port in smart street service stations in Florence (Laboratorio di Architettura 3, Scuola di Architettura, Firenze, UNIFI)

Fig. 5: design proposal for drone port in smart street service stations in Florence (Laboratorio di Architettura 3, Scuola di Architettura, Firenze, UNIFI)

Fig. 6: design proposal for drone port in smart street service stations in Florence (Laboratorio di Architettura 3, Scuola di Architettura, Firenze, UNIFI)

2.3 The domesticated space

The Detailed Plan for the Concordia square in Monterenzio (BO) in 2008 focuses the urban redevelopment around a large covered square that replaces two old buildings, which remain only as scenic presences, with some perimetrical architectural wings to witness the historical "continuity".

A symbolic square, therefore, designed on two levels, a real community living room, to be used twelve months a year and surrounded by new buildings and overlooking the greenery. In fact, the large lawn has also been redesigned to act as a "lookout" over the surrounding landscape for events.

The square is conceived as a room, an urban interior, "domesticated", totally pedestrianized, to meet, on the occasion of the holidays, the weekly market, with familiarity, covered and well sheltered.

The new building interventions have to ensure an adequate urban mixity, intertwining the various public, cultural, recreational, service, commercial and residential functions, also through the continuity of the buildings (which merge with the new entrance to the archaeological civic museum) , especially given by the vertical and horizontal paths and the "plastic" roofs.

A large basement parking allows to considerably reduce the external spaces occupied by vehicles, in favor of the more widespread pedestrianization and alternative mobility, with the involvement of the river cycling path with which it comes into contact. (Figure 7-9)
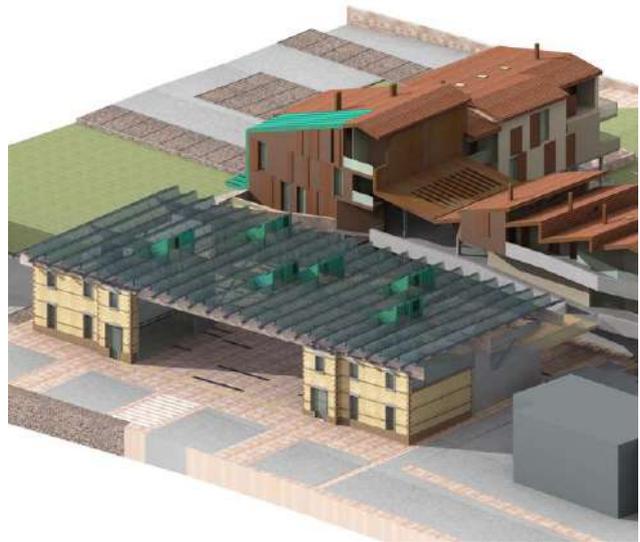
Fig. 7: planivolumetric of the Piazza della Concordia project in Monterzio (BO) focused on the large covered square

Fig. 8: access to the square covered by the new buildings

Fig.9: the street scenography with the existing structures

2.4 The metaphysical space

The urban space of the Fair District of Bologna is denoted by the visual texture generated by the perspective linearity constituted by the emergence of the towers designed by the architect Kenzo Tange and their modular corner cylinders.

There is therefore a virtual hidden lattice, made up of lines and intersection nodes, which extends the perceptive influence of the buildings in its surroundings.

The selective operation of some of these hidden paths and nodalities allows the compositional rules of an "interrupted" project to be projected into the areas involved in the design, with a figurative system of relations, based on visual totems, optical targets, which structure punctually all the paths that branch off and converge to the system of squares in the neighborhood.

The intent is the dissemination of the components of a very tangible entity in a dilated, "colonized" spatiality.

The program is organized on the formal matrix of the cylindrical corner towers of the buildings, proposing the circular geometry, declined with different dimensions, materials and functions, depending on the location, to spread the urban identity of the places.

The system is based on large suspended annular chandeliers (translucent fiberglass shell), which create a sort of virtual ceiling for the internal squares, giving it an additional visual depth, stretched with four steel cables between a cylindrical tower and another opposite and placed in the nodes of the architectural grid, used to characterize all the squares and without any encumbrance on the ground, to guarantee the most extensive and facilitated uses. On the aerial support cables there is the presence of "acrobats" and "funambulists", light sculptures made of translucent fiberglass.

The public open space is already "magnificently" defined on the architectural level: the central cavea, the fountain, the sculptures and some luminous annular fixed seats, will thus be able to find the ideal scenario of enhancement. (Figure 10-11)

Fig. 10: light installations in Piazza R. Imbeni between the towers of the Region of Bologna

Fig. 11: suspended installations in Piazza R. Imbeni between the towers of the Region of Bologna

2.5 The idea of making a city

With the "do city" projects since 2000 the municipal administrations that have succeeded in Zola Predosa (BO) have started a coordinated system of public and private planning to remodel the city center to its new configuration.

A civic polarity proposes to set the main health and municipal headquarters, to constitute the main "knottiness" of the reconfigured linear system.

In this remarkable area the Detailed Plan C7 has proposed to complete the municipal seat, inserting an auditorium and two smaller rooms, the council hall and an exhibition hall.

The new railway station of the metropolitan surface service Bologna-Vignola has been joined at the town hall, together with the design of a park and ride partly underground) and a surface bus terminal.

A covered introductory square and other smaller ones accompany the access to this articulated system, obtained with the demolition of a venerable public house de-localized elsewhere.

A private block that stands between the street and the civic area has been the subject of a specific Plan for its redevelopment, providing for greater pedestrian permeability and the creation of new boundary and completion volumes.

A cultural center will complete the civic facilities, along with the new market square, other service car parks and equipped green areas.

The marginal perimeter identified in the P.R.G. in force, as "area of street redevelopment and street furniture F.3", along the provincial road, it was translated into a large-scale urban redevelopment project, involving, in addition to public areas, all those private areas facing the street, and which were therefore already in public use, in the broader and more articulated drawing of the street, which thus becomes a course punctuated by open spaces, small squares, arcades and galleries, in a more unified way.

Furthermore, we have proceeded with the reconstruction of some private buildings, among which the transformation of the old cinema stands out. (Figure 12-13)

Fig. 12: covered square of Zola Predosa (BO)
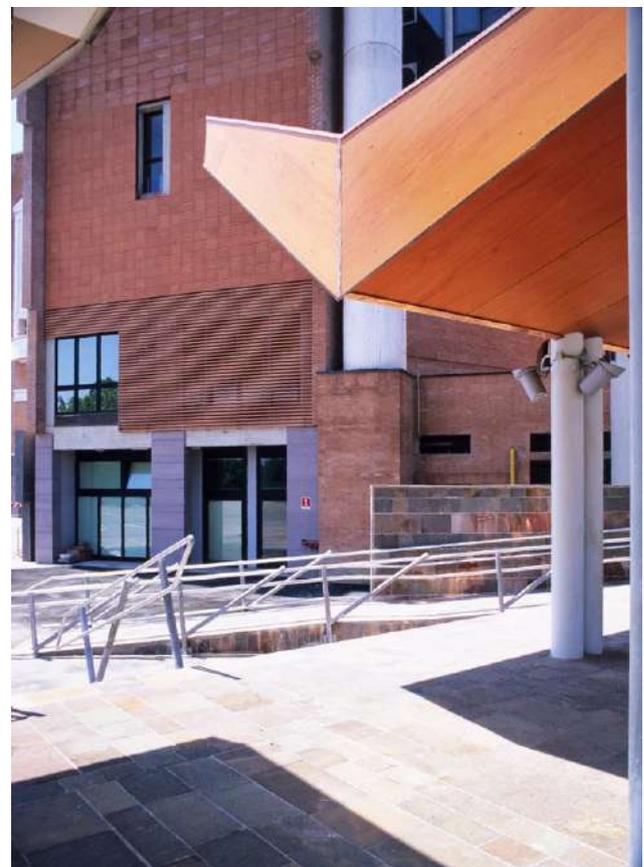
Fig. 13: New railway station of Zola Predosa (BO)

2.6 The new centralities

In Scandicci (FI), for example, the new municipal office first, with the square, the cultural center and the tram stop today, have sanctioned the merger of two hamlets in the name of new urban mobility, not by chance also protagonist here. Identifying a quality urban vision, relying on the experience of a great visionary architect (like R. Rogers), confirms the desire to get the most out of the intervention, with the use of the urban design of a remarkable part of the urban center, just its new, civic and identity heart.

The urban renewal has to necessarily pass also through the identification of new modes for public and private mobility.

The new carriers such as tramways, monorails, trolleybuses ... with high capacity and frequency, imply in themselves a more social way of managing urban functioning and consequent public space.

The stops and the nodes of exchange of these lines become remarkable points around which to imagine new centralities, with the significant revision of the traffic plan, reducing the driveways and the lateral parking parts to these, in favor of the pedestrianization and of the inclusion of new cycling and pedestrian routes. In this way, the public space regains a leading role in the urban scene and even the new architectures can benefit from it, dragging with it the "appropriate" location of some public functions (cultural and commercial spaces above all) that more than others can benefit from an articulated and enhanced accessibility.

The new center of Scandicci, which is again the center of gravity respect to recent urban developments, is located next to the new municipal office which was in a situation of peripherality: the tram stop, with a new imposing construction, is opposed on the opposite side, to the center closes the scene a multi-purpose building (auditorium, exhibitions).

The open side of the square will have to look at other new buildings, including the Polimoda (University fashion school) and a higher school building, already built, accompanying the tramline to the depot terminus (new urban spine). (Fig.14-15)

Fig. 14: piazza della Resistenza in Scandicci (FI) and tram stop
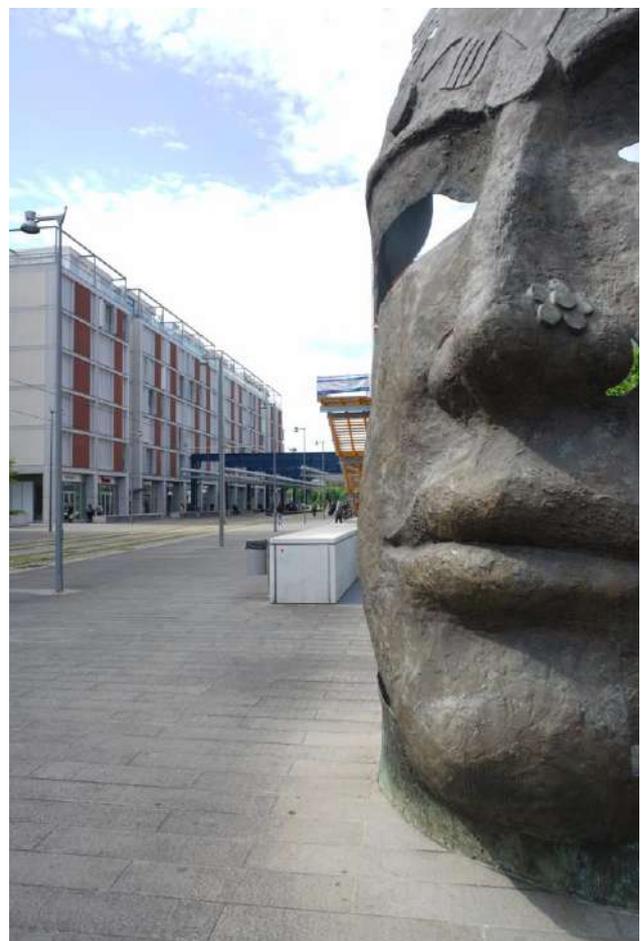
Fig. 15: new urban setting for the refurbished center of Scandicci (FI)

2.7 The art spread in the city

Distributing randomly artworks in a scattered manner, in the historical center as in the suburbs in indistinct ways, implements the presence of art in Faenza, a little town near Ravenna linked above all to the tradition of ceramics.

What was already an economic and cultural wealth for the city has become a resource to qualify the entire urban fabric. Urban art and public art are specific visions with which the points of view of an author are linked with the specificity of an inhabited place that thus acquires an undeniable added value.

Sculptures, plays of light, graphics on the walls, are punctual presences and not very intrusive but very attractive and suggestive, which question the value, perhaps forgotten, of urban living in "beauty".

The "opportunities" for these interventions can be not only parts of squares and gardens, but also spaces related to road traffic such as roundabouts, or "necessary" presences such as the technological artifacts of the cabins.

Walls, enclosure walls and buildings that have escaped the architectural design are reinserted into the full urban vision with the involvement of public art.

The permanent open-air museum of the city of Faenza is a fascinating journey, covering the whole territory, of modern and contemporary works "SITE SPECIFIC" by important Italian and foreign artists. The open space, in particular the peripheral one, becomes the ideal exhibition space to be perceived in everyday life making it an identity.

In this way the concept of museum collection or temporary exhibition is relegated, relegated to confined spaces, and the ideal container can be identified in the city, for everyone, freely and daily. In this way, it is possible to bridge the aesthetic gap deriving from a generalized application of the rules, of anonymous quantitative indexes, which can only generate new parts of cities of equal anonymity.

The diffused art, therefore, is a qualifying urban superstructure of limited impact but of great emotional depth.   (Figure 16-17)

Fig. 16: ceramic installations in Piazza 2 Giugno in Faenza (RA)

Fig. 17: murals in piazzetta C. Zauli in Faenza (RA)

2.8 The squares in the square

The orientation for the project of the "widespread square" of Novi di Modena is well represented by the image "The squares in the square": the suggestion for the reconstruction of the town square devastated by the 2012 earthquake is to articulate the space, originally unitary but never configured, in 5 sub-areas, to help users with diversified needs, without rigidity criteria and preserving continuity (especially in terms of pedestrian viability). It is therefore a matter of organizing and materializing a "cohabitation", of types of spaces, of users, of functionality, of permanence .....

In Piazza I Maggio there will therefore be: the "main" square for celebrations and events (in front of the Town Hall); a "secondary" square for the meeting and the convivial stop (in the central crossroads); the "green" squares for rest and relaxation, with which a small square of the Tower will also be configured; the same reduced parking lots, located at the two east and west ends of the system, can take on the role of square for the game, the market and the big events.

More than half of the buildings facing the space of the square have been demolished and their reconstruction foresees the different location for one of these and the insertion of arcades in others that were unprovided with them.

The organization of a green system and the presence of a rich repertoire of equipment of welcoming people and organizing markets and public events, together support the functionality and sociability of the intervention, imagining the potential of a square contemporary and therefore multi-faceted. (Figure 18-20)

Fig. 18: project for piazza I Maggio in Novi di Modena (MO)

Fig. 19: view of the project for the little square of the tower

Fig. 20: demolitions in Piazza I Maggio in Novi di Modena (MO)

2.9 The urban void

The re-building opportunity of Concordia sulla Secchia (MO) in the area of a building irreparably damaged by the 2012 earthquake, as well as propitiating the birth of a new square, could also "tell" the history of the place and the city.

One can then imagine what centuries before the construction of the destroyed building could exist, according to the settlement logic of the place: one or more houses articulated and developed in depth like the many Gothic lots that initially built the city.

The succession of traumatic events (the will of man before and the devastating nature of the earthquake then) have made repeated "cuts" in this urban place: the opening of an important road before and now of a square (as often happened in the past).

The evidence of the "cut" must then be the evocative image of the renewed urban scene: the section of the building that becomes a façade showing more "greened" loggias / cloisters, projects itself into the public space of the new square, characterizing it. And as in a return of mirrors, the reverberation of these green cavities on the façade are replicated inside the square, to evoke the imprint of another possible construction, with a stretch of the residual arcade evoking the legacies of the time. (Figure 21-22)

Fig. 21: view of the top of the project for the new Piazza Garibaldi with the partial reconstruction of the building

Fig. 22: view of the new urban space from the main Via della Pace

all images, photos and drawings are by the author.

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Re-thinking City Space in the Context of Nineteenth Century Belgrade

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Abstract

The split into "nature" and "culture" has lasted for centuries in Western civilization and remains the framework through which we consider various important problems of contemporary society. In the last decades of the twentieth century there has been a clear reaction to this dichotomy, first in a geography discourse then elsewhere, and a move towards studying the construction and representation of nature in cultural history. A very important feature in the approach to design for recovering contemporary urban landscape is urban greenery regeneration as well as the study of the urban greenery past.

The broader historical context of our study is the establishment of new capitalist relations towards urban territory in nineteenth century Belgrade, and with it a new distribution of political and economic power. This process led to the disappearance of the main green spaces in the city and the suppression of the memory they carried. The reconstruction of Belgrade's historic core was implemented according to Emilijan Josimović's urban plan (1867). Nevertheless, it contained some very important indications of ecological thinking. In order to elaborate a refined approach to environmental and cultural problems that Belgrade, like other cities, faces today, we bring to light and critically examine those features and aspects of Josimović's plan that established organic relations and balance between nature, culture, city memory and city development.

Keywords

Plan of Belgrade, Urban nature, Critical spatial practice, Public space

1. Introduction and Context

This text examines the nineteenth-century transformation of Belgrade urban space, specifically the reconstruction of the city's core, according to the regulation plan developed by Emilijan Josimović (1823-1897). The study focuses on the contemporary border zone of the "city within the moat" (*Varoš u šancu*) and on the case study of one city park designed at the time, and which remains in its intended public spatial function. The layers of the past in that space beg the question of the relation of public urban spaces and their historical basis, in addition to history lessons regarding the complex relation of "nature"/"culture" and a broader understanding of today's problems in the city.

The notions *public* and *public space*, as parts of *public realm*, in the context of contemporary urban theory "are assumed rather than analysed" (Cuthbert, 2011, 95). Public space is commodified in the course of capitalist enterprise, and, according to J. S. Kayden, its universal degradation is a signifier of that process (Cuthbert, 2011, p. 96). What is a good

public place? increasingly becomes the question How can we save a good public place? and perhaps even more poignantly How can we not forget a good public place? The process of constant modifications of physical space – an inherent characteristic of capitalist metamorphic development – continuously degrades public space (Cuthbert, 2011, p. 85). As a counterpoint, David Harvey clearly points out: "[i]nvestment in the built environment therefore entails the creation of a whole physical landscape for purposes of production, circulation, exchange, and consumption." (1985, p. 6)

At the beginning of the twentieth century, Belgrade, the capital of the Kingdom of Serbia, saw the emergence of strange mixed spaces, which can be recognized in Henri Lefebvre's notion of the influence of capitalist development on cities: "The history of the city, and of each city, reveals a marvellous unity in which forms, functions, and structures are associated. However, market pressure, especially the global market, tended, in the second half of the nineteenth century, to dissolve it within intersecting networks of

circulation. Although dispersed along the periphery and in suburbs, its centre is strengthened. This results in the paradox (dialectic) seen elsewhere: urbanization, the expansion of the city, the degradation of space. It is no longer urban or rural but is composed of a formless mixture of those two characteristics: ruralisation of the city and urbanization of the countryside" (2014, p. 99).

The Serbian Technical Journal, the official newsletter of *The Society of Serbian Engineers and Architects*, published three articles on the development of Belgrade in 1907, where the relation between the social, political and spatial development was clearly established (Manojlović, 1907). The study was a critical examination of the process of urbanization of the city. Namely, a large part of Belgrade were informal squalid settlements for poor people. The article described the suburb as "an incurable living wound" (Manojlović, 1907, p. 109). In 1907, the entire Belgrade region covered some 5,000 ha, with the central city area 1,100 ha of that. The streets took up 152 ha, the plazas 20 ha, parks and squares 28 ha, and empty spaces and wolds 219 ha. There was also a built area of 376 ha and 40 ha Fortress. The remaining 265 ha was uncategorized, lost land, in unlisted and empty plots, unsurveyed (unusable) roads, brickyards, fields and meadows (Đurić, 1912; Vuksanović-Macura & Ćorović, 2016).

All of this was the result of the transformation of Belgrade in the early nineteenth century from an Ottoman to a European city, influenced mainly by the capitalist development of the Principality and then Kingdom of Serbia (Ćorović, 2017). The planned, but also random transformation of physical space was a comprehensive reflection of society in general in a certain period, and also indicated the crux of current economic relations, means of production, cultural standards and techniques of expression of cultural practices. (Cosgrove, 1998 [1984]). Tendencies towards the modernization of society, which appeared simultaneously with the establishment of capitalist social relations, were visible in the entire physical space of Belgrade, throughout the period (Ćorović, 2018).

The consequences of urban development of industrial cities in Europe were apparent even in the course of the nineteenth century, much earlier than in Belgrade. By their nature and scope, urban problems of capitalist development in Belgrade reached their apogee in the period between the two world wars. They were generally best visible in the poor quality of residential living and the scarcity of housing (Vuksanović-Macura & Macura, 2018), as well as in the lack of publicly open spaces.
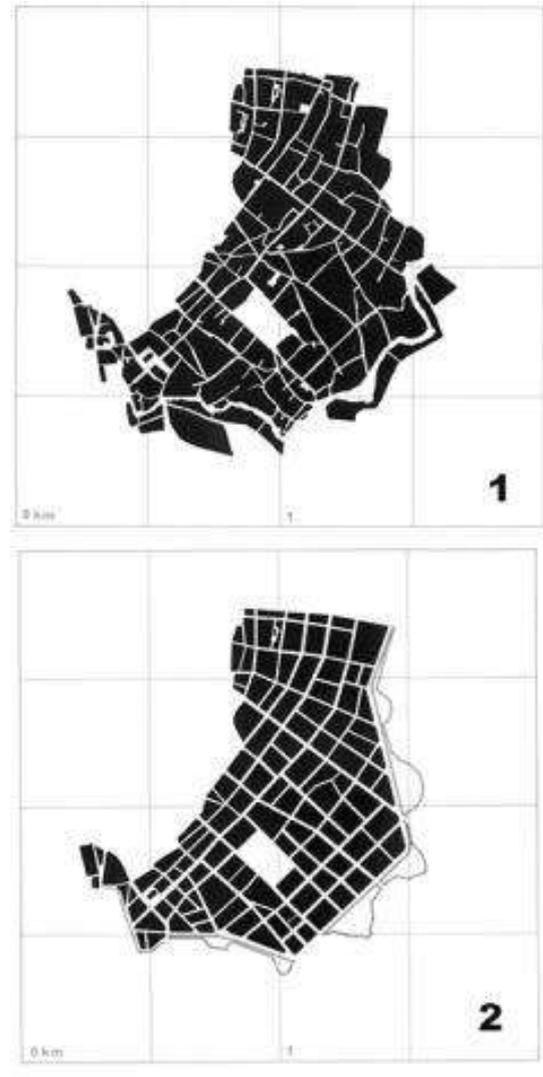
Fig. 1: Urban transformation of Belgrade. (1) Ottoman street network, before 1867 (2) New street network, according to the Regulation Plan for Belgrade, by Emilijan Josimović, 1867. Source: Perović, 1985, p. 8.

2. The Regulation Plan for Belgrade, 1867

The main phase of urban transformation of Belgrade in the nineteenth century began in 1867. The plan coincided with the end of a turbulent period of parallel presence of both Ottoman and Serbian authorities in Belgrade, lasting from 1815, to 1878, when the Principality of Serbia gained full independence (Ćirković, 2004). The transformation of the existing urban tissue (Fig. 1), i.e. the communication network maze, followed the

establishment of the Belgrade Cadastre, and was twinned with the implementation of the new regulation plan for the city.

The regulation plan for today's historical core of Belgrade was designed in 1867, after a three-year geodetic survey of the city, by Emilijan Josimović, a civil engineer, educated at the Technical University in Vienna. Along with the plan, Josimović published a study of the state of affairs and an argument. In his book, he deals foremost with the traffic problem of contemporary Belgrade, that is, dysfunctional existing urban communications (Josimović, 1867, p. 1). An important and extensively discussed topic in the plan were the green spaces in the city.

Josimović was born in Moldova Veche, in Romania, came to Belgrade in 1845, and spent the following decades doing, among else, pedagogical work. In addition to numerous books, he published the first two textbooks in the field of technical education in Serbia, *Građanska arhitektura* [Civic Architecture] (1860) and *Praktična geometrija* [Applied Geometry] (1862) (Jevtić-Novaković &

Centuries prior, the rhythm of city life was divided among various cultural, religious and ethnic groups. Serbia became part of the Ottoman Empire in 1459, while Belgrade joined in 1521. The city's already rich layers of multi-confessional, multi-ethnic and multicultural history had been further enhanced by the two periods of eighteenth-century Habsburg rule. If Josimović's plan is seen from the perspective of Ottoman and Austrian Belgrade, it would appear that it was a critique of these dominant urban layers. With its ordered rectangular street network, Josimović's plan erased previous internal city borders, establishing a superstructure of "abstract formalism" (Boyer, 1994, p. 61), in clear, rational and precise form. In that sense, it resembled modern functionalist city plans of the twentieth century: "Everywhere the architect and city planner cut the fabric into discrete units and recomposed them into a structured and utopian whole: disorder was replaced by functional order, diversity by serial repetition, and surprise by uniform expectancy" (Boyer, 1994, p. 46).
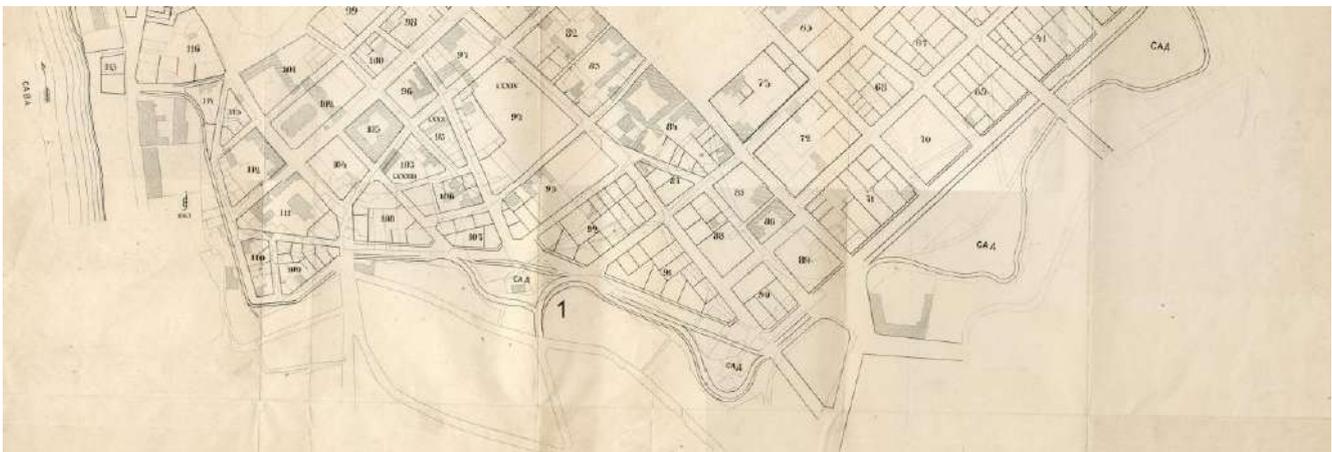
Fig. 2: The Regulation Plan for Belgrade, by E. Josimović, detail. (1) Vojvoda Vuk Park. Source: The University Library "Svetozar Marković", Belgrade and the Collection of Zlata Vuksanović-Macura.

Divac, 2018). He became professor at the University in 1869, having participated the year prior in the founding of the Technicians Association, of which he was the inaugural president. In the century after the creation of the Belgrade plan, Josimović was lauded as the man with a vision of the transformation of city and the capabilities of "an economist, an architect, a philosopher and a naturalist" (Macura, 1968).

The political moment in the year of publication of Josimović's plan was defined by the departure of the Ottoman army from the Belgrade fortress.

Josimović sought to create a functional city in the best tradition of progressive nineteenth century modern city planning, creating efficient connections between its new 119 blocks. His plan meant the erasure of previous urban layers to the extent necessary for the creation of a new system that incorporated the functioning of all communal equipment. The rectangular network he designed between the fortress and the moat, which is to say, over the historic core of the city, became the basis for the establishment of uniform development in this space. The new street matrix, along with the

newly planned green belt (Fig. 2) along the former city moat, the previous long-term city border, was to comprise a unified, inter-connected system (Josimović 1867; Vuksanović-Macura, 2018; Ćorović, 2018).

3. The Belgrade City Moat

The Belgrade city moat, a remnant of previous periods, can be understood as a line in space, that is, an *edge* of the landscape, appearing in different forms (Casey, in: Malpas, 2011). Depending how one understands the *edge* in space, whether it limits, surrounds or distinguishes two different kinds of space, we differentiate "rims, gaps, borders, and boundaries" (Casey, in: Maplas, 2011, p. 94). The given forms suppose specific physical, spatial, social and cultural properties. In these terms, we will first look at the Belgrade city moat as a border or borderline.

Such a structure is established and/or built by people in order to divide spaces, but also to be able to control and defend the border. Also like this are state borders, with the use of power primarily to prevent or control the transfer of people and goods from one side of the barrier to the other.

The Belgrade city moat was built at the same time as the reconstructions and additions to the fortress walls, in 1723-36, during the short-lived Habsburg control over the city. In the first half of the nineteenth century, the moat was an earthwork rampart, 6 m tall, reinforced with a 2 m tall, wooden palisade, bound together with woven branches. On the outside, it was 4 m deep, and was punctuated regularly with conical openings for cannons supplied with ammunition from subterranean arsenals. It stretched from the river Sava, across the Belgrade ridge, down to the Danube. The most important points along this line were the four city gates: Sava, *Varoš* [City], Stambol and Vidin, through which one entered the city. As early as the 1820's, the structure of the city moat began to erode. The palisade existed until 1825, and individual elements were broken down over time: "as the Belgrade poor would break through the fence and remove the palisade and branches under the cover of night, the wooden stakes disappeared quickly" (Jovanović, 1964, pp. 25-27). In 1866, the main, Stambol gate was demolished. Although the decision regarding the complete removal of the moat was passed in 1864, the carting of earth and the other parts of this

structure began in 1880 and lasted three years (Ranković, 1939).

4. The Plan's Green Belt

The interaction between the modern city and nature, the establishment of an approach to city land derived from political power and economic muscle, conditioned the disappearance of nineteenth century city gardens and the memories they carried (Vuksanović-Macura & Ćorović, 2016). Apart from being an engineer and professor, Emilijan Josimović was also active in civic life, often critical of city and state authorities' decisions regarding public space. He discussed the problem of the loss of private Oriental gardens in Belgrade, expressing dismay about society's and municipal authorities' attitude towards the natural heritage of the city. All of which clearly shows Josimović's refined understanding of Islamic culture, and particularly what we would today call its ecological aspect. In the plan, he attempted to overcome the noticeable lack of greenery in Belgrade by providing for a green belt around the city core. It was to comprise a boulevard with six public parks of different sizes. The projected green boulevard was to extend the length of the former city moat, in the process incorporating into the communal, public green structure two of the largest formerly private gardens.

The boulevard was to be a distance of 2.3 km in total, consisting of three traffic elements: a carriage path with a pavement, a parallel riding lane, as well as a treelined pedestrian path. The carriage way and pavement were to be 17 m in width, the riding lane 6, while the pedestrian walkway was to be 4 m wide (Josimović, 1867, 12-13). The design also served to establish communication between the internal and external movement of traffic, connecting the boundary road (the green belt) and the rectangular street network. Comfortable and pleasant roads, taken on foot, horse or in carriages, following the terrain topography, from one river to the other (Sava and Danube), were also supposed to be vantage points from which to gaze upon the surrounding landscape (Josimović, 1867, 14).

Had Josimović's idea been turned into reality, the new, public, multi-purpose and broadly useful space would also incorporate the history of the city, that is, the legacy of previous cultures: its main defense structure, the city moat, on the one hand,

and luxurious family gardens in the very heart of the civic space, on the other. Aside from projecting the form and function of the spatial elements of the green belt, and how they were to fit into the terrain topography, he also imbued this linked set of public open spaces with the capacity to be historical and cultural legacy-bearers. That is to say, the belt sections linked by the boulevard were to be named after the geographic entity to which they were in one way or another connected (Srem, Bosnia, Vračar, Avala, Stambol, Vidin and Danube). Each of the six public parks within their respective green belts were to be named for the most prominent persons from Serbian history: Prince Miloš, Karađorđe, Dositej Obradović, Lukijan Mušicki, Miša Anastasijević and Vuk Karadžić (Josimović, 1867, 14, 20-23), and each was to have a public monument. In the late eighteenth and early nineteenth century, German-speaking countries developed "people's gardens" (*Volksgarten*), that is, aristocratic gardens, open to the public and intended to inform and educate about German history (Jellicoe, Jellicoe, Goode & Lancaster, 1986). The first public parks in Great Britain appeared in the first decades of the nineteenth century, in response to the needs of the industrial city. With Central Park in New York (by Olmsted and C. Vaux, 1858), the movement for forming public urban parks (*the Parks Movement*) reached powerful momentum. Josimović conceived the green belt and its parks precisely as public city space on public land, providing also for compensation to the owners whose land was to be expropriated. Nearly all the information about the planning of this space indicates that he completely followed the patterns of development of the modern nineteenth-century capitalist city. Nevertheless, the fact that the green belt was designed to integrate into its space physical artefacts of a previous city age, make it a paradigm within which it is also possible to consider contemporary urban issues.

In the following decades, Josimović's regulation plan for Belgrade dictated the establishment of a new urban network, the framework for entirely new spatial and functional relations. The notion of a green belt around the town appears again in 1888, twenty years after Josimović's suggestion (Fig. 3). It was Konstantin Glavinić, contemporary member of city parliament and later several-term President of the Municipality of Belgrade, who submitted a suggestion for the formation of a new green belt.

According to his plan, the municipality would buy out the strip of land around Belgrade, 500 m wide, stretching again from the Sava to the Danube, intended to be afforested. The Municipal Board adopted the motion, but as it required a ten-year extension of municipal taxes, the citizens rejected this proposal (Ćorović, 2015).
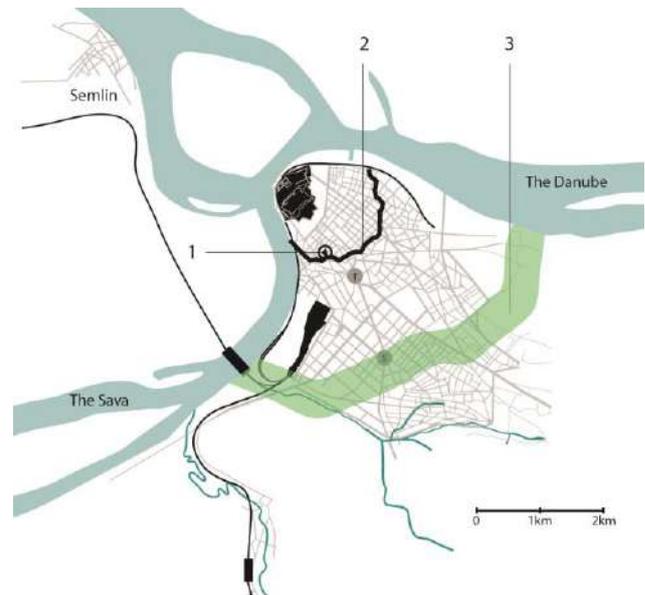
Fig. 3: The positions of: (1) Vojvoda Vuk Park, (2) the former moat and (3) the green belt, proposed in 1888, (T) Terazije square, (S) Slavija square, as featured on the map of Belgrade in the beginning of twentieth century. Source: Ćorović, 2015, adapted drawing 4a, Appendix 2

None of these nineteenth century suggestions of a green belt was executed, although the idea of building a green ring around the city, albeit of shifting placement, scope and size, has remained prominent to this day. Even though only one of Josimović's six parks along the green belt was actually built, all the locations remained in the public domain (Mićović, Đalović, 2016). The one that was built, the Vojvoda Vuk Park, also known as the Topličin Venac Park, aside from its original public purpose, also preserved the shape given in Josimović's plan.

5. Re-thinking Josimović's Green Belt Spatial Heritage

Topličin Venac Park – named after Milan Toplica, a medieval Serbian knight who, according to legend, died at the Battle at Kosovo field in 1389 fighting Ottoman forces – stands on 3,033 m² of what was

partially public, partially private land taken from a Belgrade doctor (Josimović, 1867, p. 23). According to Josimović's plan, the park was to be named after Miša Anastasijević (1803-1885) (Josimović, 1867, p. 23), a wealthy merchant, land owner and philanthropist. It is situated in the very heart of the city core, in the immediate vicinity of one of the most important streets in Belgrade, Knez Mihailova, the Serbian Academy of the Sciences and Arts, the Applied Arts Museum, the hotel Palas, and other important sites and spaces. The location became prominent during the interwar period, as can be attested by the construction of the Privileged Stock Company for Export, the PRIZAD Palace on the park's very edge (Milinković, 2012). On the other end, harbouring a special role for public life was and remains the Kafana Proleće [restaurant "Spring"] situated in the bordering Vuk Karadžić Street.

Officially the park is named after Vojvoda Vuk (vojvoda being old Serbian military rank equivalent to duke), the nickname of Vojin Popović, an infantry colonel, commander of the volunteer units in the Balkan and First World wars. The bronze sculpture placed in the park in 1936 shows the Vojvoda mid-battle, the work of the renowned sculptor Đorđe Jovanović ("Cultural Properties", 2010; Vujović, 2003). The statue is the subject of a passage in the novel *The Houses of Belgrade* by Borislav Pekić, taking place during the historic protests of March 27th, 1941, only days before Nazi World War II assault on the Kingdom of Yugoslavia: "At that moment it seemed as if the general rushed out of the forest, out from behind those scattered chestnut trees, with his chest out and one leg bent at the knee, bandaged with a field dressing, while the other leg pushed down with at a sharp angle against the yellowed, rough-hewn pedestal" (1994, p. 123).

Although planned much earlier, Vojvoda Vuk Park was only built in the early twentieth century, that is, in 1907 (Fig. 4). Since the eighteenth century, in times of battle, this space served for the immediate relief of the wounded, since it lay between two city gates, behind the city moat. Otherwise it was nothing but a desolate, muddy patch, until the circus Henri, complete with camels, giraffes, elephants and beautiful white horses landed there in 1903. A wooden structure was erected for the purpose, featuring shows for a year. As the Belgrade chronicler Nikola Trajković wrote about it: "This abandoned piece of earth provided

both children and adults with magic, the kind unseen even in their own imaginations" (1984, p. 68). During the Austrian occupation of Belgrade in World War I, it served as a military graveyard. Also, the park area is an archaeological site of the Roman Singidunum, just like several nearby places in the historical city core. Various cultural layers are superposed one on top of the other in the compact space of the park, while the streets that outline and border the park space additionally emphasise its value. Through different historical periods, this relatively small extension in Josimović's green boulevard route did not only provide a pedestrian throughway, but allowed various aspects of city life to take place.

Fig. 4: Vojvoda Vuk Park, Topličin Venac, postcard, the beginning of twentieth century. Source: the Belgrade City Museum, Ur_15088

The likely most valuable aspect of this place is that citizens still consider this place in the city's core as public good, an urban common and open resource. Differing views of city space and opposed interests of various stakeholders have resulted in conflicting actions regarding questions of civic life. Thus, the ongoing reconstruction of Topličin Venac Park was part of a broader redevelopment of the city centre. The official web page of the City of Belgrade announced the reconstruction of the park, publishing along with it portions of a conversation with the prominent European architect, Boris Podrecca. He was engaged to design the projects of several central city spaces, which will, according to him, become not only "more peaceful, beautiful, but also healthier" ("Podreka", 2018). "City hygiene", or "a reanimation", as Podrecca calls the process, fits into the current conversion of the historical core into a 5.5 km pedestrian zone (e.g. two and a half times larger than the pedestrian zone

of Milan, a city of over 3 million compared to Belgrade's 1.7 million). In Podrecca's words, Topličin Venac Park has so far been an "autodrome", while the reconstruction is supposed to turn it into a continuous paved surface, punctuated with "green islands" and eight sculptures of the renowned sculptor Olga Jevrić (in addition to the existing monuments). Since the announcement of the park reconstruction, there have been tumultuous public reactions, culminating in the spring of 2019 (Fig. 5), when a "human shield" around the park was formed (Mirković 2019) to prevent gentrification of this space. In the meantime, the City government have abandoned Podrecca's project, and the work has been halted in July 2019.

Fig. 5: Vojvoda Vuk Park, Topličin Venac, April 2019. Source: Pešaci nisu maratonci – Kretanje je život [Pedestrians are not marathoners – Mobility is life]; Mirković, 2019)

6. Conclusion

The particular significance of Topličin Venac Park within Belgrade's open spaces can be gleaned from the recent reactions of the public – people who use the park and live in its immediate vicinity as well as other citizens – to the announced and begun reconstruction that is laying waste to this open public space.

A particularly important part of renovating landscapes and city greenery is the study or historical enquiry of those spaces (Milinković, Ćorović, Vuksanović-Macura, 2019). Landscape theorists and architects promote the idea that along with the necessary study of their history, the renewal of a city's green spaces can indeed contribute towards solving current ecological problems, primarily through overcoming general environmental and cultural amnesia (Girot, in Corner, 1999). As Alexander Cuthbert writes in his

book *Understanding Cities*: "[o]ur capacity to implement our mandate – the symbolic attempt to express an accepted urban meaning in certain urban forms – totally depends on our willingness to excavate the archeology of meanings that lie beneath the superficial expression of urban form." (2011, p. 289)

The revival of green spaces in a city, elements of a cultural landscape, is important for solving contemporary ecological problems. By comparing, that is, presenting clear parallels between today's theoretical positions on landscape renewal and Emilijan Josimović's mid-nineteenth century ideas of forming a green belt around Belgrade, we wish to point out the historical precedents of ecological thinking, a refined relationship in preserving organic relations and a balance between nature, culture, city memory and civic life.

A deeper understanding of these historical processes, and their integration into contemporary processes of spatial transformation, can result in quality public spaces organically growing from their surroundings, achieve recognition and be preserved as "good places". They can indeed be crucial strongholds in the struggle against the general erosion of values in public spaces and the public sphere more broadly.

7. Acknowledgements

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"Levittvilles": A Case in Favor of the Suburban

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Abstract

Known for building seven Levittowns in the states of New-York, Pennsylvania, New-Jersey, Maryland and Puerto-Rico, William Levitt (1907-1994) also imported his mass-produced housing outside of the United-States, in France. Built 30 km away from Paris between 1965 and 1967, the *Résidences du Château*, first of five "Levittvilles", gathered more than 600 houses. A scale much smaller than its U.S. counterparts, but never seen before on this side of the Atlantic. Remarkable for its landscaping, the *Résidences du Château*, offer to its dwellers large common green spaces: more than 19 acres of lawn and 59 acres of artificial prairie. Those public spaces fade with the fenceless gardens (a novelty for French tract housing) thus giving the feeling of living, not amongst a juxtaposition of houses but in one big park. The resulting sense of unity is not only visual, but also social. This article will seek to understand how public spaces within such urban forms that blur the limits between public and private, foster a sense of community. Furthermore, how they contributed to changing the way French homebuyers experience their main residence. Generous in size and character, these public spaces were only made possible by the solid intervention of the municipality and provide us with an example of a simple green space that can radically improve the quality of life in a residential area.

Keywords

Landscape, suburbs, tract housing, americanism

1. *William Levitt, Father of Suburbia*

Levitt & Sons was founded in 1929 by Abraham Levitt (1880-1962). The company rose to success as William Levitt (1907-1994), one of Abraham's two sons, had the idea to use family owed land in Island Trees, a locality in the state of New-York, to build what would be world's first large-scale suburban community. Inspired by his experience in the army in 1941, where he had to design housing for U.S. naval officers, William Levitt had the idea of building mass-produced, low cost single-family homes, to accommodate the surge of World War II veterans. Between 1947 and 1951, more than 17,000 houses emerged from the ground of the first Levittown. The man who made the cover of Time in 1950, is now considered as "the Father of Modern American Suburbia" (Smithonian channel, 2017).

1.1 The beginnings of French suburbia

Less widely known is that William Levitt also planted the seeds of the suburban lifestyle abroad. Isabelle Gournay (2002) has so far been the only one to carry research on the topic. In 1962, William Levitt

opened his first foreign subsidiary in France. Between 1965 and 1967, he built his first subdivision, the *Résidences du Château*, in Mesnil-Saint-Denis, a small city 30 minutes away from Paris. Soon after, seven other developments opened in the Paris exurbs[1]: the *Résidences du Parc* and *L'Orée* in Lésigny (1967-1970), the *Commanderie des Templiers I* and *II* in New Town Saint-Quentin-en-Yvelines (1969-1971), the *Parc de Villeroy* and *Colline de Verville* in Mennecy (1971-1980). Smaller in size than their American counterparts, "Levittvilles" gathered from a few hundred to a few thousand single-family homes in landscaped parks. And while Levittowns were affordable for lower-middle-class families, "Levittvilles" were intended for a middle- and upper-class population.

The *Résidences du Château* was the first French example of *nouveaux villages* (new villages): suburban estates designed by a single builder with a coordinated urban design and standardized houses, displayed in a landscaped environment where fences are typically prohibited. Following Levitt's example, many builders such as Kaufman & Broad, have engaged in the adventure in such a way that in the

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[1] Describing French peri-urban areas, "exurbs" refers to the outer outskirts of the metropolis. Their single-housing density is very similar to American suburbs. However, the term "suburb" would rather correspond to French "*banlieues*", the

immediate surroundings of the central city. In this essay nonetheless, we preferred the use of "suburb", as the "Levittvilles" are immediate heirs of Levittowns architecture and urbanism.

late seventies, 1 in 3 single family home were built in a *nouveau village* (Vogel, 1979). These can be described as "horizontal collective housing" (Bossé, Guennoc, 2013). Indeed, by purchasing a property in a "Levittville", you become the owner of your home, but also co-owner of the shared green spaces.

If the French were already familiar with single-family homes, we will see that "Levittvilles" integrated the houses into a unique urban space, mixing characteristic aspects of American culture with landscape elements inherited from such models as Garden Cities. The first residents experimented with new ways of living in their homes, somewhere between seeking privacy and living in a community.

2. Recalling the Garden City

"*On devrait construire des villes à la campagne, car l'air y est plus pur !*" (cities should be built in the countryside because the air is cleaner). This witticism attributed to French writer and humorist Alphonse Allais (1854-1905) sums up perfectly the XXth century's state of mind in terms of urban planning. Since the Industrial Revolution, life in big cities have progressively been deemed as dirty, overcrowded and overpriced. This climate gave birth to the urbanistic movement known as Garden Cities. Ebenezer Howard (1850-1928) theorized Garden Cities in his 1898 treaty *To-morrow: A Peaceful Path to Real Reform*. In line with the principles of zoning, Howard's Garden Cities were planned to offer housing, employment and circulation, in a green environment. This philosophy has had an impact on all urbanistic trends of the XXth century. Modern Movement's collective housing blocks (like Le Corbusier's *Unité d'habitation*) for example, were all designed to settle in large green spaces. The New Town movement initiated in Great Britain with the 1947 New Towns Act, and quickly spread throughout Europe, also promoted the idea of a life both urban and close to nature.

Suburbia answers to the same ideal of the "city in the countryside" (Berque, Bonnin & Ghorra-Gobin, 2006). Levittowns afiliation with Garden Cities is explicit. In her 1993 book *Expanding the American Dream: Building and Rebuilding Levittown*, Barbara

Kelly showed how William Levitt was inspired by Howardian Garden Cities. For that matter, an entrance panel installed in the first Levittown built in the state of New-York read "Levittown N.Y., garden community". More than a collection of tract houses, Levittowns provided the services for urban life to flourish as city-halls, schools, shopping centers, or churches.

Built on a smaller scale, French "Levittvilles" function more like neighborhoods than cities, but still offer community centers, schools and supermarkets. With his French venture, William Levitt ambitioned to "project the image of a developer going beyond his professional duty to ensure the welfare of his buyers and local officials" and to "demonstrate he could achieve the excellence in community planning and landscaping which many critics denied him" (Gournay, 2004). As a result, "Levittvilles" landscape is particularly advanced. Curved streets create interesting perspectives, while small squares gathering a few houses around *culs-de-sacs* allow more intimate spaces. Gardens, facades, and shared green spaces all contribute to the beautification of the community, reminiscing French XIXth century resort-cities like Maison-Lafitte or Le Vésinet.[2] As the resort-cities, Mesnil-Saint-Denis and Lésigny were built around an existing castle, both from the XVIth century. In the *Résidences du Château*, the part of the development in the axis of the castle has a symmetrical design, in the tradition of the *jardin à la française* (figure 1).

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[2] Maisons-Lafitte is located in a vast wooded park featuring driveways, squares and roundabouts at the disposal of the residents. As in the "Levittvilles", thanks to regulations on the height of fences, houses were to participate in this landscaped setting (Cueille, Tissot & Vialles, 1999). Le Vésinet answers to the same Rousseauian ideal of a city using the countryside as a background scenery (Cueille, 1989).
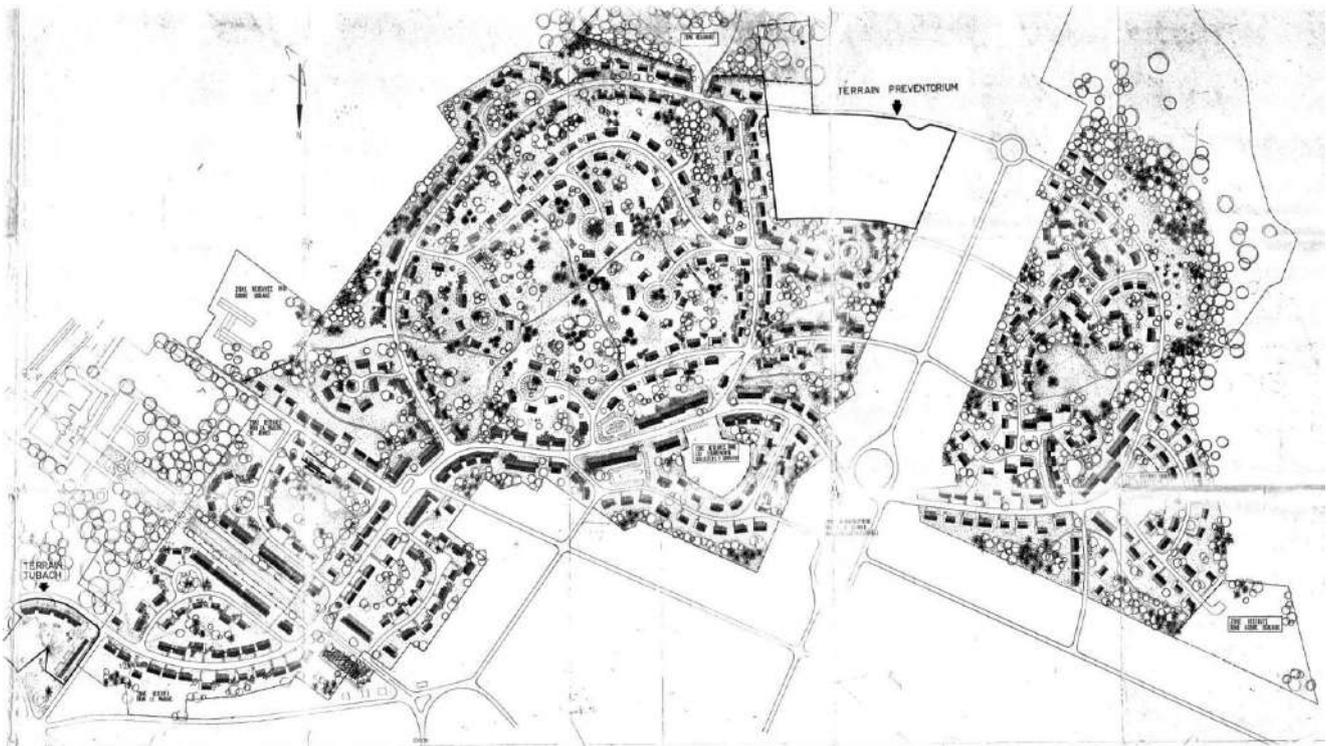
Fig. 1: master plan for the *Résidences du Château* building permit, Royer urbanist, Anger, Pulcinelli, Veder, Iordanovitch architects, Sierks advisory architect, Sgard landscape architect, January 1965. The castle is on the bottom-left corner. Mesnil-Saint-Denis city archives.

2.1 Raymond Berrurier's influence

First of the five subdivisions built by Levitt, the *Résidences du château* is the blueprint for the following. But the ground plan is not only the result of the work of William Levitt's team. Credit goes to Raymond Berrurier (1899-1967), mayor of Mesnil-Saint-Denis, who, after a long battle with the builder, managed to achieve the *cité verte* (green city) he had been dreaming of for years. In 1965[3], the *District de la Région de Paris*, a government administration responsible for organizing the development of the Paris region, agreed on the creation of five New Towns around the capital city. Discovering that Mesnil-Saint-Denis was close to the perimeter of the future New Town of Saint-Quentin-en-Yvelines, Berrurier feared that his small town would quickly be invaded by large collective housing complexes.

Knowing that he had to counteract Saint-Quentin-en-Yvelines urbanization, he then decided to resume construction of Henriville, a housing development left unfinished in the late 1920s.[4] At that time, the emerging district was already advertised as "the great countryside near Paris, without the inconveniences of too close suburbs".[5] Berrurier chose to work with Levitt & Sons, which he had had the opportunity to discover during a study tour on construction in the United States. There, he had admired "vast perspectives characteristic of the United States" that he wanted to recreate in his city.[6] To ensure that his vision was realized, he imposed strict conditions on the builder, deciding on the width of the tracks, the number of candelabras, the slope of the roofs, and insisting on the low density of the houses or the quality of the plantations.

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[3] The decision was officially announced in 1965 with the publication of the *Schéma Directeur d'Aménagement de la Région de Paris* (SDAU), a text intended to plan for the urban development of the capital and its surroundings. But, as President of the Association of French Mayors since 1946 and a seat on the General Council of the Paris region since 1951, Raymond Berrurier was well aware of this project since 1961, when Paul Delouvrier was nominated General Delegate of the *District de la Région de Paris*.

[4] Henriville was one of the many tract house subdivisions built in the Paris region during the interwar period. The these were often built in haste to accommodate working class populations, without any land development. These "defective allotments" were described by Annie Fourcaut (2000).

[5] Mesnil-Saint-Denis city archives.

[6] *Ibid.*

As a result of Berrurier's steadfastness, the *Résidences du château* is one of the most generous in green spaces out of all "Levittvilles". In the *Résidences du Parc* aimed at a higher socio-economic class, there is more communal space than private (128 acres common for 118 acres private). In the following developments, however, green spaces are less extensive but still present.

3. The birth of a community

In the 1960s, suburban single-family housing was nothing new for the French public. Between WWI and WWII, Paris outskirts had been filled with individual homes, built along the regional railroads. At the time, many poor city dwellers flew away from the city's peripheral districts, which had become expensive and unsanitary, to acquire a small piece of countryside. But the houses were the work of craftsmen and often built in a total absence of planning. The *Résidences du château* aggregate. Each house and each part of the surrounding environment has its own place. For the disposition of the houses the goal was simultaneously to create variety, and to guaranty privacy by preventing windows overlooking each other.

3.1 The work of high-profile contributors

The ground plan is the design of Jean Royer (1903-1981), a French urbanist who famously worked for the rebuilding of Orléans after WWII. Landscape is the work of Jacques Sgard (1929), known for the Parc André-Malraux in Nanterre (1971-1979).

Jacques Sgard trained in landscape studies at the National School of Horticulture in Versailles, and at the Paris Urbanism Institute. There he wrote a thesis entitled *Récréation et espaces verts aux Pays-Bas* (*Recreation and green spaces in the Netherlands*, 1958), under the supervision of abovementioned Jean Royer and Professor Bijhouwer, a renowned Dutch landscape architect and pioneer in the profession on urban development issues (Blanchon, 1998). Sgard's Dutch experience is the cornerstone of his interest in grand landscaping and urban park design. The few times he worked on green spaces in residential operations were in large collective housing, such as the *cité des 4000* in La Courneuve (1963-1965) or the *cité de la Maurelette* in Marseille (1966-1967). At the *Résidences du Château* – where he determined each essence and the placement of

the 1,650 trees and 12,000 shrubs – Sgard was able to put his taste for large-scale public space into practice, for the benefit of a private environment. As for Jean Royer and the architects of the operation (Roger Anger, Pierre Pulcinelli, Liliane Veder, Iordanovitch), this foray into the field of the individual home is not mentioned in the landscape planner's biography. Despite the constraints of private commissioning, the landscaping of the *Résidences du Château* is in line with Sgard's simple and pastoral style, that is "often marked by the softness of the layout and volumes, by a mastery of the third dimension that allows for views, framing on urban landmarks [...], masks the harmful effects of the environment" (Vigny, 1995).

3.2 The role of open yards

The novelty lies in the treatment of the gardens. In the "Levittvilles", lawns are not separated by fences. If typical in American suburbs, in France the absence of enclosing was something unprecedented. Historically, French people favored physical outline of their property. Whether it was in the form of *corons*, workers' housing provided to minors in the North of France, or as a bourgeois resort-city like Maisons-Lafitte or Le Vésinet. This love for built delineation (vegetal hedges, can be associated, but are rarely used alone) has led to the characteristic patchwork landscape routinely critiziced by french exurb's detractors for its unpleasant appearance.

In the backyards, houses are connected by vast public spaces. Discreet paths connect the roads with communal spaces. In Mesnil-Saint-Denis, the residence blends in with the park of the castle transformed into a town hall, creating a visual unity that translates into a social one. When asked to describe life in a "Levittville", many inhabitants describe it as "living in a big park". This feeling of belonging to a community is reinforced by the similarity of the houses and the closeness with people sharing similar life's expectations. Anthropologist and sociologist Jean-Louis Siran who conducted a research in Mennecy (1980) exposed how new dwellers found that "this type of habitat favored the emergence of a sociability that they had not experienced elsewhere". The garden turned all the more communal as the space of the house was private: it became the preferred place to receive neighbors, who as a consequence, were rarely

invited inside the house. Siran noticed that as a concern of preserving the overall peace, inhabitants didn't really invest the communal spaces. In the first years of the developments, communal spaces were children territory, whom as an interviewee from the *Résidences du château* recalls, were free to roam from one house to another. However, nowadays, we noticed that those spaces are used by many residents, who stay inside the limits of the neighborhood for dog-walking or their Sunday promenade.

In each "Levittville", a group of volunteer homeowners stand at the head of the community as community chairs. Their role is to have the co-ownership regulations respected in order to guarantee the overall harmony of the residence. They check each visual element of houses and gardens: doors and shutters colors, facade renovation, garden upkeep; and they ensure the maintenance of communal green spaces. The very existence of these homeowners' associations, who managed to keep "Levittvilles" very close to their original state, proves the intensity of community life in these subdivisions. Elected every year, at general meetings attended by many co-owners, the volunteers devote a significant part of their free time to the life of their neighborhood.

4. At home for the weekends

In the 1960s, it was common for Parisians to own a secondary home for spending weekends and holidays away from the city. Raising in popularity as the standards of living increased, they soon began to be criticized as a mirror of urban sprawl in countryside and seashores, destroying landscapes and disrupting local lifestyles (Dubost, Bonnain, Cicé, et al., 1995). For French ministry of Tourism as for the ministry of Construction, it became essential to counteract this phenomenon, by anchoring city dwellers to their main residence.

Levitt's formula met perfectly with the official agenda. The regrouping of the homes in a landscaped environment was reminiscent of the newly popular holiday resorts called *villages de vacances*. But, as many *villages de vacances* were designed by avant-garde architects close to the modern movement,

Levitt's house designs were rustic and traditional looking, which was reassuring. It spoke personally to city dwellers tired of the nuisances of the urban environment and fantasizing about a life closer to nature, while being close to Paris. An idea of nature staged and under control. Vegetable gardens, garden sheds, and outdoor laundry drying were forbidden. In *Levittvilles*, yards are not here for cultivating, but to "perform the rituals of the aperitif, barbecue and Sunday lunch" (Gournay, 2002). The 59 acres of false meadows planted at the *Résidences du Château* are revealing of this reification of nature.

In addition to playing on an ideal of return to nature, the builders came up with a new lifestyle, spread through advertisement. A green lawn, a car, a fully furnished kitchen and leisure on the weekends became the recipe for happiness. "Levittvilles" offered services and infrastructures such as tennis courts and swimming-pools. In addition, the community centers helped to strengthen social ties by bringing people together around common interests. The *Résidences du Parc* offered more green spaces and leisure activities than any big-scale Levittown (Gournay, 2004). Thanks to Levitt, for the first time French city dwellers did not have to escape their homes to seek recreation. After Levitt, builders like Robert de Balkany (1931-2015) based their sales pitches entirely on this lifestyle. Balkany's Chevry 2, the biggest *nouveau village* in France erected in Gif-sur-Yvette between 1972 and 1996, receives a private golf course in its center.[7]

Beyond these recreational opportunities, gardening remains inhabitants most common hobby. As they moved in, the first owners of the *Levittvilles* received an introduction leaflet on the art of maintaining and enhancing their yard. On six pages, newcomers were provided with extensive instructions on "lawn care", "grass cutting", "trees, shrubs and evergreens care", "shrubs and trees spraying", "deciduous shrubs pruning", "evergreens pruning", and "winter protection". In Levittvilles, having a well-kept garden is not really an option. The rulebook guarantees landscape's unity. Fences in front of houses are prohibited (but tolerated in the back, provided they are vegetated and of low height), and "English style" lawn maintenance is mandatory.[8] The homeowners associations are responsible for

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[7] Shortly before filing for bankrupcty in 1981, Levitt's french subsidiary opened a small subdivision in Chevry 2. The development called *Les Greens* bears little resemblance with "Levittvilles", as the landscape element is very limited.

[8] Strictly prohibited by the co-ownership regulations, hedges at the front are now tolerated for houses sitting at intersections.

compliance with the regulations. But because of the open yards, the inhabitants themselves are the first to ensure that the neighborhood is well maintained. We are close to the neighborhood watch system described by Jane Jacobs as "the eyes and ears of the streets", in her 1961 book *The Death and Life of Great American Cities*. But in the "Levittvilles", the aesthetic aspect takes precedence over safety concerns.

5. "Levittvilles" posterity

In 1968, one year after the *Résidence du Château* was inaugurated, a *Reader's Digest* article already adressed the question of the quality of living in a "Levittville": "Do these prefabricated villages have a soul? How do we live there? Can one even live there?" (Depaule, 1968). Already, the community had bloomed, encouraged by the open spaces, amusing for children, and relaxing for adults: "what a pleasure it is to come back here to enjoy the last hours of the day. We feel like we're still on holidays, with people sitting on the lawns and children playing everywhere" says a resident of Mesnil-Saint-Denis. Only adolescents suffered from the distance from the capital city and its animation. But this distance also contributed to tighten the bonds between families who generally had one car and had to come together for shopping or to accompany their children to school.

Thanks to the co-ownership regulations, "Levittvilles" are now well preserved. The common green spaces have not been densified and are even of better quality with the growth of vegetation over the years (figure 2).

Fig. 2: Landscape at the start of the development in 1967, period postcard, Mesnil-Saint-Denis city archives (top). Landscape nowadays, personal photography, 2019 (bottom).

Open yards have not been as resistant to the passage of time. Many residents have fenced their gardens to the rear, and planted visual separations to the front, taking advantage of the gradual relaxation of the regulations (out of the 63 *Résidences du Château* inhabitants who answered a survey handed out during the meetings of the co-owners' associations, 38% said they deliberately chose to keep an open-ended land; 21% inherited an already fenced land; 41% chose to add hedges). Even among the sixties pioneers who chose to live in "Levittvilles" out of a taste for American culture, and who were familiar with the history and meaning of these open spaces, some of them fenced their property for utility purposes. But the many others who have chosen to leave their yard open without being informed of the history of the place, expressed a desire to "preserve the spirit of the residence". Only one interviewee indicated that they did not add a fence just to comply with the regulations.

French people were and are still attached to a delineated property. Builders who arrived on the market after Levitt understood this well. Kaufman & Broad subdivisions were originally fenceless like the "Levittvilles". Today, they are overrun by low but existing hedges. It seems that the regulations imposed by Kaufman & Broad were less strict that of

its predecessor. Other manufacturers stood out from the crowd by claiming the presence of fences. For the firm Bell, it was sold as a trademark of their English charm. If many builders relied on the ideal of "return to nature" in their advertisement campaigns, by displaying their model houses in an endless green space, most of them allowed enclosure or delivered their house with discreet fencing. Yet, in the "Levittvilles", few inhabitants experience the ban on fences as a coercive measure. Even those who have enclosed their garden have tried to do so discreetly, in order not to spoil the landscape.

The green spaces dear to Raymond Berrurier have also disappeared from new builder's developments over time. In this case, it was not the tastes of the public, but the land pressure that weighed on the balance. When Levitt built the *Résidences du château* in Mesnil-Saint-Denis, the open spaces around Paris were still numerous and inexpensive. With the arrival of Kaufman & Broad and consorts on the market, the search for desirable environments in which to locate subdivisions became more challenging. Builders then began to target unsustainable agricultural land, then land previously declared unbuildable to ensure its preservation, with help of governmental zoning variances.

5.1 A lesson of an "affordable Garden City"

By responding to the French people's demand for privacy up to the limits of their property, these builders have stifled the community spirit that originally prevailed in *nouveaux villages*. The same goes for shared green spaces. Although Jean-Louis Siran deplored their lack of use, their presence undoubtedly contributes to the emergence of a strong sense of community in what would otherwise be the usual mono-functional residential unit.

In a book praising the quality of *quartiers-jardins* (garden districts) such as Riverside or Le Vésinet, but decrying the monotony of the Levittowns, Bauer, Baudez and Roux (1980) concluded their study by stating the following:
"The exceptional quality of the garden districts we have described is always intensely felt by their inhabitants. The strength of this type of urban planning is to be well attuned to a collective perception. While the residents of the vertical urban planner often see only facetious ideas in the design efforts of architects and developers, those of the garden neighbourhoods are very good at describing

the benefits of their homes, streets and parks. Contrary to everything that has been written, the sense of appropriation is not limited to the private domain, garden and housing. It extends to public spaces, provided they are carefully designed. It guarantees their maintenance and survival without prohibiting their collective use".

Levittvilles are proof that industrialization and standardization of the architecture (the *Résidences du Château* only had five options for houses and a low-rise apartment building, the *Résidences du Parc* only had four) is not an obstacle to the creation of a visually diversified urban space and the building of a community.

Moreover, while relatively space-consuming, these new villages, which give pride of place to green spaces, make it possible, through spatial planning and the regrouping of houses, to limit or at least control urban sprawl. And in a time when global warming is intensifying, such respiratory spaces are proving invaluable.

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RESPONSIVE ARCHITECTURE AND ADAPTIVE REUSE OF THE 8TH EX-CE.RI.MANT MILITARY AREA IN ROME

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Abstract

The 8th ex-Ce.ri.mant is a today dismissed 33-hectare wide military area in Via Prenestina 931, in the Rome eastern suburbs but still within the GRA, provided with 84,000 extended sheds designed by the engineering school of Pier Luigi Nervi. Around its borders, a very heterogeneous and problematic periphery - both for infrastructural and social issues - has developed along the consular roads and the railway. This paper presents a project for an adaptive reuse project of the area as a a Temporary Pole for Contemporary Creativity (*Polo provvisorio per la Creatività Contemporanea* or PpCC). While the stratified program derives from the analysis of the social fabric and the supply-and-demand of cultural and social services in the Municipality V, its development is framed in the context of a Smart City involving the areas along the railway line and inspired by the Circular Bio-economy or the "4R" production model – Reduce, Recycle, Reuse and Recover – which shapes planning, production and consumption at different scales. In particular, this is accomplished through "weak" interventions by means of existing movable structures and materials which are recycled or sustainable in environmental and economic terms. The urban space is conceived in an environmental, temporary and responsive key, an approach grounded on the formation of a sustainable ecosystem integrated with the neighborhood and open to formal and functional variations during use through physical and digital sensors. At the same time, activities are chosen in order to guarantee both the recycling of "physical" waste, such as food, clothing, objects, furniture, etc., and inclusion of "social" waste and "weak" subjects, such as the elderly, children, immigrants, and evicted.

Keywords (max 4)

Cerimant, Adaptive Reuse, Circular Bioeconomy, Responsive architecture

1. Introduction

This paper[1] describes the method, workflow and outcomes of the adaptive reuse project of the 8th ex-Ce.ri.mant, a 33-hectare wide military area in Via Prenestina 931, in the Rome eastern suburbs within the GRA. While the program of the project, a temporary Pole of Contemporary Creativity (PpCC), results of the analysis of the social fabric and the demand for cultural and social services in the 5th Municipality, its development is inspired by the principle of the Circular Bio-economy or the "4Rs" production model – Reduce, Recycle, Reuse and Recover – which invests planning, production, consumption as well as the society's shape itself.

In this sense, first this paper describes the features of 8th ex-Ce.ri.mant within the infrastructural and functional context of the territory it belongs to; frames the area in the background of a Smart City development of the eastern sector of Rome; discusses the importance of a "fast way" to a temporary reuse of dismissed buildings in this age; introduces the idea of applying the Circular Bio-economy or the 4Rs model to existing buildings; and emphasizes the importance of adopting a responsive architecture for the adaptive temporary reuse.

Second, this paper describes the methodology and design process followed by the team of teachers and students to study the area; to elaborate a functional program; to organize the activities in the indoor and outdoor spaces; to design every single intervention and part according to the 4Rs principles; and to develop the project and its visual communication, as well.

Third, this paper briefly describes each single part of the PpCC project addressed to the several criticalities of the contemporary society.

Finally, this paper provides some considerations and conclusions about this experience and its possible development.

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[1] This paper results of the collegial work of both the authors. In particular, D. Fondi edited the parts from 1 to 3 while F. Colonnese, who took part in the project as a process and representational advisor, the parts from 4 to 6.
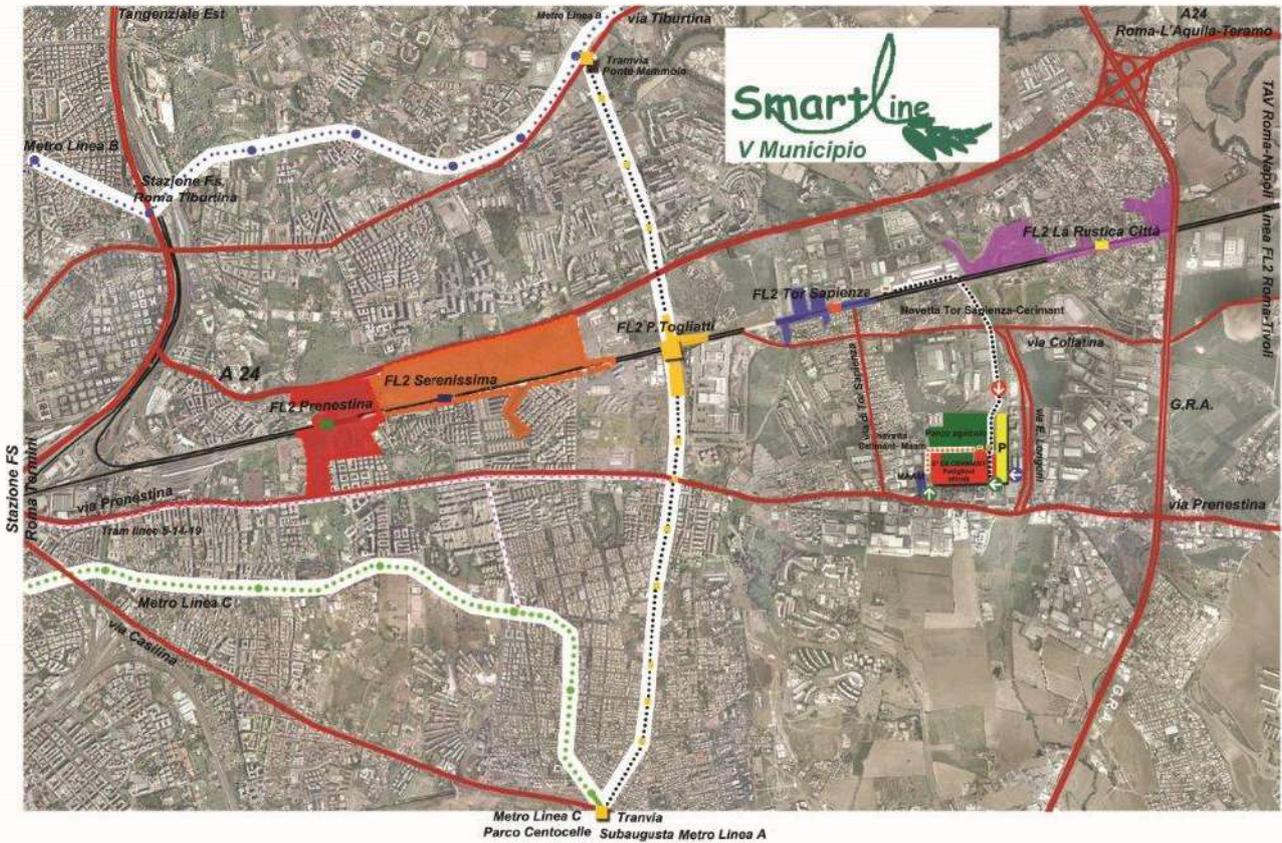
Fig. 1: Zenital photo of eastern periphery of Rome, between via Tiburtina (above) and via Casilina (below). The infrastructural network is here evidenced (red for roads, black for railways, dotted lines for subways) while the colored fields identify the Smart Line 5th Municipality and the ex-8th Ce.ri.mant (plan by Fondi and Alexis).

2. Description

The military area of the 8th ex-Ce.ri.mant is located in Via Prenestina 931, Rome. It is an almost 33 ha-wide fenced area, which can also be accessed by a railway line, whose main function was storing and maintenance of military vehicles. Almost all the structures have been abandoned for years and some of them, bombed during the Second World War, have never been repaired.

Most of the area is occupied by a monumental theory of reinforced concrete sheds. They were designed by Pier Luigi Nervi's engineering school and built at the end of the 1920s, as revealed by the reticulated iron arches covered with bricks and the vaults in iron-reinforced brick panels. The seven major pavilions, placed side by side along the longest side, are 220 m long, 20 m wide and covered with barrel vaults. They are equipped with lighting from above and have large windows on the short sides North/South. The two terminal sheds are also equipped with arcades and side glass entrances. The sheds, which together cover around 84,000 square meters, are surrounded by office and service buildings as well residences, with gardens and uncultivated land.

Around the military perimeter a very heterogeneous and problematic periphery unfolds, both for infrastructural and social issues. In the last decades, it has been developing along the consular roads and the railway, almost saturating the territory between them. Some of the emergencies surrounding the area are to be mentioned, like: the Biomedical Campus, specialized in radiology and oncology, with research facilities and laboratories; the American Hospital, a polyclinic with advanced diagnostic and surgical techniques; the Museum of the Otherness and Elsewhere (*Museo dell'Altro e*

Fig. 2: Aerial view of the ex-8th Ce.ri.mant showing the railway (red), the piazza (orange), the park and other gardens (green), the parking area (yellow) and the sheds around them (rendering by Alexis)

dell'Altrove, Città Meticcia or MAAM), which resulted of the abusive occupation of the former Fiorucci factories by homeless Italian and foreign families as well by the spontaneous activity of hundreds of artists, and is currently the first inhabited museum in Italy.

Since 2010, several disused military areas of Rome have been included in a protocol signed between the Municipality of Rome and the Ministry of Defense, making them available to host collective and social functions and allocating 2,5 billion euros to this goal.

In June 2017, The General Direction of Art, Contemporary Architecture and Periphery (*Direzione Generale Arte e Architettura Contemporanee e Periferie Urbane* or DGAAP), which is a central structure of the Ministry of Cultural Heritage and Activities, and Tourism (*Ministero dei Beni e delle Attività Culturali e del Turismo* or MiBACT) has organized the conference *Futuro Periferie. La cultura rigenera*. Held properly in the sheds of 8th ex-Ce.ri.mant, it has established a shared framework of priorities and interventions for the recovery of this area. After stipulating a on 7 June, the Ministery of Defence and the Agency of Demanio gave the area to the MiBACT. Anyway, from that event on, the changing political addresses has put every action and prospective on ice.

3. The Smart Frame

The project concerning with the military area of the 8th ex-Cerimant is called *Temporary Pole for Contemporary Creativity* (*Polo provvisorio per la Creatività Contemporanea* or PpCC).

The PpCC is part of a wider urban regeneration scenario, which affects the Eastern sector of the Roman suburbs and is based on the concept of Smart City (Fondi & Colonnese 2016). In particular, the sector between the Via Tiburtina and Via Casilina presents a series of empty or under-utilized areas and is supplied with a bundle of existing regional and national-scale infrastructures which, however, do not form a capillary capable network to adequately serve the local territory. The *Smart Line V Municipio* project, the subject of graduation seminars[2] between 2014 and 2017 and of a manifestation of interest by the Municipality V of Rome,[3] constitutes the scenario in which the PpCC is inserted. The *Smart Line* is focused on the re-qualification and re-use of the stations of the FL2 railway line, which runs parallel to the Rome-to-Neaples High Speed Railway (*Treno ad Alta Velocità* or TAV) for the entire length of the 5th Municipality from the Prenestina station to the Rustica city (Fondi 2014). This proposal, stilla a work-in-progress, re-thinks of the 5th Municipality through the reconnection and optimization of the numerous infrastructures, its three major parks (the Centocelle Park, the Aniene Park and the Mistica Park), the reuse

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[2] Director D. Fondi, co-director M. Alexis, advisor A. Dolci.

[3] Delibera di Giunta no. 32, October 2015.

Fig. 3: The major sheds of ex-8thCe.ri.mant from the roof of the Museo dell'Altro e dell'Altrove (photo by Alexis)

and/or recycling of the numerous empty spaces and/or abandoned area, and the involvement of citizens to transform them into resources. All of these actions are designed to favor the discovery of the existing cultural heritage, the enhancement of its territory and social innovation.

3.2 A Program of Temporary Functions

After having elaborated a first general functional program, which resulted from the observation of the conflictual social fabric of the Municipality and the unfulfilled demand for spaces and collective structures, the attention focused on the socio-economic and environmental impacts and on the enhancement of the benefits for the communities involved. To this goal, a specific project was arranged for the PpCC in the former military area of the 8th ex-Ce.ri.mant.

To establish the criteria for the reuse of the area, a careful reflection has been carried out on similar interventions on wide disused structures. Adaptive reuse developed in 1980s as a way to mediate between the functionality of new buildings and the

cultural and environmental value of old buildings particularly appreciated by local communities (Burchell and Listokin, 1981). In the last decades, this approach found many applications both in private and public areas, with some differences. Often public administrations, in restoring functionality to abandoned estate, have mainly taken care of the building restoration without this being adequately supported by neither a functional program nor a management model tailored to the intervention and projected in the medium and long term. In some cases, the interventions have left the administrations in troubles, the recovered spaces turning out to be under-utilized or used with critical economic sustainability profiles.[4]

A traditional refurbishment of the 8th ex-Ce.ri.mant complex, with the accomplishment of all the bureaucratic procedures, could involve the central and local administrations for years, if not decades. Such a period could expose the structure conservation status to further risks of partial collapses and occupations, as well repentances by the Ministry of Defense.

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[4] For example, consider the huge Tobacco Manufacture in Bologna, where also Vervi designed a shed built between 1952 and 1960 by Nervi & Bartoli. In 2012, the Hamburg-based Gmp-Von Gerkan Marg office won the design competition for the redevelopment and functional recovery of the former Manifattura dei Tabacchi, Bologna, aimed at its conversion into the new Technopole. Seven years have passed with continuous changes by administrators, and meanwhile some of the structures are frequented by pushers, have been occupied or are about to collapse.

Fig. 4: Interior of one of the major sheds (photo by Urnos)

As a long and complex process, traditional architecture production suffers by nature from the frenzy and haste of these years, marked by economic and social changes on a global scale and from an endemic lack of courage and foresight of governments and administrations. Proceeding from the identification of a criticality to the designing and building of a new building can takes years and it seems that, in these very last years, resources are preferred to be invested in making something with short-terms effects. This project proposes a change of perspective, regarding the abandoned areas with great social potential that focuses on temporariness as a value to be promoted in order to offer swift, light and flexible answers to the needs of citizens.

In this context, it is essential that the 8th ex-Ce.ri.mant can begin to "live" immediately, hosting functions, events, experiences even for short periods. This is fundamental to run a process of re-appropriation, protection and maintenance by both the administration and the communities involved. This step should first have the effect of reinserting these spaces in the public circuit, making the citizens aware of its presence and ready to adopt it. Second, it is useful to test the validity of the functions introduced and their effects on the economic and social fabric in the short term as well to enhance the

awareness to be able to intervene with corrections and additions. In the medium term, it could favor a gradual process of renewal of the structures, attracting interest and capital useful for restoring the most degraded parts; in the long term, it could catalyze and accelerate the infrastructural and social requalification of the whole Eastern suburbs of Rome.

Fig. 5: Interior of the minor sheds (photo by Alexis)

Fig. 6: Logo of the PpCC (Picture by Fondi and Alexis)

3.3 Circular Bioeconomy and Responsive Architecture

In this scenario, it is essential to identify and promote virtuous actions useful to transform the 8th ex-Ce.ri.mant from a "waste" (or "weight" or "shame") for the city into an economic and social "resource". The PpCC project is the key to such a "redemption" by means of a program inspired by the principles of Circular Bioeconomy, a development model which is critical with the industrial vision and the extreme consumerism of Western society and is currently being adopted for some years in Europe, too.

In its Circular Economy Action Plan, the European Commission in 2015 defined the "circular economy [as the economic space] where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimised" (European Commission 2015). The document sets a special focus on the efficient use of economic and ecological resources and not only on waste, which is eventually treated as a resource.

Briefly, this approach can be summarized in the 4 Rs: "Reduce, Recycle, Reuse and Recover". The application of the 4 Rs' philosophy 8th ex-Ce.ri.mant area is made possible by the shape, quality and state of preservation of the existing structures: an imposing building structure that defines the edges of a large central square that, in turn, is in continuity with an extended green area.

PpCC project does intend to test the application of the 4 Rs' philosophy to the architectural field. First of all, the project involves the re-use of the entire site and almost all existing buildings as only the bomb-damaged structures are demolished. Second, it identifies the functions and the intervention criteria to temporarily re-use both the structures and the outdoor spaces. Third, it totally relies on technologies and materials that agree the principles of recycling and sustainability. Fourth, it is mainly aimed at the "waste" of society, in order to include and reintegrate them.

The experimentation proposed for the PpCC combines the principle of a sustainability oriented to the circularity of the industrial product with the idea of immediate, provisional and responsive architecture.
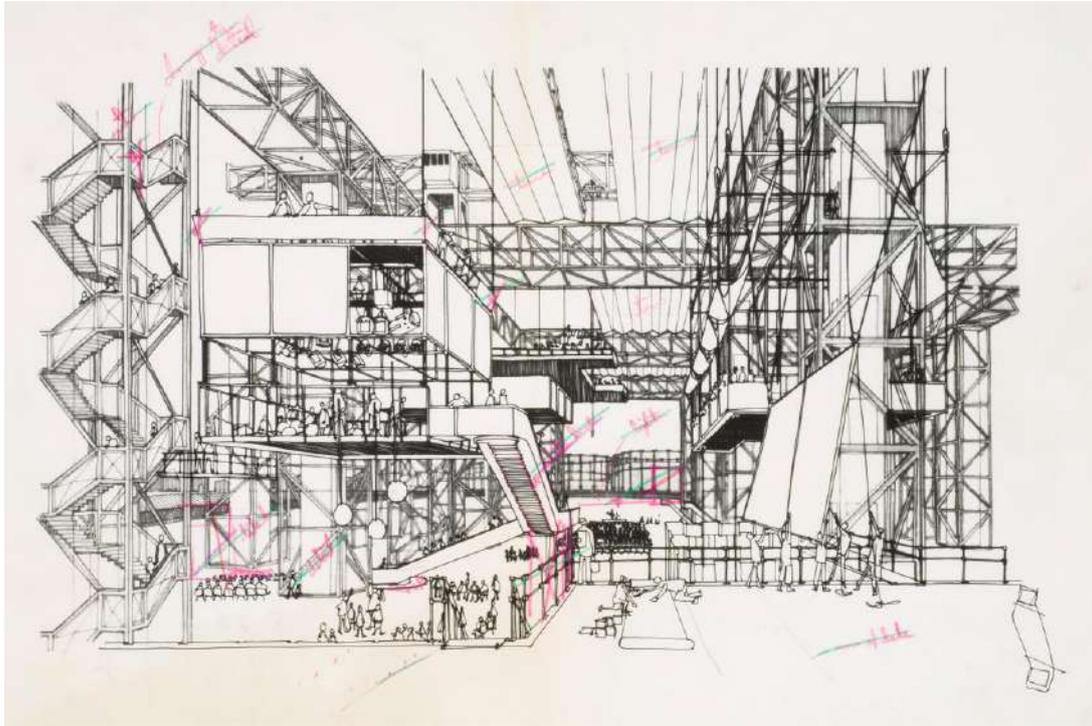
Fig. 7: Cedric Prices, Fun Palace, perspective drawing, 1964 ca.

Responsive or interactive architecture had already been evoked some decades ago by the visionary British architect Cedric Price. His designs for the *Fun Palace* introduced "a radically new kind of interactive and variable architecture, highly adaptable to the rapidly shifting cultural landscape of England now and in the future" (Mathews 2005, 78).

The structure of the *Palace* was not defined a priori but offered a "structural flexibility that constitutes an architecture in continuous evolution and it is the company itself that requires additional activities and functions [...]: the form is determined by the needs of the mass that influence the designer to create a composition of interactive units that change over the life of the building" (Gasperini 2008). The interactive architecture works on the concept of a multi-directional communication between the work, the function and its user and can be defined as the art of building relationships between people and built components. The residents, the users, the curious or casual visitors should be unknowingly attracted by this "place" and realize that the architectural space in which they are living their experience is no longer static. On the contrary, it may be modified through the configurability and customization of the spaces that they vary according to the boundary conditions. Interactivity in architecture leads to the search for design tools and construction systems that have their own intrinsic intelligence, identity and definition. The purpose of a mutable, temporary, mobile use is to induce the future users to questions such as: "What is it? How is that building made? "But also" What can I do? What can it become? "

The possible answers result directly from the use of the building, from the verification of the quality of its space, from the feed-back of sensations, from the originality of the functions offered. This approach is certainly easier and decidedly more concrete than implementing theoretical discourses to be organized around a hypothetical working table in which the generic "active participation of citizens" is envisaged. Sensors and applications are already able to indirectly collect information on the behavior of people, on the satisfaction of functions, on the level of active participation, on the involvement, also favoring participation from remote. Obviously, this approach requires first period of trial-and-errors, a second adjustment period and a third set-up period, always maintaining a part of the flexible spaces open to "bottom-up" initiatives.

4. Methodology and Design Process

The project for the PpCC was developed as part of a weekly graduation seminar in about six months' time. In a first phase, the undergraduates[5] became familiar with the site. To this goal, they carried out a first walk and inspection in the area of Via Prenestina, writing information, taking photographs and proceeding with rapid surveys of the external parts of the military area. After this inspection, they gathered documented the historical evolution of the area, the current urban planning, the structures designed by the Nervi school and the other buildings.

Fig. 8: Study model of the major sheds (Photo by Colonnese)

Thanks to the courtesy of the military leaders of the area, one of them was able to enter and take some precious pictures of the sheds' interiors, which were immediately shared. Graduating students have therefore drawn up a general survey of the area in vector format, producing a plan, profiles and sections of the site. After this survey, they have elaborated both a digital model and a 1:100 scale model of a portion of two of the main sheds side by side, with a removable roof, which could be placed on a sheet with the overall plan of the same.

In a second phase, undergraduates and teachers have gradually planned what can be considered the general program of intervention through discussions and comparisons on the phenomena, questions and potentials expressed in the immediate area. At the same time, the formers had to learn about the key topics of the project, gathering information on circular economy, inclusive society, environmental

and economic sustainability, waste disposal and transformation cycle, food waste recovery technologies and those for biology and biodynamic agriculture, the types of temporary and self-built residences, etc.

To define coherent and realistic guidelines of intervention, they often had to go beyond secondary sources - books, articles or web pages - personally meeting the authors of such practices, such as: farmers, restaurateurs, craftsmen, designers engaged in the use of innovative and recycled materials, producers and managers of sports facilities for disabled people, delegates of local communities and administrators, obviously. Needless to underline how these experiences, always readily shared, were formative precisely as a comparison with extraneous aspects of the colorful contemporary society.

Thanks to the teachers' guidance, they selected the best practices and inserted them into a sort of shared, open and ad-libitum integrable book, which was always present in the classroom but also accessible in digital format. Along the lines of the modus operandi of the OMA office (Yaneva 2009), this "fictitious" book also contains inspirational images, capable of arousing discussions and reflections and evoking the road to innovative solutions, eventually becoming a possible mood-board for the entire operation.

In a third phase, each graduating student was commissioned to take care of a specific sector of the military area and to propose a functional theme, which was discussed together with teachers and colleagues and developed with a view to a synergic relationship with all of the others. Since the first formal proposal of occupation and use of the spaces assigned, each student has been asked to produce study models, even extremely simplified, to be placed in the model of the sheds in order to immediately verify the spatial consequences, occasionally using a mirror to virtually double the depth of the structure. At this point, with their mind already on the respective themes to be developed, a second inspection was carried out, this time focused on the MAAM. This provided them the possibility both to read up on techniques and dynamics of occupation of disused industrial spaces, and to observe from above the interior of the military area,

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5 Emanuele Franceschetti, Vehmar Simon Urnos, Alessia Bragalone, Carmela Bochicchio, Eleonora Conti, Vanessa Monetti, Maria Antonietta Giorgina Sirchia.

which is generally inaccessible. Accompanied by a local guide, who further contributed to deciphering territorial marks and persistences, which would be otherwise incomprehensible, the undergraduates were able to further refine their respective programs and models for transforming the space of the 8th ex-Ce.ri.mant.

Fig. 9: An example of the posters denouncing the criticalities of contemporary society (picture by Franceschetti)

Alongside the formal definition through drawings and small models of the structures to be placed inside and outside the sheds, undergraduates were called to write a report. This text was expected to frame their proposal in the local cultural and production context, to clarify the assembly criteria of the architectural elements, to describe the type of use envisaged and the degree of responsiveness and adaptability of the spaces themselves over time. As expected, most of the designs feature an open composition of modular and often mobile elements. The continuous exercise of presenting this report orally at each verification of the design contributed greatly to their awareness of the themes - which are incidentally very complex - often treated in an

original manner. Subsequently, the undergraduates were asked to prepare a poster expressing, in a polemical tone and with the language of the mass media, the criticalities of the contemporary society which they were interested in and working on: food, waste, disability, communication, housing, health, accessibility and inclusion. This poster actually opens the final presentation of the projects, which collects drawings, models, animations and a video able to summarize in a few minutes the amount of data collected and choices made. This guided planning process does not mark the end of the studies on this area. They are still ongoing, with the aim of establishing a framework development plan for the area to be delivered to the administration and to present to the local committees, a blog where to collect further suggestions and involve other operators, as well as an intervention protocol to experiment on similar abandoned contexts.

5. The PpCC Project

The project is organized around three major systems: the railway, with the new station; the promenade that crosses the theory of pavilions; the multifunctional square with the public park.

5.1 The Station

The accessibility to the PpCC is one of the major problems. It is very far from the center of Rome but, at the same time, it is an area equipped with several infrastructures. It can be accessed by car, of course, but this attitude should be somehow discouraged. It is no longer acceptable to promote the recovery of large disused structures in the periphery without considering alternative systems to private transport and polluting vehicles. Even if a parking area is here considered, on the east side of the complex, it occupies only the 3% of the whole site.

Besides the bicycle lanes, which are basically missing in the 5th Municipality, the accessibility to PpCC should be entrusted to the train. The Tor Sapienza-Ce.ri.mant electric-powered shuttle is designed to run along the east side of the park and to stop at the first shed.

The railway, used exclusively by the army, is completed in the construction of a new stop near the Tor Sapienza station - where the FL2 underground line passes - and leads to the entrance to the area (while the distance between the new Ce.ri.mant station and the MAAM is covered by an electric

shuttle). As also this new station is expected to respect the 4 Rs' philosophy, an existing building was chosen. In particular, the teachers decided to use the prototype built around 1945 by Luigi Nervi for a small removable building (Neri 2014, 47-51).

Fig. 11: Pier Luigi Nervi, Ferrocemento prototype in via della Magliana, Rome, 1945. View of the exterior (2017, photo by Fondi)

Fig. 10: Zenital photo of the area with evidenced the railway and the stations.

This prototype of a shed, which was created by applying the cement on the metal mesh layers with a brush (Gargiani & Bologna 2016, 145-156) appears to be dimensionally suitable to become the new railway station. Moreover, it reveals several relationships both with the project and with the Roman site. A first element is its author, Nervi, whom is attributed at least the inspiration for the shape of the sheds of 8th ex-Ce.ri.mant. A second element is offered by its shape. While from a structural point of view, the corrugated sheets of only 3cm in thickness support each other with their own shape, from an aesthetic point of view, this solution gives life to an artifact that seems to recall the play of concave and convex surfaces typical of the Baroque Roman and appears even more suitable for the intended use. A third element is its temporary nature, of course: Nervi himself had imagined it as a temporary structure: for this reason, to be easy to disassemble, transport and reassemble elsewhere.

Entirely built in curved cement slabs, it is used today as a car parking in a degraded area along via della Magliana, close to the area where Nervi had founded in 1939 the *Laboratory for building materials* to test quick solutions to build structures for military hangars.

The prototype is one of the first experiments led by Nervi in the long process of defining and producing the *ferrocemento*: "two-dimensional cement structures reinforced with multiple layers of metal mesh uniformly distributed throughout their thickness and covered with cement mortar composed of a fine grain size to allow its passage between the interstices" (Bologna 2012, 75).

Fig. 12: Pier Luigi Nervi, Ferrocemento prototype in via della Magliana, Rome, 1945. View of the interior (2017, photo by Fondi)

5.2 The Promenade through the Sheds

Both the parking area and the Ce.ri.mant station are at the east side of site. While the electric shuttle uses the first railway line, a second line is occupied by the historic military train, which works as a memory of the past uses and an exciting playground for children. Outside the sheds, the *Other Market* is arranged. Here people can stock up on products grown in urban gardens or from surrounding farms, which pursue organic or biodynamic farming.
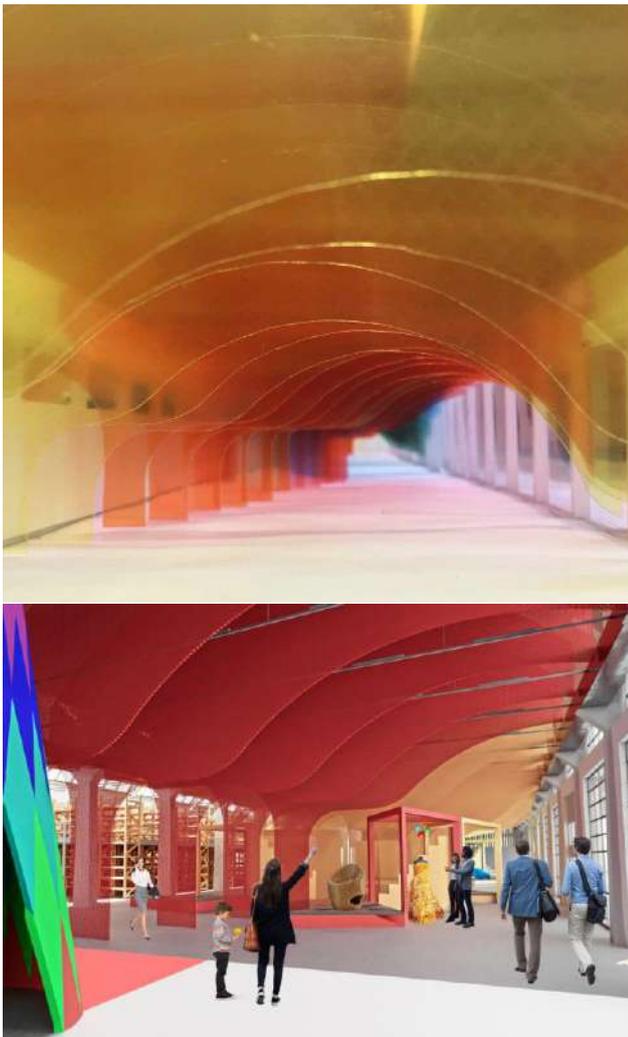

Fig. 13: 4 Rs against Extinction (model view and rendering by Urnos)

The sequence of the structures is crossed by a long internal *promenade* that overlooks the various activities installed in the sheds, flanks the central square, continues with external circular, pedestrian and cycle paths, and driveways for the electric service and refreshment shuttles.

The first shed is entitled *Food 3.0* and is dedicated to nourishment. The menus proposed by both the restaurant and the self-service food-court are based on the combination of "excellence / surplus" (*eccellenza / eccedenza*). They are inspired by the "food surpluses" donated by markets, supermarkets, producers and suppliers. This is transformed into good and tasty dishes, in a three-course menu with a balanced nutritional content. Here the people employed in the PpCC can eat together with visitors and occasional users. The space, characterized by social tables that run like carriages on internal tracks, is designed to favor the exchange of looks, words and ideas and to host events, varying the shape of the spaces, as well.

The second and third sheds are entitled *4 Rs against Extinction* and are dedicated to the gathering and recycling of waste. Here people can bring their own "waste" and watch the materials collection procedures, their storage, recycling and repair. The exhibition offers a light, colorful, dynamic, soft space for the shed that intrigues and conveys new ways of perceiving it. An exhaustive documentation of the workings adopted and the objects on display allow to learn some recycling and repair practices that have been forgotten, while in the market area, fixed or transformed products can be bought.

Fig. 14: Everyone can Fly (rendering by Bragalone)

The fourth shed is entitled *Everyone can Fly*. It is a listening center equipped with sports facilities, such as the walls for free-climbing or the basketball court. They are designed for the introduction and insertion of the disabled people to sport and the use of facilities in the belief that passion can bring them closer to a normal-sporting path.

Fig. 15: Urban Farm of Music (rendering by Bochicchio)

The fifth shed is entitled *Urban Farm of Music*. It is dedicated to music as both a universal language able to let people understand each other and an instrument of therapy and inclusion. Acoustic experiments, music production, teaching and "do-it-yourself" musical performances are here experimented and promoted. Its web-radio broadcasts music throughout the building complex, often dedicated to individual activities and interspersed with announcements and bulletins that inform about the activities and the events planned and happening.

The sixth shed is entitled *In+outdoor Skate* and is dedicated to urban culture as a key to social inclusion and regeneration of the site itself. People here can teach and practice acrobatic activities and urban sports like skateboard, parkour, hip-hip dance or even graffiti writing, as a moment of aggregation and sharing for participants of all ages.

The seventh shed is entitled *4 weeks to live* and is dedicated to the theme of emergency and temporary housing. As one of the main problems of the big towns, this is caused not only by earthquakes and floods, but often by minor calamities and extraordinary situations that create uneasy conditions and force residents to abandon their homes. This is the case of the families who fled in the middle of the night shortly before the buildings near Ponte Milvio in which they lived have collapsed; of those who suddenly find themselves under eviction; of those who simply need to renovate their home or have to adequately assist an invalid relative. Virtuous examples and full-scale models of temporary residences are here shown, can be visited and even partially transformed by visitors.
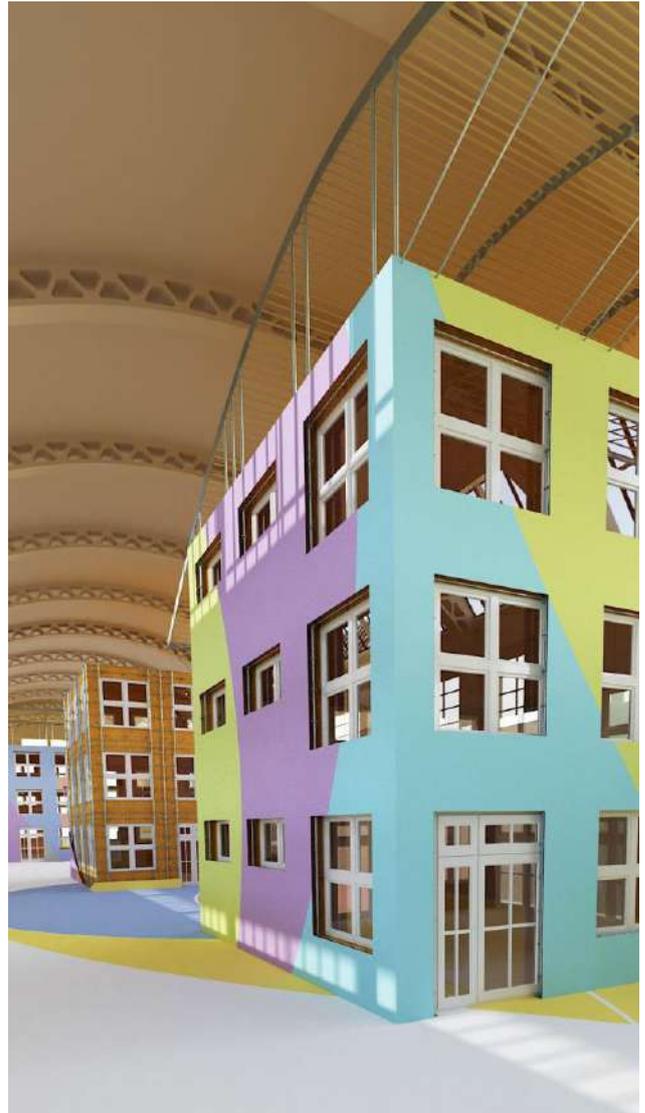
Fig. 16: 4 Weeks to Live (rendering by Conti)

The eighth shed is entitled *Recycle-Up* and is a start-up incubator, a place where ideas become business and startups receive support and guidance. In this sort of open and transparent factory, young and creative people, researchers, and inventors mostly cooperate to designing Apps. Here the 4Rs are applied not only to industrial and business circuits but also to systems to facilitate procedures and respond to the daily needs of citizens, such as those that regulate the feed-back that allow the continuous re-planning of the PpCC management.

Finally, it is important to highlight that most of the activities performed in the sheds are mutually supported and connected, in order to optimize services and consumes according to the Smart frame.

Fig. 17: Recycle-up (rendering by Monetti)

5.3 The Piazza and the Park

The end of the promenade is marked by the large square named *2030: Time is Now*. 2030 is the date indicated by scientists as the "year of no return" for the ecosystem destruction that would put the entire humanity at risk of extinction. It is surrounded on three sides by the sheds and mastered by the towering watch showing the countdown running. The piazza is conceived to welcome events, musical shows, open-air cinema, theatrical performances or simply families with children chasing a ball, bored elderly people looking for company and young people intent on frantically "chatting".

Fig. 18: Ortocircuito (plan by Sirchia)

Beyond the square is *OrtoCircuito*, the almost 10 ha large park. It is open and free, although equipped with lighting and video surveillance to ensure security all day long. The park constitutes the virtuous triggering element of a transformative process that respects biodiversity and the identity of the places. It not only welcomes recreational and environmental functions but also becomes a significant part of the production pipeline of raw materials as well as of "prime second" materials. The park serves to make the visitors take part in and be aware of the cycle of nature. Along its avenues, bees and butterflies, whose action of pollination is fundamental for the life and development of the essences, can be seen "working" in their natural habitat, among the flower garden, the garden of

Fig. 19: Bird's eye view of the digital model of the Ortocircuito Park (rendering by Sirchia)

medicinal plants and the orchard. In particular, the park joins the *Bee the Future* project,[6] offering his surface to prevent the disappearing of them as well of 70 from the 100 most diffused vegetal food crops in the world, the FAO (2018) warns. This can be done mainly by adopting the flowers the bees love more and enhancing the biodiversity.

In addition to this, a part of the park is dedicated to urban vegetable open to active citizenship, while another presents a canalization network that describes the water cycle with the hydro-cultures linked to the breeding of carp.

Finally, the old military surveillance towers are converted to bird-watching, house sensors for detecting environmental quality and, on astronomically relevant occasions, can turn into nocturnal observers to admire celestial phenomena.

6. Conclusions

This historical age is characterized by the acceleration of the global economic cause-and-effect system affecting every social process; by an environment mistreated and reviled; by a heterogeneous society, increasingly divided by census, ethnicity and cultural aspects; by public administrations lacking economic resources as well the strength to put in place a complex and far-sighted planning of the territory. In this part of the Western world, the traditional public architecture process, which is grounded on a stable society, on long-term economic investments, on a long time of accomplishment, and on a general indifference to

environment, seems to be not only anachronistic but is getting less and less achievable.

The authors believe that a "fast way" to reuse is to be included in the political agenda, experimented, defined and ruled. A way to reuse and recycle existing structures quickly, cheaply, temporarily and sustainably, even when they have been abandoned years before, such as the area of the 8th ex-Ce.ri.mant on Via Prenestina.

This proposal, based on the principles of the circular economy, of the 4Rs and of an extensive responsivity of the architecture to the users, shows a possible and achievable recipe to return the area and the sheds to the functional, social and environmental circuit of the 5th Municipality of Rome. Through an extensive application of the concepts of reuse and recycle as well a functional mix of activities addressed to an inclusive and environment-oriented society, the PpCC is expected to become a sort of Community Hub. As an existing physical place, the sheds are re-designed as an "hardware" able to give space, shelter and order to the people, while the several indoor and outdoor functions work as an open-source "software" able to support and orient their needs but also available to be adapted and re-shaped to approach different topics. Eventually, working as a catalyst immersed in a conflictual, fragmented periphery, this should quickly produce social capital, whose effects are to give advantages to a number of aspects of contemporary society.

A different way to consider this kind of "temporary occupations" in respect to the canonical architecture process, would be appropriate to be framed in a different administrative and

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[6] https://www.eataly.net/eu_it/mondo-eataly/api-bee-the-future/

jurisprudential context, in order to let it happen in a shorter time, through the active participation of citizens.

At the same time, such a project is also a direct consequence of the way it has been conceived and designed in the graduation seminar. For months, teachers and students have worked together from the morning to evening in the same classroom, every time changing the dispositions of desks and chairs and adding personal objects to the common space, like a progressive weak colonializing process. No particular accent has been spent on the hierarchy between them while they have been sharing and discussing every little drawing, information or suggestion in order to work as an actual design team. Their own study models have been shared, destroyed and remade, often with pieces of previous models. These practices, repeated week after week, have improved their soft skills, oriented their gaze to consider design as an open source platform, and encouraged a number of virtuous behaviors, somehow prefiguring a sort of general rehearsal of the inclusive society their project is targeted to.

7. Aknowledgements

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WHEN OPERA MET THE CITY: EMERGING INTERSECTIONS BETWEEN CULTURE AND PEOPLE IN URBAN TRANSFORMATION

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Abstract

The paper analyses the relationship between opera theatres and the urban environment. While it is rather commonly acknowledged that cities are transforming, what is less frequently discussed upon is the twofold pace at which they are changing: on the one hand, interactions, mediations and contaminations between individuals and groups bear witness to a new fluidity in the social fabric; on the other hand, cities are still being structured in a post-industrial fashion: the productive centre is refurbished with services which the peripheral branches of the cities invariably, progressively lose.

This is all the more true for culture, still anchored to a highbrow-lowbrow dichotomy in its urban diffusion reflecting the hierarchy of the city. Opera theatres, in particular, respond to an out-dated paradigm of isolated centrality, never meeting the cultural itineraries of its potential audience.

In the first section, a theoretical framework is provided: the city's non-response to the changes of society is matched with the atrophied rigidity of opera theatres, whose relationship with the city remains unchanged since its Golden Age, where it responded to a precise physical and social hierarchy. New urban patterns and new audience desires correspond to a new urban map of culture, which opera does not meet, and to new languages, which opera does not develop.

The second section further inspects this gap, and analyses opera theatres' present approach to urban and social transformation. Uncritical reproduction of the repertoire is sided by innovating attempts such as "special effect" productions and ephemeral flash-mobs: neither of them produces critical mass nor an emotional adhesion in the contemporary audience.

Starting from some virtuous examples, the third section explores the potential for innovation of opera theatres from a twofold perspective: the audience's cultural itinerary in the city is reached through decentralisation and diversification of channels, while a fertile hybridization of languages empowers opera's ability to meet and enable social innovation effectively.

Keywords

Culture, opera theatre, urban sustainability

1. Introduction

In his popular diagram "*The city as an egg*" (1982), Cedric Price used the unconventional, still unequivocal image of scrambled eggs to draft the structure of the postmodern city: instead of consisting of a centre from which peripheral branches unravel (an image we are accustomed to when thinking of urban development), the city he pictured was a polycentric, somewhat scattered entity.

However fascinating, this clairvoyant hypothesis is probably more dauntless than the actual reality it attempts to depict. Today the scrambled-egg-isation of cities is a *process* coming into being, rather than a *thing*, or an actual new organisation of the urban map which has replaced the preceding urban paradigm: the fading of borders, the redefinition of center-periphery dinamics and the magmatic social movements which underly such changes are opposed by bureaucratic protocols of urban planning and rigid claims of programming. Rather than channeling the powerful flow of creative reorganization, institutional attempts are aimed at framing movements and labeling actions. Two approaches, a kaleidoscope and a grid, one fluid, powerful, community-made, and one rigidly hierarchised, are facing each other in the battle for the right to the city (Lefebvre, 1968). The irreversible reorganisation of the city is having significant implications on the way people live and interact between themselves in it, and is likely to change it even more radically within the next few decades.

The pace at which the process is running and the shape it assumes depend on the interaction of different variables, commonly related to the social, economic and urban sphere. This paper will attempt to analyse such changes by adding a fourth variable, the cultural one. Often misunderstood as a sub-sphere of the social domain, or at best as an

emerging branch of economics, the cultural dimension of the urban change fails to be comprised in such boundaries.

The city and culture, in facts, engage in a twofold relationship: on the one hand the city, and the socioeconomic interactions which occur in it, have determined the present shape of the cultural ecosystem; on the other, culture and, more specifically, cultural capital is redefining the economy in a way which, in its turn, is affecting the urban fabric and society. The cultural sector's actions on and reactions to urban changes are inspected through the empirical lens of opera theatres, as their relationship to the surrounding environment is at a crucial turning point.

This perspective accounts for the deep embeddedness of culture within the market economy which stands as the prevailing economic paradigm of our times. But as the city unravels its innovation potential, and as the people within it engage in dauntless actions shaping new forms of economic interactions, of identity claims and multicultural encounters at the frontiers of the global city (Sassen, 2000), culture assumes a broader, more universal (and by no means less "economic") role within the urban fabric: that of powerful catalyser of instances, needs, desires, and of fruitful enabler of social innovation through the fertilisation and hybridisation of identities.

2. Do eggs have peripheries?

Before adding the cultural variable to the changing urban ecosystem, it is important to look at the contemporary city and the way it has developed almost seamlessly from the XIX century industrial city: a city where culture has, on the one hand, represented the borderline milestone for dissent, and on the other hand adhered to the texture of an ever-spreading manufacturing structure. This dualism persists to the present day, and it is on this front that culture (and, as will be said shortly, theatres) is at its crucial crossroad.

Capitalism and, subsequently, capital market economy has given the city the shape we see today in two different ways: first, the centre-periphery dichotomy was exasperated in the XIX century by the articulation of a productive centre and the poor, residential fringes in which workers were marginalised; the reduction of transaction costs and the ready availability of labour force are at the

origin of the the tight interconnection between industrial revolution and urban development: this, in turn, resulted in the manufacturing paradigm which still articulates cities today.

Capitalist economy, however, does not only need the dense labour force the city can provide: it also needs a market which can absorb capital surplus: the city proved the ideal environment for its absorption (Harvey, 2012). By analysing the close interconnections between financial crisis and the crisis of the estate market, Harvey highlighted how the capital surplus is absorbed through the constructions and estate market, with logics that always favour capital investors to the detriment of those who inhabit the city.

An idiosyncrasy exists between the rigid urban grid determined by manufacturing and capital economies and the society which inhabits it; such idiosyncrasy has been well framed by Richard Sennett in the oppositional couplet between *building and dwelling* (Sennett, 2018). To a centre-periphery dichotomy corresponded, for centuries, a neat class distinction which further deepened the boundaries within the city; the rise of globalisation and of what Bauman defined "*Liquid modernity*" (2000), however, has determined a fracture between the way the city has been built for over two centuries and the encounters, interactions and hybridisations occurring in the social life of its inhabitants.

Harvey (2012) emphasizes in facts the revolutionary potential of cities: while the nomenclature of class struggle proves obsolete, the diverse inhabitants of the city embody the resistance and responses to an unsustainable mode of economic production, reified in an unsustainable mode of shaping the urban environment. What is, perhaps, even more worth noticing is that the political claims of people until the XX century had a social and economic origin: the notion of class was ineluctably tied to the concept of struggle, underlying classical critical theories for two centuries; today, instead, the urban scenario is characterised by an immensely diverse, globalised population, which cannot be strictly framed in the obsolescent class system which has informed research and shaped the social and economic order; the claims of such population are neither strictly social nor reducible to economic rationales: they are cultural claims (Taylor, 1992; Calhoun, 1995). The politics of recognition dominate the political

scenario of dissent and reshaping the political agenda, and they are doing so by placing culture and cultural claims at the core of such process of radical paradigm-shift.

The social pressure to the urban structures, then, is strong, and is questioning the ancient structure of the manufacturing city; this paradigm, however, rigid and hierarchical, is still a dominant one. Structures and infrastructures need to realign with the social fabric in order to respond to its stimuli, to its claims, needs and desires.

What is worth emphasizing is that it is not simply a matter of social justice: the sustainable survival of the city is at stake. But so is that of culture itself: as it will be inspected shortly, the way culture is organised in the city responds to a dramatically out-dated vision, which proves unsustainable for the cultural sector itself, and for the emerging instances of contemporary society.

3. Culture in the city

The most frequently acknowledged role of culture in the city is that of booster of the city's identity and a powerful driver for both economic growth and urban regeneration. It is curious, however, how these dimensions of culture within the city are rather often discussed in a quite uncontroversial fashion, superseding over the political implications of the policy discourse concerning culture in thecity.

David Throsby (2001) has provided a clear taxonomy of the many facets of culture as an influential factor in economic growth and urban development: from the role of cultural heritage and of the creative industries, to that of cultural districts and of culture as a process of community building and as a catalyst of local identity.

While all these aspects are often well framed in policies concerning the arts and culture, the context of such policies is, perhaps, underrated. Quoting from Throsby, "*in a society where government policy emphasizes the pursuit of an economic agenda*, *the balance in the policy mix will tend to favour individualistic at the expense of collective goals*"[1].

It has been pointed out in the previous section how capitalism has affected the shaping of the city in a twofold fashion. This premise cannot be

overlooked when analysing the way culture interacts with the urban fabric.

Clarifying definitions is a necessary passage when dealing with elusive and complex terms such as culture. The most exhaustive analysis of this notion was probably provided, again, by Throsby (2001), who identifies culture as both "beliefs, mores, customs and practices" and, in more operational terms, cultural goods and services. Both meanings imply a deep interconnection with the collective instances of those who elaborate those beliefs and produce those goods.

In the manufacturing city the distance of culture, rigid and protocolled, from the contemporary fluidity of society seems to invalidate both the economic and the social meaning of the term. Culture today remains anchored to the centre-periphery articulation of the manufacturing city, something which affects its modes of production and, consequently, shapes its demand and its diffusion in the city.

The urban paradigm of culture, then, has overlapped to that of the industrial revolution; in this paradigm culture represented power[2], while cultural taste and fruition have always been seen as closely interconnected to education and social extraction (Bourdieu, 1966). It was all the more so for opera theatres. Whereas the role of theatre and live performances in general had been, until the XIX century, that of catalyser of a collective identity and of creator of a common semantics, somehow transversal to social classes even when different in genre, opera as a form of entertainment was produced for clubs. The social shift from *noblesse d'épée* to *noblesse de robe* in the aftermath of the French revolution translated the sceptre of culture from noble landowners to the enriched bourgeoisie, whose episodic fruition of opera transformed theatres into preferred spaces for socialisation. It was the golden age of opera: pivotal to a cultural and social system, it was the mirror or, reversely, the unlistened conscience of a whole world: Europe. It had become a status symbol and the preferred form of entertainment for elites for over two centuries.

In the XX century, cultural processes have been framed in other economic terms and have questioned the elitist view of culture developed in

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[1] Throsby, D. (2001),*Culture and Economics*, Cambridge: Cambridge University Press, p. 138.

[2] Not differently, however, from pre-industrial societies; an inheritance which the manufacturing city emphasized rather than mitigate.

previous centuries: among them, the notion of common heritage of mankind established by UNESCO, the relevance acquired by research on cultural commons, and the practices of IT innovation, rooted on the idea of shared and collective cultural resources such as open source softwares and on digital commons, have questioned the bondage between culture, power and class origin.

These changes, though substantial, still fail to reach and impact the physical relationship between culture and the city. The result is an enlarged hiatus between centre and periphery, reflected in a virtual opposition between a supposedly high-culture and the popular one, placed respectively in different fringes of the city. Opera theatre, which will be dealt with in the following section, does not escape this segregation, but rather runs into it recklessly: the role it played in the social game of the city is forever lost, as production modes remained anchored to obsolete paradigms of fruition. While new entertainment satisfied social and cultural needs through innovative forms of artistic production (from cinema to tv series), the collective language of theatres lost, precisely, its collective status. Obsolescence dramatically contracted opera audiences to a niche, while public support was forced to balance the immense losses of a sector unable to be even partly self-sufficient. Such audience contraction was followed by a second contraction, affecting production, which rarefied the composition of new works, as will be said shortly, and paralysed opera theatres.

Not only does opera provide relevant basis for such critical discourse: the organisation and musealisation of visual arts is probably an even more impacting example of the cultural segregation which affects the contemporary relationship between society and the arts[3]. At the time of their creation in the late Renaissance museums initially stored mostly sculptures and artefacts from the Classical era with a domestic or even an eminently public function (respectively, utensils or statues adorning streets and temples): the storage of artifacts represents at a time a loss of innocence towards our understanding of the past, which is abruptly perceived as separate and distant from our own story, and a crucial passage towards our

understanding of the importance of cultural heritage and historical identity; and yet the greatest cultural segregation in history happened with the creation of a single space for the storage and exhibition of objects and works of arts, which deprived culture of its public role, permeating the city, occupying the streets, while it attributed an aura of sacrality and an inspirational function to both the arts themselves, and the place where they could be experienced.

Theatre itself, and the sumptuous spaces of opera specifically, are in a critical condition from this particular point of view, and they represent today a peculiar paradox – the paradox lying in the fact that they are public spaces whose fruition is limited to certain days of the week and certain hours of the day, where dress codes prove more relevant than critical interpretation of a huge intangible heritage and where barriers to entry for non-audiences are naturally provided by the hermetic language of the physical ambiance.

Most of the cultural offer of today, especially of the supposedly "high" sort, is organised in a similar, musealised fashion, stored and protected from every possible contact with the outer world and the life of its potential users, in the name of heritage preservation. A preservation paradox arises in that such protection ensures, undoubtedly, the physical survival of most works of art, but hinders their capacity of conveying value and meaning in their proper context, both to present and to future generations.

Turning now to the socioeconomic developments of culture, two phenomena occurred which have originated the present status of culture in the city: first, the commodification of culture and the arts, which scholars in the Frankfurt School had appallingly foreseen in the XX century by coining the term cultural industry (Horkheimer, Adorno, 1944); second, an increasing permeation of the economic sphere on behalf of culture and creativity, which have generated creative, knowledge-based enterprises which now occupy a preminent role in the business domain.

The phenomenon of culture's pervasiveness in the economic field led A. J. Scott to elaborate the concept of cultural-cognitive capitalism (Scott, 2000): a somewhat new form of capital owned by a

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[3] It is not by chance, perhaps, that museums in the contemporary meaning of the term developed in concomitance with the industrial revolution.

problem-solving elite[4] whose ecosystem is embodied by the creative city (Florida, 2002).

While most research has focused on the rising interest, in public policy discourse, concerning the arts, and on the many economic and social benefits which arise precisely through the creative industries (many of which emphasizing the role of culture and creative industries in urban regeneration processes)[5] the matter is far from being uncontroversial: the creative city, in Scott's critique, is a major cause of marginalisation and inequalities.

Cultural capitalism has replaced the industrial one, while the ruling class has been replaced by a wider, more undefined social group owner of a cognitive –cultural capital[6].

Such new form of capital provokes two types of marginalisation: on the one hand, it exploits a new kind of labour force, the so-called knowledge workers[7], while on the other it contributes to processes of gentrification and of further centralisation of culture within a restricted access area of the city, thus reinforcing the manufacturing paradigm which characterizes the cultural diffusion in the city ever since the industrial revolution.

The first interconnection between culture and the city, then, relates to the way in which both cultural production and consumption have remained anchored to an out-dated paradigm, that of the manufacturing city, which draws a distinct line between centre and periphery and, consequently, between a highbrow and a lowbrow culture, a creative centre and a cognitive periphery. The second concerns the way the economy has been permeated by culture- and knowledge-based inputs, so that the city has consequently been reorganised to meet the necessities of a new class,

thus opposing to the social pressure generated by the fading of such categories outside of the restricted boundaries of the creative city.

4. Opera and the city: missing opportunities

Opera theatres do not escape this logic – quite the opposite, they are radically embedded in it.

The reason why opera could be taken as a significant example in the discourse of culture and the city is twofold: primarily because it is pivoted on intangible heritage whose networks of reproduction are widespread on an international scale - as such, it fits by right the category of cultural industry and of heritage at a time, thus embodying the two broadest labels of cultural economics.

Secondarily, because it provides a clear litmus test to the urban paradigm sketched above: opera theatres operate and are located in the city in a way which illustrates the rigid adhesion of cultural production to the manufacturing urban grid, with a particular emphasis on the segregation of "high" forms of artistic production, and all the consequences that this segregation bears.

Opera theatre was born in the XVII century in courts and was later appropriated by the bourgeoisie as its preferred venue for social encounters: its pedigree is that of a high form of cultural entertainment. Curiously enough however, in the XIX century its pervasiveness and popularity among the widest range of social strata made it somehow universal, especially in Italy[8]. Today, a curious dissociation exists between its heritage value, which is still thought to be universal (and is

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[4] It is important to note how this elite is not represented by a class anymore; as noted above, a similar shift can be seen in Harvey's analysis of the revolutionary potential of the city as a whole, which replaces that of the industrial workers in Marxist critique; this shift finds it nominal correspondence in the replacement of the notion of "class" with that of "multitude". An exhaustive elaboration can be found in Virno, P. (2001), *Grammatica della moltitudine: per una analisi delle forme di vita contemporanee*, Roma: DeriveApprodi.

[5] Just to name a few: LeBlanc, 2010; Craik, 2005; Grodach, 2008; Seman, 2010; Wood, 2005.

[6] For a more complete account on the critical theories on cultural-cognitive capitalism see Keucheyan, R. (2010), *Emisphère Gauche. Une cartographie des nouvelles pensées critiques*, Paris : La Découverte.

[7] For an exhaustive account of the critical theory on the rise of knowledge workers and of cognitive capitalism see Keucheyan, R. (2020), *op. cit.*

[8] Countless are the studies which link, for instance, the music of Giuseppe Verdi to the political atmosphere and activism of the time - an activism which was crossing the boundaries of social classes and which embraced quite homogeneously Verdi's melodrama as a cultural representation of the Italian struggle for independence. A recent work which attempts to bridge the political and community-encompassing heritage of Verdi's music and the elevated and transversal value opera can have to contemporary society is by Mattioli, A. (2018), "*Meno grigi e più Verdi. Come un genio ha spiegato l'Italia agli Italiani*", Milano: Garzanti. Moreover, it is noteworthy that Gramsci, whose political allegiances are amply well-known, found a correspondence between opera and the popular romance of feuilletons and novels in France and England, and defined opera an outwardly popular form of art: "*In Italia la musica ha in una certa misura sostituito, nella cultura popolare, quella espressione artistica che in altri paesi è data dal romanzo popolare e i geni musicali hanno avuto quella popolarità che invece è mancata ai letterati*". Gramsci, A. (1991), *Letteratura e vita Nazionale*, Roma: Editori Riuniti, p. 79.

the justification for public support and interest), and the structure of opera theatres as cultural industries.

The aforementioned musealisation of culture is all the more relevant in the opera domain: from an eminently social form of art, it has turned into an improbable temple of beauty; as a temple, its position in the city is not only central, but often isolated, within buildings whose permeability to the external environment is close to null; its physical characteristics inspire awe and reverence, rather than curiosity. The centre-periphery dichotomy is perfectly represented in opera theatres' diffusion in the urban texture: this diffusion, rather simply, does not exist. Access to such heritage, though virtually possible, is strictly limited to the initiated audience and never encouraged by theatre administrators; the operatic culture is still interpreted as a magic force supposed to enlighten the audience by simply being poured into its senses – undoubtedly a weak premise on the part of a cultural industry which, in addition, has hardly ever questioned its value propositions towards new audiences and their new cultural instances, has never tried to enlarge its audience base by challenging the borders of its production nor attempted to engage in a dialogue with other forms of creativity and cultural production in the city. Its isolation, both vertically and horizontally, is total.

This isolation is matched with another unfortunate circumstance, that is the twist from laboratory of production to altar of heritage reproduction. It is hardly ever taken into account that the last work to have entered the operatic repertoire, *Turandot*, is less than a century old. New operas ceased to enter the cultural operatic market, and even when they do, they encounter an insurmountable barrier to entry, being reproduced a few times before disappearing from opera programmes for good. Opera theatres have not renovated their cultural offer for a century, and still they expect a pavlovian response of urban consumers to an offer which never meets their new needs.

What is being questioned here is not the ability of opera to still hold a relevant role in cultural entertainment today; quite the reverse, the lazy reproduction of historical-costumed performances limits the huge potential of heritage in general and of opera to elicit creativity and to arouse critical thoughts through new interpretations and innovative stagings; technology and other creative products empower opera, rather than deprive it of its authentic nature, and enables it to reveal its potential for the representation of, and reflection on, the contemporary world.

What is more, in spite of the growing relevance acquired by audience studies in the opera domain, the fruition of opera theatres remains restricted to a very limited audience niche; as has been said before, the multitude composing the urban population is characterised by unlabelled identities and the most diverse cultural backgrounds: and still, the indicators and formal categories used in audience studies still rely on numeric and demographic indicators such as age and income, never accounting for the changes in the social composition of cities, the rise of new habits, of new encounters and the cultural merging of an immense variety of local people, temporary residents, migrants: the absence of these characteristics from such studies, and their inability to question the dimensional approach, prove their perfectly self-referential nature. Most opera theatres, enforced by heritage-based logics of public support, quietly rest on Baumol's dilemma (1966) and blame the uncultivated audience or the distracted youth, while failing to understand that the environment in which they are operating has radically changed, and they have not.

Their value proposition meets the demand of a few, supposedly educated cultural consumers without ever addressing the delicate issue of sustainability in the long term: the urban map of people's everyday itineraries never meets opera.

Geographically isolated in an ivory tower; supposedly responding to the stimuli of a social class which has long disappeared; economically doomed by a market failure they never dare to question: opera theatres seem to be on the verge of extinction, as arguments against public funding supporting the amusement of a niche are enforced by the factual inability of theatres to meet new audiences. It is unnecessary to appeal to Tancredi's abused quote from *The Leopard*[9] to point out the suicidal nature of such strategic premise.

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[9] "*If we want things to stay as they are, things will have to change*", Tomasi di Lampedusa, G. (1st ed. 1959), *Il Gattopardo*, Milano, Feltrinelli (2018). Translation by Archibald Colquhoun.

5. Opera and the city: questioning the manufacturing paradigm

Before turning to the wider question of whether the creative city paradigm, in which opera theatres are embedded, can be questioned, and in what modalities, some theatres' responses to the changing relationship between culture, society and the city will be presented; such examples illustrate the modes of interaction of opera theatres with the XXI century urban structure.

The paradigms here presented are of two different sorts: the first inspects some cases in which opera theatres or other forms of lyric-symphonic institutions set their main venues in locations which cannot be considered central in the sense implied here (see Chapter 2). The second outlines some projects with a high social vocation which go beyond the mere audience development intention of some educational and social activities of most theatres, acquiring a broader social relevance. Let us turn to the first paradigm.

Mulhouse (Alsace, France) boomed as an industrial city in the early XIX century with a prominent vocation for the textile and chemical industry; in the past 30 years, after the decline of the city's industrial life, an effort has been made to foster the adaptive reuse of many of the industrial heritage buildings of the city; one of these efforts concerned the reuse of the old cotton mill, the *Filature*, which was turned into a cultural centre, media library and opera theatre in 1992 by the architect Claude Vasconi. The *Filature* is, rather predictably, located in an old industrial district east of the city centre.

A similar experiment of logistics was carried out in Hamburg (Germany), where an old warehouse was the starting point for a futuristic construction, the *Elbphilharmonie*; not only it is located in an industrial area (the mercantile pier on the Elbe river) just like the *Filature* opera theatre: it also shares with its French equivalent a multi-functional vocation, being a concert hall (home to the Hamburg Philharmonic Orchestra), a hotel and a condominium of 40 apartments. The city of Hamburg's massive communication campaign is currently trying to boost *Elbphilharmonie* as the new symbol of the city, for the eminently cultural vocation of its adaptive reuse and the virtuous valorisation of the city's industrial heritage.

An Italian example is provided, quite oddly, by La Scala in Milan; during the time of the historical theatre's restoration, performances were temporarily staged at the Teatro degli Arcimboldi in the neighbourhood of Milano Bicocca; although recently constructed according to smart-city logics, the neighbourhood could be considered peripheral with respect to the properly historical productive centre of the city. This temporary displacement resembles an unachieved experiment, as it was felt as an exile rather than a development opportunity by the theatre; every contact with the neighbourhood and the peripheral branches of the city were lost for good once the historical building's restoration was complete, and La Scala could move the production back to its originary location.

The second paradigm of innovation concerns opera theatres' projects aimed at social inclusion. In France, a partnership between opera theatres has led to the creation of a network, *La Fabrique Opéra*, comprising the opera of Grenoble, Val de Loire and Alsace, which aims at the crafting of participative stagings of popular operas, involving a wide range of stakeholders, from students to amateurs. The operas are, in addition, frequently performed in popular venues which fall outside the category of conventional operatic ones. A similar perspective is the one adopted by the Mahogany Opera Group, whose participative stagings and coproductions aim at "*stretching the boundaries of what opera can be and who it is for*"[10]: new places and people are involved in the production of opera projects which sometimes feature new and contemporary compositions, thus paving the way for further artistic innovation in the operatic field.

The Italian projects are of a somewhat different sort: both arise from the joint efforts of Opera di Roma and Teatro Massimo di Palermo, but their result has, arguably, less permanent effects than the French and English examples illustrated above: in Rome, *OperaCamion* is an itinerant performance of popular operas which, during summers, runs through the forgotten Roman peripheries; the itinerant truck turns into a stage and occupies the squares as the audience carries their own seats from home. In Palermo a year-long project has settled the headquarters of the opera production in a disadvantaged neighbourhood, Danisinni, and has involved the local population as the opera choir,

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[10] https://www.mahoganyopera.co.uk/about-us/

while having the orchestra and the actors rehearsing in impromptu facilities.

In both paradigms, the changes occurring in the relationship between the city and opera theatres appears to be mutual, and yet somewhat incomplete. On the one hand in facts, the theatres' renewed approach to the urban environment is a potential driver for business innovation: the new value proposition of social projects fosters the inclusion of new customer segments and, potentially, a differentiation of the funding mechanisms, which might open up to crowdfunding and cross-sector partnerships as the goal of production shifts from mere heritage reproduction to a more holistic vision combining an artistic vocation to social inclusion[11]; the involvement of new stakeholders in the realisation of opera projects is a powerful driver of creative innovation by exogenous demand, as different perspectives and approaches enrich the opera production with unconventional views and trigger flows of synergy which the opera market alone could not, perhaps, provide[12]; what is more, the dislocation of opera venues, as is the case of Elbphilharmonie or La Filature, might lead to a regeneration of the surrounding area, following the general trend of cultural adaptive reuse initiated by the arts factories phenomenon (High, 2017)[13].

And still, both the infrastructural changes and the social-oriented projects are lacking a dimension of innovation owned respectively by the other paradigm: no substantial innovation in the semiotic code of the operatic product occur within those institutions that were merely displaced far from the centre, still anchored to the production and consumption modes they developed in the manufacturing city paradigm. Thus, no mutual hybridisation between the new urban setting, its social composition and the opera features happen, turning physical displacement into an alienating

solipsism, while peripheries incur the risk of being sold to an easy gentrification.

Social-oriented projects, on the other hand, lack a solid, self-perpetuating practice which would make them sustainable in the long term: without proper infrastructure and in the absence of a multi-year plan for the actual settlement of the cultural offer outside of the commonplace urban spectrum, the cooperative performances risk to resemble a flash mob with an extemporaneous, not a factual impact.

The sole exception within these unachieved experiments seems to be that of *La Fabrique Opéra*: an intra-urban city network is made where the exchange of ideas and resources enhances the visibility of the project; sources of funding are, consequently, diversified and feature private sponsorships of some relevance (such as SNCF, the French national railway company) which testify the high visibility of the project, while the use of theatre facilities and infrastructures is combined to the staging in public spaces and diversified venues, in the framework of long-term partnerships between theatres, the local communities involved and public administration.

6. Emerging intersections: future sustainability challenges for culture and the city

The right to the city, which Henri Lefebvre saw as being denied and manipulated by unsound urban planning, is additionally threatened by the distortions of uncontrolled capital investments (Harvey, 2012). In the delicate interactions which compose the urban ecosystem, urban planning and the economy are not value-free toolkits, but are embedded in a conception of social, urban and economic goals which is culture bound, and broadly shifts the goal setting of urban policy to either efficiency maximisation or the optimisation of social welfare: policy design affecting these three dimensions, as a consequence, calls for methodological depth and a sound, sustainable strategy.

This is all the more true for culture: usually intended as a positive variable in the evolution of the city, it has nonetheless been organised according to market rules and urban schemes which reflect the prevailing economic view, rather than pouring in the city the "absolute" value of cultural

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[11] Social Enterprise Knowledge Network (2006), *Effective management of social enterprises. Lessons from businesses and civil society organisations in Iberoamerica*, Cambridge (MA): Harvard University Press, pp. 167-199.

[12] Jones, C., Lorenzen, M., and Sapsed, J. (2015), Creative Industries: a typology of *change*, in Jones, C., Lorenzen, M, and Sapsed, J. (ed.), *The Oxford Handbook of Creative Industries*, Oxford: The Oxford University Press.

[13] An exhaustive account of the arts factories phenomenon is provided by High, S., Brownfield Public History, in Hamilton, P., and Gardner, J. B. (2017), *The Oxford Handbook of Public History*, Oxford: Oxford University Press.

instances; moreover, the preponderant role played by culture and cultural capitalism in the construction of the creative city calls for a more audacious understanding of the power relationships subtended to its conceptualisation. Culture is neither neutral, nor neutrally managed, nor is it a driver of growth and community empowerment *per se*: the way it is produced, owned, distributed, arises multiple questions in the arena of policymaking: where is cultural value produced, and for whom?

The non-neutrality of this scenario is clearly embodied by the creative city: cognitive-cultural capital, being non-excludable (differently from physical capital), virtually makes the creative city an inclusive and equal city, where culture could lead to a more just redistribution of services, incomes, and to the widening and widespread diffusion of cultural value to the benefit of the largest possible community. Culture is the pivotal engine around which this transformation could happen; instead of replicating the scheme of an out-dated urban grid, it has the power and, arguably, the duty to contribute to the renewal of the interaction between society and economics in urban development.

The physical boundaries of the creative city, however, have but exasperated those of the manufacturing city, and have reinforced those between "the two cultures" – which shall not be understood in the sense C. P. Snow have attributed to this binomial, but rather in the sense of a fracture which keeps being operated on culture, preventing cultural encounters from happening, and cultural layers from merging. The creative city is still a city of the few, because the frontiers between highbrow and lowbrow are not fading: they're simply shifting, so that a high, cultivated art is opposed to other forms of knowledge and culture, be it that of migrants, of independent craftspeople, of electronic music – far less easy to label and, as such, magmatic: able to allow for unpredictable, powerful innovation.

Whether the two cultures can hybridise, and whether the whole of society will meet a culture which finally reflects its instances, beliefs and doubts, depend on the will of changing the way we think of culture in the city, and the way we organise it. Not only, then, the role of opera but that, more in general, of culture and creativity, is a crucial aspect of contemporary urban policy and economic development. Can the frontiers of culture become

ground for fertile encounters between distant views, or is it destined to turn into a dividing trench?

A conceptual shift is necessary, perhaps. The conceptions of ownership and value subtended to the standard economic idea of "capital" has been applied to the cultural domain ever since the rise of the cultural economics discipline; however, the growing attention paid to the concept of cultural commons could play a relevant role in shaping new possibilities for the production and consumption of culture in the city, for its distribution in the urban scenario, for defining its ownership and the right for its benefits. Theatre in particular has a huge potential for being managed and benefitted from as a cultural commons (Borchi, 2018): the social-oriented opera projects presented above illustrate new modalities of doing opera which recall this economic conception: shared, cooperative, unstructured, creative.

Whether this model is replicable, applicable to other contexts and whether it is possible to frame it into a long-term effective strategy depends on a variety of factors which can be broadly summarised in three main addresses: a new creative vision, a more empirical understanding of public funding to opera, and a more sustainable embeddedness within the social dynamism of the city.

Concerning creativity, it has been previously mentioned how opera has progressively lost its production features, shifting to uncritical reproduction and intangible heritage preservation; the use of new languages and the borrowing of creative forms from popular genres (from comics to filmmaking) has proven a riveting, though still underrated revolution towards encountering the contemporary audience on a common terrain of artistic communication; in any case, tracing trends and patterns of cultural consumption of potential audiences is preliminary to the understanding of such new forms of communication and new preferred forms of cultural entertainment.

Non-audiences, of course, are never met in opera venues: in order to trigger addiction, a more pervasive exposure to opera is required. This can only be achieved by displacing the cultural offer of opera theatres, abandoning their ivory isolation, to new, perhaps challenging, urban settings. It is likely that a segmentation of the cultural offer of theatres will be needed, diversifying the offer in order to meet a wider array of cultural consumers; moreover, the way creativity is deployed in opera

stagings will be much affected by these logistic changes, as is the case of the projects illustrated in the preceding section; it is likewise true that opera would have everything to gain from such flow of innovation, both in creative terms and in financial ones.

The funding discourse is closely connected to the audience one: in most countries, Baumol's cost disease is interpreted as a straightforward justification for massive public support for opera theatres; Italy not only makes no exception, but is probably a leader in the sector, as it is not uncommon to see how only 20-30% of the total income of theatres comes from sources that are independent from state support[14]. Strategic efforts towards new partnerships within and, especially, without the strictly operatic domain would ensure a wider diffusion of the opera culture, "normalising" the cultural experience of opera, while diversifying the funding mechanisms – a crucial issue not just from a social and a urban perspective, but also from the standpoint of the economic sustainability of such complex institutions; participative forms of support such as crowdfunding and donations can only arise from collective engagement and openness towards the surrounding environment: the shift from willingness to pay to willingness to contribute is of great significance when it comes to sustainability. Conclusively, a sound cultural policy would turn part of the funding into in-kind donations, where the provision of infrastructures and facilities is aimed not only at relieving public funding of a consistent part of its financial effort to support opera theatres, but also at ensuring a more balanced diffusion of the operatic offer in the city.

From gambling to carnival parties, opera theatres have been for centuries the preferred space for social encounters. Social life has changed, and so have its modalities and spaces. Nonetheless, opera theatres should not stop questioning their role and position within the ever-evolving society, and consequently developing strategies which feature a wider diversification of activities hosted by the theatre itself. Today, an opera theatre is a paradoxical public space, accessible exclusively at night and under certain circumstances. Although it would be purposeless to fill the opera spaces with

functions which pertain to public squares, a more clever use of the space and a more modern conception of the accessibility to such spaces is desirable, if not necessary. A good spatial strategy for a theatre would feature different sorts of activities, which range from exhibitions to conferences, to public events and parties, which could combine social vocation and exposure to the operatic culture and to the theatre's primary activities; such strategy would not just let people in the theatre: it would induce them to come back.

The way culture is distributed in the city is a matter of equity, social inclusion and a prominent factor of future sustainability for cultural institutions. The two aspects of such matter, the one concerning equity and the other concerning the survival and effectiveness of the strategies of cultural institutions (namely opera theatres) have always been thought of as separated- at best, the first is considered in terms of enhanced visibility through corporate social responsibility; some educational and social programmes are, for theatres, an efficient way towards the reach of funds and of public interest. The matter is, probably, more controversial than this: while social classes are fading, power relationships in the city are evolving, public life in the city is changing, addressing new audiences and challenging the conventional spaces of theatrical performance and fruition will become crucial for opera theatres; it will be an issue encompassing equity and necessity at a time.

A quote of the economist Karl Polanyi perfectly serves the purpose of being the conclusive epitome for these elaborations: "*Thus will old freedoms and civic rights be added to the fund of new freedom generated by the leisure and security that industrial society offers to all. Such a society can afford to be both just and free.*"[15]

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[14] Teatro dell'Opera di Roma, *Bilancio d'Esercizio* (Financial Statement), 2017,
https://operaroma-c02.kxcdn.com/wp-content/uploads/2018/11/annual_report_2017.pdf

[15] Polanyi, K. (2014), *For a new West: essays 1919-1958*, Cambridge: Polity Press.

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LIVING STREETS: HOW PEDESTRIANS AND CYCLISTS CAN SHARE PLACES IN THE URBAN LANDSCAPE

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Abstract

Cars have played a crucial role in shaping cities by intricate infrastructure systems for transport and have transformed the evaluation and planning process for the future changes in urban mobility.

Designers often give cars more relevance than people, but drivers are first of all pedestrians, aren't they? Pedestrians and cyclists have the right to reach every place; this is why a strategy is needed to shift the focus towards on creating a widespread network of cycling-pedestrian paths whatever the street dimension is.

"Pratomobile" is a research by design started from the Sustainable Urban Mobility Plan (2017) of Prato, in Tuscany, and entrusts the street as a catalyst for urban change that enhances the quality of public spaces, also by integrations with the Urban Forestry Action Plan (2018).

The project concerns two of the most congested streets in the urban area and it critically measures the opportunity to create shared or separate paths for cyclists and pedestrians according to administration policies and dimensional constraints. The design process revealed benefits and values of shared places in narrow spaces, in order to avoid spatial fragmentation in extremely tight exclusive-use corridors. Although shared paths are frequent in urban parks and suburban or rural areas, they conversely are uncommon in densely built environments, due to the cultural belief that they may cause several conflicts among different users. The solution to this issue lies in a change in attitude and behaviour by looking at a past when cars were not the leading subject of planning processes and street were places for collective urban life. Present challenges and questions for a new, sustainable and multifunctional city, turn back streets from infrastructures to places, combining and integrating every element needed for city landscape's efficiency and efficacy: water, soil trees and people.

Keywords

Urban landscape, shared place, living street, sustainable mobility

1. *Context*

Pedestrian and cycle mobility is a powerful chance for sustainability in urban and suburban landscapes. But it can be developed only by a widespread network of paths connecting the most part of buildings and open spaces. Such a vision requires to explore ways of integration in the landscape, about both size and shapes of open spaces and their multiple functions. This is the hypothesis we have stressed by the *Pratomobile Research*, facing issues about separating vs. sharing

pedestrian and cycle spaces for moving and staying, in a more liveable and enjoyable city.

About the 'living streets policies' the Los Angeles Department of Public Health recommends to provide *well-designed pedestrian accommodation in the form of sidewalks or shared-use pathways on all arterial and collector streets and on local streets* (RENEW, 2011). So it is not enough to have cycle lanes without capillary and liveable pedestrian and cycle connections.

But nowadays the most of urban streets again are for cars rather than people. *Busier roads will*

have underpasses or bridges, and concrete kerbs, barriers and traffic islands will fragment the space, isolating small residual spaces for pedestrians from each other and from the traffic. Compensatory measures for people with visual or physical disabilities, such as drop kerbs, standardised tactile paving and beeping pedestrian crossing signals add to the visual and audio confusion. Our streets are not welcoming places (Hamilton-Baillie 2008, 131).

In the urban roads the average speed of a driver equals the speed of a cyclist, exceeding by only 2 km/h pedestrian during traffic congestion hours (Fiorillo, Laurenti, Bono eds., 2018). As citizens-consumers, we spend significant amounts of time and money to feed disruptive, dysfunctional systems that generate a lack of liveability of everyday landscapes, making cities a hostile habitat, characterized by insufficiencies in psychological and physical well-being, a lack of social aggregation and social integration of the communities, deficiencies in the economic competitiveness, and finally unsafety on the streets.

Playing on the street or sitting and watching the passage of time are ways to live comfortably if public spaces are not mostly parking areas but multifunctional places (La Cecla, 2006). Furthermore a parking lot is not usually thought of as a habitat favourable to human life. Although this is an unjustifiable nonsense, it is a fact that can be easily seen as a rule in the face of rare exceptions: basically cars receive more attention than people. Both effectiveness and safety of mobility are necessary but not sufficient for city liveability. An urban landscape where people cannot walk and meet in conditions of psycho-physical well-being is a non-human based habitat that does not favour the sustainable development.

The current cultural attention for sustainable solutions entails the improvement of urban lifestyles and places and putting the bicycle back into play as a different medium to the daily movement. This process aims to induce the greatest number of users to abandon polluting private and public vehicles, firstly represented by the car, and to live the experience of moving into the city in an alternative, healthy and ecological way. This change naturally triggers a transformative process of urban places and landscapes. It produces new relationships between pedestrians, cyclists and motor-vehicle drivers: all human beings, all road

users. It also generates systemic integrations; for example it happens between trees and pavements both in the hydrological conditioning and in the micro-climatic one as also in other functional relationships. In such a context, the planning of a pedestrian and/or cycle path has more to do with the architectural research on the identity of places than with the infrastructural settlement of a spatial corridor for slow transits without motor vehicles. An interesting article about this concept has recently published on the European *Journal of Landscape* Architecture: "Back on the Street" (Furtlehner, Lička, 2019).

The research Pratomobile has been developed in the biennial 2017-2019 by an agreement between the Municipality of Prato (Offices of Mobility), in Tuscany, and the Department of Architecture of the University of Florence (Landscape Design Lab). *Pratomobile* explores critical issues about the concept of infrastructure and the spatial specialization phenomena. The research looks for environmentals changes of the public urban places favourable for social and economic relationships in the comprehensive goal of sustainability.

Fig. 1: In a space too much narrow for separating pedestrian and cycle paths, a just standardized infrastructural vision produces ineffectiveness and inexpressiveness of the place and trivialization of its landscape (Pistoia, Italy).

Fig. 2: With enough space, a site-specific architectural vision can make effective and expressive a place with separated pedestrian and cycle paths, enhancing the landscape identity just by simple intervention (Boulogne-Billancourt, France, © AAUPC).

The qualitative and quantitative issues in which the reasons for the separation and sharing of people's movement spaces are opposed - cyclists and motorists, such as cyclists and pedestrians - are systemic and in turn closely connected to more complex, dependent variables: the reduction in volumes of private vehicle traffic in urban and peri-urban areas and in general in metropolitan areas; the reduction of the maximum speed allowed for vehicular traffic of the amount retained; the increase in the extension and continuity of a network of shared places.

Sizes and shapes of the public road corridors typical of european cities are structural constraints which are therefore associated with management constraints constituted by the political choices of municipalities and the technical ones of their offices. Practically, the determinations relating to the conservation of quantities and positions of spaces for parking, as road lanes for driving are often quite independent variables in the design processes. A further non-negligible restriction is then constituted by the occupation of the first subsoil by technological networks, often dense and

chaotic due to defects of infrastructural coordination between specifically competent public and private companies.

Anyway, enhancing the movement of pedestrians and cyclists through dedicated paths in exclusive or shared form is necessary to generate socio-cultural triggers and behaviors that may constitute indirect factors of more significant modal transitions and spatial changes about urban mobility. In other words, working by actions of urban regeneration to favor the well-being growth also by satisfying needs of movement and of outdoor life produces physical changes of the landscape and induces cultural changes of its social perceptions and therefore of individual and collective behaviors. A new perspective can evolve focused on the 'why', 'what' and 'how' we live, more than on design methods and techniques (Corner, Hirsh, 2014).

All this leads to the demand for critical thinking and designing about the development of pedestrian and cycling private mobility on an urban and neighborhood scale. Indeed the separation of transits is a requirement for optimizing the users safety and fluidity. Scientific literature as well as technical applications and implementation experiences give an articulated range of positions on the topic of the separation of spaces: those for cyclists from those for motor vehicles, but also those for cyclists from those for pedestrians. On the opposite several positions emerged on shared spaces, both about vehicles with pedestrians or cyclists and about pedestrians with cyclists.

In order that separation does not give rise to critical effects of fragmentation and congestion of public places such as roads and squares, appropriate spatial sizes are necessary to generate identity of places and good relationships between their specialized spaces.

Projects have the technical responsibility to evaluate and communicate the compatibility of the functional hypotheses with the structural and management constraints of every place they deal with. The comparison of alternatives is essential in order to analyze the specific variables of the problems for expressing the highest degree of sustainability of their solutions. The independent variables constituted by the overall transversal dimensions of streets and avenues must be taken as structural constraints, and those constituted by the

transversal dimensions attributable to the paths for the protected mobility of pedestrians and cyclists due to the choices relating to transit and parking of motor vehicles must be considered as management constraints.

In the United States approach at cycle paths prevail the cases on roadways, with paths at most separated from lanes by curbs. Anyway cyclist paths are mostly specialized spaces separate from sidewalks. On the contrary, in Australia and New Zealand shared spaces between pedestrians and cyclists are dominant, not only in urban parks and in the extra-urban areas, but also in urban streets. In Europe there is a widespread application of the specialized bike path model (in roadway variations or at its own site) and a significant consideration of 'shared paths'. In the United Kingdom, for example, the municipality of Birmingham has invested in the latter, accompanying its implementation with cultural campaigns regarding the values and ways of sharing public spaces.

The pedestrian and the cycling opportunities of development of a sustainable mobility cannot be interpreted with sector projects, forced by separated administrative and technical competences, because they obviously are too much abstract regarding the complexity of reality. So the aim of Pratomobile was promoting an idea, a type of cultural and social and therefore also economic growth, starting from the improvement of urban habitats. We strive to develop and promote a contemporary idea of a city that can be defined as smart to the extent that it succeeds first of all in being sufficiently ecological, involving the intelligence of ecosystems in its functionings. The research takes citizens as reference subjects for a study about a mobile city in which they live, moving and communicating inside it.

2. Main topics

We exist within complex sets of interactions – that is, we live in an ecological world. Learning to perceive the world as a never-ending system of interactions – that is, to think about our surroundings and our relationships with our environments and each other ecologically – is challenging. Such thinking forces us to rethink our views of economics, politics and business. It suggests different ways to plan and design (Steiner, 2002).

After centuries of scientific progress and cultural evolution, the awareness of playing a significant role in natural systems and that nature is essential for our life has led us to rethink our assumed supremacy on it, inspiring our ideas and actions to its resilience and working patterns.

Conceiving cities changes also by working with nature-based solutions (Balmori, 2010) requires systemic integrations of factors and processes that shape the urban landscapes carrying out several roles into their functionings.

If we design cities changes as belonging to the natural world, they become more human based habitats. If such urban landscapes also work through ecosystems, their resilience can become closer to that of natural systems (Spirn, 2014) in a dynamic balance where nature reacts to anthropic pressures and cities respond to natural impacts firstly due to climate changes.

The design process should consider such complex interaction of variables with a synthetic and integrated approach, cross-cutting the scales of landscape planning, urban landscape planning, and places design, with a special attention towards the public realm and so the streets network and its essential role in urban accessibility.

Streets change with time in the history of cities as also social perceptions and demands do. Involved in continue experiences, citizens are both spectators and actors (Turri, 1998) of urban landscapes changes.

Therefore street design has to go beyond the normative sphere of urban mobility infrastructures. It must also deal with accessibility and psychophysical wellness, values which concerned all human being's right to take part in collective life and shape anthropic places and human relationships.

So, as the Municipality of Prato asked us to suggest solutions for cycling and pedestrian mobility, we considered this main goal as a 'chance' to enhance the synergy of different systems.

The Pratomobile Research faced three main topics: urban forestry, urban hydrology and urban mobility, looking at this latter also from the quoted point of view of the urban accessibility. So the street turns back to its deep nature of multifunctional place, opposite to that of infrastructure as specialized space. Regenerating streets can produce places and networks where cyclists, pedestrians, trees as also shrubs and grasses, water and soil, work together for a more resilient city by sustainable systemic relationships.

The quoted topics are strictly related, as each takes part in shaping streets both living and liveable places of the urban landscape.

Urban forests are the backbone of green infrastructures (Salbitano et al., 2016) and seem to be effective strategies to make streets more hospitable as the effects of climate change become undeniable. Trees and other plants provide food and shelter for wildlife, improving biodiversity; they help remove dust and particulate from air and reduce the urban heat island effect; they can enrich and purify the soil, if polluted, but can also help reduce flooding by slowing the rate at which rainfall reaches the ground, and last, they can make public places more desirable and attractive. Greening the cities is certainly a crucial point of the process that can turn urban polluted areas into human ecosystems that are meant to ensure a high-quality of life (Ferrini et al., 2017).

Ground solutions for urban hydrology are useful for filtering and infiltrating stormwater, absorbing pollutants and restoring natural hydrological cycles. Such nature based solutions bring also comfort benefits with draining pavements and ecological benefits with plantings, increasing species habitats and urban biodiversity and, consequently, improving the street's scenery, because *(...) water is not just a vital element in our lives, it can also be experienced in a whole variety of ways. It creates different kinds of atmospheres and moods that appeal to our feelings* (Dreiseitl, Grau, 2005).

Sustainable mobility can enhance a healthier everyday life for citizens, but can also make it safer, as pathways become wider and well separated by vehicular lanes, and moreover play a crucial role in defining place's identity if pavements host inviting building edges and shaded spaces to rest and wait.

So each topic provides different benefits to the street environment, some of which overlap or depend on each other.

We can't imagine a high-quality streetscape with wide pavements but without trees, or filled with trees planted in compacted soil that causes frequent

floodings, or again equipped with a complete vegetal structure but fringed by uncomfortable pavings for walking or cycling.

To value the overall experience within the pavement we can think about it as a place defined by four interfaces: the ground level, the canopy level, the roadside edge and the building edge. The relations between these should provide connectivity, accessibility, safety and expressivity to encourage people living the street.

But as a matter of fact cars have changed the way we measure and plan urban transformations, introducing new parameters to describe quality and efficiency of spaces, such as flow capacity, number of vehicles per hour, lanes and parking lots. Actually cars gave people a great illusion of moving power while they were, and are still, depriving us of movement (Illich, 1973, La Cecla, 2006). This does not deal with sustainability. As drivers are not the only users of streets the project has the responsibility to provide wellness and efficiency to all and to drive a cultural change towards a more sustainable city.

3. 'Pratomobile': a research by design

3.1 Basic items

According to the outlined context and main topics, the studies deal with the improvement of pedestrian and cycling mobility through the regeneration of public open spaces, in the broader cultural furrow of urban sustainability research.

An important aspect of the research has been the dialogue and interdisciplinary comparison that led to the sharing of the design process as a tool for the evolution of culture and the technique of transformations of the urban landscape. The Landscape Design Lab has in fact established a relationship of close collaboration with the Mobility and Infrastructure Office of the Municipality of Prato but has also shared opinions with the Town Planning Office.

The periodic sessions of dialogue with the various offices have strengthened the collective character of the project and produced intervention proposals that not only arise from a thorough research on contemporary urban planning topics but respond to models of full feasibility in all aspects, from the economic and regulatory one to

the aesthetic and functional one, implementing and detailing the approved plans.

The Lab has also deemed it necessary to collaborate with experts in urban arboriculture, identified among scholars of Florence University and professionals of Prato Municipality for the evaluation of the state of the street trees involved in the project and the proposal of new species for the integration or replacement of plants.

A coordination with the Communication Lab of the University of Florence has also been planned for defining a system of horizontal signs about the new cycle-pedestrian paths.

The comparison has helped everyone to make informed and thoughtful design choices, bringing to light the beliefs, visions and professionalism of the individual actors, allowing the deepening of fundamental themes of the design approach under a technical-scientific profile.

Among these and according to the competent municipal offices, the separation of the transit spaces of cyclists from those of motor vehicles has been a shared choice because of the priority to reduce accidents with cyclists victims of clashes with vehicles for the much higher level of severity in comparison to pedestrian-cyclist accidents (Chong et al., 2010).

Even if these arguments find numerous and substantial obstacles, it is important to practice them identifying both real intrinsic weak points and insignificant limits, sometimes perceived as insurmountable just by effect of conventions and customs.

3.2 Pathways hierarchization

Urban roads form a complex, highly hierarchical network, in which each axis takes on a different role based on the relationships that it triggers, on the spatial dimensions and flows. Bicycles have to travel all roads in safety and comfortable conditions, with continuity and pleasure. For this reason the urban cycle network should provide a widespread and capillary accessibility to all the places in the city by developing the best integration of the typology of paths (Figure 3).

Cycle lanes are at the apex of a hierarchical structure of a network for landscape accessibility by cycles (Figure 4). These kind of paths for cyclists and pedestrians is suitable for urban and metropolitan fast connections. These paths don't interfere with

public and private vehicular mobility and are often built along rivers or in periurban contexts in support of sports tourism and leisure activities. But within the city facilities for cycle mobility often come into conflict with the other elements that make up the streets. So *shared paths are frequently used to achieve the often-called-for separation of cyclists from motorised traffic within built-up cities where room for a separate cycleway is impractical and/or prohibitively expensive. Such separation is thought to be safer for cyclists* (Hatfield, Prabhakaran, 2016).

The recent attention on the urban plans for sustainable mobility in fact leads Municipalities to provide cycle lanes in urban streets, by forcing the spatial scan of the public corridor and thus causing a contraction of pavements and/or driveways. Therefore, the cycle path distinct from the pavement, useful for separating the flows of cyclists and pedestrians with different needs and speeds, can be a problem when the space of the road corridor is not sufficient for a qualitatively adequate integration.
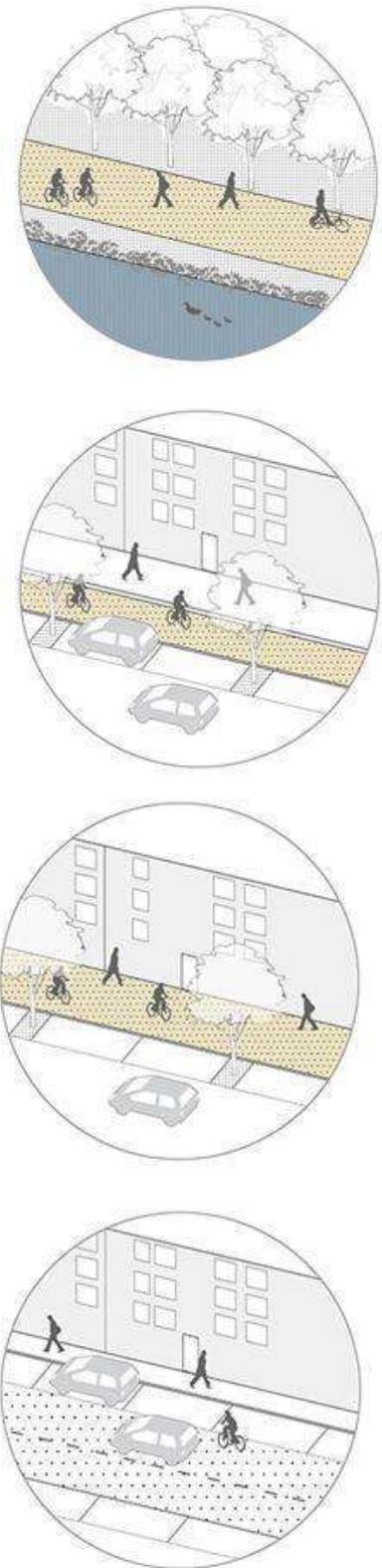

Fig. 3: Pedestrian and cycle pathways hierarchization; from top to bottom: a suburban cycle path, an urban cycle path, an urban shared path and an urban shared place ('zone 30') - (University of Florence, Department of Architecture, Landscape Design Lab, 2019)

Since it is not possible to exclude bicycles from all roads that cannot contain cycle runways in suitable conditions and in accordance with the public management choices, it is necessary to consider the possibility of designing 'shared paths' between pedestrians and cyclists. This choice allows both more safety than by the option of narrow pavements and cycle lanes in the roadways and a more widespread and continuous urban network of spaces suitable for cycle mobility (figure 4).

Issues and inefficiencies of a mobility focused on the car highlights the necessity of a radical change of public policies for sustainability, in order to encourage walking and cycling. The challenge is therefore to design roads that offer adequate services to all road users, without causing obstacles to their movement in space and ensuring a high level of well-being.

3.3 Structural and management constraints: from general concepts to specific applications

The policies of the Municipality of Prato have been oriented from the outset to maintaining the current structure of vehicular traffic, providing for changes to the urban road network in order to maintain the number of lanes within the roads. By understanding the dimensional aspects of each road and the constraints set by the Public Administration, different design choices have been investigated with regard to the shared cycle-pedestrian paths at the level of the pavements. Indeed the management policies have strongly influenced the width of spaces available for pedestrian and cycle paths.

The choice between the different design solutions was therefore carried out step by step evaluating two main types of contextual bonds, structural constraints, such as boundaries of property and sizes of streets public corridors, and management constraints, such as number of driving lanes and presence of parking lots in the carriageways.

Two studies have been developed, on 'Viale della Repubblica' and on 'Viale Monte Grappa', in order to make a critical review of some design choices. These two avenues are characterized by variable width of the public corridor and inhomogeneity of the built-up fronts and of the intended use of the ground floors.
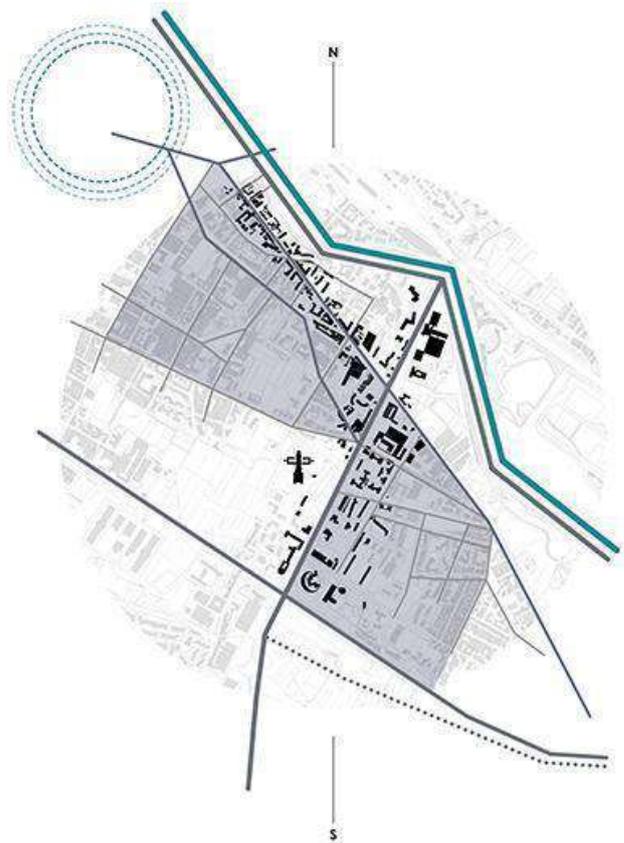

Fig 4: Proposed hierarchy and continuity of a network for pedestrian and cycle mobility within the study area (University of Florence, quoted)

The research analyzes the hypothesis of separation of the cycle and pedestrian paths comparing two options: the maintenance of structural and management constraints (figures 5, 7, 8, 10); the maintenance of structural constraints with changes of the management constraints, for example by the elimination of a driving lane or of a parking row (figures 6, 9). The study outputs show that the functional specialization of the spaces is not always possible with good structural qualities of identity. Furthermore specialization can lead to very negative consequences on the urban liveability, making indeed impractical the solution or producing dysfunctional and uncomfortable places by its application.

On the other hand, when it is possible to obtain a separation of cycle and pedestrian paths through strips with plants, the resulting landscape is pleasant from a visual and a microclimate point of view but also functional both for the hydrological increase of pervious surfaces and for the mobility

management with regard to the people flows (figure 9).

In fact the biggest disadvantage of shared paths is the potential conflict between pedestrian and cyclist flows and the consequent decrease in efficiency and discouraging the use of cycle. To minimize conflicts are also useful social campaigns of cultural awareness enhancement, to strengthen the sense of civic duty and mutual respect between the different road users.

The technical guidances of Washington explain that *shared-use paths are designed for both transportation and recreation purposes (...). Some common locations for shared-use paths are along rivers, streams, (...) and within and between parks as well as within existing roadway corridors. A common application is to use shared-use paths to close gaps in bicycle networks. (...) Where a shared use path is designed to parallel a roadway, provide a separation between the path (...). As with any roadway project, shared-use path projects need to fit into the context of a multimodal community* (Washington State, 2019).

Practically, the more the structural and management constraints are strong the more the creation of a single shared place for people without motor-vehicles has advantages. It amplifies the perceived cross size of the road spatial corridor and can express identity and scenic charge: the experience of walking or cycling in the city becomes more pleasant and safer.

A shared path needs a continuous surface at least about three-four meters wide, but also quantities of fluxes is an important variable (figures 11, 12) to make right choices about sharing vs. separating (State of Queensland, 2014).

These are basic qualities by which spaces can develop more characters of places than of infrastructures. In fact shared paths allow the slow down or stop without hindering the transit of other passers-by, favoring interactions between citizens.

3.4 'Viale della Repubblica': specific features

According to the above outlined issues, the data from Viale della Repubblica show a series of critical factors that lead us to review by designing this inter-neighbourhood urban road towards a new, safer

mobility model, capable of responding to the needs of all users. The avenue hosts the transit of almost 50 thousand vehicles a day and is one of the areas with the highest accidents in the city.

Because of this is a main axis of mobility and collective life for a large part of the city, it is necessary to manage flows and relations for an integrated functioning of the urban habitat.
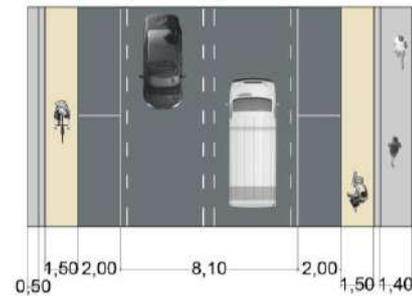
Fig 5: Viale della Repubblica - design option one; specialized paths in respect of the management constraints set by the Municipality: two driving lanes, two parking rows (University of Florence, quoted)
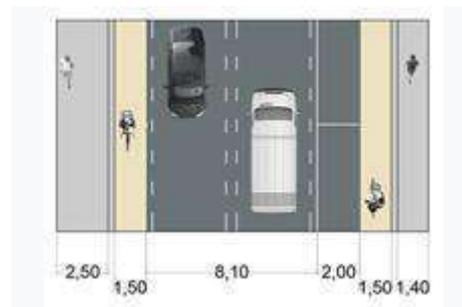
Fig 6: Viale della Repubblica - design option two; specialized paths with modification of the management constraints: two driving lanes, a parking row (University of Florence, quoted)
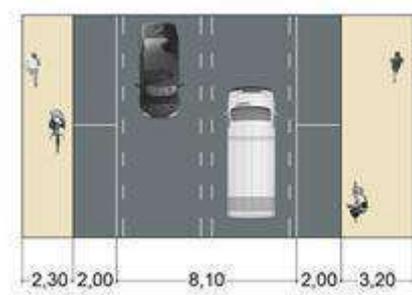
Fig 7: Viale della Repubblica - design option three; final proposal of shared paths in compliance with the management constraints set by the Municipality (University of Florence, quoted)
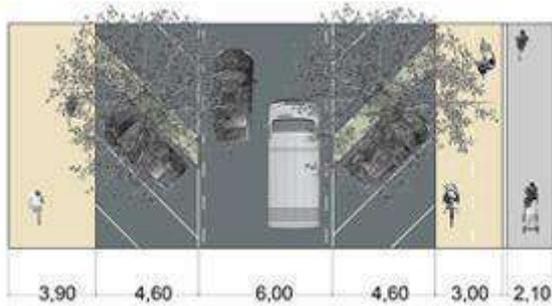
Fig 8: Viale Monte Grappa - design option one; specialized paths in respect of the management constraints set by the Municipality: two driving lanes, two herringbone parking rows (University of Florence, quoted)
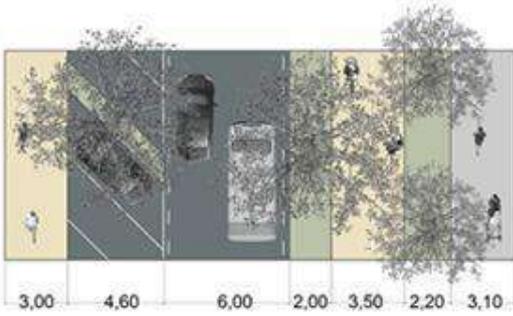
Fig 9: Viale Monte Grappa - design option two; specialized paths with modification of the management constraints: two driving lanes, a herringbone parking row (University of Florence, quoted)
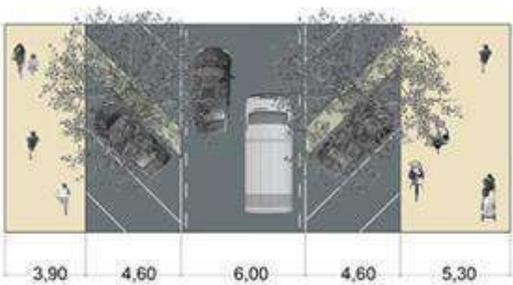
Fig 10: Viale Monte Grappa - design option three; final proposal of shared paths in compliance with the management constraints set by the Municipality (University of Florence, quoted)

So even if the driveway is subject to minor changes since the number and the direction of the driving lanes remain unchanged, their width is reduced to a constant size of 3.5 meters also inducing a significant reduction in speed. Small spaces are equipped for parking bicycles with plants

and furnitures. The open sides of pavements in front of the schools facilitate the management of space in the hours of maximum use, but also make the collective space a place of meeting and relationships. The pedestrian paths are located on both sides of the road, while the sharing with bicycles is on one side or two, depending on features of the context, like metric parameters, properties, utilities and land use. Pavements and cycle lanes are never physically separated since the road section has been judged too narrow, but also because the research tried to work on the street as a living and liveable place, where mobility is just one function of the public realm.

3.5 'Viale Montegrappa': specific features

This boulevard is a main urban cross-axis of the 'Viale della Repubblica' and is almost entirely one-way in the North-West direction.

The intervention on the street can be very effective to enhance sustainable mobility in the city and also represents an opportunity to replace existing trees that are in poor structural and sanitary conditions. A survey carried out in 2007 on the trees highlighted and described for each one the peculiar characteristics and the hypotheses of intervention; as a result, for most of the specimens the only solution is felling and replacement. The report also reveals that the plantation dates back to about 70 years ago and underlines critical conditions about an excessive proximity to the buildings and between trees, compared to the species and the spaces available for the development of their foliages. The effects of errors of plantation and building up are visible today: the trees were subjected to strong pruning in order to contain their growth, and this led to problems for specimens and a general loss of architectural connotation and legibility that's also a component of the urban landscape identity. In addition, the actual irregular plantation entails a chaotic distribution of the parking lots.

A first study underwent changes following the participatory meetings with the citizens, which highlighted in particular the problems concerning the width of the roadway, considered too narrow for the traffic pressure during daylight hours. For this reason the roadway has been redesigned in two lanes with the same direction of travel of constant width equal to 6 meters in order to allow the regular circulation of cars at a lower speed.
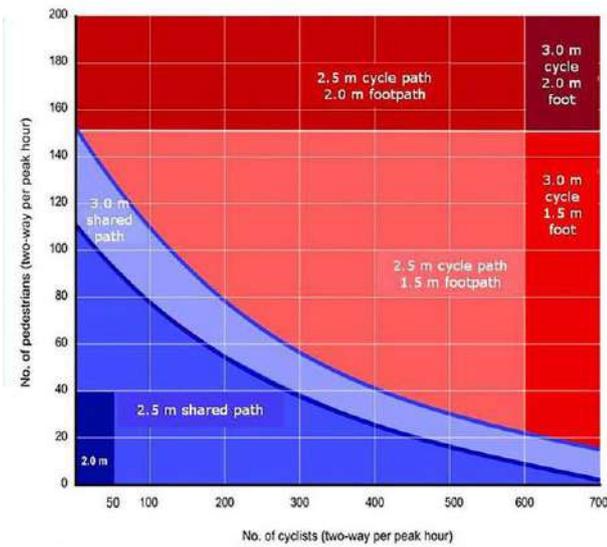
Fig 11: Diagram of the ranges of cross size for shared paths (blue and sky-blue) and separated pedestrian and cycle paths (red) with regard their capacity to sustain two-way fluxes of pedestrians (ordinates) and cyclists (abscissas) - (Fowler, Lloyd, Munro, unknown year)

Fig 12: Main interactions on shared paths (top) and their widths (down): to allow meeting and passing, 3 meters is the minimum width; to allow passings in both directions needs at least 4 meters (State of Queensland, 2014)

Good qualities of segregation between pedestrian and cycle paths have been investigated by designing. The word 'segregation' is conventional in literature with the meaning of physical separation; instead as 'separation' is also considered a simple distinction by a painted line. This proposal (figure 9) has been refused because of its conflicts with the management constraints: just one parking row on alternate sides and a chicane carriageway instead of two parking rows and a straight carriageway.

The final proposal (figure 10) has a shared path on a side, with an average width of about 4 meters, while on the opposite side the pavement is only for pedestrians, with smaller dimensions. The need for parking has led to further changes to the initial project, in which the number of spaces had been reduced to better satisfy the other design needs. In the final proposal the number of existing parking spaces was increased, where possible, also to avoid the widespread problem of double-row parking.

The choice of new tree species has taken into account the cross size of the road and the proximity between building edges and pavements. For these reasons, species have been chosen whose growth remains between 10 and 20 meters in height. The proposed planting layout is alternate with the parking spaces to produce a clear and readable spatial configuration of the street.

In order to make paths comfortable for cyclists and pedestrians we worked both about size and pavings and planned a trees plantation with several little bioretention swales and boxes for hydrological management, all together contributing to shape a more liveable street in a more sustainable city.

4. Feedbacks

In a technical context, Landscape Design has to face all constraints of reality. At the same time, from a scientific point of view, it must express a critical thinking about effects of rules, convention and practices on the urban landscapes. Joining these two dimensions of designing can provide meaningful contributes into the evolution of reality, step by step, through bottom-up expressions and experiences, also towards possible innovations of acts, but firstly of individual and social behaviours.

Fig. 13: "Viale della Repubblica": a sample of wide shared path with vegetal equipment along the little urban park near the Court (University of Florence, quoted).

Fig. 14: "Viale Monte Grappa": a view of the proposed arrangement of
the northernmost part of the avenue, near the intersection with the "Viale Veneto" (University of Florence, quoted).

The research brought out the gap between theory and practice as the difficulty arises to merge different knowledges in a synthetic proposal.

Despite the awareness of the lack of a collective vision for new sustainable, contemporary and integrated practices, Pratomobile found out how the context can condition landscape changes since the projects to their appropriate funding and effective implementation.

Periodically during the research we discussed with the Municipality of Prato trying to combine technological innovation with urban management and projects implementation.

The proposals for a sustainable integrated system of mobility, forestry and hydrology, have often met obstacles due to varied economic, cultural, technical and political issues.

With regard to the development of sustainable mobility, the Municipality decided to keep again unchanged the priority of cars, without modifying streets hierarchy and vehicular traffic but just introducing cycling paths where specified by the Urban Sustainable Mobility Plan. This wary choice doesn't embrace the needs of contemporary cities which claim changes of past assumption of roads as space for cars. On the opposite, it displays how deeply-rooted is the twentieth century urban model, despite its several economic, environmental and social critical consequences.

Also funding issues have been crucial in the process of adaptation to a more efficient and sustainable city. For testing architectural and engineering innovations the municipalities should invest more money than they are used to even if it would represent a great opportunity for functionality, beauty, resilience, that's for citizens' life quality.

Lack of funds, or lack of interest in investing, often entails alterations of projects, which can lose their meaning and effectiveness. Anyway working by low budgets can also represent an interesting opportunity to go on studying for different, less expensive solutions, enhancing creativity and knowledge.

The lack of technical expertise has been another obstacle towards innovations. It regards both project managers and workers: instead of learning how designing about and working by new technologies, often people prefer to adopt common solutions, sometimes considered less risky just because of the poor experience in their applications.

Pavings, plants, hydrological ground solutions are costs in the public realm budgets but they also provide direct environmental and social benefits and also economic indirect ones. Furthermore, by designing their integration in the urban landscape by coordinate technical and administrative processes, they need lower investments. Actually the implementation of such works is also influenced by underground technological utilities which lay under our feet and require frequent maintenance, adaptations or integrations.

So, for trees plantings we suggested to dig long and deep trenches to increase water absorption, connected with pervious surface filled with structural soil and hydrophytic plants, and also to install draining pavings. Because of all the quoted reasons municipalities often lean to work more about appearance rather than substance of projects and actions, looking more at visible features of urban landscape and less considering its remarkable functionalities also depending on the underground.

During the Pratomobile research process, materials, colours and sizes of paving technologies have been discussed many times to find solutions that could integrate drainage effectiveness in a perspective of expressivity, comfort and appropriate cost. Again about implementations, trees have been planted according to proposed quantities, species and positions to have uncluttered pavements and widespread pervious surfaces. But these latter have been closed by non permeable continuous kerbs during the works, no structural soils have been used neither herbaceous plantations have been again provided.

By discussing in the research group and with the Public Administration of one more factor has been shared the importance and influence in the design process of public spaces: communities who live and inhabit places. Participatory events have been hold during the design process, to better understand needs and desires of citizens, that have been discussed and, in part, received. The challenge is to engage a more and more meaningful dialogue where citizens, designers and municipalities can put in discussion their specific knowledges and

positions, trusting each other and communicating effectively to establish a shared vision and to start with its development by designing and so with its spatial implementation.

The whole experience brought out the importance of developing a critical thinking on design, being flexible to constant adaptations to meet varied needs, thus denying practices which isolate design in sectorial processes without involving the complexity of landscapes.

In this century we need to regenerate large parts of the existent cities and to image and generate new cities. We have to work for changing the city in a more liveable habitat, also starting to think the street as a living place, widely shared.

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THE PARK ARCHITECTURE IN THE CONTEMPORARY CITY: RECONFIGURATION OF THE TIBERIUS BRIDGE BASIN IN RIMINI

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Abstract

In 2010 the city of Rimini adopted a Strategic Plan whose main purpose is to guide the development processes of the territory. While maintaining its touristic vocation, the city promotes the redevelopment of suburbs and aims to strengthen the role of the historic center requalifying and restoring the dignity of the various forgotten urban spaces.

The reconfiguration project of the spaces belonging to the basin of the Tiberius Bridge (14 A.D.) has been developed in this climate of regeneration. The area, characterized by a strong archeological context, constitutes an urban palimpsest that has seen the succession of important transformations: starting from the ancient Roman plan, to the deviation of the Marecchia river (1938), to the project by Vittoriano Viganò in the Seventies, until the last intervention inaugurated at the end of 2017.

The "square on the water" is configured as a highly public place, a new entrance to the park, capable of attracting and at the same time perceptually extending its presence beyond its physical boundaries, establishing new morphological, functional and perceptive relations between the elements of a part of the city.

The square becomes the compositional tool that gives order and readability to the different urban parts (the historical center, the San Giuliano area and the park) and to the different and isolated architectures that, through the structured presence of the water basin and the surrounding spaces, become meaningful and recognizable.

The paper proposes a survey carried out through conversations with the technicians and the designers, aimed at shedding light on the relationship between the park and the city as a central theme of the intervention; identifying the socio-cultural influences and the design implications of urban solutions directed at expressing the values of a constantly evolving society.

1. Introduction

"The city represents the most remarkable effort by the human civilization of a complete transformation of the natural environment, the most radical transition from the state of nature to the state of culture with the creation of the "microclimate" particularly suited to the development of some fundamental relationships for people life."
(Gregotti 1966)

The city, as a place of stratification of signs left by the succession of communities and different generations, is an expression of collective identity and historical memory. In the European city, in particular, the modification process is conditioned by the tension that is created between a general resistance to transformations, linked to the preservation of cultural heritage, and the need for a regeneration that responds to emerging social needs. Preserving the physical and cultural identity of the city is an essential issue that raises many questions when this dual phenomenon becomes a symptom of the vulnerability of the city itself.

The definition of an integrated development plan, through a careful analysis of the social phenomena that trigger urban transformation processes, is the occasion to convert this vulnerability into a potential regenerative agent.

2. The Strategic Plan: projections for the future of the city of Rimini

Starting from 2010 the city of Rimini has provided itself with an important urban planning tool through which to guide the development processes of the territory. The Strategic Plan is composed of observations aimed at a smart, sustainable and inclusive growth of the city, through actions of intervention at different scales, at medium and long term. The document shared between institutional

Fig. 1-2: View of the park from the square on San Giuliano side

bodies and representatives of economic, social and cultural associations of the territory provides, in fact, the gradual development of specific projects in different fields of intervention: from urban planning to social, from culture to business, from tourism to landscape enhancement.

In particular, the interest of the Strategic Plan focuses on the consolidated city, in the awareness that it is precisely the best quality of the existing that represents the most important challenge for the future of the city. Urban regeneration is the main strategy among those implemented by the Plan and is realized by interpreting the demands of contemporary society through a way of thinking in a sustainable and integrated way both physical and social space. The response to the need for growth acts according to the principles of densification and regeneration of urban voids, abstaining from the consumption of new surfaces. Public space and green areas play a key role in the vision of a well-connected city. The public space network is functional to the organization of the city and the neighborhood precisely because it connects the places of daily life,

the services, the collective facilities, with the places where people live and work. The open spaces quality is at the base of the regenerative process of the city, not only because it ensures movement and leisure, but precisely because it is the very essence of the urban landscape.[1]

The Plan observation objects are those places which, for a long time, remained devoid of functions and roles; places that have lost their appearance due to the dissolution of the relationship between their physical form and the social character of activities and inhabitants but which, even now, are the repositories of collective memory. Among the areas identified there is the Porto Canale system, the water axis that connects the sea to the historic center and ends in the basin below the ancient Tiberius Bridge, a monument of the Roman era (14 AD). The area, which includes a large public entrance to the park, has recently been returned to the city through an important redevelopment project. (Fig. 1-2)

2. The new square on the water.

The studies for the area surrounding the Tiberius Bridge began in 2014 following the designation of the new manager of Anthea; a municipality affiliated company in charge of the management of Rimini's green areas and public heritage maintenance. Andrea Succi deploys a series of actions aimed at realizing the vision of the area as a place suited to becoming a city center and identifies the landscape architect Marialuisa Cipriani as the person to be entrusted with the task of editing the project. Together with the municipal administration they build a concertation path that involves a plurality of professionals and specialized offices. The area, which is configured as a very delicate place of the city, presents numerous constraints. This aspect motivates the project team to put in place a participatory modality shared by all the institutions. Then is triggered a dialogue about the area that concerns the archaeological, landscape and monumental superintendence, the basin technical service, the basin authorities, the maintenance workers and the area managers. The debate about the project guidelines extends to all the work phases through the sharing of choices and the collection of requests by all the subjects involved.[2]

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[1] Strategic Plan notebooks of the Municipality of Rimini.

[2] This becomes a method acquired by the municipality technical office, also adopted in other areas of the Plan.
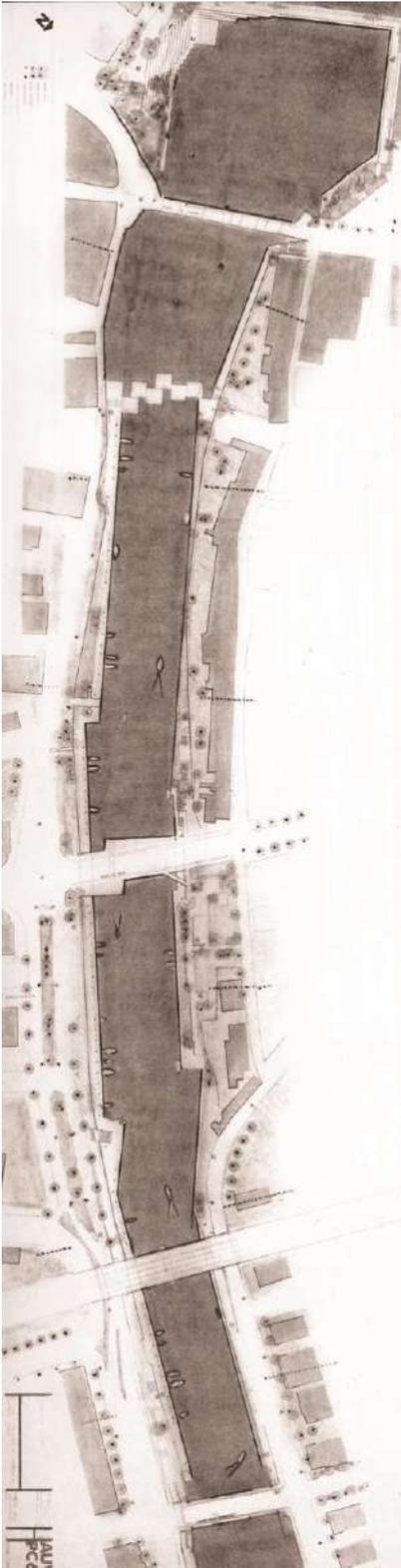
Fig. 3: Viganò project for the canal edges reconstruction.

2.1 From the pier, to the park, to the river: a settlement continuum.

The intervention insists on an area of about 7000 square meters around the basin on which the Tiberius Bridge overlooks. The identity of the place is linked to the strong presence of the Roman archeology, to that of the medieval walls and to the canal: break elements between the historic center and the adjacent village of San Giuliano.

Its conformation is due to a series of interventions, implemented during the twentieth century, aimed at containing and securing the Marecchia and Ausa rivers. The low altimetric level and the presence of two torrential rivers in tangency to the city center, define a considerable territorial fragility.[3] The area, in fact, is exposed to flooding. This problem is solved between 1927 and 1938 with the construction of an artificial canal, known as the "scolmatore", where the waters of the two rivers flow into the sea in the northern area of San Giuliano.

This operation, in addition to establishing a new relationship between the city and the river, leads large areas in the immediate vicinity of the historic center to the drying up and to the extrication from the hydraulic roles. The fluvial nature of the land prevents its occupation, causing its abandonment and its state of degradation until the Seventies, when the redevelopment project by the Milanese architect Vittoriano Viganò defines a new layout of the area, endured up to today. Securing the old riverbed lands from the Fifties's building boom dynamics allow them to support a rich riparian vegetation. It soon becomes clear that these green areas constitute a precious reserve thanks to their compensatory properties against the unbalanced urban settlement trend. The Viganò intervention, carried out between 1969 and 1982, tries to answer a series of problems through a unitary project that involves the entire water system in a settlement continuum that connects the seaside landscape, the urban landscape and the countryside. The Porto Canale edges are redefined with the construction of a water level walk on continuous longitudinal quays equipped with platforms and panoramic points. The canal connects the pier on the waterfront to the ancient Roman

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[3] The floods of the Marecchia are not rare, but it is in September 1910 that occures one of the most critical episodes. The river overtops the banks and the exceptional mass of water, conveyed into the narrowness of the Porto Canale, causes a dangerous overflow at the mouth. The

sudden flood overwhelms part of the city and the village causing considerable damage.
Manlio Masini, La Barafonda: da luogo dimenticato a centro turistico, Ed. Panozzo, Rimini 2013, p.35.
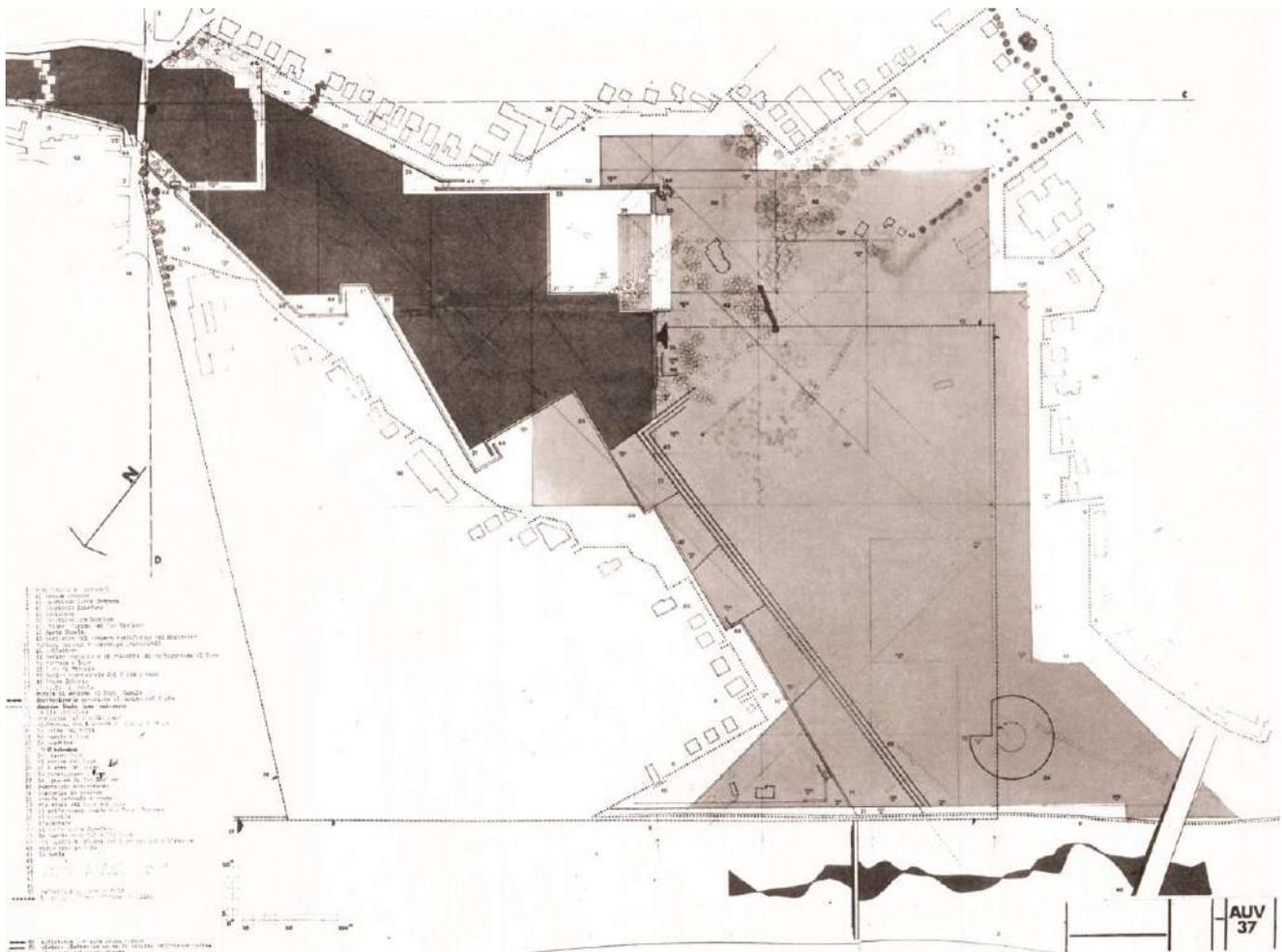
Fig. 4: Viganò project for the park and the water basin system.

bridge defining a large water basin that "originally" was to continue in the park, in the form of an artificial lake, up to the river reconnecting to the valley.

The "Tiberius Lake" was an essential unit in the system, necessary for the vivification of the canal water and for the bridge protection from potential floods. The intervention by Viganò proposed the construction of an artificial landscape, functional to the particular use of leisure in a large open space, interpreting the Marecchia green-water system as a unit of which it highlights the specific environmental role of city green lung. The Roman bridge image is emblematically and functionally redeemed through the artifice of the water mirror. (Fig. 3-4)

The missed construction of the accumulation basin leaves the park design incomplete and the area exposed to flooding. The sea water rising, in fact, causes the deterioration of the basin edges and the weakening of the surrounding vegetation. Small but uncoordinated interventions, aimed at guaranteeing the safety and accessibility of the area, over time they ended up compromising the image of the park.

The presence of furnishings, installations and artifacts that are not well-suited with the importance of the archaeological site gives the idea of a degraded place. The area, located at a lower level than the city, is identified as a residual space, indeterminate and devoid of a specific functional program, therefore underused and perceived with indifference.

2.2 The response to local needs through the open space design.

In the Strategic Plan vision, the Tiberius Bridge ambit was to become a new attractive center for the city, through the implementation of actions aimed at enhancing the archeology as a focal element and the center of the urban scene. The place centrality and attractiveness are not sought through the use of scenic effects and the spectacularization of the ruin; instead, the intervention aims to restore a unitary image in respect of the monumental context. The first operation was to clean up the elements inconsistent with the place nature. It was a question

of recognizing the presences belonging to the place and those that the place was not able to accept and that therefore constituted an interference in the landscape.

Fig. 5: Arrangement of the square on San Giuliano side.

Fig. 6: Entrance to the park from San Giuliano side.

The project, edited in a single ideative solution, was implemented in two successive excerpts. The first phase has planned the redevelopment and arrangement of the 900 square meters area on the San Giuliano side. The space, formerly used for parking, has been reorganized by defining a small square furnished with seats, lighting and illustrative panels that narrate the bridge story. The second section is a re-reading of the particular morphology of the park through: the reshaping of the slopes and their arrangement for walk and rest; the setting of the system of routes and accesses; the inclusion of visual privileged points of the bridge and of the basin with walk and a large rest area; the introduction of a lighting systems and optic fiber cable connection. (Fig. 5-6)

A third, unrealized, excerpt included the setting up of an archaeological garden in which placing the bridge stones. This phase was part of the path defined with the Archaeological Superintendence participation; a future arrangement of the ancient roman remains is planned.

Viganò intervention on the area included very architectural choices that over time have become consolidated and historicized signs in the image of the city. The project works on the improvement of the assimilated function of the place as an urban park and as an occasional theater of events, establishing two fundamental goals:

on the first place ther's the assumption of the bridge as a central element of the scene. This meant that the interventions implemented did not have to dominate the bridge image. The materials and the sign adopt a minimal and contemporary language that detaches them from archeology and makes them recognizable emphasizing their historical and monumental value.

The second aim is to give to the already existing use of the area a unified and clear design. The area had a morphology on which the project worked with a geometric design that reconfigures the slopes by following the terrain inclinations and curves. The project aims to guarantee the maximum fruition of the area, from the level of the city to that of the water, optimizing the routes system, reducing interrupted connections and obtaining, from the existing spaces, places for rest and enjoiment of the view on the bridge and its basin. The project adopts an organic design, does not impose an aprioristic geometric design by superimposing it on the context, but it reads the morphology already present on the area and reveals it through geometric tools. The Roman bridge represents the privileged focal point; the project ensures its fruition thanks to views from different levels of the park. (Fig. 7-8-9)

Lastly, the project takes into account the fact that, beyond the detour and the "drainage" operated by Viganò's project, the area still constitutes an arm of the Marecchia river that can be activated in case of overflow. This requires special attention so that the elements introduced resist to the water passage without hindering the flow and allowing to pass safely trought the park. The water is an important theme of the project. The basin constitutes the head element of the park and is located at a lower level than the city; it becomes an important issue of the project to re-establish the relationship with water, making contact possible and transforming it into an element of value instead of a detractor or a danger.

Fig. 7: Slopes arrangement wint paths and seats.

3. Urban space - social space.

The regeneration of the spaces surrounding the Tiberius Bridge arouses interest not only because of the particularly meaningful context or for the ways in which the project collaborates to the resurface of the place identity, but, above all, because it is not an isolated project; indeed, it is part of a city idea that tends towards the definition of an overall urban project. The regeneration comes from a clear overview that restores value to the porous areas of the built city, promoting growth from within. The residual voids, the discontinuous spaces, scattered fragmentally within the urban fabric, are identified as resources through which the sustainable development of the city is triggered. The voids contain a latent potential; as project material, they are at the base of the creation of new spatial matrices which, as a connective tissue, re-establish the dialogue between the parts of the city, the territory and the landscape.

Fig. 8: Entrance to the park from the city center side.

"The void is a design theme that cannot be easily traced to conceptually simple solutions: to conserve, to restructure, to empty, to reuse, to promote ... the difficulties are not only in finding adequate and proportionate functions, in an accurate exploration of the probable, as well as in identifying their possible meaning. The design of the void begins with its theming and this requires an enlargement of the observation field. Once again, the plan and the project are put together in a difficult relationship." (Secchi 1984)

From an urban planner point of view, the vacuum referred to, acquire significance in its being an interval between different elements from which it derives its qualities. Working on the city voids requires an approach aimed at searching for the spatial continuity of a systemic context where to change a place it may be necessary to act on another.

Fig. 9: Path on the edge of the water basin.

The urban landscape is a dynamic system that changes and evolves over time; rather than acting in contrast it is needed to understand the reasons behind its transformation. In the landscape designer vision, what is not occupied by architecture is often a rich space, populated by forms and presences that become starting point, ideas and project material. During all the project phases, the formalism gives way to the ability to think of a complex metabolic functioning in which every choice, every sign is verified on the spot. The project is not intended to impose its image on the ground but to understand the characteristics of the place, to recognize the energies that determine its functioning and create a desire for transformation that fits into the flow of these same energies.

Fig. 10: The bridge view from the platform next to the water basin.

4. Conclusions

The "square on the water" is configured as a highly public and urban space, capable of attracting and at the same time perceptually extending its presence beyond its physical boundaries. The character of the place, steeped in history, constitutes a fundamental piece of the city, the fulcrum between the arrival point of the Via Emilia and the first village outside the city walls; link between: the valley, the river, the historic center, the canal and the sea. These are the aspects that contribute to defining the place identity, meaningful and rich in historical memory.

The intervention, winner of the City Brand & Tourism Landscape Award 2018, interprets the identity of the place through an unveiling operation that returns the image of a space that belongs to the city, a pivotal place that establishes new morphological, functional and perceptive relationships between the elements of a part of the city. The square becomes the compositional tool that gives order and readability to the different urban facts and to the different and isolated architectures that, through the structured presence of the water basin and the surrounding spaces, become meaningful and recognizable. The redevelopment of the basin area takes place without determining or imposing a specific function for the spaces.

"Unlike what happens in the architectural project, in which the function is fundamental to establish the building role, in the open spaces project, the elements put into play already contain an implicit function: a square, a street, a park are already prefigured entities delegated to perform a specific task in the catalog of the elements composing the urban fabric." (Cipriani 2015)

The regeneration of the Tiberius Bridge surrounding spaces takes place precisely according to this idea: the place attractiveness is not determined by the insertion of elements or scenic devices but through interventions aimed at making the place welcoming, revealing possible freedoms in which the functional aspect is secondary to the awareness of what the place can offer. (Fig. 10-11)

Designing open spaces does not simply mean defining the soil design and the void between buildings; it requires a structured knowledge capable of working with the social fabric, interpreting immaterial needs and responding to the local community desires. Every place, every city has its own history, its own memory and a way of being perceived that reverberates through different social dynamics. The social phenomena at the base of the transformation processes change from one part of the city to the other and represent a fundamental component that becomes a project theme.

Fig. 11: People doing sports activities on the platforms next to the water basin.

The public space is a civic element in which the energies necessary for the regenerative process fundamental to the quality of the city are contained; its project requires a knowledge of the tools directed at building relationships that stimulate their fruition. People represent the litmus, the dimension that allows us to measure the real quality of urban spaces. Nowadays urban regeneration should tend to evoke new ways of living in the city. The urban space, as a space for leisure, must interprete the contemporary society lifestyle and its new rhythms, in which the time of leisure, work, culture and sport mix and overlap. A space open to the different variations of its ways of use is a space that stimulates the social identity of the community and in which individuals can identify themselves, collaborating in the creation of a truly lived space, therefore safe and active in the improvement of the community life quality.

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Conversation with landscape architect Marialuisa Cipriani, Rimini 4 luglio 2019.

Conversation with Valentina Ridolfi, Project Manager, Ufficio Piano Strategico di Rimini.

RESIDUAL SPACES AND ADAPTIVE URBAN LANDSCAPES
NEW REGENERATIVE SCENARIOS IN THE TURIN AREA

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Abstract

Nowadays, metropolitan urban contexts are called to adapt "to a new urban issue" (Secchi, 2011), a complexity of external factors – growth of population, climate, environmental, economic and social changes - that determine a state of vulnerability and fragility of their living conditions. In this framework it is necessary to investigate transformation strategies towards more sustainable cities, which can find in its widespread and multi-scalar open space a device for resilient and regenerative solutions.

The research context is the city of Turin, where the recognition of the regenerative value of urban "wastes" (Lynch, 1990), result of post-industrial planning and dismission processes, is today crucial to reassemble the fragmented morphologic structure towards an adaptive change. Understanding how this legacy could be re-interpreted, as a heritage of the future, is one of the challenges that this research aims to investigate, trying to delineate a methodological framework for a new resilient urban metabolism.

The use of "Mapping" as an interpretative and representative instrument of those emerging urban dynamics, wants to reveal the vulnerabilities and opportunities, and to investigate a taxonomy of overlays to reveal possible geographies, suggesting alternative strategies. The aim is the production of a dynamic cartographic framework, functional to new design visions necessary to manage the uncertainty of future impacts on the city and society (Russo, 2014). Starting from the action of Mapping, the design of a dynamic and experimental open space of the city, where technological and environmental solution coexist, aims to give a systemic answer, to that "inverse city" (Viganò, 1999). The definition of adaptive design scenarios, from an ecological network, able to infiltrate the consolidated city, to a new urban narrative capable to rethink the importance of designing residual spaces, is the operative approach to re-consider Nature element for the ability to preserve that precious urban porosity that outlines the urban well-being and therefore of human life (Gehl, 2013).

1. *The decline of the city: towards new urban approaches*

The current awareness of having to interpret the rapid evolution of emerging contemporary phenomena and the impossibility of globally governing the transformations, leads the international debate towards the constant search for new methodological paradigms - approaches that know how to read and govern this change in progress.

The cities, called to face different challenges (climatic, environmental, economic and social), require new transformative approaches that give them a new resilient capacity. The present urban decay, conscious of its causes, must equip itself with a knowledge more and more multilayers, bringing out a city with multiple temporal levels and spatial stratifications. This continuous transformative process includes the city of Turin, field of experimentation of the following research, heir in these 25 years of a radical, physical and symbolic change of the whole urban structure, from the obsolete Fordist identity of "company town"[1] (Dansero, 1993) towards a new post-Fordist vision.

Despite the past scenario of metamorphosis of a cycle in phase of exhaustion, the changing of a series of assumptions and conditions - such as the prolonged crisis of the economic model and the triggering of new climatic, environmental and social emergencies - shows the rise of new "urban issues" to be dealt with.

Today the city needs new reflections on the urban agenda in search of future visions and models of development, the definition of "new centralities"

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[1] "One company town" is the definition given in the 1970s in Turin, corresponding not only in the Fordist organization of the factory, but also in the amount of surface occupied by industrial sites, which corresponds to about half of its territory.

and new infrastructural, settlement and landscape structures, more aware of the limited resources.

Far from the past expansive logic of urban development and from the great architectural and infrastructural signs, we are witnessing the flowering of a new season of urban planning and urban design, towards new approaches more concerned with existing and emerging environmental, territorial and social issues. Itineraries aimed at experimenting and drafting processes, no longer static and definitive, but dynamic, interactive, shared, flexible and interdisciplinary, which are able to reinterpret in an innovative way the new issues of sustainable urban regeneration.

The need to rethink models of partial urban development, not exhaustive, but integrated and procedural, has therefore contributed to the loss of the usual urban-landscape dichotomy. This led to the flourishing of new transversal disciplines, among which the Landscape Urbanism (Waldheim, 1996; Clementi, 2012) and the Ecological Urbanism (Mostafavi, 2010)[2], which try to tackle the incursion of environmental issues among the new urban emergencies.

Due to the increasingly urbanized future[3] and the worsening of climatic-environmental uncertainty situations, the cities are - and will be - the greatest cause and vulnerability to risks.

Infrastructural and climatic issues that frequently affect even the metropolitan city of Turin (Figure 1), due to its morphological and topographic shape, with a dense and compact territory almost entirely flat, crossed by four rivers[4] and compressed to the west by the alpine chain and to the east by the hill. These specific geographical conditions, together with global climate change, make the urban environment particularly vulnerable to phenomena such as hydrogeological and thermal risk, and air pollution.[5]


Fig 1: view of Turin from the Basilica of Superga.
Source: Jum Hart

It is no longer possible to rely on a linear, one-way and resource consuming urban metabolism. A more articulated metabolism should therefore be outlined, allowing life to that complex territorial ecosystem proper to the living city-system.

Risks management and of climate, socio-economic, environmental and landscape changes, are taking place in the current global scenario, determining innovative adaptive actions and transformations in the territorial systems. This concept of resilience - which in recent decades has known multiple definitions in different disciplines, from engineering, psychology, to ecology (Holling, 1973) up to being introduced in urban planning - risks today the loss of value of the meaning itself.

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[2] Design techniques coming from ecology and landscape, which influence planning, urban planning and architectural design towards the definition of new parameters to re-think urban space.

[3] The population growth forecasts in urban areas are set to increase, reaching 68% in 2050 (report "World Urbanization prospects 2018"), compared to current 55%.

[4] The municipal territory is crossed from south to north by the Po river, and by three other tributaries: the Stura, Dora Riparia and Sangone streams.

[5] Increasingly frequent heavy rainfall and water bombs are a real threat to the hydraulic and river networks of the Turin

area, exacerbated in 1994, 2000 and 2016 with the flooding of some parts of its rivers.
Turin is in fact the first Italian city for soil consumption with 65% of waterproof soil (followed by Naples and Milan) (ISPRA, 2016) and with a constant increase of the average value of temperature causing high problems in terms of urban heat island, especially in the summer periods of the last years (from 2015 to today) The geographical position, unfavourable to the circulation of winds does not facilitate (help) the removal of air pollution - considered the worst city in Italy for the annual average concentration and with the highest number of fine dust exceedances PM10 in 2018 (Cnr, Kyoto Club, 2019)

Within this framework, there is a new concept of "evolutionary resilience" (Davoudi, 2012) that challenges the whole idea of balance, based on the idea that urban-territorial systems can change, adapt and transform over time with or without external disturbance (Scheffer 2009). According to this, the theory supports the definition of complex adaptive urban processes, in which interdependent relationships are developed between the anthropic, cultural and natural sphere, thus operating at multiple scale and timeframes.

In relation to spatial planning, therefore, resilience is generally interpreted "not as a fixed asset, but as a continuous changing process" (Davoudi, 2012); a collective value, capable of triggering a new operating system in the city.

Therefore, the evolution of the concept of resilience leads towards eco-systemic urban project, incremental and flexible, in which adaptive strategies and tactics coexist, operating in a multi-scale, multi-dimensional and multi-criteria approach, to reduce the vulnerability of the environment.

It is a matter of thinking to decentralized projects able to operate on those fragments of the urban and agricultural landscape, on the districts in functional recycling, on the residual soils, on the participatory social realities and on the micro-productive activities in ferment (Carta, Lino, 2015).

2. The regenerative potential of residual spaces

Contemporary cities are vibrant organisms of places and communities, actors and viewers, nature and technology, where the fragile relationship between people and environment determines their balance. In these multi-scalar and multi-layer structures the question is how and where this resilient regeneration can find opportunities and potential.

Over the past decades, the built context has usually been the focus of urban expansion policies, while the pervasive space of public soil has long been forgotten and threatened by public indifference. Years of urban planning focused on indicators and indexes have put attention on functionality, ignoring the role, involvement and importance of human scale. The space for pedestrians has gradually become the space for cars, parking, industries and asphalt, impersonal places of nobody. From the middle of the past century cities have started to no longer be built for people (Gehl, 2010).

But despite this lack of concern, it is now more and more clear the potential of this heritage in the definition of a new urban and human quality. Cities, as well as people, recently started to reclaim their stolen public spaces, conscious of their importance in increasing the social, environmental and economic interactions. Building spaces for people is the key for healthy, safe, vibrant and sustainable cities (Gehl, 2010), and finding places for the coexistence of these factors is now one of the urgent issues these contemporary cities are struggling with.

2.1 Finding spaces in post-industrial cities

In the metropolitan cities that grew up under the pressure of the industrial revolution, like Turin, memory and heritage become an expression of the recent past. Here, the processes of de-industrialisation led to the appearance of abandoned places and wastes, spaces now disused and yet imprinted in the collective memory, symbols of an identity that is both social and morphological. They become the manifesto of a past that leaves its traces in the present, and that under the push of urban renewal, become a potential material for future developments.

Starting from the loss of its Fordist identity, Turin has seen, since the '70s the abandon of 10 million square meters of industrial districts in its metropolitan area, and only 6 million of them have been transformed, while 4 million were in 2016 still waiting for re-use processes (Rapporto Rota, 2016).

The development of the transformation process of the past twenty-five years, often carried out in a non-linear way, has mainly affected the capacity of the consolidated structure to work together with the surrounding open space.

The result is a lack of public services, a reduced functional mix and the emergence of multi-dimensional resulting spaces. This condition has disadvantaged the creation of a sense of identity (Derossi, 2016) and of belonging in Turin citizens.

The different causes and the different times of dismission processes outlined an archipelago of physical, morphological and dimensional heterogeneous "wastes", widespread both in the consolidated city and in the peripheral areas (Figure 2) This pervasive and silent phenomenon escaped for a long time the interpretations of the professional community, as well as the traditional cartographies, unable to capture the changes and decays of urban

Fig. 2: Photographic survey of the "Urban waste" of the city of Turin.
Source: authors' photos and database of "Images of Change" of the Polytechnic of Turin.

material. Interest has been demonstrated by the work of photographers, writers and artists, who were able to understand its cultural and regenerative value as elements that could drive urban development.

These voids have always posed «complex questions to the urban design, which always with difficulty faces the open space (whether public or private), on which architecture, mobility and landscape are linked» (Iacomoni, 2015).

The renewed interest in minor or "ordinary" architecture can bring back to the center of the discussion the reuse, no longer of the building component, but of public open spaces.

This "drosscape"[6] (Berger, 2006) solicits multi-scalar recycle strategies, capable of interpreting criticisms, but especially transformation opportunities, to construct innovative and sustainable landscapes, within ecological frameworks. Oriented to a new urban planning vision, focused on the establishment of a necessary urban metabolism, these wastes represent one of the most fertile spaces for the city regeneration; a latent and pervasive resource capable of triggering systemic connections to the macro and micro-scale. It is about making operational the theme of the *"Reverse City"* (Viganò, 1999), which involves an awareness of the high potential value of the urban void, and its high environmental, economic and social resources, as the main actor to rethink the landscape of cities (Gasparrini, 2015).

2.2 Revealing urban geographies through the Mapping method

From this theoretical and ideological framework, this paper intends to investigate the role of the neglected residual space as an opportunity to define a new sustainable and resilient development for a critical portion of the city of Turin.

The research started from the identification of the city's residual, abandoned, and neglected spaces - a preliminary and necessary condition to re-interpret their regenerative value as a potential material to reconnect at a macro and micro scale the urban context - providing at the same time the design solutions able to face the environmental and social challenges that constantly stress the city.

"Mapping" became the methodological instrument through which reading and exploring different times and spatial stratifications, revealing the continuous transformation stories. Among these, urban voids, abandoned building and lots, marginal edges, degraded green areas, but also parking lots and non-designed avenues, become the elements of the newly portrayed "Dross Geography" of Turin.[7]

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[6] Drosscape is just one of the different portraits given by international literature, aiming to reconsider this forgotten layer. The potential value of these neglected areas is first recognized by Kevin Lynch at the beginning of the 90's in his book "Wasting Away", giving the definition as «what is worth nothing or has no use for human purposes; loss, neglect, decline, separation and death». This research lead to new interdisciplinary studies, aiming to define new theories and denominations, to understand and identify them within urban fabric. New taxonomies emerge: from terrain vagues of Solà-Morales, to the land stocks of Maddalena Ferretti, as well as other attempts trying to interpret the different nature of the different urban voids.

[7] For the analysis, support and mapping of the physical and hidden city it has been used the G.I.S. (Geographic Information System), based on the use of a multi thematic computer database capable of translating into geographic information data of various nature and type, returning them in numerical and vector format. The information archive created was the result of data collection, their hierarchy, thematization and implementation.
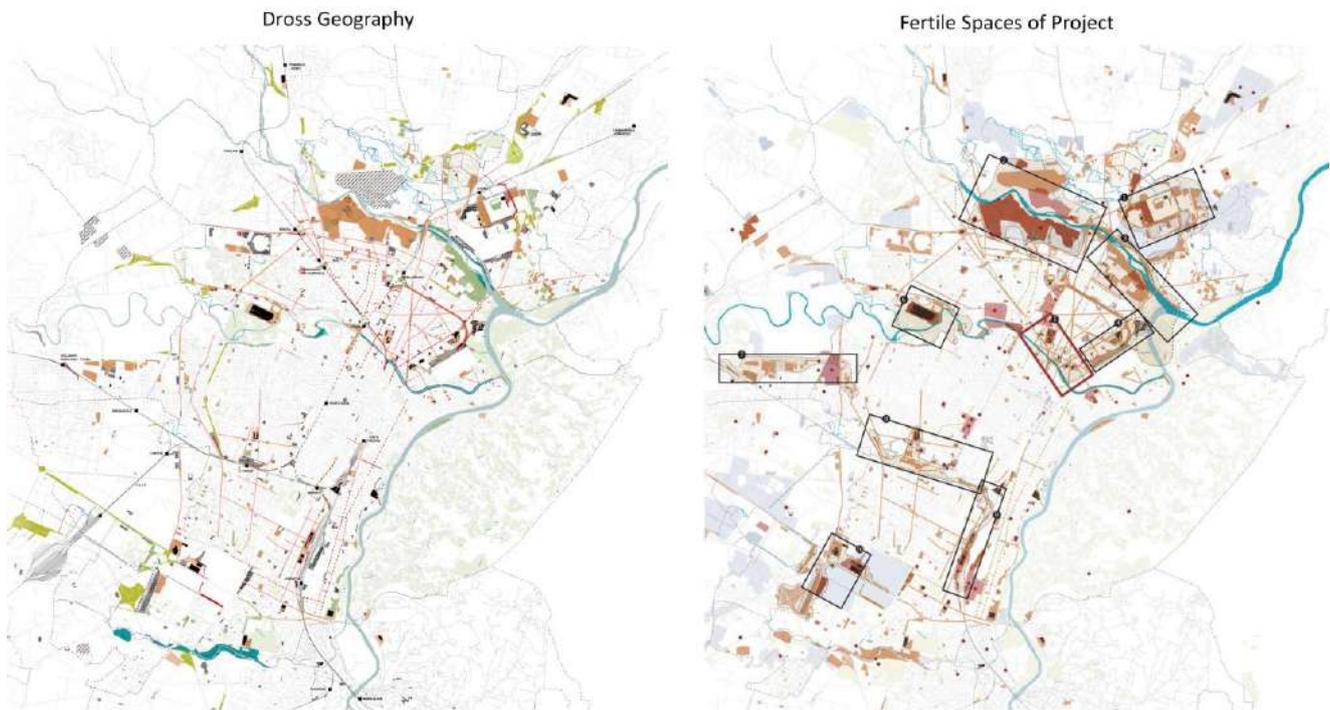
Fig. 3: Maps of the "Dross Geography", representative of the taxonomy of Residual Soils in the urban context of Turin, and the "Geography of the Project's Fertile Spaces", where a coexistence of risks, opportunities and leftovers outline the priority areas of intervention. Source: elaboration of the authors on cartographic bases and database of the city of Turin.

As awaiting elements, this emerged geography has to be overlapped with the recognition of the already existing potentialities and criticisms of the urban framework, essential to define the most fertile macro-areas among the entire city of Turin.(Figure 3) In these areas, a coexistence of positive and negative realities lead to a more effective and successful design vision.

Therefore, the methodological framework proposed aims to reinterpret in a holistic approach, a cartographic exploration of the city's resources in terms of hydrography, infrastructures, ecology and transformations, together with an attempt to spatialise the city's behaviour to the conditions connected to climate change (hydrogeological and thermal risk, soil and air quality).

«The intent is to explore how these layers relate, and how the convergences and divergences of their potential suggest a place for design. Ultimately, it does not want to define any singular vision, but the primary objective is to pull out the threads and plots that allow a more interesting appreciation of the change of space» (Massey, 2005).

3. The ecological dimension recovery of the open space: the Aurora district in Turin

The limit of what has been proposed and mapped up lies precisely in that strategic urban and theoretical vision, sometimes not very practical and operative, of those interpretative reasonings of the various adaptation plans. The research tries to make concrete those logics, innovating the usual practices through the design experimentation, up to the detail scale, of a significant urban area.

Contemporary cities, like Turin, reveal cyclically the same decadent conditions, at different design scales. Today more than ever, in highly urbanized and saturated contexts, where preserving the land consumption and urban porosity, minute spaces relate to different interlocutors in search of new management actions, redefinition and reorganization of places and territories as a whole.

Punctual and diversified actions - and no longer programming processes - systemic in their relationship, are therefore necessary. Depending on this need and in the desire to tackle climatic and spatial emergencies according to an integrated and multi-scale approach, one quadrant of urban

| Urban voids | Waiting buildings | Underused boulevard | Disused railway tracks | Underused river banks |

Fig. 4: Photographic investigation of the residual spaces of the Aurora district, separated from the city center by river Dora. Source: authors' photos.

character is distinguished between the different identified priority areas, north of the historical center of Turin.

The nearby presence of the city center, the limit on one sides of Dora Riparia river, the heterogeneous morphological tissue, climatic risks and the fertility of residual soils, define the regenerative potential of this Aurora district. (Figure 5) An area where stratifications of places of historical-cultural interests and of post-industrial importance[8] interweave with a multicultural mixitè of colors and smells, of markets with retrò charm (Porta Palazzo and Balon) that make "alive" Borgo Dora.

In this scenario, apparently socially alive, conflicting and unresolved situations of disposal and degradation - such us the sediment of the Torino - Ceres railway trench and a prevalence of impressive industrial buildings (like OGM-Officine Grandi Motori) - become the elements of a pervasive and silent "Drosscape" in the neighborhood. (Figure 4) Although, in the past they have played an important industrial role, they have been decontextualized by successive urban changes.

The area, analysed according to this critical view, is proposed as a regenerative opportunity of a new infrastructural hinge between the center and the first periphery, which, using the pre-existences, re-establishes new ecologically and socially functional networks. On the widespread and capillary spaces of this transformative residual legacy, a texture of punctual design solutions is distinguished, in response to the ascertained climatic and environmental criticalities.

Fig. 5: The three Maps illustrating the synthesis of Resources, the spatialization of Climate Risks and the taxonomy of Residual Soils alongside the River Dora Riparia and in the Aurora District.

This variety of microspaces, to which corresponds an equal range of solutions, guides the need to structure an Abacus of Nature Based Solutions[9], dynamic and operative, which allows to

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[8] Historically, in the early twentieth century, the village was characterized by an identifying manufacturing past, marked by ancient canalizations for the functioning of textile and tanning production activities, typical of that industrialization phase. Nowadays it is readable sinuous course of the alleys still present, such as the Canale del Molassi.

[9] Abacus composed of an archipelago of solutions and tactics - 16 actions for the Blue Infrastructure, 21 actions for Green Infrastructure and 8 for interventions on anthropized soils – able to move within those neglected spaces. Local solution, however systemic in relation to the identified risk conditions, in which the nature component is

establish new eco-systemic, multi-scale and multicriteria scenarios.

The multiplicity of actions represents, as a whole, a new strategic network capable of defining, in the short and long term, the connectivity through public spaces and infrastructural networks, expanding and proposing themselves as the potential of a new vision of contemporary territory. Green and blue infrastructures become new elements structuring the urban public space, in which the plurality of widespread tactics can give response to the territorial, environmental and social needs of the contemporary city. (Figure 6)
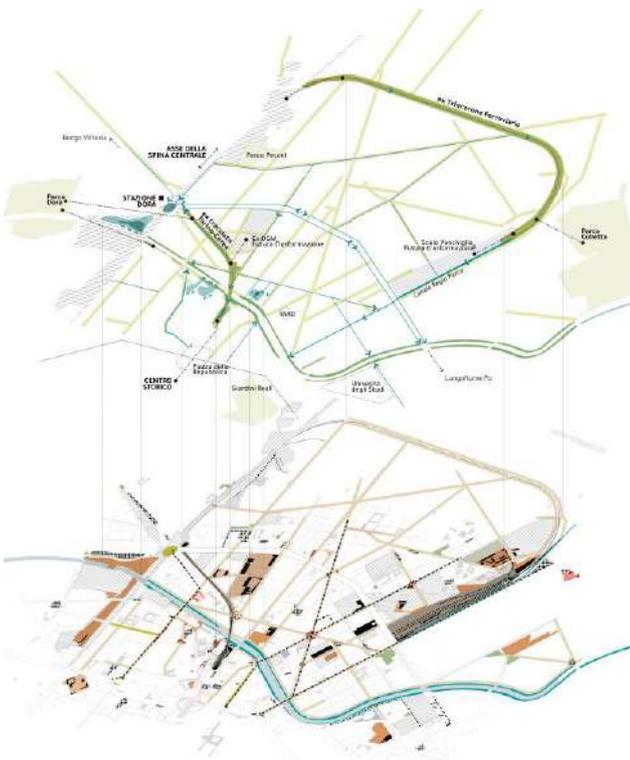

Fig. 6: Relationship between the Dross Geography and the strategic vision of the Aurora district, where the implementation of green and blue networks defines its new ecological scenario

4. *Spaces and scenarios of adaptive urban landscapes*

What has been so far illustrated is an attempt to show how sustainable urban transformations and regenerations cannot today be separated on the one hand from the increasingly pressing climate-environmental issues; on the other, from a cyclical

decaying condition, which offers the city reserve places potentially useful for a new transformative development. Such contexts become possibilities of enrichment for the city, in which to experiment new approaches and design, as well as a conscious integration between humankind, technology and nature, making public space the protagonist of the environmental, ecological and social revenge of the cities of tomorrow.

The intent of the explored path is, therefore, to demonstrate how a methodological process starting from the knowledge of the city in its "inverse" (Viganò, 1999), recognizes in integrated and systemic solutions a real urban drawing. This not only defines new strategic goals of ecological regeneration, but also «a network of new spaces and equipment, public and for public use, capable of making the "functional mix" and landscape more dense and vital, and to propose an overall use of the urban space» (Terracciano, De Marco, 2016).

A new urban narrative should therefore start with the will to deeply understand the realities, the different emergencies and the constant motivation to interpret and adapt to them.

The attempt made for the Aurora district in Turin shows the willingness to explore a Masterplan (Figure 7) which, more than a solution, aims to be a scenario -one among others- of possible regeneration of this urban wound. Memory, ecology, functionality and fruition are the compositional matrix of its places and uses.

River Dora, with its un-designed and not practicable banks, together with the cut left in consolidated context by the old Torino-Ceres railways, represent the two missed occasions in the definition of a new local identity and a new external quality. Their continuous and connective potential allows both to work at an urban scale, but also to incorporate the minute and porous spaces widespread all around them.

The recovery of the river corridor passes through section enlargements, natural lowered areas and flooding zones, aiming to raise the capacity of the river to face the extreme weather conditions that in having a river to live, admire and benefit by locals, on which spaces to sit, walk and meet are integrated into the morphological design of the new banks.

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considered the *fil rouge* for the re-signification of those spaces in an adaptive perspective.
There are multiple linear, punctual and areal actions, declined at (to the) different scales, urban and extra-urban,

that interconnected penetrate the urban system, crossing it, outlining new forms of landscape and ecological, economic and social quality
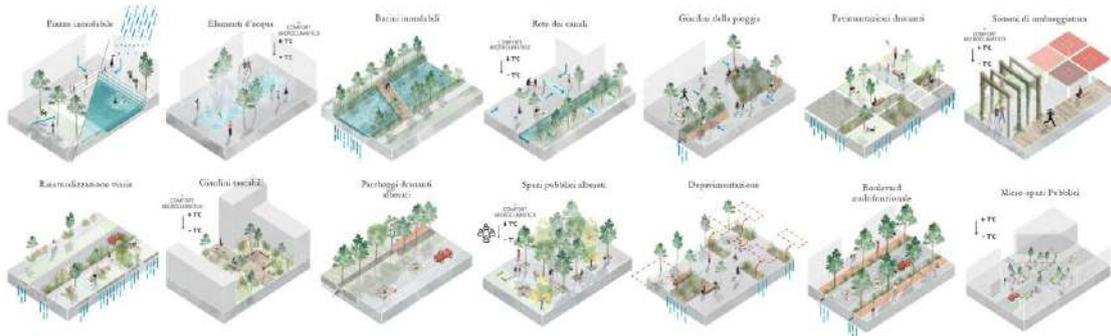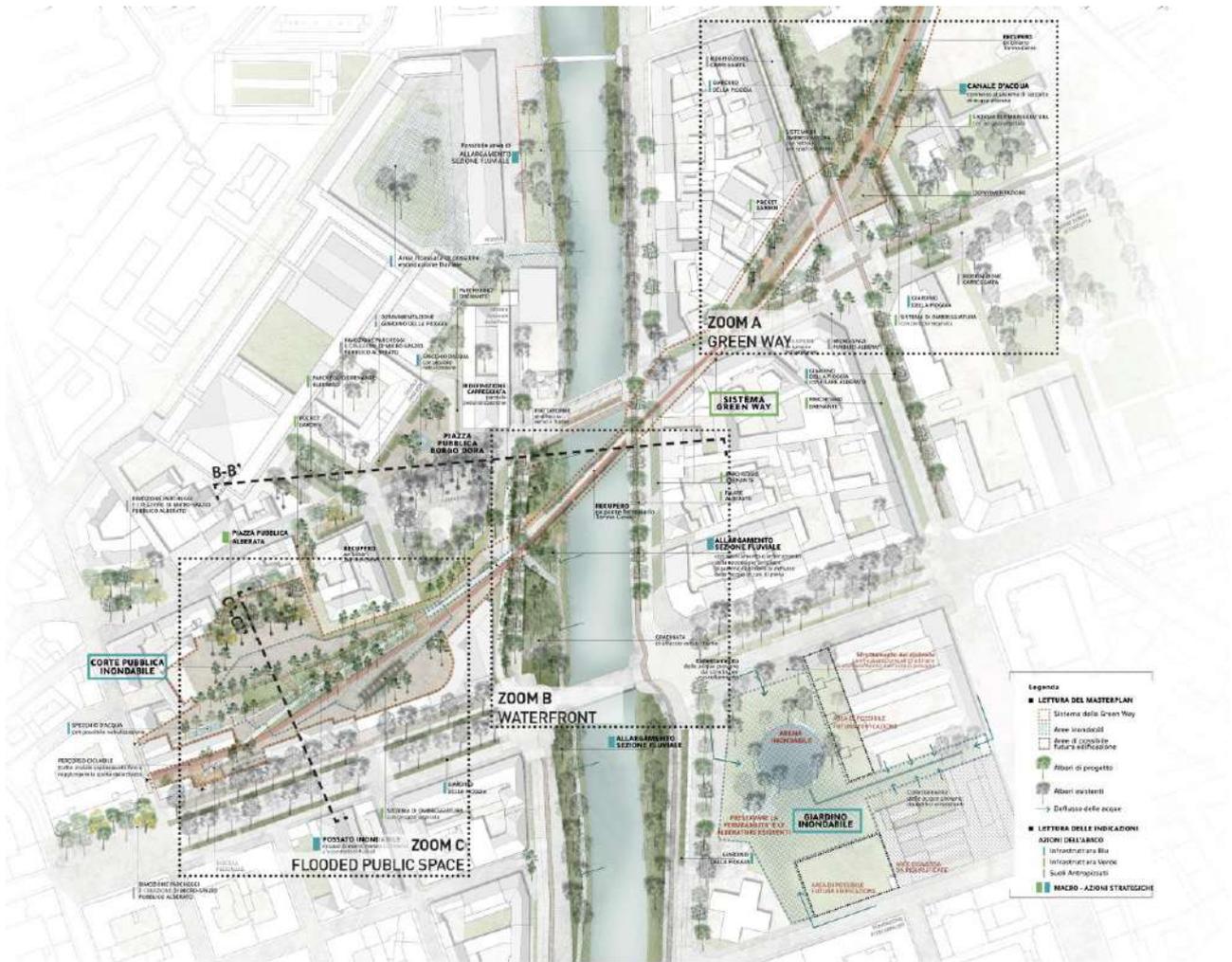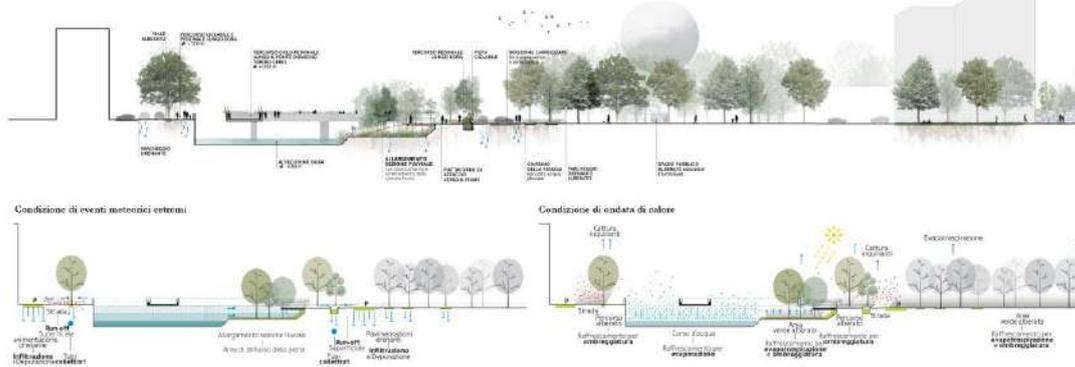
Fig. 7: Masterplan of the scenario proposed, composed by the systemic use of an Abacus of different blue and green actions and tactics, narrated through plants, figurative and functional sections representing the behaviour at possible climatic risk conditions.

The dismissed railway tracks of the Torino-Ceres line, the second large scratch of the area, appear as the linking path between the old historic center and the recent vast linear regeneration intervention of the "Spina"[10]. The recovery of the tracks and the pertinent nearby area, materializes through the definition of a pedestrian and bike path, accompanied by an artificial canal, and where a sequence of public open spaces, recreational and resting places, and naturalistic corners define the morphology of the new GreenWay. As a response to the hydrogeological risk of the area, the canal takes advantage of the natural configuration and depression of the soil, collecting storm and rain water and conducting it to a final water basin. As many other cases spread all over the world, this mixture of soft and hard surfaces, slow and fast motion, water and nature, demonstrate as history, memory and innovation can strongly be effective.

The slow mobility paths of the GreenWay continue until crossing the river in the railway's original bridge, and ending in the third intervention site, focused in the inner courtyard of the former Porta Milano Station[11]. The space of the yard is structured by the existing rail tracks, which in the proposed scenario become the elements through which define a new morphology at different altitudes. The area, in fact, shows a light depression towards the river standing on the north of its boundary that, if accentuated, define the role of the inner part of the yard as a floodable square. A series of increasingly lowered strips, ending with a floodable ditch, define the space of the collected water in extreme events, remaining, for the rest of the time, a new public square where installing functions, hosting events and connecting with the existing green network of the city.

These design occasions, in response to multiple and diverse boundary conditions, try to find harmony in a common drawing. In this proposed ecological infrastructure, recurrent minute actions, joined by broader ones, outline the new role of this connected spaces as a new structural element of the city identity.

«It is in the public space that the city can try to reconnect with the geography of the place and with the soil, finding harmony with the climate and nature» (Dalnoky).

4.1 From spaces to common places for people

As before stated, the research aimed to define a possible scenario: a radical innovative vision for this area, intending to offer inputs and suggestions dominated by nature but also by structural signs.

But urban regeneration is not just a physical issue: it is a matter of achieving an always changing balance between quality, sustainability, preservation and fruition. City's spaces should be able to adapt to the external physical challenges, but also to the social and societal needs, to the understanding and implementation of visitors, users and stakeholders in an integrated management process, to provide the proper services and comfort. In order to achieve this purpose, participatory processes and community engagement are needed and essentials to set common goals and methods, to define a shared path embracing from the co-design to the co-maintenance actions.

Configure a design project of a public space that is able to respond to contemporary and future environmental and climatic pressures, according to the principles of "evolutionary resilience" –flexible, adaptive, incremental– necessarily translates into the art of designing spaces for and of the community. Shared liveability should be the ultimate goal of any urban regeneration project, in its static or changing condition, which finds in the open space of the city the connective and dilative material through which offering itself. In well-designed contemporary cities, "spaces" become "places", real urban commons for the population. As a result, urban planners should not be scared to design the void with another void, where the full is not the built, but the social interaction, the fruition, the place of technological, natural and social interaction. This is what cities needs and wait for their achievement of a new urban - and therefore human - quality.

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[10] a new main axis for mobility, the so-called «Spina centrale», a linear centrality made possible through the burial of the railway tracks. It is now a long north-south urban boulevard, which tries to "sew up" the east and west districts of the former railway trench.

[11] Historically born in 1868 as head station, locomotive deposit of the Turin-Cirié line (later Turin-Ceres).

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PUBLIC SPACE AS A MEDIUM FOR QUALITY OF URBAN LIFE:
AN INTERPRETATIVE TOOL FOR SOCIO-SPATIAL DYNAMICS

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Abstract

The attention paid to urban liveability appears justified on the basis of the implications - environmental, social and psychological - deriving from the processes of transformation. The extreme forms of abstraction of 20th century urbanism have pursued, in theory and practice, a vision of cities distant from the human dimension, contributing to the proliferation of phenomena of urban marginalization. Such dynamics, associated with the widespread of physical and social decline, fuel the perception of a poor quality of life. The research assumes that the liveability of cities depends on the quality and diversity of its offer, which also depends on the quality of the system of public spaces. This is to be intended as a social and physical infrastructure able to connect the whole built environment and to host flows of people, goods and services. On the basis of a contemporary state of the art and considering the most relevant national and international best practices, the paper wants to explore the topic of quality of urban life from the perspective of public space. In particular, will be presented a quali-quantitative tool to interpret the social-spatial dynamics and configurations that animates urban space and urban life. The interpretative tool, as the result of a doctoral research in architecture discussed in 2019, aim to identify general criteria and universal design solutions on which to improve the quality of public space both in its social and physical features.

1. Introduction

The raising attention to the issue of quality of life in the urban context is justified on the basis of the environmental, social, economic and psychological implications connected to the increasing number of urban population, which the United Nations estimates will reach 6.5 billion by 2050 (World Urbanization Prospect). Since 1960s, sociologists, geographers, journalists and urban planners have been engaged in a fertile debate, underlining the close relationship between the physical quality of the built environment and the individual and collective well-being. The excessive forms of abstraction of 20th century urbanism are now blamed, emphasizing the strategic role of public space as a connective structure of the urban environment.

The introduction of the automobile as the dominant transport system have marked the definitive break with the structure of the traditional city articulated in streets and squares: public space loses its connective role, central for the everyday-life activities with undesirable effects on the entire public realm. In the mono-functionalist trend of the contemporary city, public spaces have become an urban residuum. The fragmentation of public space as a whole system, affect the continuity of the public life flows, such as the access to public transportation or the enjoyment of the urban spaces for social or outdoor activities. In light of this complexity, seems legit to refer to public space as an infrastructure, made of a continuous system of urban spaces, continuously produced and transformed by design, public life and human activities that animate them. Indeed, the city is not only an object of perception and enjoyment, but the product of the transformation of countless actors who can change and control the urban structure, its details, its growth and shape, in a continuous succession of phases (Lynch, 1960). In this sense, urban design, as a process, can be conceived as an integrated activity that have to operate at the same time at the infrastructural and at the social scale.

In this sense, the definition of public space and the notion of quality of urban life are, to some extent, related by many features — physical, social, cultural,

symbolic, technical, economic and regulatory. Also, urban design has a primary role within the perception of the quality of urban life, as mentioned and acknowledged by the United Nations. Public space is indeed included among the indicators of the eleventh Sustainable Development Goals - Sustainable Cities and Communities for its ability to "support social inclusion, civic identity and quality of life of the city" (UN-Habitat for the Sustainable Development Goals - 11.7 Public Space).

Public space, as a common field within different disciplines, can be studied for many purposes: urban studies are interested in the social features of cities, while urban designers and planners are dealing with the tangible and material qualities of space. This paper intends to approach the topic of public space from both points of view, focusing on the key-role of the socio-spatial analysis as a tool to achieve objective of holistic sustainability in the city. In this regard, in the following paragraphs will be highlighted most of the references that has corroborate the research and the elaboration of the interpretative tool for public space.

In fact, as will be further discussed, the tool answer to specific methodological characteristics that respond to an "evaluative attitude towards reality" (Marcuse, 2009). This attitude orients the tool towards the collection and the representation of dynamic data, which do not claim to exhaust the knowledge of urban phenomena. On the contrary, the tool aims to:

- o interpreting data, considering objective and subjective, sometimes empirical, gathering sources;

- o study and document reality through an evidence-based approach;

- o consider people's habits in space and the interaction between human and non-human actors through a socio-spatial approach.

2. *Socio-spatial dynamics: a matter of quality*

The understanding of the many interaction between public space and public life are, as many authors have acknowledged (cf. Gehl, Madanipour, Carmona) the necessary base to debate on Quality of

Urban Life (QoUL). One of the main critical results of the PhD research "Interpreting Public Space and its role in Quality of Urban Life" (Errante, 2019) revealed a lack of tools and methodologies—at least in the hands of the public bodies—capable of coherently depict the socio-spatial dynamics of the urban environment. The social and the spatial element of such complex dynamics are studied individually — in terms of Quality of life (QoL) in cities and quality of urban space — and their results are not superimposable.

First, QoL studies are often based on socio-economic assessments which have to be quantitative and comparable, and respond to a common methodology. On the contrary, the evaluation of the quality (or performance) of urban spaces is generally quali-quantitative and the methodology used to address it may change depending on the specific context, object and purpose of the study.

To provide an exemplification, we can compare the indicators provided by the Sole24Ore assessment on Quality of Urban Life for the Italian metropolitan cities and provincial districts, next to the methodology used to assess quality of urban spaces within the Public Space / Public Life Studies and Strategies.

The Sole24ore quality of life ranking is renowned throughout Italy and is considered among the most reliable for the accuracy of the sources[1]. As part of the research, this survey was analysed and commented, among other surveys under examination, going into details of the macro and micro indicators used within: Wealth and consumption; Business and work; Environment and services; Demographic classification and society; Justice and security; Culture and leisure. At first glance, it emerged that there is no precise reference to the built environment, which on the metropolitan and provincial scale is already relevant. On the contrary, under indicator Environment and Services, there is a mention to the *Legambiente* index "Urban Ecosystem" and to the index of smart cities "I City rate" which constitute an exhaustive source of information. Also interesting is the indicator of Culture and Leisure which is calculated on the basis of the presence on the territory and the receipts of

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[1] The main data sources and the indicators for the Sole24Ore ranking can be found at:
https://lab24.ilsole24ore.com/qdv2018/indexT.html.

the cultural offer, together with the index of sportiveness, which instead does not give any information on the public endowments for individual and team sports, focusing instead only on the sports clubs. Although reliable, the picture that emerged from the ranking of the quality of life in cities does not give a clear picture of the living habits of citizens and of the experiences that qualifying their existence; such data would contrast the economic character of the survey which requires quantifiable and comparable data. For these reasons, the research questions the real usefulness of these surveys to effectively guide the priority actions that public administrations should pursue to address the urban issues and therefore to improve the quality of urban life of individuals, beyond the economic and financial aspects.

The approaches that seem to be most appropriate in relation to urban transformation strategies are those that aim to assess the quality of the public space system. For example, the methodological approach proposed by 'Public Life / Public Space Studies and Strategies' also consists in collecting data useful to configure the urban context under analysis, but at a closer scale. In particular, there are no precise analytical categories to be satisfy, but rather transversal macro topics that are the subject of in-depth study, such as: mobility; physical and social accessibility; uses of space; pollution and air quality; physical quality of urban space; attractiveness and usefulness of the urban functions involved in the surroundings; urban democracy; etc.. Another element of difference lies in the techniques of data collection: both secondary sources and datasets are consulted, as in the case of rankings, which collect quantitative data; primary information is also collected through direct and empirical techniques of observation and evaluation of urban reality and socio-spatial phenomena. Generally, PL/PS suggest a rigorous methodological structure of several phases:

o General observation of the area including historical, cultural, environmental and infrastructural features;

o Typological and functional analysis of the most significant spaces of the area under examination;

o Qualitative analysis of user habits;

o Interpretation of collected data;

o Identification of good practices and similar cases as references to address the needs emerged from the study;

o Synthetic reflections, on the scale of the city, of public space and in detail, in the form of a 'to-do-list';

o Definition of the potential actions considered necessary to intervene on the identified priorities.

The two cases refer to a typically quantitative socio-economic approach, compared to a qualitative socio-spatial one. The comparison between the two does not serve to demonstrate which is the most useful, but to establish which is the most appropriate to guide urban transformations. Aside this methodological concerns, it should be considered that the majority of the studies on Quality of Urban Space are independent, carried out by third parties or consultancy firms in place of the local bodies. This implies that middle and small cities with limited resources are mostly unable to access to this knowledge. Also, we have to acknowledge that the surveys on QoL have increasingly opened to environmental and urban indicators in the evaluation of well-being. Even if happiness is measured as a component of a nation's wealth or a key element of the sustainability of its development (Berrini et al., 2011), we can see by this comparison how the need to produce a quantifiable and comparable data, naturally exclude that information that cannot be represented through a precise units of measure. Values and disvalues on which the perception and the quality of urban life strictly depend, are necessarily discarded. Not to mention that the accuracy of the information emerging from the ranking on quality of life in cities becomes increasingly vague as we go down in detailed scale (Ibid.).

The importance of a correct framework in which to study quality of urban life becomes more and more important considering its key role in the policy-making processes. Rarely in Italy individual local governments have been involved in research programs aimed to understand and interpret social-spatial dynamics. In a global context of decline and somewhat recent rebirth of the concept of public space, some misunderstandings can be explained in the definition of Vittorio Gregotti (1993), who enlightens the dominant thinking behind this theoretical crisis. Public space is "the design of soil,

pattern and embellishment, the treatment of greenery, the assignment of meaning to the unbuilt void between buildings, the definition of the contents of special functional enclosures within the city." Such a concept does not consider the design of public space in its crucial role for the whole urban organism and for the community that inhabits it. This kind of assumptions have led towards a general underestimation of public space as a mean to investigate the society (cf. Lefebvre).

As already mentioned, public space plays a key role in regards of social studies related on urban democracy and social justice, merging the issue of public space with liveability and quality of (urban) life. The concerns on liveability in the built environment has reached, especially in the last decade, a global resonance as a priority goal for both Western and developing countries' government agendas. Such tendency is consequent to raising awareness of the effects of the liberal economy and the processes of so-called wild urban expansion. The phenomena of speculation, soil consumption or gentrification, as well as segregation, alienation or social injustice are some of the evidence in the cities throughout the world. For that reasons, the urban environment is the ground where to address the sustainability issues in a holistic perspective. Cities are the main habitat of the majority of the world population and therefore is the place where the right to the city (cf. Lefebvre) is exercised and quality of life must be guaranteed. In fact, it is not coincidence that it is in the field of urban sustainability that public space can be considered the key-place where to experiment forms of social, environmental and economical sustainable development.

At the same time, as Krueger and Savage assert, it would be helpful to discuss how to clearly transfer theoretical reflections on sustainability into urban policies, considering that sustainability is even now interpreted as a matter of environment or natural resources (2007). The component of social sustainability is studied independently and is barely considered in the whole picture, as well as statistic surveys on quality of life in cities are not considering the physical conditions of the urban context.

The assertion of this paper is that it is crucial to consider the social space of the city in its both material and immaterial, real and abstract, social and physical features, where control and political powers, production and consumption processes are

exerted. Space is a product in itself, but most of all, in the words of Henri Lefebvre, is a social product (1991). In this sense, Lefebvre considers the social space as a means to investigate the society: people and their everyday life habits, uses and practices of space, professional and political powers, artists and dissidents, are all actors able to shape the city, produce space and make it its own (Ibid). Interpreting such practices means to depict urban space starting from how it is perceived—the use of space and the use of time in space—and how it physically is—the paths and networks that connect workplaces, private life, free time, etc. In the empirically investigation of these aspects of urban space, the concept of social space rises from the coexistences between subjectivity, sensoriality and corporality, in relation to the perceived, conceived, and lived space which Lefebvre refers to. In light of this, it is imperative, for politicians, planners and urban designers, to understand what kind of forces and powers are working inside the city. Especially, how these forces can manipulate the space and its perception. This "urban environment for production and consumption" (Ibid.) is the very same space of everyday life and social reproduction and it would be incautious not to consider how this "fleshy, messy and undetermined stuff" can be influenced and controlled (Katz, 2001).

Indeed, urban space is also the product of a design process, which can be used for very different purposes depending on the committer. In fact, urban design could be able to affect or avoid such behaviours in public spaces, working in the same way as political ordinances do. In the following paragraphs, it will be explained some of the main concerns of the paper. The first one is connected to the concept of Quality of Life and Urban Sustainability as the main goals—or pretexts—to transform the city through public space design. The second concern is about how to approach the measurement of social progress in urban environment and the outcomes of urban transformations in terms of Quality of Urban Life.

All these concerns justify the urgency to interpret socio-spatial dynamics and develop the right tool to navigate in a system of social and spatial values and disvalues that constantly shape and reshape the public realm. Public space needs to be studied through an inter-scalar, evidence-based and interpretative approach, necessary to discuss on the

quality of urban life and the dynamics of social reproduction and, at the same time, on the quality of urban design, which plays a central role in the perception of the space.

3. Quality of (Urban) Life as the social dimension of (Urban) Sustainability

In recent times, the topic of quality of life has gained ever greater space in political agendas and in the public debate. At the same time, it is unclear where the concept of urban liveability and urban sustainability can fit into the definition of quality of life. To avoid misunderstandings, this paper assumes the definition of urban quality of life by Serag el Din et alt., which states that "urban quality of life refers to the urban planning which objective is to realize the sustainability of the development with respect to an individual's quality of life" (2012). This definition includes all the dimensions and the actors that participate to the urban development but it left unclear to what kind of sustainability it refers.

According to Cesar Cuello Nieto, the evolution of the concept of sustainability and in particular to sustainable development, has led to the definition of different currents—social, political, economic and ecologic—that have produced isolated efforts in order to improve the condition of their inherent matters (1997). This conceptual and sometimes disciplinary division is not working at the level of urban sustainability, which requires: a holistic, multifaceted and more complex vision of the development; a multidimensional model capable of understand such complexity; economic, political, educational and cultural strategy in order to preserve and enhance the human condition in terms of social development and environmental quality (Ibid.). Embrace this concept implies of course a "fundamental restructuring of present society" (Ibid.) and a change in the viewpoint of urban development too. This implies also, according to Tacconi & Tisdell, the need for defining and measuring holistic sustainable development (HSD), both at a theoretical and at an empirical level (1993). HSD is considered as a broad concept that lays in the balance between the many dimensions of sustainability that has been mentioned before. In this sense, HSD can be studies in the close connection with planning and urban development since they share similar structures and both have implications on urban quality of life.

To some extent, the concept of HSD set the theoretical framework for the main mission of planning as a mean for identify and pursue "the explicit identification of long-terms ideas and aspiration of social group" (Tacconi & Tisdell, 1993). To achieve these goals simultaneously, the planning process can be integrated with aid and research, let the community to participate to identify their ideas and aspirations, and on the other hand to experiment and communicate with them innovative solution to address social, economic and environmental issues that can improve the decision making and shaping the basis for a democratic societal development (Ibid). A participated planning process can be a helpful tool to reach a balance between social and spatial issues as along as it is clear the extent of the participation, defying targets, actors and territorial scale. To cope with urban quality of life, equity and social justice, it is also important define cultural, economic and environmental goals that are in line with the identity of the local community, their history and the previous conditions of their living context (Ibid.).

For this reasons, quality of urban life can be considered as the social dimension of urban holistic sustainability, and the strict connection with planning can be studies in the phenomena of the contemporary city related to public space.

3.1 The public/private dichotomy in public space

One of the main issues of contemporary city is the public/private dichotomy whose balance of power can affect many aspects of the use and the perception of public space.

Despite the opinion of Jane Jacobs (1961), it is not possible to define a sharp boundary between the private and the public, especially not in the everyday life. We can instead agree that there are many degrees of permeability (Madanipour, 2003) according to the multiple and complex combinations of objects and subjects in space. Madanipuour argues that the greater degree of ambiguity and communication between public and private, the greater the level of civilization of a place (Ibid.). In this sense, there are no actions that can be defined as exclusively public or exclusively private (Mitchell, 2003), but whose own the property right is actually motivated to separate things in many ways: from the use of fences or particular furnishings that do not

allow people for standing or sitting, to CCTV or police forces that patrol the space. This boundary is clearer in places of the access from one space to another, a limit identified and drawn by codes and symbolisms.

But, what "public" means? Walking by the streets and living public spaces, we can easily identify what is private because of the many symbolisms and behavioural codes embedded in such spaces. On the contrary, the definition of public can be less clear, especially if we ask who participate to public and under what circumstances (Staeheli & Mitchell, 2008).

Within the urban development and the planning process, private and public actors participate in the process of social and spatial transformation. Planners and urban designers, are the ones in charge of the physical morphology and the normative constitution of space in which ordering, categorizing and materialize the development (Blomely, 2010). The individuals and the community are entrusted with the actions in the space and its use within the forms of social reproduction. The legal space to which Blomley refers is in fact, that immaterial space in which the definitions of quality of life, the boundary between order and safety and the sustainability goals are determined. This legal framework allows urban public services to work by eliminating certain obstacles, whether they are objects, subjects or behaviours and providing for countless forms of conditioning for the individuals affecting the entire public sphere (Ibid.).

Indeed, Habermas in "The Structural Transformation of the Public Sphere" considers the public sphere as an abstract space between society and the state, a body of private subjects gathering to discuss issues of public or common interest (Op cit., 1962 in Mazzette, 2013). This position is placed by the critics in a liberal bourgeois perspective, exclusive to other forms of unofficial or interstitial public. Although, this principle has been the base for a concept of "ideal legislation" within which the public and private actors are collaborating and acting on space (cfr. Fraser, 1990). These legal, administrative or policies actions imposing limitations on the use of urban space in the attempt to repress, or suppress, habits and behaviours that could undermine the ideal of order and control imposed by the rules that regulate the use of space, excluding certain social categories (Mitchell, 2003; Nemeth, 2011).

State and private interests are clearly visible in the management of public space, negatively affecting its accessibility. In the thought of Németh and Schmidt (2011) regarding the private management of public space, the three main aspects to be considered are:

o   The access rules set by the private person in charge of the management of the space do not always accord with the public interest or the community needs, sometimes limiting the freedom of speech and protest;

o   Private spaces can act as a marketing device for of advertisements and brands, their access can be restricted to unwanted subjects;

o   Security, considered as freedom from crime against the person, is a main concern since September 11 frequently used to justify the previous points; it can be also observed that, in the face of a considerable and widespread increase of security measures on public space, these have actually increased the perception of insecurity of users.

In this sense, the social justice dimension of sustainability is denied and the final goal to reach a better quality of life is jeopardize from the very same development that should have improved it.

4.   Quality of (urban) Space as the physical dimension of Quality of (urban) Life

Within the many issues of the contemporary city, we may find concerns about the use of design as a tool for manipulate or negatively affect the social life. The question can be approached not only on the level of privatization but also in terms of commodification of space, gentrification, de-industrialization. In this sense, the emphasis is on the quality of urban design, not only in respect of the whole processes of urban regeneration, as well as in the execution, the maintenance and the organization of public space. Especially, how the design can affect the accessibility and the perception of a space, even if unintentionally (Carmona, 2010).

Accessibility has a double—social and physical— meaning that this paper wants to stress in relation to the intersubjective uses of public space. In this sense, accessibility is seen as the overall quality of space that allows all the possible activities and opportunities for interaction and encounter

(Németh, Schmidt, 2011). Following this logic, the ideal planning process encompasses both the design and the attribution of significance of the space, also identifying a range of activities and events. Nonetheless, a careful choice of elements, materials and techniques of realization can contribute to the perception of accessibility for the inhabitants. The opportunities that the public space offers, cover a range of possibilities, from the exercise of democracy to other passive recreational activities (cf. Marcuse) that public space should support positively affecting cohesion—conceived as a sense of trust—cultural, economic and social wealth and interaction. The ideal public space should also have certain abstract characteristics of variety, flexibility, permeability or authenticity and allow unexpected, immediate, unplanned uses (Németh, Schmidt, 2011).

Urban design should overcome the physical sphere, embed ethical values such as urban democracy and social justice since public space is no longer the place for static object: on the contrary is a moving and dynamic entity, something that once realized, is constantly transformed by its users, modified by everything that happens inside and outside of it (Latour et al., 2008). The physical configuration of public space acts as a medium for the communities also for them to perceive the administrative and management choices of urban policies (Lefebvre, 1991).

Design qualifies public spaces in a physical sense, providing for all that formal elements which combination can help to identify functions and typologies of squares, parks, sidewalks or streets. On the other hands, design allow people to perform the activities of everyday life, embedding the symbolism of a community and collaborate to set the behavioural rules in the use the space (cf. Gehl, 2013). In other words, design can limit, deny or otherwise facilitate or allow multiple activities related to public life, from socialization to the purchase of goods and the provision of services, from mobility activities related to leisure time and sport.

So far, has been identified the main dynamics of public space related to the social and the physical dimensions, underlying how some of these phenomena are related on urban design and also how the Quality of Urban Life is affected by them. At the same time, this theoretical framework alone does not address the first question on how to investigate public space and how to arrange this

knowledge to be integrated into the urban design process. The main goal is to encourage urban design to address social justice and urban democracy, experimenting new processes that embed principles of holistic sustainability, not to mention that all the activities carried out in public space are, on the majority of the cases, strictly related to the perception of a good quality of life.

5. How to investigate public space?

In the next paragraphs will be described part of the methodological approach used to elaborate the interpretative tool proposed within the paper. In the first place, interpreting public space with the aim to improve its socio-spatial quality is a task that have to be clarified on two sides. The first one is how to, in the words of Marcuse (2009) "implement the demand for a right to the city"; the second one is how to address social needs within the process of urban transformation considering the instances of the ever-changing contemporary society.

Peter Marcuse's theory of critical urbanism, suggests an approach to action that combines three phases: expose, propose and politicize. The critical approach is justified by the "evaluative attitude towards reality" that uses questioning in order to understand the world. Criticism is not seen as a negative attitude; on the contrary, it represents the opportunity to "critically expose" the positive impact of potential changes thank to a critical attitude able to identify what is wrong and what can be enhanced or transformed in relation to what is necessary and desirable to obtain a better condition. In Marcuse's words, the critical theory of urbanism can be used as a tool to analyse flows, experiences and practices of daily life within which people "develop the potential of the existing urban society" and use this knowledge to "inform the future course of such practice" (Ibid.). In light of this, it is easier to explain the key function of the theory, in which expose means to evaluate the existing system in its potential and its weakness, understanding the nature of the phenomena and the dynamics of previous fractures or crisis. In other words, "analysing the roots of the problem and making clear and communicating that analysis to those that need it and can use it". Propose means set strategies, targets and desired results, planning the work, make proposals, programs, demonstrating "the need for a politicized response". Eventually, politicize is conceived as "the political action

implications of what was exposed and proposed" supporting the arrangements of the work by an informing action. This implies on one hand a "day-to-day politics" and on the other involving media and academic institutions (Ibid.).

Even if most of the urban problems have a spatial aspect and consequently, a spatial solution, could be naïve delegate the resolution of this concerns to the urban design only. On the contrary, the proposed tool is inspired by the critical urbanism approach combined with the socio-spatial taxonomy of the good or ideal public space. In this perspective, the aim is to analyse the spatial, formal and typological features of public space from a politicize point of view, analysing the urban environment in its parts and systems, not just to describe the morphology of the space, but to better read it without losing the functional qualities and formal features in it (Cerasi, 1976). In Maurice Cerasi's vision, an urban system can be studied as a sum of complex facts, in which the "parts" are defined as that geographical or natural unity "which has assumed a certain homogeneity or autonomy in the interaction of its elements in a long process." In this perspective, understanding the hierarchy between the parts represents an architectural fact. This parts and systems are the qualifying elements of urban space, and more specifically in the construction of public space, they are "complementary and not alternative concepts: they are based on different perspective, because they connect the same elements of the city in different ways. At the same time, they coincide with the reality of urban facts, with the complex bind between decision-making and constructive processes" (Ibid.). The neighbourhood itself, for example, is composed of subsystems of public spaces and recurring elements, physical and formal, directly linked to specific functions. This approach aimed to identify the value and the role of each isolate element of public space in order to better understand the whole spatial configuration. Tangible and intangible characteristics of public space can be also depicted starting from a contemporary definition of urban design and a broad concept of public domain (cf. Carmona). Considering the activities of every-day life—whether they are necessary, optional or social—it is also possible to define how it looks like a liveable and human-friendly space from socio-spatial perspective.

In order to provide a taxonomy of the characteristics and elements of public space, the research mention the works of: Jane Jacobs; Kevin Lynch; Allan Jacob and Donald Appleyard; Jan Gehl and Birgitte Svarre. Each author represents a way of thinking and a theoretical perspective from the 60s to the present day. The characteristics of the ideal public space are identified as follows: legibility, identity, property, attractiveness, accessibility, adaptivity, diversity, sustainability, health and safety. Each of them represents a determining condition for the quality of experience in urban space. Of course, the very same characteristics are the ones that are measured and evaluated within the above-mentioned methodologies *(Fig.1)*. Following the same logic, another focus can be made on the formal and typological elements that shapes public space and its configuration, as the non-human actors that participate in the dynamics of social reproduction. Within the research have been identified twenty-one recurring elements which play a mediating role between space and human bodies. Each element can be assigned to seven macro-categories in relation to the function they perform, whether they address a demand for mobility and public transportation or a social and recreational need *(Fig.2)*.
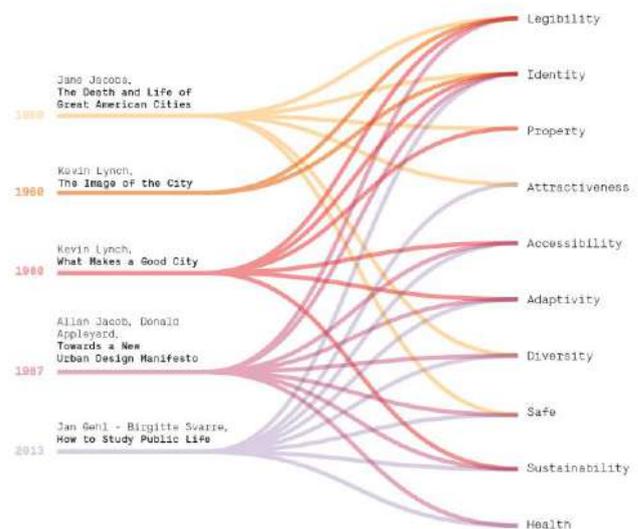

Fig. 1. Characteristics of the ideal public space.

The macro-categories are defined in margins, references, paths, nodes, urban furniture, landscaping and activities. Margins, references,

paths and nodes are considered the main elements that shapes the city, from which addition or subtraction arise public space. Within these categories are included buildings, advertisement signs and commercial activities, but also the mobility infrastructure, the main and secondary roads, the sidewalks, the pedestrian or cycling pathways and the public transportation. The nodes mark a scale shifting from a wider conception of the urban environment as a system to a more particular perspective, closely to the design dimension, identified by the furniture and the landscaping elements, also important in the whole configuration of space. Some of these elements alone could constitute an independent ecosystem of possible uses of public space. Indeed, the main possible activities in public space find place in the last category as proper (intangible) element.
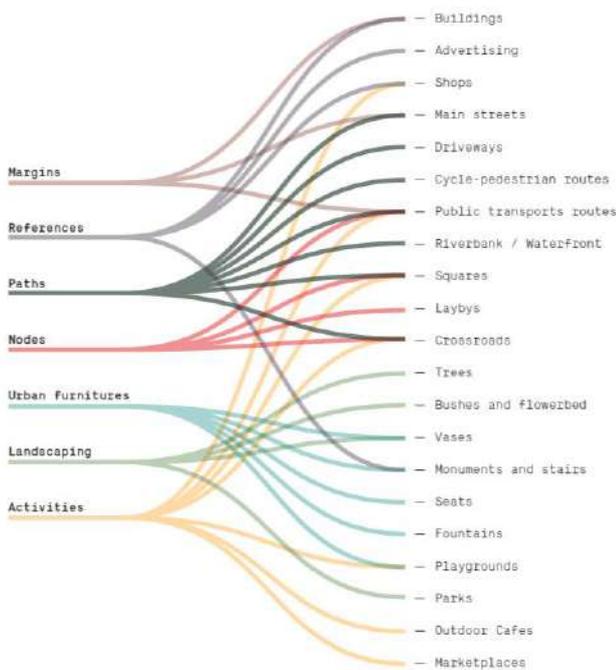

Fig. 2. Social and formal elements of the ideal public space.

This taxonomic effort is useful to understand which elements configure the space, whether designed or not, and through which combinations of element is possible to have a qualifying experience of space. That is, what kind of bond is produced between the individuals and the space, thanks to what specific configuration of elements. In this approach, however taxonomic, the physical and design elements that shape the public space are analyse from the point of view of social reproduction. In other words, the physical configuration of the space is considered as a

medium between individuals and the activities of everyday life. This means that the critical understanding of how the socio-spatial dynamics work can actually inform the urban design process and the regulation of public spaces.

Indeed, who is in charge for the regulation of city is most of the time hierarchically responsible for the design, the forms and the layout of the physical infrastructure of the city (Blomely, 2010). At the same time, the actual logic in charge of gain information to predict and control traffic flows or improve the urban performance controlling the space and reading the dynamics separating and standardizing objects and subjects. This kind of dehumanized approach lead unavoidably towards an anti-libertarian twist of the urban laws that may limit or constrain social inclusion and of course contribute to the erosion of public space (Ibid.).

6. According to which methodology?

Assuming that quality of urban space is the physical dimension of quality of urban life proves the importance to study public space at the same time from a social and a spatial point of view. This also highlights the need to identify the right tool of investigation and the actor able to use it.

In the debate for on the good or ideal public space, it is reasonable assumes that—despite the anti-libertarian concerns stressed out by Blomely—the local bodies are the ones responsible of the quality of urban space and therefore they should be the most interested in how public space is lived and used by the public, intended as the collectivity. The task of formulating criteria, objectives and strategies to enhance the social and spatial qualities of the built environment is a public responsibility. In this sense, the proposed interpretative tools needed to acquire data and knowledge at the scale of public space must be integrated into the planning processes to support the decision-making.

Some well-known cases show how this goal can be also reach through a process of public-private collaboration and progressive implementation of urban planning tools. The Copenhagen paradigm is one among the most famous practice led by Gehl Architects and the municipal administration of the Danish capital, that have worked together to study and transform the city thank to the Public Life / Public Space Studies and Strategies. PL/PS are based on the main assumption that Public Space is wherever place

in the city where public life takes place (Gehl, 1971). The method (mentioned and explained in the paragraph 2) was adopted for the pedestrianization of Time Square in New York City and for other urban renovations in the United States such as San Francisco, Denver, Pittsburgh and Lexington. For the Latin American and Caribbean islands, a guide has also been published to advise public administrations and mayors on how to encourage cycling and evaluate the process of transformation of the citizens habits. In this regard, the paper aims to focus only on the analytical approach of PL/PS Studies and Strategies rather the design outcomes.

As we have seen, the so-called Gehl method is based on the study of socio-spatial dynamics, from the knowledge of which it is possible to elaborate urban transformation strategies, quality objectives and public space projects. The success of the method, or at least the reasons for its global spreading, can be found in the flexibility of the approach to different urban contexts, from the metropolis to the informal city. Observing the habits of citizens in public space through a "look and learn" approach requires a systematic investigation and documentation of public life next to the condition of the built environment aimed to compose a clearer picture of the city and liveability. The interaction between public life and urban space assumes a feature of unpredictability and cannot be analysed through fixed and immutable categories. At the same time, Gehl and Svarre (2013) suggest that an empirical and direct, simple study based on observation, typological analysis and the interpretation of the uses of space can actually provide critical inputs and the necessary knowledge to support the general improvement of public space, whether it is a street, a square or a park (Ibid.).

Another interpretative method that this paper consider is provided by the Good Public Space Index by Vikas Mehta (2014) that study the socio-spatial dynamics evaluating and monitoring the public space. The index is based on five macro indicators—inclusion, meaningful activities, comfort, safety and pleasure—referred to the configuration of the space and related to the individuals, the society, the activities of the everyday life, the materials and the objects that takes part to its physical configuration. The quality of public space is evaluated according to the objective efficiency of the urban services and the citizens' satisfaction in respect of the built

environment and the satisfaction for the relational needs. The main assumption of the GPS Index is that it is possible measuring the quality of public spaces such as streets, squares and small urban parks, through empirical collection of data. The techniques used to gain information are the direct observation and the survey led by questionnaires and interviews. The objective of the GPS Index is to measure the performance of public space by assigning a score from 0 to 3 to the sub-indicators associated with each macro-indicator (for a total of 5 macro-indicators and about 45 sub-indicators) to verify how it is reactive, democratic and meaningful for the communities (Carr, 1992 in Mehta, 2014). Furthermore, the Index includes some of the Gehl's methodological categories, which are used to identify the qualities of public space and the necessary optional and social activities that take place in it.

The two methodologies above mentioned are the key-reference of the research for several common characteristics:

1. Flexibility and repeatability in different urban and social context;

2. The socio-spatial approach that also consider design, material and sensorial features, next to the activities of everyday life;

3. The evidence-based approach and the large use of qualitative and interpretative tools to collect data;

4. The ability to effectively improve the set of tools available to study urban issues, putting the individuals at the centre of the debate, in terms of scale, perception and overall experience;

5. The possibility to be integrated in other investigation approaches.

Despite the positive aspects just mentioned, PL/PS and GPS Index are not completely persuasive. Indeed, a recent debate put Gehl Architects' work under a critical examination, considering their intervention a "cosmetically address" to the many contemporary urban issue, also guilt to contribute to the speed up of the gentrification processes in older urban areas (cf. Zukin). With regards to the GPS Index, the information collected by the evaluation of each indicator are useful to deepen and superimpose social and spatial dynamics, objective and perceived weakness and potential of public space. At the same time, there is no transliteration from the reflections

to actions, in terms of urban strategies or experimental forms of design processes.

All things considered, the paper assumes that the two methods take into consideration can be effectively integrated and enhanced into a new one, that public bodies can use to have an independent source of information about socio-spatial dynamics of the city. Aside these two main references, the paper and the research refer to the works of Kevin Lynch and Stephen Carr and to the documentary studies of Whyte on public space—then converted into guidelines adopted by the Planning Department of the city of New York.

7. *The interpretative tool: a proposal*

The aim to study the social-spatial dynamics can be addressed using different techniques and methodologies that, as we have seen, can be direct, empirical and qualitative. In this paragraph will be described the interpretive tool proposed within the doctoral research.

The aim of the tool is to produce knowledge about the socio-spatial dynamics to

The criteria on which the tool is structured are:

o   The need to pay attention to the conditions of social justice in the use of space, in terms of social and physical accessibility;

o   The typological analysis of both material and formal features considered as the non-human actors of public space, according to their affordance;

o   The flexibility of the tool over time to be open to new quality goals and criteria;

o   The use of qualitative and quali-quantitative evaluation and self-evaluation surveys;

o   The educational role of the expected outcome to support public debates on urban issues and experimental forms of design, management and planning of public space.

The tool is articulated in 4 parts of analysis and one of synthesis, with the aim of gain different layers of knowledge about public space.

As will be better explained in the next paragraphs, the key-phases of the tool are observation, evaluation and benchmarking plus an interpretative and critical synthesis of the

considerations arise from the study. The aim of each phase can be summarized as follow:

1. *Observation*: aims to provide evidence about the physical, social and cultural configuration of the public space in the past—also with historical references—and in the present—collecting empirical data within different period of time and weather conditions.

2. *Evaluation*: aims to provide. Information about how public space is perceived by locals and where to find weaknesses to address.

3. *Benchmark*: aims to provide case study, references and worldwide experience to support the elaboration of strategies, quality goals, priorities and intervention proposals.

The outcomes of the tool can be presented in the form of a final report that could provide a knowledge-based support to better improve strategies, involving the community in the public debate or to make a point on the conditions of public space.

The main interest of the tool is focused on the everyday life activities, considered as the practices of use and the form of territorializing (cf. Madanipour, 2003) of space related to the public sphere in different social, cultural and economic contexts. The physical and spatial quality of an urban area are evaluated in relation to the formal and typological elements of public spaces and their affordance. Human and non-human actors and their interaction in the uses of the space are noted in behavioural maps, to identify possible trajectories, flows or patterns of actions. Such "spatialized data" produce "topographies and countertopographies" (Katz, 2001) that are useful to identify "particular processes" of economic, social or political transformation of space in the "effect of their encounters with sedimented social relations of production and reproduction" (Ibid.). In this way, the abstraction forms of globalization and its effect on the city are revealed, can be understood, explained and properly communicated, as a "ground for developing a critique" (Ibid.).

On that theoretical basis, the key-phases of the tool—observation, evaluation and benchmarking—will be explained one by one in the following paragraphs. Each phase involves forms of qualitative investigation and subjective surveys, next to more

objective and technical analysis. The tool has been elaborated also thank to the methodological indications provided by Robert Marans' work *Investigating Quality of Urban Life* (2011) especially to formulate the model of evaluation of the attributes of the space combining, on a quali-quantitative level, objective and subjective data and assessment.

7.1 *Observation*

The observation phase aim is to understand the tangible and intangible features that shape the spaces of the city under examination through different approaches. Within the observation, attention is paid to the objective conditions of space, in terms of history, vocation, mobility, forms and typologies of public space, but also to those behavioural and socio-spatial conditions that cannot be categorized into predetermined analytical categories.

The first phase is structured as follows:

1. *General framework:* a critical observation and description of the urban context and the near surroundings of the space under examination, historical, socio-economics and socio-cultural information to determine its role for the community, also identifying particular events in the space.

2. *Proximity*: the aim of this analysis is to understand which space-time relationships exist between the different functions and activities along the public space infrastructure. First, the typologies of public spaces are classified in respect to their function, usefulness and vocation: market squares or pedestrian areas, spaces connected to places of worship or transport hubs, parks or gardens. Proximity is then studied in respect of the distance between them, considering the time of walking and the main public transportation routes. Such information can be collected according to the datasets provided by public transport companies or traffic in general. In the absence of such information, it would be desirable to collect the data empirically, noting any contraction, obstacles or interruptions in the route.

3. *Diary*: the observations are codified in the form of diary and notes in which to comment and map the uses of public space. The aim of the diary of the observations is to understand empirically which kind of users populate the space and what kind of physical attribute they use mostly, through the systematic observation and annotation of the socio-spatial dynamics at different times of the day and week and according to the seasons. The behavioural attributes of the users are noted according to the elements of public space identified within elementary categories. It is helpful indicate: the limits of the area, if they are tangible and constitute a clear boundary or not; fixed routes in the transit within the space; green areas as grass, trees or topography of the ground; paved surfaces, marking the transitions between materials; the presence of activities in or around the space, such as playgrounds, sports equipment, cafes and bars; and eventually, all the consisting elements of the space such as urban furniture, statues, trees, stairways or small buildings. The behaviours are noted in the map by specific symbols— differentiated by adults and children—that represent specific actions: standing, standing + speaking, sitting, sitting + speaking, walking, playing. What has been identified in this phase can be suitably extended to all the activities or elements not included in the classification here proposed.

7.2 *Evaluation*

Public space and the socio-spatial dynamics are evaluated according to five indicators, which have been defined from the main qualities that the ideal public space should have: inclusion, relevance, appeal, comfort, safety. The main methodological reference for this phase is the Good Public Space Index by Vikas Mehta, which has been described in the previous paragraphs. The research uses the structure of the GPS Index for most of the sub-indicators, in their definition and in the attribution of weights and scores. Some changes have been made according to the needs of the research. The GPS Index collects the data necessary for evaluation through observation and questionnaires but the different meaning of the data is not clear in the final scores. On the contrary, the research aimed to clearly distinguish between objective and subjective data.

To satisfy that need, the evaluation is based on two steps: an objective assessment based on the observation and a subjective self-evaluation based

on a survey. Both are structured according to 5 indicators, with a total weight of 10 and a maximum score of 30. The 45 sub-indicators are scored from 0 to 3: in the objective assessment the points are determined on the basis of the observation of public space; in the survey, the sub-indicators are turned into statements to which the respondent should give a score based on their satisfaction.

The direct correspondence between the sub-indicators and the statements is also guaranteed in the weights and in the scores. The choice to separate the objective and the subjective scores of the evaluation is determined by the need to verify how much the physical and tangible conditions of the space, in terms of design, management or activities, correspond to the needs of the individual. The two scores can be easily overlap, also allowing to verify any correlation or discrepancies between the objective and the perceptual data. On the other hand, it will be possible to highlight potentialities and weaknesses to determine where and how to intervene to improve or strengthen the quality of the space.

Following, an in-depth explanation of the five macro indicators.

o Inclusion is assessed within 12 sub-indicators/statements aimed to score the objective and the perceived social and physical accessibility, evaluating the presence of different social group, in terms of gender, age, ethnicity and inabilities; the presence of rules and norms able to limiting or controlling accessibility; the possibilities to carry out several activities within the space, or events that take place in there.

o Relevance is evaluated in respect of the importance of the space (or the area) in the activities of everyday-life. The sub indicators and the statements aim to reveal the range of activities provided by the design and the formal and social configuration of the space; the presence of third spaces, where people are engaged in activities of social reproduction; the provision of food and water in the space or nearby; the presence of retail shop.

o Comfort is a quality that relates on different variables as: the presence of sitting spaces by design or provided by bars and cafés; the

general the quality of the furniture; the fluidity to walk through the space without any physical obstacle; the quality of the maintenance; the perception of traffic noise.

o Safety is considered both in social and physical terms. The sub-indicators and the statements aim to collect information on the presence of any element that may cause, or might give the perception of social disturb as: strangers, minorities, homeless, beggars or indigent people; the presence of visual obstacle or the quality of the lighting; the maintenance of the space.

o Appeal is differentiated between streets, independent squares or parks, and squares or parks contiguous to a street. This separation is necessary in order to better calibrate the sub-indicators and the statements according to the different spatial, formal and typological configuration of the space. The issues considered are: the variety and the density of elements that provides sensory complexity; the articulation of the sub-spaces, their connection and ability to create a sense of enclosure; the variety and the articulation of the facades; the presence of memorable landscape, architecture, monuments or relevant focal points.

7.3 Benchmarking

The results of the evaluation are in this phase critically described and analysed within categories that relates the previous indicators—inclusion, relevance, comfort, safety, appeal—with the main actions that can be adopted to address specific issues.

For this purpose, the research suggests the progressive construction of a database of good practices, references and design projects of public space, that can be used as a support the decision making also through external evidence. These actions are categorized by technical execution, management and activity program. Indeed, is in this fields that many authors identify the main reasons for the decline of public space and the escalation of unsafeness, neglect and consequent disaffection by the citizens. The careful choice of technological solutions in the design of public space is an element often underestimated, although it plays a crucial role as in the maintenance, comfort and consequently on

the use of public space. The management of the space is also a crucial issue in the publicness of the space, in the involvement of the community or in the presence of public and/or private bodies. Eventually, the activities in public space cannot be intended only as a matter of design: to encourage the use of space can be planned many temporary outdoor activities like festival, fairs, outdoor sports or cultural events that can be schedule over time.

8. *Expected results of the tool*

The interpretative tool is based on a rigorous but flexible methodology, that respond to the main objective of the research to provide knowledge on how public space is lived, used and perceived by its users. Through the empirical gathering and development of the data and the benchmark of the outcomes with the national and international framework, the results can be translated into urban quality goals, criteria and strategies, also identifying the right combination of action and actor to mobilise.

In fact, the main and final outcome of the research is the tool in itself, as a mean of permanent consultancy for local administrations or urban centres. An additional element can be also represented by the will to summarize the data and the results into a final report with graphics, maps and tables that can explain the critical conclusions, prepare the discussion for supplementary suggestions and be used as a support to inform the community on the quality of their built environment.

This perspective opens up to different scenario in the use of the tool and of its outcomes. In the first place, it is essential for the local bodies to clearly identify who is the actor able to carry out the activities required by the interpretative tool, both in terms of intellectual and financial resources and skills. Secondly, is to be defined the target to which this information is addressed, to facilitate the understanding of the contents. The Final Report, in fact, can be conceived and elaborated as a set of guidelines for the design and the management of public space; as a support to identify and experimentation forms of co-design; as an administrative to support the elaboration of strategic and programmatic objectives, quality goals, or the requisites for design competitions on public space or concession of public land.

The tool is also conceived as a research model and requires qualified professionals in the field of architecture and social innovation. Hopefully, these experts can be found within the competencies of the local bodies, which are the main interested to monitoring the physical and social health of the built environment and the quality of urban life. Urban Centres are indeed the ideal place to carry out the activities within the interpretative tool, mainly because of their intermediary role between local administrations and community in the construction of urban policies and in the dissemination of knowledge on urban transformation and quality of urban life.

9. *Conclusion*

The many and complex issues of the contemporary city invite us to consider the limits of the long-term projections of the traditional urban planning. Indeed, planners and architects too, have to deal with the need for 'here-and-now' approaches to provide precise, effective and also flexible strategies to transform the city environment without jeopardize the chance for a good urban experience. In terms of design, this means that the process of urban transformation cannot longer disregard the complexity of the socio-spatial dynamics. On the contrary, planners and architects can find many clues in the reality of everyday-life, just making the effort to observe what happen in public space before abstractly design it on a sheet paper. How people live public space can in fact inspire urban designers to better approach to social, economic and environment urban sustainability. Looking at the Italian framework, rarely public administrations had put effort in this direction, a reality that considers the many obstacles arising from the lack of economic resources. Except for the major metropolitan areas, the medium-small sized Italian cities are, in this sense, the most disadvantaged. From this starting point, the need to identify a new model of socio-spatial analysis meant to be used by the public bodies responsible for the urban transformation.

The research proposes a tool able to interpret the instances of urban living and public life through a direct, empirical and qualitative approach, allowing to formulate a picture of the actions and actors whose combinations produce meaning for the public space. Although from an optimistic point of view, the effectiveness of the proposed tool necessarily clashes with the administrative and managerial intentions to adopt the tool in itself and the philosophy behind it; secondly, there is a need to

train qualified operators in urban centres or technical offices. Finally, it should be stressed that the tool presented here needs further experimentation in order to be properly finalised and then used. On the other hand, these same limits leave open problems within which the future perspective of research can be found: first, the flexible structure of the tool allows its opening to other fields and topic of study, for example, to investigate the specific needs of vulnerable groups of the population, women, the elderly and children, as well as other spaces, such as collective spaces of residential relevance, playgrounds, waterfronts; at the occupational level, the need to train qualified operators could be beneficial to promote the role of the architectural professionals in public administration. Last but not least, local authorities may be interested in acquiring the interpretative tool—or of its outcomes—to validate the quality and the usefulness of certain public works as required by the new Code of Public Contracts within the Exigency Framework.

This paper does not want to provide any answers to the great issues and contradiction of the contemporary city, but rather focuses on how to interpret the places and its actors, how to learn from the socio-spatial dynamics and produce the necessary knowledge to improve the quality of urban design and as a result, the quality of urban life.

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Natural lighting of the urban visual scene. Static and dynamic analysis in Barcelona

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Abstract

This study stems from the collaboration with the *Escola Tècnica Superior d'Arquitectura de Barcelona* and concerns the evaluation of daylight in a series of public squares in the Catalan city. The work presented itself as a concrete opportunity to test and develop a new software, which allows to obtain data on luminance, spatial contrast and RGB values of the visual scene: these outputs are extrapolated from photographic images taken with different levels of exposure, thus resorting to HDR processing. Through this type of analysis it was possible to verify the relationship between the spatial and material composition of the public space, the environment lighting and the visual perception of the user.

The public spaces have been examined in two different ways: one static and the other dynamic. Firstly, an analysis of the facades surrounding the squares is dealt with; after taking pictures on site at three different times of the day, every visual scene is divided into three different areas (pavement, facade, sky), obtaining with the software the corresponding luminance values and comparing them with the compositional data of the space: in this way it is possible to reflect on the design choices made in terms of composition, finishes and orientation of the elevations. The second analysis, instead, aims to assess the impact of natural lighting in the case of movement towards an urban spatial envelope. The study was carried out by comparing four progressive visual scenes placed at a distance of five meters; the software processes a grayscale image for every photo where each tonality corresponds to a precise preset luminance range: this makes it possible to evaluate the linearity of light transition between the access and the open space, and therefore the conditions of visual adaptation.

Keywords

Urban scene, Visual perception, Daylighting, Barcelona squares

1. Introduction

"The typical activities in most outdoor spaces – circulation, congregation, etc. – have lighting needs which are primarily biological in nature; appropriate lighting for such spaces must therefore reveal and emphasize that environmental information which satisfies the biological needs for safe movement, orientation, security, pleasure, relaxation, stimulation, etc. (Lam, 1992).

The ways in which the squares are illuminated during daylight hours affects the visual perception of these urban environments. In this sense, the architectural-compositional choices should be based on the effect that the solar impact generates on the vertical and horizontal surfaces, the way in which they relate to the context and what are the impacts on users in terms of visual comfort. The work presented in this article is part of a wider research path focused on the natural lighting of public spaces, which aims to find the best design solutions

in terms of psychophysical well-being and of perception of the architectural environment, thanks to a technical analysis. The present essay, in particular, is focused on the *daylighting* evaluation of squares in the Catalan city of Barcelona. This argument is not very present in literature, where the concept of natural lighting is essentially linked to the study of an interior; also, when we talk about lighting design in the external environment, we are used to refer to artificial solutions, certainly more manageable. For this reason, this study comes forward as a new analysis proposal, and was addressed with the collaboration of two professors from the *Escola Tècnica Superior d'Arquitectura de Barcelona* (ETSAB), Judit Lopez-Besora and Antonio Isalgue, who have already worked in 2015 on the evaluation of natural light in transitional spaces. Through this cooperation it has been possible to use an experimental software developed by these researchers, with the proposal to implement its functionalities and outputs according to the goals of the lighting analysis. Thanks to the opportunities

offered by this program, which allows to obtain output data on luminance, spatial contrast and the RGB values of the photographed urban scene, it was decided to focus the study on that category of that public spaces which better represents the formal and social conditions of the city, the squares[1] (the software resorts the HDR image processing to find the results, like the programs *Anyhere*, *Photosphere* or *WebHDR*). This has been done with the aim of finding correspondences between the spatial composition of the squares and their natural illumination measured with real data; in this way, the parallelism between the different cases could suggest some reflections about the visual perception of the spaces and the luminous comfort in the open public environment.

1.1 The geometric classification of squares

"Their dimensions and proportions, their multiple and contradictory uses, the design of their facades and the way they mesh with the urban fabric are the keys to understanding their essential reasons for being" (Rubert de Ventós, 2007).

The choice of the urban spatial envelope and subsequent visual scenes (analysed from a lighting point of view) was preceded by a selection and a geometric classification of different squares of Barcelona. The first typological features of these open spaces is linked to their planar form[2], which

gives us valuable informations on the way in which it is grafted into the urban fabric, its role towards the city and the underlying compositional principles of its design as a spatial *unicum* inside the urban *continuum* (Roseti, 1985). That said, it was preferred to select a series of squares that had the most classic of shapes, the rectangular one[3], regardless of its origin in the urban fabric (orthogonal or organic). This choice was justified by the desire to analyse those surfaces whose limits were easily identifiable and orthogonal to the observation axis; this statement is due to the fact that the software allows the measurement of the mean luminance in a large area of the visual scene, and if it is distributed on a plane in a way that is possible to minimize the influence of "surface slant" (Michel, 1996), so that the spatial limits (floor and facades) are easily readable. When analysing the urban fabric of Barcelona, a series of rectangular open spaces were identified and their dimensions were compared to create parallels from a planimetric point of view (Figure 1). This single categorization does not allow to understand the real dimensions of the environment in the urban context, or how it is perceived by the observer. Precisely for this reason was followed the statement of Sitte (1980), which suggested that the size of the squares are not the real ones, but those perceived by the user; this condition can only be assessed by calculating the ratio between the depth of the square and the height of its perimeter buildings[4].

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[1] The squares of a city represent the mirror of the dynamics of contemporary living that are progressively changing the way to conceive the urban fabric. Stefania Tuzi (1990) underlined how the square is a "cause and effect" of the transformations of human life in the city and how it has lost that social connotation simply becoming a pause in the urban plot. Historically, in fact, the compositional principles of the squares affected the entire inhabited center, while the modern squares seem to have been born only to let the city breathe, creating more illuminated and ventilated places (Sitte, 1980).

[2] The basic geometric classification of open spaces certainly starts with the planimetric analysis. Camillo sitte (1980), for example, previously divided the squares according to their origin in the urban system: orthogonal, radial or triangular; the other variants were considered as mixtures of the previous ones. Roseti (1985) conceived a more articulated classification: regular, irregular, symmetrical, asymmetrical, open, closed, empty or enriched with various elements.

From the planar point of view, the work of this essay is limited to consider only the type of geometric shape and the formal aspect of opening or closing in relation to the urban plot; subsequently, the relationship with the heights of the perimeter buildings will be considered to find the perceived spatial dimension by the user.

[3] The rectangular shape of the square was born in the Hellenic era and formed the open space of the Greek Agora, the most representative environment of the city. In Roman times it became the geometric form of reference for the creation of the *forum*, which followed precise rules of composition. During the Middle Ages it often represented a rupture in the organic urban fabric, which however showed precise relationships between height and depth. In the Renaissance, the studies on this urban organism were consolidated using the principle of perspective (Roseti, 1985). The rectangular geometry gives an excellent spatial control, an adequate sense of depth and the possibility to orient the buildings according to precise solar exposures.

[4] Since the Renaissance many masters of architecture and urban planning have expressed their opinion on which could be the ideal size of a rectangular square, considering the relationship between height and depth: Leon Battista Alberti thought that the height of the building dominating the square should be between 1/3 and 1/6 of the depth; in the nineteenth century Otto Wagner expanded the area of the open space up to 12 hectares, an enormity far from the concept of *urbs-homo*; on the contrary, Camillo Sitte preferred a more compact space, where the width of the square had to be equal or double to the height of the main
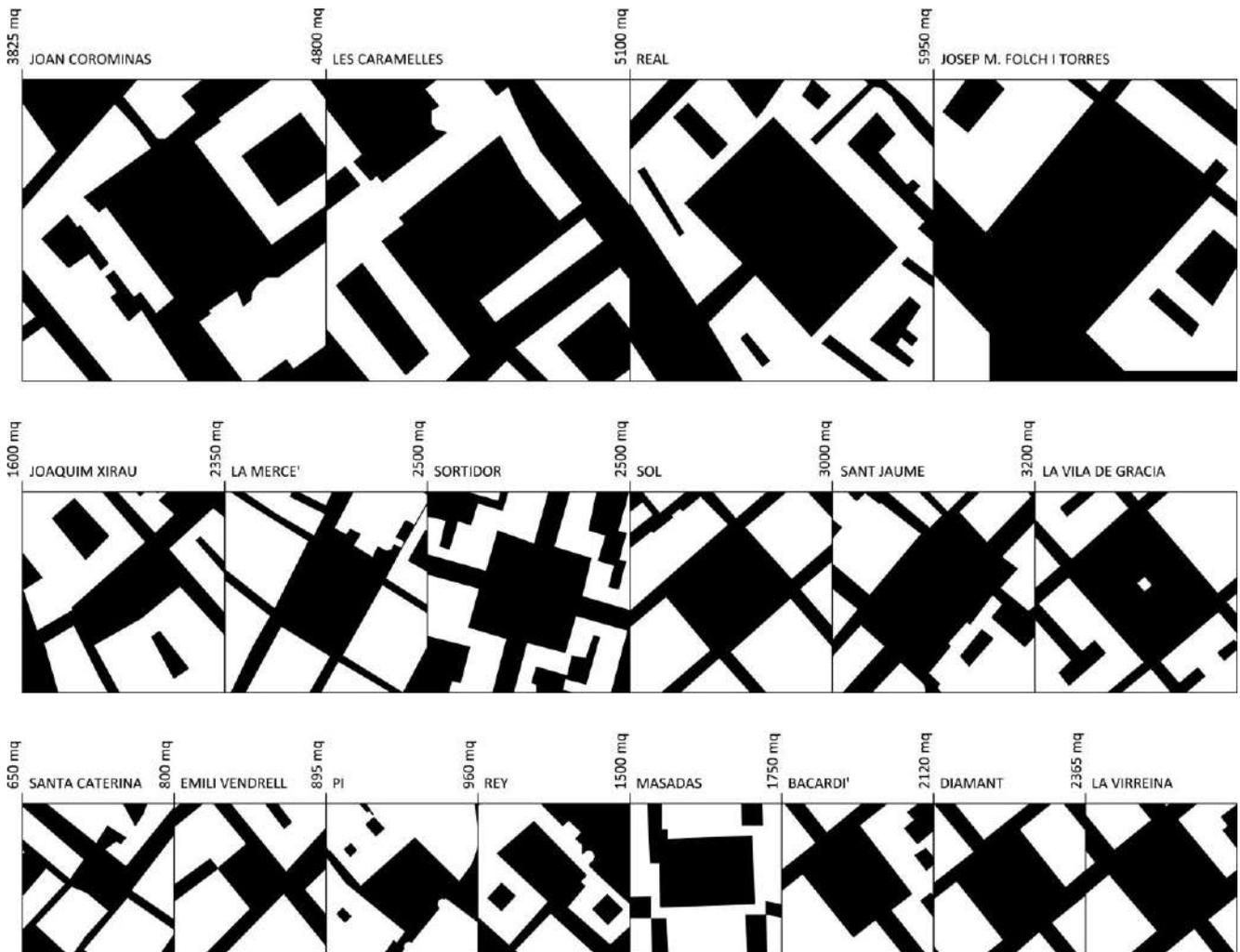
Fig. 1: Rectangular squares in Barcelona at the same scale and orientation (name and dimension).
Graphic elaboration by the author

The author proposes here a simple geometric classification that takes into account the planimetric and altimetric dimensions of the spatial envelope. Positioning an observer of 1,75 m at a distance of one meter from the perimeter of the square and taking as vertex his visual organ, consider the angle θ between the two semirettes a and b (Figure 2): the first line reaches the height of the opposite higher building; the second one is horizontal and parallel to the ground. Once this has been done for each section of the rectangle, the two larger angles θ₁ and θ₂ of the smaller and larger side of the square must be considered. These angles are the categorizing elements of the squares, which are subdivided into three typological classes based on
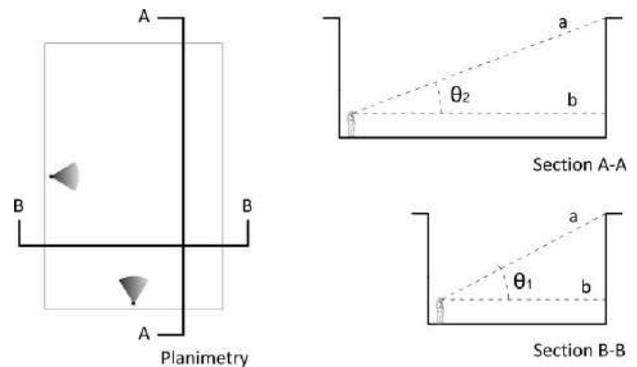

Fig. 2: Geometric rule to categorize the squares

the angular values given in Table 1. This classification will be used for the choice of cases for lighting analysis.

Tab. 1: Typolocial classes of Barcelona squares

building; finally Hermann Maertens marries the height/depth ratio equal to 1/2 or 1/3 (Roseti, 1985).

Classes	Angle θ_1	Angle θ_2
1	$\theta_1 \leq 20°$	$\theta_2 \leq 15°$
2	$20° < \theta_1 < 40°$	$15° < \theta_2 < 25°$
3	$\theta_1 \geq 40°$	$\theta_2 \geq 25°$

1.2 The urban scene: visual field and urban space

"U*rban spatial envelopes are formed by the facades of buildings and pavements describing the outer limits of the void between them. Sometimes urban space is clear and organized, sometimes is not, but for spatial definition it is only necessary to locate those facades or other major surfaces that are prominent enough to be considered dominant boundaries*" (Michel, 1996).

The term "urban scene" indicates a precise view of the city space as it is framed by the observer; for each scene can be evaluated the lighting characteristics for a single image in a static way or for multiple pictures in a progressive mode. In order to understand which are the features of the space composition of the urban scene should be considered the user's visual field and the type of urban space (López-Besora, 2016). As regards the visual field, we consider its distribution on the vertical plane, excluding the horizontal one, whose limits are difficult to define in the urban environment. Summarily, from the studies of J. Panero and M. Zelnik (1979) can be distinguished on the vertical plane three areas with different visual sensitivity (Figure 3): a central one, comprised between the limits of chromatic distinction of the look (30° above and 40° below); two peripherals, positioned between the upper (50°) and lower (70°) visual field limits and those of the central zone. For the purposes of the analysis presented in this paper, the upper and lower limits of the urban scene are those of the central area. In any case it seems necessary to make a clarification: to simulate the visual scene as perceived by the observer were used pictures taken with a plausible height from the ground (1,65 m) and with the horizontal axis parallel to the floor; nevertheless it is clear that there are little differences in the distribution of the limits of the urban space between the real view and the simulated one through the camera (Figure 4).

The other important factor to define the urban scene is the type of urban space[5] and how it can be

perceived. That said, following the example of J. López-Besora (2015), the scene has been divided into three horizontal bands: starting from the
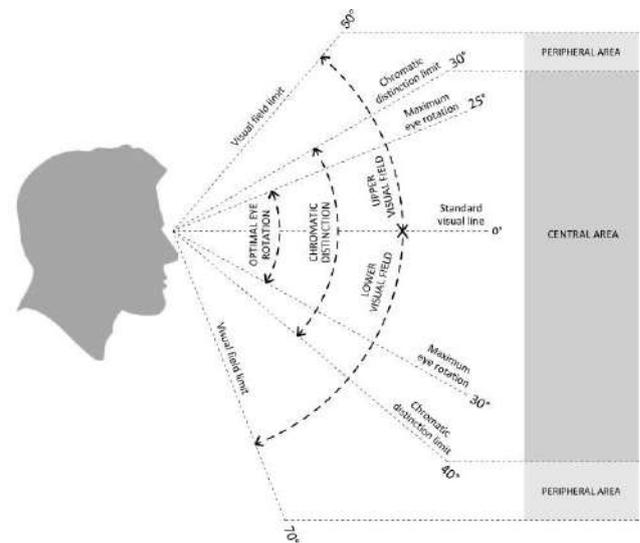

**Fig. 3:** Visual field in the vertical plane. Redesign by the author
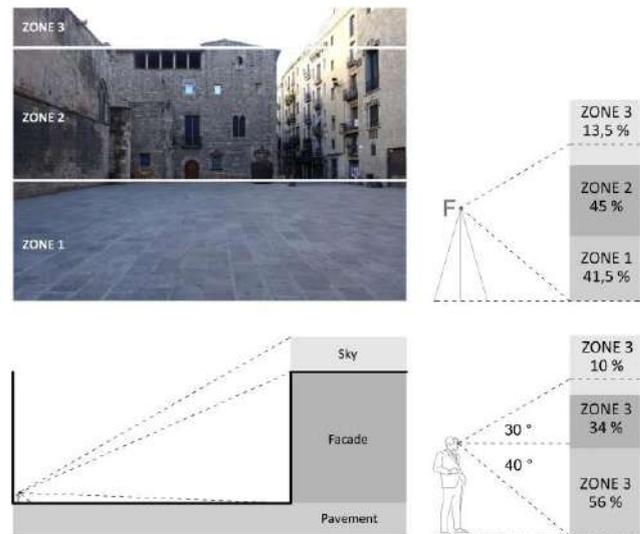
Fig. 4: South-east facade of Barcelona's *Plaza del Rey*. Example of subdivision in zones of the urban scene with the percentages of distribution of the bands in the visual field.

bottom we have the zone 1, the pavement, characterized by a certain compositional homogeneity and where the least dispersions of lighting values are recorded (except when there is a large area of cast shadow); the zone 2, which corresponds to the surface occupied by the facades,

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[5] It should be emphasized that the study is designed for similar climate environments; the assessments concern in

particular those centers influenced by the Mediterranean climate, characterized by great seasonal variability and high levels of lighting throughout the year; it is therefore clear that the observations made in this essay will be justified only for environments located at those latitudes.

which shows the greatest compositional variability and the greatest dispersion of values; the zone 3, which corresponds to the band occupied by the sky, which can show a high variability of measurements based on the position of the sun.

Figure 4 gives an example of the urban scene subdivision in the three areas considered. The image shows the south-east facade of Barcelona's *Plaza del Rey* and, in particular, the distribution of the zones as they are perceived in the visual field of the camera and the observer.

The longitudinal subdivision makes it easy to read many urban environments, even with very different characteristics from those of the rectangular squares. The capacity to recognize the limits of the urban scene inside the urban fabric is very concrete, unlike the position of vertical limits that is particularly complex to identify[6].

1.3 Input and output data of the software

"*If visual characteristics of daylight, such as contrast and spatial compositions, can be objectively measured, we can contribute to a more holistic analysis of daylight architecture with metrics that complement existing illumination and comfort-based performance criteria*" (Rockcastle & Andersen, 2014).

In order to understand the methodology used for the lighting analysis, the following sub-paragraph aims to describe the various stages of the process, from data collection to the type of outputs provided by the experimental program used.

The first operation was to take photographs on the spot, following specific guidelines and setting certain parameters:

o   In the selected urban scenes, the three above-mentioned zones must be easily recognisable.
o   The pictures should be taken at a height similar to that of a real observer with the machine body perpendicular to the ground.
o   In order to take advantage of the HDR processing performed by the program,

photographs should be taken with 3 different degrees of exposure (-2; 0; 2)[7].
o   Another setting of the camera that needs to be evaluated is the selection of the conditions of the sky (clear or overcast).

In the second step of the process it was necessary to prepare a data folder for each urban scene photographed, inside which the three images with different exposure have been allocated into bitmap format, together with the program's startup icon and the input data file. The main data which have to be included in the input file are listed below:

1. The number of luminance ranges in which you want to subdivide the image.
2. The limits measured in pixels of the zone 1 and the zone 2 in the photographed urban scene.
3. The technical data of the image: ISO sensitivity, focal ratio F-stop and exposure time.
4. The maximum luminance value you want to record.

If all data has been entered correctly, the final stage can be reached with the results processing of the programme. The software will find many numerical outputs that can be distributed in two categories:

o   For the whole image and for every zone in which the urban scene has been divided, the program calculate the luminance, the standard deviation, the spatial contrast, the RGB values and the minimum and maximum luminance[8].
o   The program processes an image in grayscale in which every luminance range is indicated by a specific tonality; in addition, the software provides the percentage value of each interval in the urban scene[9].

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[6] The only coherent subdivision of the urban scene into horizontal and vertical bands could be the one which allows to identify the limits of a central zone corresponding to the facade of a building dominating the space, as in the case of a church. In this case, the contrast between this central area and the rest of the visual field could be assessed.

[7] In order to shoot exactly the same urban scene for each pictures with different exposure, it was necessary to use a professional tripod that had an extension from the ground equal to the one desired (1,65 m).

[8] These outputs has been used for the static analysis of three squares, in order to find relationships between the architectural composition of the scene and the lighting data.

[9] These informations were used for the second analysis proposed in this paper, that is the dynamic one: observing the distribution of the luminance values in four progressive urban scenes, it was possible to verify the linearity of the light transition and evaluate the magnitude of the "brightness contrast" (Michel, 1996) phenomena.

2. The static analysis

The study of the relationship between the architectural composition of the urban scene and its illumination during the daily hours is addressed in this paragraph through the presentation of a static analysis; the term "static" is used to indicate a particular type of perceptual evaluation of space by the observer, characterized by the absence of movement and taking into account specific visual shots of the urban environment.

When we talk about the analysis of natural lighting in the architectural space, we must considerer the strong variability of the solar gain on the surfaces, based on the position of the sun in the sky and the atmospheric conditions; for these reasons, the static analysis proposed in this paper is characterized by a certain dynamism of evaluation. The lighting characteristics of the same urban scene were analysed at three different times of the day: in this way it was possible to observe the net change of data caused by the relationship between the orientation of the facades and the time of exposure. In order to carry out this type of study, three pictures were taken for every scene considered, one for each of the following time intervals:

1. 8:30 - 11:30 (morning);
2. 11:30 - 14:30 (midday);
3. 14:30 - 17:30 (afternoon).

So, four different urban scenes were selected, one for each facade of the rectangular square. The pictures were taken one metre away from the wall and along the midline of each side of the square, so it was possible to work with frontal perspective views.

The squares of Barcelona that have been chosen for the static analysis are as follows:

1. *Plaza de Masadas*;
2. *Plaza de les Caramelles*;
3. *Plaza de Joseph M. Folch i Torres*.

The common factor that unites these squares is the similar relationship between the depth of the open space and the height of the perimeter buildings; according to the previously classification (Figure 2), these spaces can be counted between classes 1 and

2[10]. The results of the analysis are presented in the following sub-paragraphs. The output data are all collected in the graphic elaborations shown in Figures 5,6 and 7: in these images are reported the evaluated urban scenes, three for each of the four facades, for a total of twelve scenes per figure. The analysis of every picture shows the following data:

o The subdivision of the image into the three zones, with the time and day on which the picture was taken.
o The luminance of the entire scene is marked by a dashed vertical line.
o The average and maximum luminance of each zone: these data are inserted in a graph showing the value in candles per square meter. By analysing the relationship between the luminances of the areas, it is possible to evaluate the possible presence of "glare"[11].
o Two graphs showing the trend of the spatial contrast and the ratio between the standard deviation and the mean luminance, expressed in unit values[12].

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[10] The rectangular squares belonging to these categories are characterized by a percentage distribution of the zones (in which the urban scene is divided) which almost always rewards the pavement area, alternately followed by the facades and the sky. The pavement plays a decisive role for the visual grip of the square as an open space towards the sky. It connects the structures to the ground and has the capacity to drastically change the reading of space (Portoghesi, 1990). The design of the floor is a fundamental component for the visual perception of the square, because it has the power to impose a clear expressive-compositive language and to highlight paths, axiality and specific spatial readings (Roseti, 1985).

[11] "The effects of light are not always comfortable for human vision. An excessive amount of light cannot be tolerated by the human eye. If an extreme amount reflects off a smooth surface and is angled directly toward the eye, the abusive quality of *glare* is produced" (Michel, 1996). The presence of glare in an outdoor urban scene are less frequent than those we can find in the case of a transition between the interior and the exterior of an architecture (Araji, Boubekri & Chalfoun, 2007). However, it should be noted that, based on compositional choices and elevations orientation, it is possible to detect in certain cases the presence of sporadic glare phenomena that slow down the visual adaptation of the retina and the perception of the architectural space.

[12] The definition of spatial contrast used in this paper refers to that given by S. Rockcastle M. Andersen (2014). It represents a percentage value that takes into account the luminance contrast of each pixel compared to the neighbouring ones: the stronger the contrast, the greater the percentage. The standard deviation (σ) indicates the dispersion of the mean luminance measured in each scene: it reaches a high level when the numerical value approaches or exceeds that of the mean luminance.

2.1 Plaza de Masadas

Inside the urban fabric of Barcelona you can visit a unique square for its architectural features, the *Plaza de Masadas*, a small urban space of 1500 square meters inside the Segrera neighborhood. The orientation of the square's facades is unique: this is in fact one of the very rare cases in which the elevations are perfectly orthogonal to the cardinal directions, making the open space of the square a sort of large sundial.
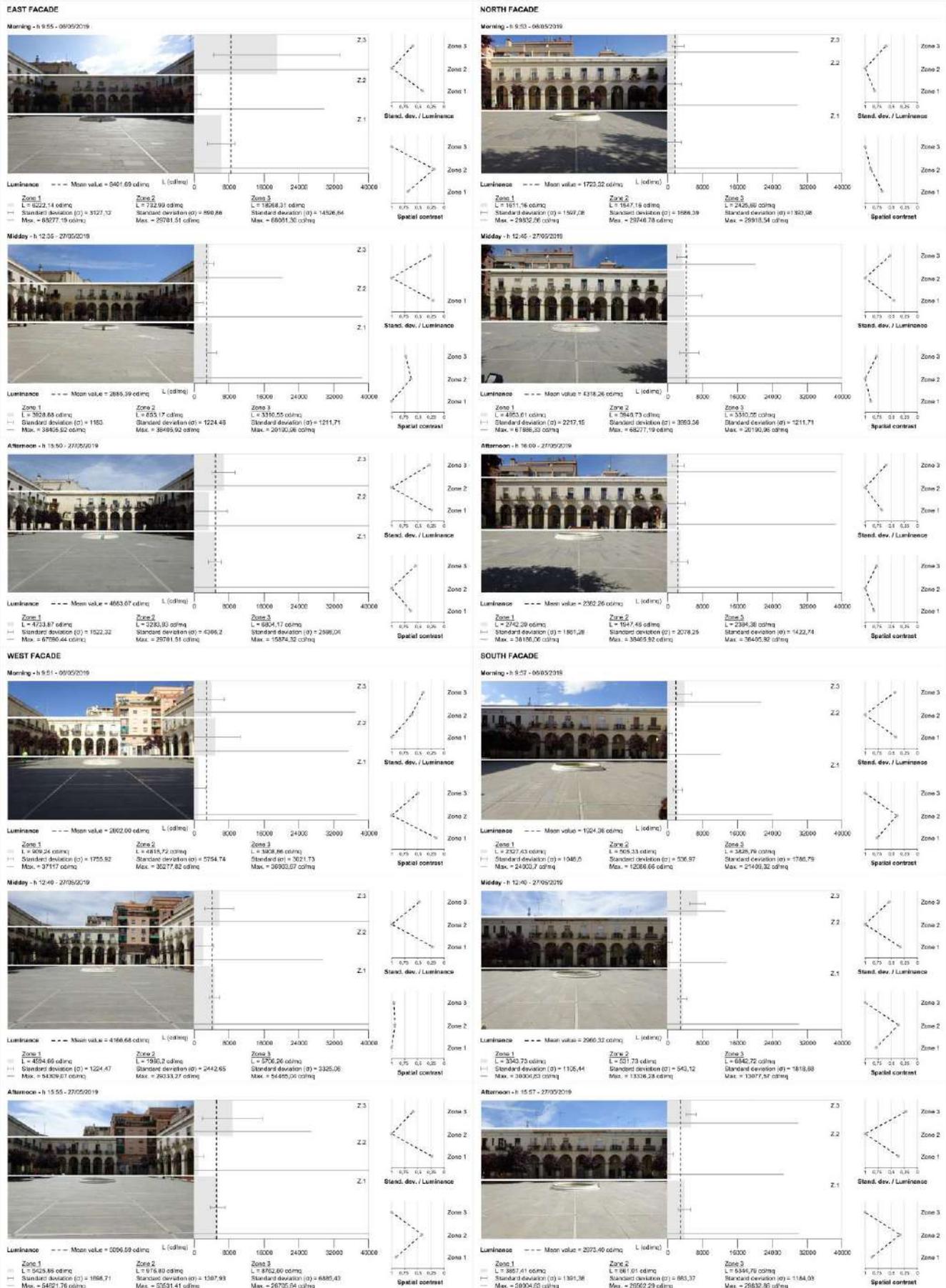
Fig. 5: The static analysis of natural lighting of the *Plaza de Masadas*. Graphic elaborations by the author

The *Plaza de Masadas* is one of the few examples of squares with arcades that you can find in Barcelona. According to historian Joan Pallarès-Personat, its construction dates back to the late 19th century: it was characterized by a total spatial closing caused by the perimeter buildings in neoclassical style, which were all of the same height. In the sixties the north-west corner of the square was demolished, transforming part of the portico into a residential building of different colour, changing slightly the perceptual characteristics of the space in that direction (Nerín, 2016). Today this space shows a clear architectural composition regulated by symmetry; the benches and the trees are allocated along the perimeter, leaving free the central space of the square where is placed a small fountain of circular shape. The ground is paved with light grey stone slabs and decorated with a rectangular grid pattern marked in white. This kind of closed and intimate space seems to fully recall the characteristics of "picturesque space" (Sitte, 1980) and "urban interior" (Roseti, 1985).

As mentioned above, the *Plaza De Masadas* represents a unique case among those selected, because of its rigid orientation within the city; the lighting analysis of the facades (Figure 5) has given rise to several food for thought:

o   To the east, considering the exposure of the open space and the low height of the perimeter buildings (12 meters), during the morning it is possible to find in the visual field the presence of the sun that affects the perception of the environment. Thanks to the analysis it was possible to note the enormous difference of luminance between the central zone, the pavement and the sky: this last one reaches a value 25 times higher than of the facade, causing direct glare; also the floor shows a high value, almost nine times higher than the zone 2, which could cause the contemporary case of glare by reflection. The central area is also the least contrasted, which on the one hand makes it easy to perceive the spatial limits, but on the other makes it difficult to read the architectural elements. The situation improves during the middle hours of the day, where the lower mean luminance is recorded. In the afternoon the sun illuminates the facade frontally causing a strong rise in the spatial contrast of zone 2.

o   The northern facade is the one that shows the greater homogeneity of the data in the three exposure times: the contrast and standard deviation graphs show the same tendency, and the greater luminance is recorded at midday. These conditions are ideal, because the direction of the solar radiation combined with the choice of surface finishes make the zone 2 the most contrasted inside an urban scene with linear lighting characteristics.

o   As proof of the consistency of the analysis method, the west facade shows results diametrically opposed to the east one[13].

o   The values of the south facade are coherent with the low solar contribution coming from the north. They show the lower mean luminance values, making zone 2 less contrasted than usual in each time of exposure: this is visible in the graphic of spatial contrast, which shows an opposite tendency to that of the relationship between the standard deviation and luminance.

The choice of the white finishes for the elevations of the square seems the most correct in this case, because they hold the value of the mean luminance of the central zone as high as possible; on the other hand it would be advisable to use a slightly darker floor or a less reflective material to avoid glare by reflection which might be present in the morning looking at the east facade and the afternoon observing the west one.

2.2 Plaza de les Carmelles and Plaza de Joseph M. Folch i Torres

Through the parallelism between the results of the lighting analysis (Figure 6 and 7) carried out on the *Plaza de les Caramelles* and on the *Plaza de Joseph M. Folch i Torres*, it can be underlined that the differences in terms of spatial composition, urban furniture and use of materials, change dramatically the perception of the these two squares belonging to the same dimensional class.

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[13] Note that the graph with the ratio between the standard deviation and the average luminance always shows a C-trend: this situation is the most common and is justified by the fact that zone 2, by its nature, is composed of a more complex architectural composition. The exception to the rule is represented by the west facade during the morning: this is clearly caused by the presence of the shadow carried inside the scene which causes a considerable dispersion of the luminance values.
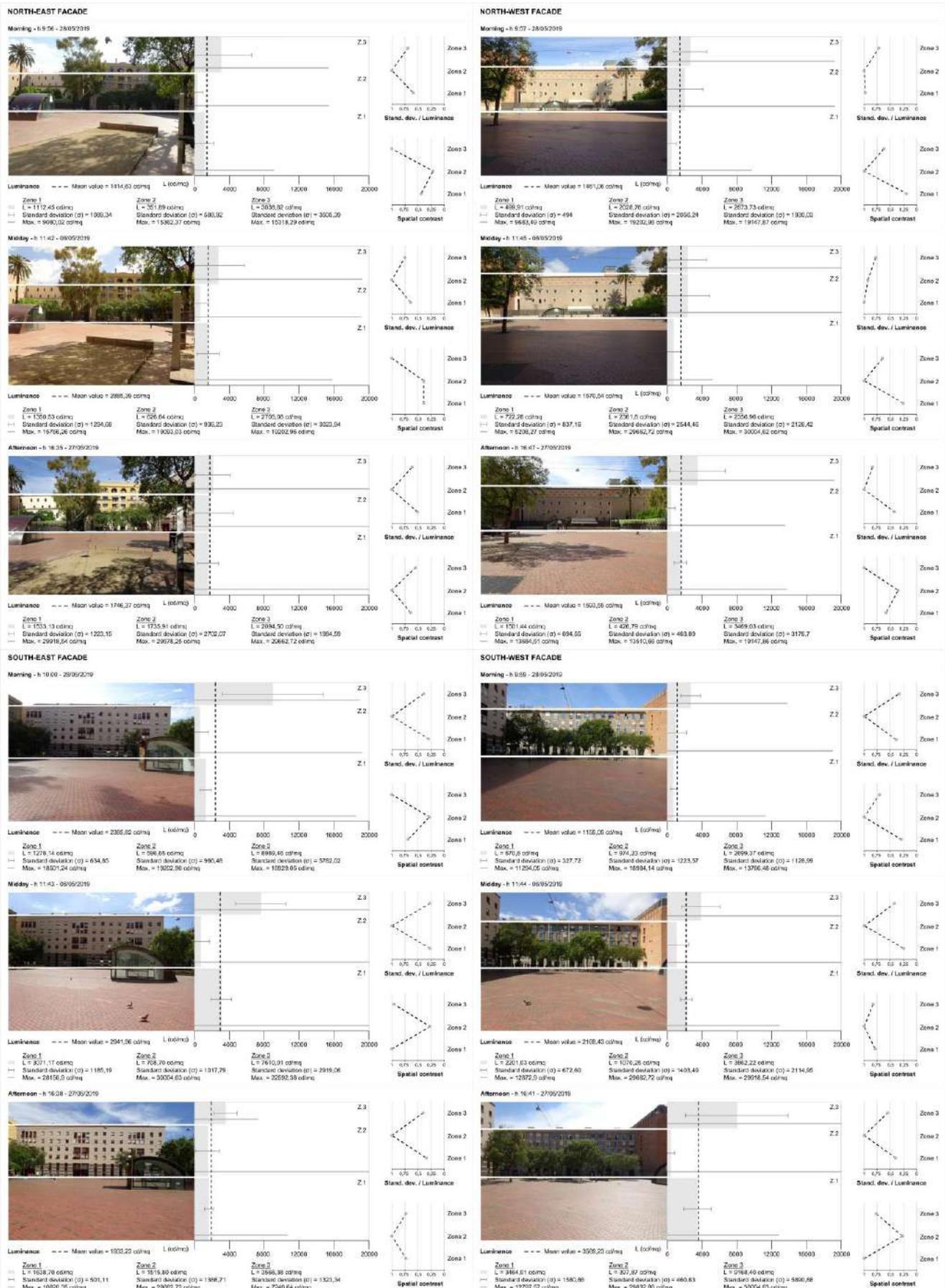
Fig. 6: The static analysis of natural lighting of the *Plaza de les Caramelles*. Graphic elaborations by the author

The *Plaza de les Caramelles* is located in the Raval neighborhood and covers an area of 4800 square metres. At the dimensional level, the square looks like a closed space on the four sides: to the north-west there is the back wall of the *Convento de Los Ángeles*, while the other adjacent buildings are residential blocks with commercial activities on the ground floor. The perimeter facades have a very similar height and are treated with different materials and colours. There are also two spaces that increase the functional character of the environment: to the south-west there are some bowl fields under a band of trees, while a children's playground takes place under the opposite north-east facade. These areas designed for various users show the desire to give the community a space of cohesion and socialization inside the quarter.

The *Plaza de Joseph M. Folch i Torres* stretches for 6000 square meters in the south-west area of Raval neighborhood bordering El Poble-sec. The square looks like a very open environment, considering that the south-west border is represented by a big street. The buildings in the perimeter have a heterogeneous architectural composition: to the north-east we find the *Casal de barri Folch i Torres*, a modern building plastered in white; to the south-east there is a school, the *Istitut Públic milà i Fontanals*; in the north-west there is a set of buildings with diffent heights and finishes. The square was the protagonist of a recent intervention of urban regeneration dated 2017. The project focused mainly on revisiting access roads and the space inside the square. Along the north-west facade there are now two parallel routes: a flat pavement and a large ramp crossing the square. The intervention focused also on redesigning the ground space, where have been placed seatings, playgrounds and a green area (Muns, 2017).

The parallelism between the lighting data of the two squares led to the following observations:

o Looking at the graphic elaborations regarding the north-east facades of the two squares, there are some characteristics in common and others diametrically opposite. The trend that unites the two urban scenes is a very similar distribution of the luminance in the three zones: the central area appears the less luminous, except in the afternoon where the presence of a band of trees behind the observer creates an area of shadow that lowers the value of the luminance

of the paved area. The significant difference, however, comes from spatial contrast data. In the case of the *Plaza de les Caramelles*, during the morning and at midday, the zone 2 is much less bright due to the position of the sun and the presence of vegetation in the central area of the urban scene; a band of trees darkens the lower part of the facades, while the trees in the background and in the foreground invade the area of the sky increasing its lighting contrast. In the *Plaza de Joseph M. Folch i Torres* the vegetation is not an altering element but enriches the composition and spatial perception: the trees are distributed only in the central area next to the white facade in the background; at the same time the foreground pavement in grey stone and later in sand (whose brightness is shielded by a vertical metal fence) does not reflect much light, but maintain the contrast lower than that of zone 2.

o The north-west views have very similar lighting results because they have similar characteristics: trees in the central area and in the sky zone; a light colour facade; the strong presence of shadow in the foreground.

o To the south-east, in the *Plaza de les Caramelles* the floor is uniform, in the other one there are some plants and two different heights between the floor in the foreground and the background, which clearly increase the spatial contrast.

o In the south-west facade of *Plaza de les Caramelles* the spatial composition is very clear, and this is confirmed by the linear lighting data: the graphs of the standard deviation have the classical C-shape; the pavement and the sky have little dispersion and the trees are collected in the central zone. Nevertheless, there is a slight glare in zone 1, where the brick pavement shows a high reflection index considering that the mean luminance perceived is 10 times higher than the elevations.

The spatial composition of the floor is the aspect that has the most influences in the static analysis, the element that can drastically change the perception of the scene. Considering that for a real observer the percentage of zone 1 in the visual field is even larger, the choice of materials and the study of their surface and chromatic characteristics can be considered a fundamental step for the architectural composition of the entire space of the square.

Fig. 7: The static analysis of natural lighting of the *Plaza de Joseph M. Folch I Torres*. Graphic elaborations by the author

3. The dynamic analysis

A good evaluation that takes into account the lighting characteristics of the public space during the daily hours is certainly the dynamic one. This is due to the fact that the human eye constantly tends to adapt to the environment that surrounds it, and this affects the luminous perception of space as a function of movement. The retina needs a series of visual stimuli that can be provided by the architectural environment, but at the same time it prefers linear light transitions to adapt more quickly and with less effort. Starting from this assumption, the dynamic analysis proposed in this paper aims to evaluate natural light in transitional spaces, through the parallelism between sequential urban scenes along the access to the rectangular squares[14].

The categorization of the entrances can be done according to the following criteria, on the basis of which the perceptual characteristics of the progressive urban scene change drastically:

o   The orientation of the access.
o   The width of the road in comparison to the size of the open space.
o   The location of entrance in the square: central, lateral or oblique.
o   The type of access inside the urban plot: continuous, if the road continues beyond arriving to the rectangular area (typical of radial and checkerboard urban schemes); limited, if the route stops once you reach the square.

So, it should be pointed out that the dynamic analysis is mainly thought for those users who perform inside the public space a movement in an "exploratory manner"[15]. The squares and their accesses analysed in this paragraph are the following ones:

1. *Plaza del Rey*, south-west access;
2. *Plaza del Pi*, north-west access;
3. *Plaza de Joan Coromines*, north-west access.

The first two squares belong to the historical open spaces of Barcelona; they both have a medieval origin, a size that does not exceed 1000 square meters and are placed inside an organic urban plot. The last square is a modern urban environment: it serves the Center of Contemporary Culture of the Catalan city, and has an extension of almost 4000 square meters. These spaces have accesses with some characteristics in common: a width of 3-5 meters, the lateral entrance and they are also roads that interrupt their path just when they arrive in the big open space (Figure 8).

The dynamic analysis in the following sub-paragraphs was carried out by taking four progressive pictures along the access in the direction of the rectangular area, with the last shot executed on the threshold of the entrance. The urban scenes have a planar distance of five meters: the goal is to make a parallelism between certain lighting characteristics of the images by recording the progressive change of brightness. This has been possible thanks to a functionality of the software used, which allows to set specific luminance ranges, whose distribution percentages will be compared to verify the linearity of the light transition; in addition, the program creates a grayscale image through HDR processing, inside which it is possible to recognize the luminance ranges thanks to the use of various tonal values. This feature is very useful to verify any phenomena of "brightness contrast" within the visual field: it is a light condition linked to the constant adaptation of the retina when an observer walks through the architectural space; that's reflected in the change in luminance perceived in the same surfaces while you move into the environment[16].

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[14] The square is a public space that is inseparable from the streets that leading to it. This environment has a tendency to separate itself from the context, like those individuals who would like to isolate themselves from the mass, but in the end cannot do it because they also live in function of other people (Portoghesi, 1990).

[15] "In the course of day-to-day living, people encounter environments ranging from the simple and familiar to the complex and unknown. Robert Bechtel (1967) studied human movement in architecture and described familiar territory as that through which visitors move in a *habitual* manner and are scarcely aware of their architectural environment. But when a building is familiar, he said, they move through it in an *exploratory* manner, looking in all directions, hesitating, and sometimes retracing steps. It is in the unknown or less familiar places that the spatial

perception of architecture is highly significant" (Michel, 1996).

[16] "As they are seen while walking through architecture, the brightness on surfaces do not stay fixed as they appear when observing them from a stationary point of view [...]. Except for changing daylight effects resulting from sky conditions and gradual movement of the sun, surfaces stay in a relatively constant state of luminance. But to the eye, the colors and textures of surfacing materials change in
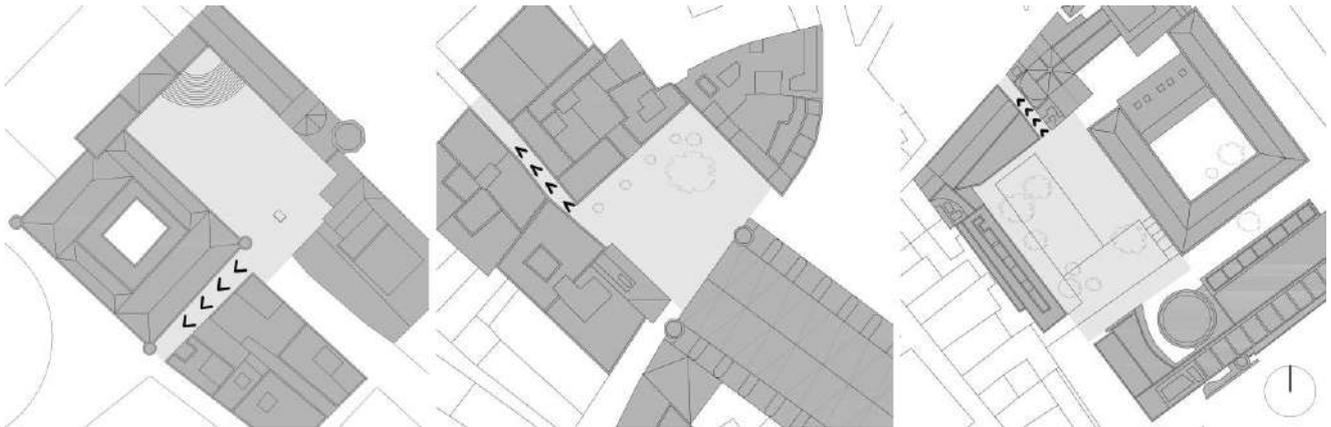
Fig. 8: From left to right: *Plaza del Rey*, *Plaza del Pi* and *Plaza de Joan Coromines*. Roof plane of the squares with the optical cones of the photographs. Illustration by the author

3.1 *Plaza del Rey and Plaza del Pi*

The medieval squares had the peculiar characteristic of breaking the typical arterial structure of the cities of that time, creating an open space at the service of the community and regulated by precise geometric rules. The two rectangular squares of *Plaza del Rey* and *Plaza del Pi*, placed in the Gothic quarter, show this conception and, at the same time, their own compositional characteristics.

The *Plaza del Rey* is a beautiful enclosed space in the heart of the city, framed by Gothic and Renaissance buildings[17]. The dynamic analysis of this square was carried out along the south-west entrance, a street that takes the name of *Baixada de Santa Clara*. As you can see from Figure 9, the distribution of the luminance intervals indicate the presence of a good constant brightness, considering that 15 meters away from the square the range V has a high value in percentage terms which then will go progressively increasing. The light transition is not very marked and the eye adapts easily to the

scene because there is no sudden change in the distribution of brightness in a few meters of movement: the luminance bands II-III-IV show almost the same percentages and then change in the last two images, making the chart looks like a curve. The open space of the square is not easily identifiable by the visitor walking inside the urban plot. However, there is an attractive element that invites in the square, the *Topos V* sculpture installed in front of the south-east building: it is visible from distance thanks to the lower luminance perceived on its surface compared to the context, a characteristic that increases its contrast. Observing the grayscale images in Figure 9, we can see how the sculpture of Eduardo Chillida shows a brightness contrast more and more marked than the rest: we can conclude that it definitely assumes the role of "focal accent"[18].

As regards *Plaza del Pi*, it is also located inside the Gothic quarter of Barcelona: here, however, the composition of the urban space is a little bit different. The square is part of an urban system together with *the Plaza de Sant Josep Oriol*: the first opens in front of the facade of the *Basílica de Santa Maria del Pi*, the second in front of its side elevation. For this reason the *Plaza del Pi* can be seen as a semi-closed environment, considering on the one hand the closing effect due to the high buildings facing and, on the other, the spatial continuity of the system of squares.

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brightness as seen by a person walking through the architectural environment" (Michel, 1996).

[17] Historically, the square was part of the enclosure of the Royal Palace; it was closed but accessible to the citizens because the market took place there. The current rectangular geometry was conceived in the second half of the 14th century as a result of an urbanization project that transformed the space in a celebratory place for medieval tournaments. After being decorated by the installations of the architect Francisco Daniel Molina in the mid-nineteenth century, (a monumental fountain and a Roman column) they were removed between 1931 and 1934 through a reform that made the square take on its present appearance. In 1936 the sculpture *Topos V* by Eduardo Chillida was installed in the square; as we will see, it assumes today an important role for the square from the perceptive point of view.

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[18] "What catches the eye as it scans an environment are focal accents created by objects or surface details that are high perceptual stimuli and those having novel features. The degree to which those features stand out in the visual world will largely determine the power they have to attract – and distract – the eye" (Michel, 1996).
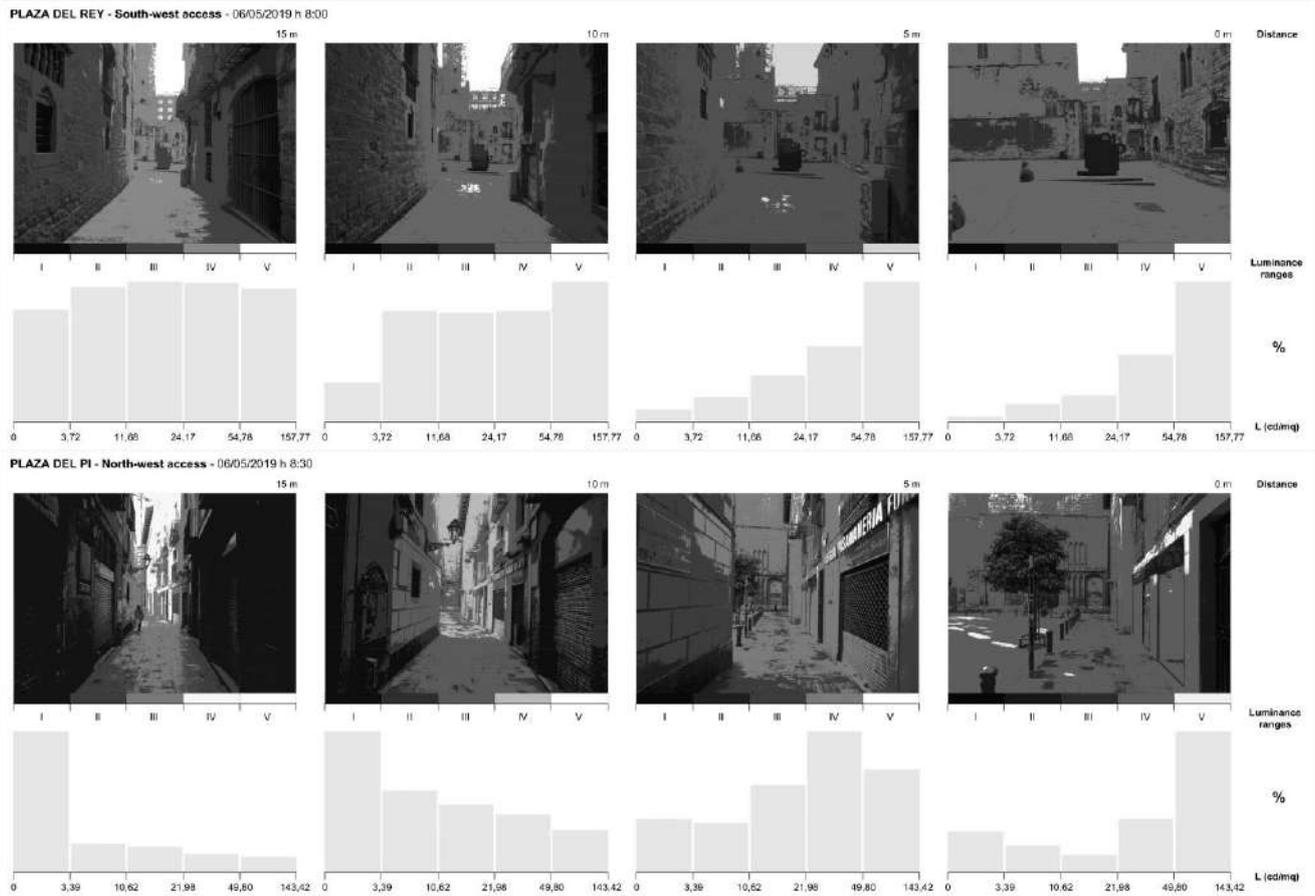
Fig. 9: The dynamic analysis of natural lighting transition along the south-west access of *Plaza del Rey* and the north-west access of *Plaza del Pi*. Graphic elaboration by the author

The dynamic analysis was made along the north-west entrance, the *Carrer de Petritxol*, which arrives in front of the main facade of the church. It should be noted that the view of the basilica is obscured along the first 10 meters of the urban scene because the road has a zigzag course that does not allow to see in the distance; later the user will be driven by an "exploratory movement for incompleteness" (Michel, 1996) and will arrive in the square[19]. Observing the graphs in the dynamic analysis of Figure 9, the distribution of luminance ranges is practically mirrored in the 15 metres of the access, symptom of a sudden shift from a very dark area to a much brighter one. In this case the eye could be forced to adapt rather quickly, but on the other hand this transition can be considered absolutely natural and acceptable; this is due to the fact that

the light impact in the proximity of the square is mitigated by the height of the facade of the church, which shields the occurrence of direct glare. We can conclude by saying that, in the case of new planning, if the designer's intention is not to arouse surprise, but to obtain a compositional-perceptive linearity inside a sequence of spaces, he could simply think of using lighter and shinier surfaces for the accesses, and darker and opaque for the open envelope: in this way the distribution of luminance values will be more regular.

3.2 *Plaza de Joan Coromines*

In the north part of the Raval neighborhood, there is a space very frequented by the citizens of Barcelona which often becomes the seat of cultural and social events, the *Plaza de Joan Coromines*. It is possible to reach the square thanks to three entrances; the dynamic analysis has been carried out on the north-west one, that represents the shortest and narrowest access.

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[19] The church thus escapes the optical cone of the observer until he approaches decisively to the rectangular space: this peculiarity was typical of the Gothic churches and had the precise goal to unleash a sudden sensation of surprise in the visitor.
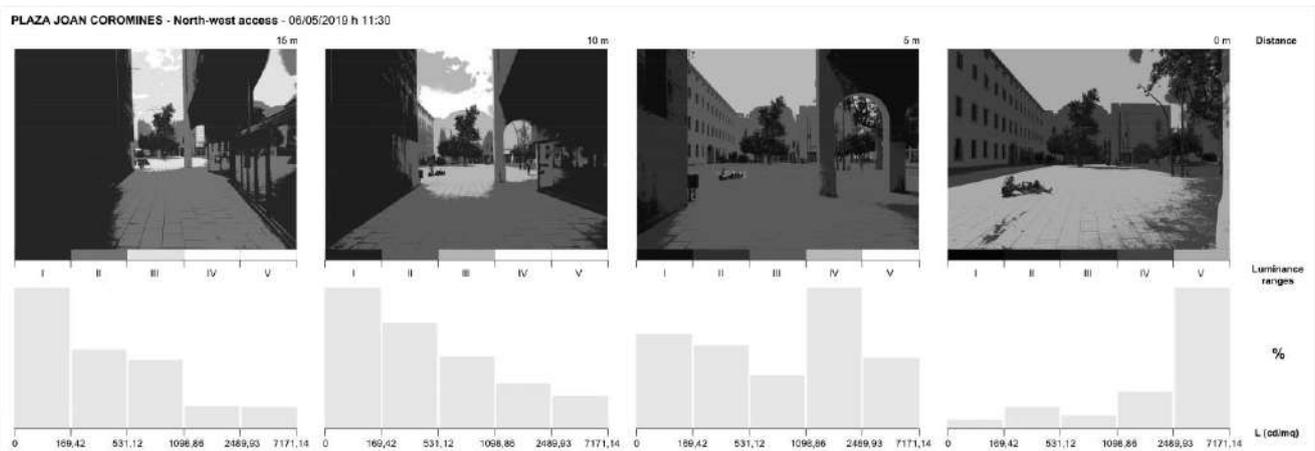
Fig. 10: The dynamic analysis of natural lighting transition along the north-west access of *Plaza de Joan Coromines*.
Graphic elaboration by the author

The results of the evaluation are shown in Figure 10: observing firstly the images in grayscale, the surfaces of the access are much darker regarding the space of the square; moreover, the presence in the center of the visual field of a very large tree, which is strongly contrasted by the white surfaces of the *MACBA* in the background, indicates the will to insert a focal accent. As regards the light transition of the urban scene, the graphs show a trend similar to that of the *Plaza del Pi*, but with substantial differences in perception. The north-west access, in fact, shows two contrasting peculiar features:

o The contrast between the luminance of the elevations and that of the pavement clearly indicates the direction of the path towards the square, with the glance of the observer that looks far away focusing on the big tree.
o During the morning, moving through the north-west entrance it is very likely to incur into the annoying phenomenon of glare, both direct and indirect; once you enter the access road you can find the sun in the field of view, with the sunrays that are directed towards the observer and are reflected on the light floor. At that point it becomes practically impossible to distinguish the composition of the urban scene for a short period of time.

4. Conclusions

The analysis presented in this article aim to underline the impact of the design choices on the perception of urban space. The two assessment methodologies provide lighting data on the environment that can be used for urban regeneration works or utilized as a support for the architectural composition of new spaces. The data obtained from the evaluations suggest some basic design criteria for the squares with angle θ<25° (referred to paragraph 1.1), like: avoiding the orthogonality between the elevations and the cardinal directions, in order to decline the presence of direct and indirect glare and excessive luminance contrast between zone 3 and 2 in the east and west scenes, phenomena that can be mitigated by using materials with low levels of reflection for the floor and light and saturated hue facades; if we want to bring out the architectural details of a building, it would be better to place it to the north, where the contrast between the zones is lower and constant; vegetation and street furniture are excellent tools that, if correctly used, allow us to manage the visual perception of the scene and enrich the spatial composition, lowering the luminance of zone 1 thanks to the creation of shaded areas or placing them as focal accents for route to the square; the use of lighter shades for access and darker for the urban envelope makes the spatial transition more linear, allowing the retina to adapt more easily to the environment.

The static and dynamic analysis are not only limited to the design of the squares present in the urban fabric, but it may cover different fields of application of the urban construction: for example the accesses and the exits of public buildings, the entrances of metro stations, pedestrian crossings, etc... The final goal of this type of study is to improve the spatial quality of the environment that is experienced everyday by citizen.

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THE QUALITY OF PUBLIC SPACE AND TOURIST SPECIALIZATION PHENOMENA: THE HISTORICAL CENTERS OF FLORENCE AND FES

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Abstract

The paper aims to contribute to the knowledge of a phenomenon (observed by urban planning scholars and others for decades) that takes place in the spaces of some peculiar cities: the growing tourist specialization of the historic core of the cities of art (*città d'arte*) or of historical centers recognized and protected by international organizations like UNESCO.

Is interesting a specific focus on the mutation of public space as a consequence of tourist pressure in these urban fabrics: they often possess an exceptional morphological value and a stratified landscape meaning. The changes triggered by tourist pressure also affect other aspects, be they of economic, social, demographic or functional nature: summing up, we are witnessing the progressive specialization of these spaces and their physical separation from the not touristic city. How can we deal with this progressive construction of urban precincts where growing streams of tourists are sent?

What are the possible answers, the adaptations, the strategies that must be put in place to attempt to positively direct the energies and resources that come from masses of people wishing to directly access the beauties of this cities, but who by their own number they risk to compromising the same quality of the places they visit? The paper will deal with these topics by comparing the research contexts of Italy (Florence) and Morocco (Fez).

1. Heritage, tourism and some consequences

In 1996, D.F. Wallace was commissioned by the Harper's Magazine a report on luxury cruises, which he wrote with his unsurpassed mastery (Wallace, 1996). The title (*A funny thing that I will never do again*) partially restores the atmosphere captured by Wallace of that trip: together with the caustic and disarming photos of Martin Parr (Nicholson, 2002), these are the images that well describe the *figure* of the contemporary tourist, in its many aspects, also in its intrinsic violence.

From tourism, from the dynamics that it triggers, from the energies that it moves and from which it is moved, this writing begins. Growing tourism pressure is a phenomenon that has numerous undesirable effects. The dynamics of gentrification (Lees, 2006) are combined with the almost mining exploitation of the historical and artistic heritage; actions to adapt to tourism industry encourage specialization and consequently lead to separation, falsification and commodification. This, in some places, is the circle to break, even as a way to increase the resilience of these contexts, that is their ability to positively adapt the changes of their center

to economic and social evolutions, so as to preserve their material and immaterial heritage. This is the declared purpose of the UNESCO action: the protection and transmission to future generations of the artistic, historical, cultural and naturalistic heritage. But often, among the aims of the candidacies for UNESCO heritage, it's included the intention to make the places more attractive for tourists: so, although UNESCO does not certify the places for their tourist appeal, but for their testimonial and patrimonial value, the two aspects coexist.

We will consider as case studies two very different cities that are today in a different stage of "touristization": the center of Florence, the famous Italian *city of art*, cradle of the Renaissance, and the center of Fez, an ancient Moroccan Arab city, one of the most important centers of the Islamic religion. We will analyze the situation from the point of view of the quality of public space, which must be carefully studied also with regard to the following aspects: the interaction between tourist pressure and the need for conservation promoted by UNESCO, and the fact

Fig. 1: The appearance of one of the highly specialized tourist areas in Florence, Italy (ph. Massimo Carta)

that these contexts must necessarily be considered in the respective metropolitan areas.

These are areas in which the transformations induced by tourism are evident in the historical urban fabrics and in the public space of the ancient centers, but also determine changes within the respective metropolitan areas. The change in the tourist market and the policies that encourage it, for example, determine adaptations in the facilities of transport infrastructures (ports, airports, motorways and highways, parking system, buses and urban trams etc.), or in hotel facilities, in the short-term rental market, in the provision of facilities and *loisir* (theme parks, specialized shopping centers for tourists, events).

These changes are also made possible by the enormous importance assumed by digital platforms, such as AirB&B, Trivago, Tripadvisor, Booking etc., which allow great efficiency in finding non-traditional accommodations for tourists and an extreme difficulty of regulation for the public actor (Sussan & Acs, 2017).

In these places, the needs of transformation are in conflict on the one hand with the need to protect and preserve the built heritage (which often has a

special status as a monumental artistic heritage, as in the cases we are dealing with), on the other with the need to preserve the mix of functions of the public space, guarantee of urban quality (Secchi 2005). In the places analyzed, to different degrees, the processes of gentrification act causing the loss of the same social and economic environment that has allowed the creation and conservation of both physical and immaterial values appreciated by tourists. This is a classic *vicious circle*, the results of which have been observed in many places, comparable to the almost mining exploitation of the patrimonial elements of a place rich in history and culture, an exploitation that does not provide for its reproducibility (Magnaghi, 2010).

In different places, at different scales, the same tendency can be seen in touristic location: homologation, homogenization and loss of peculiar aspects of the places, change in the "traditional" visual-perceptive codes, increase in the polarization of the tourist phenomenon on an urban scale, pervasive micro-transformations in building, appropriation of public spaces by compact masses of tourists (Bellini & Pasquinelli, 2017).

We assist in the construction of equipments, spaces and functional codes for the better functioning of tourist flows, which cause a whole series of consequences:

o   a sort of tourist *alienation (Vidon, 2018),*

o   the creation of unsatisfactory, unbalanced, often intrinsically unjust housing situations (Franzidis, 2012)

o   the creation of true and proper urban precincts in which tourist flows are oriented (Hayllar, Griffin, & Edwards, 2008).

The identity value of historical centers of Florence and Fez was promoted by the respective local governments through a process of valorization, with proposals for the *Tentative list* and finally with the registration on the UNESCO list. International studies on heritage turism (Garrod & Fyall 2000) critically analyze the impacts it generates, in the first instance on historical urban areas, without neglecting changes in social, demographic and economic structures.

The more than 600 sites recognized globally by UNESCO as a World Heritage Site, consisting of urban areas, are a significant field of study. As is known, in fact, to the recognition of Word Heritage by UNESCO it frequently corresponds to the increase in the attractiveness of the sites, on which the tourist presences increase, and this induces transformations that often contradict the objectives of the unesco to protect the local heritage, to guarantee the conservation of the heritage for future generations (Beschaoush 2000; D'Eramo 2017; Gonzalez-Tirados 2011).

The vision of the historic city that emerges from the Unesco perspective, although this is not the declared position of the organization, is often very specialized and oriented towards "museification". These side effects cause doubts in relation to the fact that the UNESCO approach really protects the sites considered *heritage* or rather further the sustainability of the contexts concerned (Caust & Vecco, 2017; Pikkonen, 2012). The "spatial justice" (Soja 2010; Marcuse et. al. 2009), a paradigm of contrast to the processes of separation, polarization and social exclusion in the metropolitan area, takes on a central role in defining principles that should integrate UNESCO's conservative vision: the concept of heritage protection cannot ignore the social and economic protection of citizenship, which we investigate from the point of view of public space.

The trend is the creation of "protected" areas where tourism specialization can be total, or where profit can be maximized according to the speed and standardization of touristic use. In these areas the codes of conduct are fixed, the perception of one's role as tourists is strong, the local society clearly perceives this role, isolating it, taming it, making it safe and even confining it into precincts.

It is a gradual transfer to some areas of the city of the way cruise ships are experienced: users remain within specific fences, which is equivalent to experiencing extremely specific, safe and standardized, though also unpredictable, social and travel experiences, as D.F.Wallace tells us. This also implies the tendency of tourist accommodation to be located, where possible, close to tourist areas, if not inside them: in short, "on board".

2. Florence: the evolution of the historic center in a tourist district

The city of Florence has an important position in the history of art, architecture and urban design, and even radical and substantial changes to its body have been a constant in its long evolution (Fei, 1995). Starting from the formation of the Italian state, its evolution underwent a sharp acceleration (Fanelli, 2002), with radical transformations of the center to make it suitable to play the role of Capital of the Kingdom. In recent times, starting at least since 1948, its urban structure has become an extensive metropolitan area, which has gradually included the three provinces of Florence, Prato and Pistoia (Giorgieri, 2010). In this evolution, the ancient center, first surrounded by walls, then after their demolition by a system of roads, has become transformed, becoming a well-defined part of a more extensive and complex system, which has continued to change, even for traumatic events. The second world war with the consequent destruction and reconstructions, and the flood of 1966 that strongly changed the socio-economic situation and the distribution of functions in the city (Budini Gattai, 2016), were traumatic passages for the city that caused substantial and widespread changes. Even more recent phenomena, such as those caused by the impact of the establishment of a public mass university system in Florence since the 1970s, have led to changes in the concept of residentiality in the historic center (Cascone & Sciuto 2016). But it is

perhaps the pressure of tourist presence that has changed the face of the city over the past 30 years.

Recognized by UNESCO as a *world heritage* in 1982[1], the historic center of Florence has long been an international tourist destination, since the days of the *grand tour*, which forced the best European society to visit the city at least once in a lifetime (Black, 2003; De Seta, 1989).Today, the municipality of Florence (380,000 inhab) is part of a Metropolitan area of about 1 million inhabitants, itself a Metropolitan City, and its historic-artistic center has about 65thousand residents in about 550 hectares. The positive impact of tourism on the economy of the city is undoubtedly clear: in 2018[2] the municipality of Florence collected more than 42 million euros of royalties from the taxation of tourists.[3]

2.1 The affirmation of "tourism precincts" in Florence.

The particular configurations of some specific urban spaces (for example the presence of historical urban tissues, exceptional architectures, famous monuments, museums, as in the case of Florence and Fez), combined with particular contextual conditions (accessibility, security, attractiveness, notoriety …) determines the massive presence of tourists in some cities, which tends to concentrate and to modify certain areas of the city itself. The tourists recognize these places from the density of visitors, from the signs, equipment, types of goods sold, among other things. The inhabitants of the cities themselves necessarily change the experience they have of these places, the perception of places that tend to be specialized for tourist use, and from which they are often excluded.

To verify these statements, we carried out direct surveys on the public spaces of the historic center of Florence, investigating the spatial conformation of the "tourism precincts": their configuration within the historic center and the various elements that compose them. The main references are the survey to "inform residents' perception of tourism policy" carried out by the Center for Tourism Studies and ETOA[4] which involved 3,000 residents[5] and, for his methodological interest the text of Hayllar, Griffin and Edwards (2008) which defines the tourist enclosure[6].
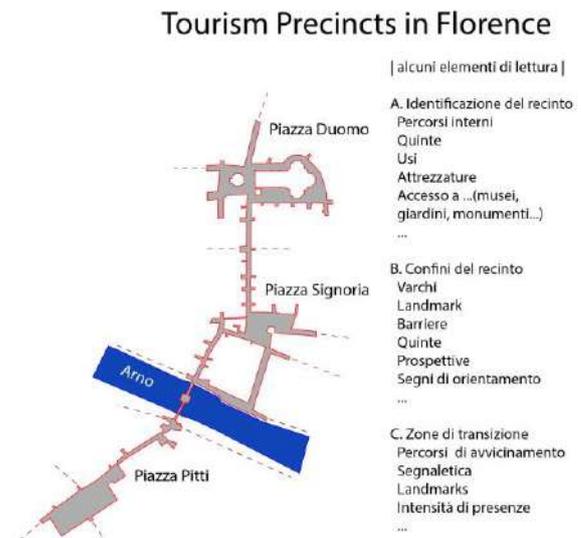
Fig. 2: A mapping of the places with greater tourist use on the center of Florence, Italy (Massimo Carta)

Our survey and the shooting campaigns started in Florence in 2017 and continues today periodically; has produced a series of photographic images, taken at different times of the day, of the week and of the year, images that accompany the collection of data at the local level.

In fact, to try to understand who the users of these "fences" are, we must refer to the different data that quantify the tourist phenomenon in Florence. Around 40,000 visitors[7] pass through the

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[1] http://whc.unesco.org/en/list/174/documents

[2] The collection of the Collect and Remit from Airbnb for 2018 stands at 6 million and 803.460 euro, as can be seen from the data of the Budget of the municipality of Florence for 2018. From the tourist tax (a tax that concerns those who stay in Florence) 42.335.381 million are cashed, and 16.07% come from the Airbnb platform, with a monthly average of about 550 thousand euros. Source: Ufficio stampa comune di Firenze.

[3] Source: municipality of Florence

[4] "From the data (…) it emerges that the Florentines, due to the high number of visitors, no longer frequent 72 streets, squares and areas of the city: in the first three positions stand Piazza Duomo, Via Calzaiuoli and Ponte Vecchio" (p.4);

[5] Cfr. www.firenzerisponde.it/index2.php.

[6] "Urban tourism precincts are defined by their particular patterns of architectural design, layout, attractions and the overall configuration of the physical elements that help to forge a particular sense of place ". The tendency to "monofunctionality" of these spaces is powerful and growing; even, «if tourism is considered as an industrial activity, tourism precincts may be examined as industrial complexes» (p.115).

[7] The data on tourism contained in this paragraph are taken from the study of Ottonelli, Pavarin 2016 except as otherwise specified in the note.

entrance of one of the many museums in the historic center on an average day. If Italian tourists reach Florence mostly by car (78.5%) or by train and stay in the city for an average of 2 nights, tourists from abroad (mainly from the USA) land at the airports of Pisa (which saw an increase of + 447.33% from 2000 to 2016[8]), Florence and Bologna, and stop in Florence on average for no more than 3 nights.

The so-called "hikers" who visit Florence during the day without staying overnight are mostly cruise ship passengers (we can imagine D.F.Wallace among them!)) who increased by 122% from 2003 to 2016, around 15,000 per day even though they are mostly concentrated in the months between April and October, for a total of 5.5 million people a year. The 376 hotels, the 772 bad & breakfast and other regularly registered facilities, the thousands of apartments and studios, also obtained in basements and attics scattered in the historic center to obtain temporary tourist beds, are managed mainly with online platforms such as AirBnB (11,262 hosts, of which 8,198 in the historic center only!) or Booking.com (Booking.com has grown from 1,765 to 3,675, of which the apartments are 2,700), these beds have a good annual occupancy rate. For some of these activities, the growth is constant: from 2014 to 2017, announcements on Airbnb have increased from 5,700 to 8,887 of which 84% are entire apartments. Almost 40% of the wealth brought by tourism is linked to the turnover for the overnight stay of tourists. About 800 million euros a year, a considerable amount compared to the total annual income of the 94 museums placed in the historic center (51 million euros).

What was initially born as a sharing economy soon turns into an important speculative market on a global scale that associates tourism with apartments taken from the residential permanent function (Wachsmuth et al., 2018). In Florence there are over 12,000 commercial activities that are based exclusively on tourism: leather craft shops, or bars, sandwich bars and restaurants, small shops of furnishings and drinks, etc.

All this has an impact on the metropolitan scale. If the strong presence of tourists affects private and public activities, car rental and taxis, parking lots, car pooling and bike sharing, and even the retail sale of

many goods and the procurement of these goods, it is increasingly interested in the municipal tramway system, the regional airport and port systems, also contributing to the percentage of mass crowding of regional or national trains. In Florence, for example, the incoming tourist buses are on average 160 per day (more than 58,000 per year), carrying 2,200,000 tourists, the vast majority of whom visit the historic center. There are also 325 pass per day granted to the other buses, many of which escape the count, and which are linked to the tourist economy.

All these activities employ approximately 19,000 people who work in tourism, including accommodation, commercial activities, travel agencies and guides. All this has an obvious impact on public space. The economic turnover can be estimated at over 2 billion euros a year, divided into the various items of expenditure: accommodation (37.4%), catering (14.9%), goods and services (11.4%) and clothing and accessories (11%). In the policies that govern the future of Florence, we cannot see a change of trend with respect to the growing affirmation of tourist specialization. The temporary residence, in addition to the tourists mentioned above, also increases due to other factors, such as short-term workers, or resident foreign students. For example, the offer of over 50 North American higher education institutions present in Florence determines the presence of about 8000 student visitors (see Association of American College and University in Italy programs, AACUPI), whose behavior in the public space is comparable to that of most tourists.

3. Fez: the creation of the "ancient" medina

In the Arab world, also, many cities present strong transformation of public space that oscillate between the degradation of historical settlement structures, the consolidation of new centralities and the expansion of informal neighborhoods. A particular context, which helps us to deal with peculiar aspects of the impact of global tourism on public space, is the Moroccan one, with the examples of Fez[9]. It is due to the increased pressure on the building heritage typical of past decades, now in sharp decline (Royaume du Maroc, 2016), to the lack

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[8] Data on mobility and tourism in Tuscany are taken from CST Florence (2017) based on Assoaeroporti data
[9] Massimo Carta is member of the DarMed Research Unit established in 2018 at the DIDA of Florence, and is a lecturer

at the *Ecole Euro-Méditerranéenne d'Architecture, de Design et d'Urbanisme de Fes* in Morocco: in that context he carries out research on changes in Mediterranean urbanization.

of maintenance of the buildings by a population that is not very equipped in economic, cultural and mastery of construction techniques, to the almost total inaction of the public intervention (Istasse, 2012), if the physical degradation or the changements of the many *medinas* in Morocco represents the main and most urgent problem to date (ONU et al., 2003; Royaume du Maroc, 2016).

Compared to the Italian case, where the historical centers and their governance and design, at least starting from the *Carta di Gubbio* (ANCSA 1960), have been the object of a growing attention, in Morocco there is a striking lack of systematic studies on most of the aspects concerning the transformation of public space in the Medinas[10]: from the current morphological conformation of historical urban fabrics, to the characteristics and methods of use of public spaces; from the practices and representations of the inhabitants, to the set of spatial modifications created by the frequentation of the Medinas by tourists and new residents. But the stratification of interventions that have significantly modified this historical structure during at least half a century remains largely unexplored: the need to fully integrate the intervention and safeguard programs of the Medinas in the municipal urban planning emerges, with a specific attention to the transformations of the building heritage linked to the adaptation to the touristic economy. We apply these arguments to the context of Fez, a city comparable to Florence due to the importance it has in culture (it is one of the most important sacred places of the Islamic religion), due to the size of its historic center, to the dynamics of growth and transformation to which it has been subjected in the past and to which it is still subject.[11] And, of course, Fez is included in the UNESCO list starting from 1981 (enlisted in 1980, number 170, while Florence is number 174).

In the Moroccan national history, the city played an important role: the cradle of the movements for the independence of Morocco and the head of the conservative social forces within the new state for the declaration of the French protectorate (1912) Fès was the capital of the country. It has changed its role through a double geopolitical process: the transfer of

power to the monarchist modernist nationalists and the growing importance of the cities of the Atlantic coast, Casablanca and Rabat. Fez has gradually found itself to be an incomplete metropolis (Gisotti & Carta 2017), the capital of a region with limited resources, with a poorly integrated urban structure, strong socio-spatial disparities and a rapidly increasing periphery, which grew by 61.5% between 1990 and 2010 (Royaume du Maroc 2016).
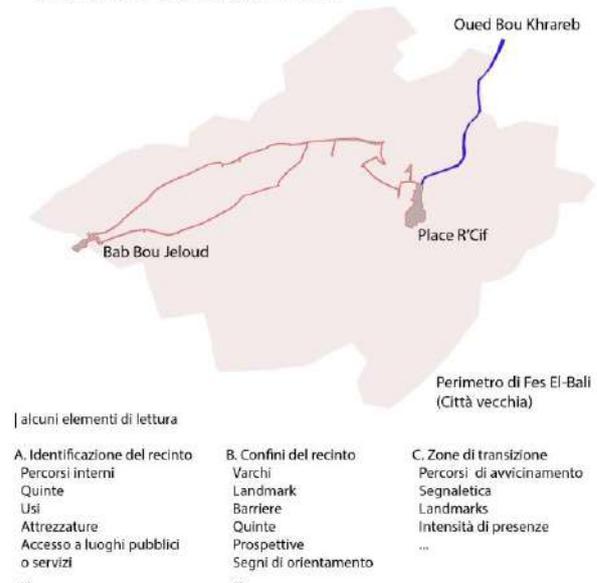
Figure 4: A mapping of the places with greater tourist use on the center of Fez, Morocco (Massimo Carta)

In addition to the *Medina*, at least two types of urban fabrics are recognizable in this area: the "ville nouvelle" and the contemporary "ville en périphérie" (Carta and Gisotti, 2017). The "fabric" of the Ville Nouvelle is the result of French planning (1912/1956), the result of a "planned contrast" (Brace Taylor 1980), which tended to physically separate the local and European populations to offer them last a modern, healthy, green, ample space (Gillot 2014; Jelidi 2012). The urban explosion that began in the 80s of the 20th century subsequently generated urban fabrics without any unity, with a great heterogeneity of morphologies and the proliferation of signs of degradation and very strong disparities such as the "bidonville" (Le Tellier 2009).

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[10] For the physical-spatial aspects of Fès, the morphological studies of Stefano Bianca (2000) represent a seminal text for the understanding of the urban structure of the Medina, while those of Titus Burckhardt (1992) and Revault, Golvin and Amahan (1985) rise of scale investigating the type of the

court house in relation with the Muslim religion, Sufism and the relative value system.

[11] Furthermore, the municipality of Fes has been twinned with that of Florence since 1961, on the initiative of the mayor La Pira, then renewed by the mayor Leonardo Domenici in 2006 and by the mayor Dario Nardella in 2017.

Urban planning has not been able to govern this transformation: both the SDUF of 1980 (*Schéma directeur d'urbanisme de la ville de Fès*) and the SDAU

Fig. 3: In the medina of Fes in Morocco, the signs of tourist pressure in the public space of the souk are still not very evident (Ph. M. Carta)

of 1995 (Schéma Directeur d'Aménagement Urbain), have oriented only a small part of impetuous urban growth of Fez.

Thus, what was previously "the" city, began to be the "old city": the Medina, in its apparent fixity, has been overwhelmed by metropolitan growth, it is one of the largest in the Islamic world, easily identifiable, well recognizable, also due to the many green areas that surround it. The Medina of Fez has a great variety of architectural forms and of urban landscapes: *Fes El Bali*, the oldest part, covers about 220 ha; the later added part, *Fes Jedid*, or "New City" covers about 60 ha. The two parts of the cities, added together, host about 200,000 inhabitants in 1981, which suffered a constant decline, and at the 2014 census they numbered about 70,000 inhabitants, out of about 1,200,000 in the whole Wilaya (municipality) of Fes.

Following the ICOMOS recommendations of 1980, the Medina is inscribed, as has been said, on the list of Unesco heritage. The motivations tell of "an amazing architectural, archaeological and urban

heritage, [and] a persistent lifestyle, knowledge that (...) is renewed despite the different effects of the evolution of modern societies". This balance is precarious today: Unesco warned in 1995 against the hypothesis of the demolition of large parts of the Medina with plans for penetrating streets in historical fabrics, later fortunately abandoned, and in 2003 against the covering of the river Oued (Balbo, 1992) seen with great disfavour for Unesco, but partly realized. The state, given the vulnerability of the site, adopts a Medina Development Plan in 2001 by the new municipal agency ADER Fees (Agency for De-densification and Rehabilitation of the Medina of Fez). However, the dynamics of transformation do not stop: in its periodic evaluations Unesco itself expresses concerns and pushes for a careful preservation of the social fabric of the Medina, which sees (Unesco 1998) the lowering of income levels and the lower social inclusion of its inhabitants.

Also to try to oppose these dynamics, Unesco supports the project of the World Bank for the recovery of the Medina (1998). Meanwhile, the urban fabric has already undergone phenomena of building densification (in fact some traditionally unobstructed spaces such as gardens and vegetable

gardens within the walls were occupied by schools and small buildings, Mcguinness and Mouhli, 2013) and depopulation. In this context, it is not surprising that the growing presence of tourists is seen very positively by local and national authorities, which have implemented policies to determine a progressive growth of temporary presences. At what price?

3.1 Towards tourism precincts in Fez

The data (Observatoire du Turisme 2014 and 2015) confirm the growth of Fez as a tourist destination, in the top 5 places of national tourist destination. The Medina has a strong attraction, both for religious tourism (Nazarena Lanza 2014) and for temporary events such as the Festival de Fès des Musiques Sacrées du Monde, which has also begun to involve the real estate economies, becoming one of the factors that led to the restructuring dynamics of existing buildings (McGuinness & Mouhli 2013): also, structural changes of the *patio houses*, not evident from the public space, but appreciable by observing the transformed terrace roofs.

In recent years, there has been a strong public investment in the airport, and the low-cost airline Ryan Air regularly connects Fez with the European continent. Fez is not immune to the use of internet platforms such as AirB & B, which has caused so many changes in the body of Western historic centers (Crommelin, 2018). Following the same procedure carried out for Florence, we are currently conducting an investigation into the change of public spaces in the more touristy area of Fez, or in the souks: there is a radical reinterpretation of public space, which manifests itself in different ways:

o   changes in the most current historical buildings to adapt them for seasonal and tourist use,
o   difficult change of use destination in the most precious and monumental buildings, whose peculiar morphology (*patio house*) is badly adapted to radical changes of internal distribution needed to adapt them to tourist residences,
o   frequent abandonment of the less valuable historical urban fabrics (which are not very adaptable to new lifestyles) followed by collapses and fires,
o   coverage of market-streets (*souks*) with an architectural model of roof of dubious

authenticity; the covered roads tend rapidly to specialize totally in the tourist functions, homogenizing the public space, in terms of materials, lighting, users,
o   use of mimetic and non-native construction techniques (reinforced concrete and steel beams then covered with camouflage materials),
o   dissemination of functions in the historical core of the Medina, distributed essentially along the main crossing axes (*highlighted in figure 2*), which become themselves "precincts" from which the tourist usually does not move away, due to the physical conformation of the around, the difficulty in orienting oneself in the labyrinthine structure of the Medina, and for a widespread perception of insecurity (poor lighting, absence of commercial functions, bad smells, presence of abandoned or unsafe buildings, etc.),
o   gentrification of many of the traditional residences, to transform them into *ryad* or b&b,
o   tendency to neutralization of the most peculiar characteristics of the trade, especially of food, which in the medina has very strong connotations regarding the smell, the presence of live animals slaughtered on the spot, the poor hygienic conditions in general.

4. Conclusions: against the excessive tourist specialization of public space

So, also in the light of the above considerations, how is it possible to deal with this progressive construction of specialized *fenced areas* in which increasing flows of tourists are concentrated? What are the possible answers, the adaptations, the strategies that must be put in place to attempt to positively direct the energies and resources that come from masses of people wishing to directly access the beauties of this cities, but who by their own number risk to compromising the same quality of the places they visit?

The question on what types of governance tourism should have, in particular taking into consideration the impact on the physical structures of the city and its public spaces (streets, squares, alleys, parks, small open spaces, places of social relations, also considering the diversity between an exquisitely Western city like Florence and the typically Arab one like Fez), in its multiple forms and

its various impacts on the territory are much discussed (García-Hernández, De la Calle-Vaquero et al. 2017). But, beyond the rhetoric of tourism development, it seems that the so-called "undesirable effects" caused by the tourist impact tend to be minimized and to be managed through some guidelines that often remain vague and not very incisive (see the same guidelines and UNESCO regulations)[12]. Despite the awareness of the pressures that tourism and his economy exert on the *città d'arte* or even on more fragile historic centers, the responses of public policies that attempt to structure an overall governance of the phenomenon, are rare and often weak. Addressing the issue of changes related to the impact of different types of tourism on public spaces, even in very different places, obliges us to face at least the following topics.

4.1 Keep the memory, preserve the tradition, moderate gentrification

It is necessary to carefully consider the conflict caused by the perception of "tradition" and the perception of the impacts of the tourism economy on urban form and quality. Although often in this conflict emerges what Bauman has called "retrotopia" (2017), a sort of nostalgia for places that have never existed, the antinomy between the different visions of the heritage of historical centers is evident: around the world there is a growing conflict between tourists and long-term residents, as the behavior of short-term residents (under 3 years of residence) is often equal to that of some categories of tourists (Mead, 2019).

Even in the observed cases it has different declinations. There is the perception that the inhabitants have of the context in which they live, the perceptions of the property owners, the central government and the local administration and there is the perception of UNESCO, and of foreign tourists.

In places like Fez, where global tourism pressure (including religious tourism which grows like other types of tourism although it has different characteristicsis, (Carboni & Idrissi Janati, 2016; Chih, 2016) is a more recent phenomenon, the approach the protection expressed by the local government is

in fact oriented to the conservation of the only well known and important monumental elements, while ordinary buildings are completely ignored by public policies, unless it is a question of managing the problems of public safety.

This phenomenon has already been observed, for example, in some places where the need to create *nationalistic rhetoric* has led to "isolating" some monuments from their urban fabric, for example some mosques surrounded by the urban fabric in the medina[13] (Rabbat 2016).

Often punctual interventions on monuments subtract certain functions from public use, as happened for example in Fez with the restoration of ancient fountains, recovered as purely "ornamental" objects, deprived of running water (Navez-Bouchanine 1996), or in Florence, with the closure of many semi-public lodges with gates and bars to prevent people from staying there (Marella, 2015). The effect produced everywhere is to consolidate the antagonism between the *elites* (which on the one hand feed a misunderstood and instrumental tradition) and the weaker inhabitants (who on the other nourish a growing resentment towards the "old and beautiful stones" of the historical centers). In many contexts, it is the lower social classes that use public spaces, which populate them and use them to increase the quality of their urban experience (Secchi 2013).

In this sense, we still need to work on the concept of generalized, horizontal, integrated heritage, on the model of the most advanced studies of which Florence is, in some respects, a virtuous example, and in which UNESCO could play an important role. For example, promoting the awareness of the need to recover the quality of living for the *ordinary* places of the cities of art, spreading this idea through universities and schools of architecture, or the various institutions that deal with heritage and urban planning (e.i. in Morocco, *the Institut du Patrimoine* and the *INAU*).

4.2 Increase the *mixité*, against specialization

The recurrent theme is the keeping of that *mixitè* that makes the cities those places of wealth and

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[12] Cfr for Florence, the guidelines:
http://www.firenzepatrimoniomondiale.it/wp-content/uploads/2015/11/linee-guida-spazio-pubblico_Centro-Storico-UNESCO_2014.pdf, and for Fez, the documents: http://whc.unesco.org/en/list/170/documents/

[13] It was the theme of the conference held at the Florence Department of Architecture by prof. Nasser Rabbat, March 27, 2019, entitled "Heritage, Colonialism and Identity in the Arab World".

democracy as we know them, given that the historical centers can still be defined "cities" (Bailly, 2016). In fact, one of the problems is to maintain a certain share of the resident population in the centers, to ensure that the image (and the functioning) of a living city is also held. Access to the residences implies a housing policy for the different metropolitan areas as a whole, not only in the historical centers affected by tourist phenomena.

It is necessary to act through an active government and control of the real estate market linked to short-term rents: targeted taxation and fiscal controls, limits to rental periods, condominium regulations. Different ways of living could coexist in the centers, returning to the original spirit of digital tools like AirB&B[14]: this platform boasts collaborations with some municipalities scattered around the world, in an attempt to control the negative impacts of the private tourist rental market on the residential sector (Nieuwland & Van Melik 2018).

The use of more sensitive and better calibrated web platforms, which better respond to the mutual needs of tourists and local communities and administrations, can help to correct some distortions of the sharing economy (cfr. https://fairbnb.coop).

Ensuring the conditions of housing is not easy, in the absence of effective tools on the part of municipalities to guide a very aggressive market such as that of tourist rentals. Residency is also a measure of prevention and conservation. The real estate in its physical integrity does not seem at risk for example in Florence, but the residential desertification and the single tourist functionality could damage the buildings, protected by the UNESCO regulation.

It is certain that it is not possible to change the "nature" and the use of buildings by pretending to maintain their shape and quality. For example, changes to the internal distribution of apartments to adapt them to touristic use, in the various contexts we have discussed involve changes: apartment splits with reduced area *per apartment*, increases in density, opening windows on the roofs, need to adapt toilets and air conditioning systems, etc.: all this has begun to leave its mark on the terraced buildings in Florence, and on the public spaces that they determine.

4.3 To connect, not separate

Specific transport and service policies could help increase residency in tourist areas: to better connect the historic center with its metropolitan area, to make possible a rapid crossing of the center, could encourage residency. The need to consider the metropolitan dimension of the contexts concerned, such as in Florence (Magnier & Morisi 2018), whose historical center is interested in macro substitution and specialization phenomena, is considered in any speech on the historic center.

The most recent manifestations of tourist transformations become evident in metropolitan contexts with strong dynamism: for example, it is necessary to consider how the Firenze-Prato-Pistoia metropolitan area is something completely new, just as the transformation that we see in the historic center of Florence: the two transformations are closely interrelated. An example is the "I Gigli", a big shopping mall: on 29 May 1997, when it opened, it was the largest Italian shopping center, today it is the one with the largest number of visitors, with an average of 18 million per year[15]. The historical-artistic center of Florence is exposed to transformations that are the result of the change in the organization of world tourism, but also of a parallel and radical transformation of the urban forms and of the powerful metropolization that has invested the Florentine plain since 1950, of which the *I Gigli* shopping center is a symbol.

To govern the tourist phenomenon implies recognizing its invasiveness and pervasiveness, and treat it as a phenomenon of concentration and functional specialization (Metz, 2002) it is necessary to decide, after having carried out studies and simulations, which is the system of the arrival of tourists to the historical parts of the metropolitan areas.

It would perhaps be necessary to make their arrival slower and more progressive, widening in some way the tourist areas, integrating them with more traditional (or richer) residential areas: it is necessary to consider the intensity of tourist use of other areas of the historic center, identifying or recognizing areas with "prevalent tourist use" , areas within which the percentage of attendance, services, monuments or attractions is very high.

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[14] Cfr. http://www.airbnbvsberlin.com/

[15] According to the press area of its website: 8 million more people than tourists per year in the historic center of Florence, which has 10 million.

Consequently, appropriate equipment, regulation and constant monitoring must be introduced.

Choices such as that of establishing a pedestrian area in Piazza Duomo in Florence was in fact a decision that did not considered the consequences of the fast "landing" of tourists and of the establishment of this pedestrian area, for example on the city mobility system. It is not absurd to think of limiting pedestrian areas, as it would be to investigate the possibility of assign areas with a predominantly tourist function in places located on the axis of approach of tourists to the center, for example by articulating bus stops and interchange stations with the rail mobility system, to slow down the flow, to intercept a part of it and divert it to less crowded destinations.

Within these pedestrian areas, "corridors" must be provided, for example, to make it possible for ordinary citizens to pass slowly through them by bike. From this, follows a careful consideration of the pedestrian areas and the accesses to the museum system, because the possibility of conflict with other "systems": the university and research systems, training and health care systems, the articulated and difficult management of "events" such as Pitti-Uomo and others show in Florence, the various religious and musical Festivals organized with great success in Fez, etc.

4.4 Keep the inclusive and *open* nature of public spaces

The outward signs of the tourist specialization of the public space are multiplying: vertical and horizontal signs, temporary and removable equipment, drink dispensers and refrigerators, specialized and standardized street furniture, outdoor spaces, everything tends to turn into a direction that, although not expressly, encourages specialized tourist use of the public space. Commercial licenses are also regulated in some way by the free market; but we must try to encourage greater mixité, at least to avoid total specialization.

Florence and Fez, cities in which more economies must be encouraged to settle in the center, to counter specialization, which in the long term impoverishes the same tourist experience. By virtue of the combination of building transformation factors highlighted above, we are witnessing profound changes in public space, and knowledge, integration, first of all at a social and symbolic level,

are the directions to follow in urban planning and design, so that the historical and social heritage possessed and reproduced in historical centers can become a lever of greater spatial justice.

The strategies and means to guarantee this broad concept of protection and enhancement of heritage can be synthesized in a series of integrated policies in which the conservation of the built environment is combined with the strategies of economic and social development and the control of the negative effects of increased in tourism (Magnaghi 2005). It could be a combination of policies for social housing, sustainable mobility, redistributive taxation, public transport, waste disposal policies, cultural event planning policies, museum location, policies for better distribution of food districts, up to renegotiation of condominium regulations. The problem is very complex, and the answers to be given must be composite.

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CHONGQING URBAN PARKS AS REPRESENTATION AND PERFORMANCE OF A SPATIAL IMAGINARY

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Abstract

Located in the southwestern part of China, Chongqing Municipality represents a relatively new political and administrative entity since it was established only in 1997, with the purpose of revitalizing this economically depressed area and providing a direct link with the central government in view of the construction of the Three Gorges Dam. Despite of its short history as municipality, the city of Chongqing is actually a place rich of memories connected not only with the war of Resistance and the foundation of the People's Republic of China, but also with a more remote past that goes back to the ancient Ba-Shu reign. Therefore, the urban territory is covered with more or less visible traces of architectonic facts that in a particular historical moment have added some significance to the man-environment relationship, re-shaping the understanding of the urban space in virtue of its transformation. This paper presents some projects of urban parks designed in three different historical circumstances: the republican period, the establishment of the New China after 1949, and the contemporary urban planning envisioned with the purpose of enlarging the urban boundaries of a city in continuous growth. The discourses concerning these public spaces allow the unraveling of their political and cultural meaning in time, while their spatialization as territorial practice implies the performance of specific logics, strongly connected with the need to recursively construct a collective identity in relation to the local. The analysis aims to highlight the planning of these urban spaces as structure of signification, legitimation, and performative activity in their specific contexts, also considering their contribution to the shaping of the image of the city.

Keywords

Urban parks, urban renewal, identity-building, Chongqing

1. Introduction

Chongqing urban transformation is fascinating from a quantitative and qualitative point of view. The urban surface in the city centre is doubled in ten years, from 362 sq.km in 2006 to 647 sq.km in 2016 (CTJ, 2006-2017). However, some local people still say that Chongqing is "the biggest countryside in the world" to indicate the fact that most of its population has not yet absorbed the urban lifestyle in their everyday experiences (personal communication, 2014). Chongqing as Municipality established in 1997 by the will of the central government, represents in its essence the hegemonic power of the party-state: It is a social and urban experiment, an artificial product created in order to find out the best practices to once again hold control over the territory and the population. Chongqing is born as a wrap of excellences after a story of submission to Sichuan Province (Hong Lijian, 1999); it has been planned to attract investments in its secure harbors, and in the meanwhile to stabilize and reduce as much as possible the migratory flows to the coast (Smart &

Hsu, 2007). Despite the desire to "become like the other global cities", the spread of "cultural uniformity among cities appealing to investors, professionals and consumers" as explained by Harvey (1989) has been a matter of concern during the planning of a solid long-term urban strategy. By diving in the rich cultural background of the place, and exploiting the beauty of its waterscape, the risk for Chongqing to be transformed into a "common city" – a so-called *putong chengshi*, has been avoided. The natural elements are particularly helping in pushing the positive change of image of the city: From the aesthetic point of view, in Chongqing dominates the *shanshui* essence, that is the perfect combination of mounts and waters as prescribed in the painting canons (Cheng F., 1979; Li Zehou, 1994). The conceptualization of space in terms of *fengshui* also finds a positive example in the disposition of the urban and natural elements of the city. And finally, nature is exploited as commodity in the economy of the place. In this context, the urban parks represent a solid chance for the ideological construction not only of the physical body in terms of

health, but also of the Chinese "spirit" through the praxis of learning while walking.

2. Theoretical framework

This study is based on Lefebvre's idea of space as social construct (Lefebvre, 1991). The production of social space reflects the ideological performance of a state of hegemony – the given space is temporarily fixed in sites and regions, and continually in change due to the fact that its significance is related to the people's performative actualizations of these spatial orders. Since it supplies the place with emotions and feelings, spatialization is important for achieving a successful governance. The emotional quality of space is that aspect of the power of space that has been conceptualized by Löw as "atmospheres, which can provoke moods in people, in extreme cases even against their will" (Löw, 2008: 46). In China the architecture, the overall urban planning, but also the advertising and the propaganda posters help in making a virtual social spatialization material, therefore real and ready for the person/customer to be embodied as ideological fact. Using Žižek's terminology, this is a process of "fetishism in practice", determined by conformism and personal benefits (Žižek, 1989).

Both as a material place and as a concept, the city is considered by Lefebvre as a privileged area for a cognitive momentum, leading to the implementation of practices that ensure the creation of new spaces and new significances. In the last century the dramatic increase of the percentage of land "urbanized" on the total, has become index of the potentiality for a greater control on the territory and the population that derives from the practice. According to Wirth, the modern city exerts a great influence, far beyond its institutionalized physical borders and its population density: The economic, political, and cultural life of this epoch has origin in the city, in particular through the development of modern ways of communication and transportation. "Urbanism as a way of life" implies the understanding of "cumulative practices distinctive of the mode of life associated with the growth of cities [...]"; the urban parks fall into the "construction of leisure time" category (Wirth, 1938). The emergence of the modern urban planning is theorized by Rabinov as a "turning point in the development of modern forms of political power and techniques for governance",

given through the *disciplinary quality* intrinsic in the nature of space as promoter of determinate social relations, that can be used to stage a certain socio-spatial ordering through the fulfillment of the aesthetic desire (2003: 352 in Low & Lawrence-Zúñiga, 2003). In fact, the natural resources become a medium for the performance of a sort of *immersive aesthetics* given by distance (the sight) and proximity (the touch): The production of knowledge is then bounded to what one observes and materializes as "objective reality", and what one feels through the atmosphere (Bartlem, 2005; Crang, 2009). Most importantly, the manipulation of the perceived landscape (here intended as "artwork") can reveal the logics behind the implementation of a certain spatial planning, thus pointing out the connection between the sensory experience and the local culture (Lyotard, 1982; Mirzoeff, 1999). In particular, it manifests the fact that the social material, both textual and visual, is a symbolic source of political power. Through the transposition of commodity fetishism to the conceptual-symbolic sphere, the stakeholders take advantage of cultural legacies and material heritage to enforce determinate economic policies at the local level (Baudrillard, Lovitt & Klopsch, 1976; Baudrillard, 1981). For example, the *fengshui* practice – ostracized as "unscientific and retrograde", therefore not in line with the Communist credo – has been recently de-politicized in order to be reintroduced in the Chinese language as synonym of aesthetic and spatial harmony (Bruun, 1996, 2003). Moreover, the current peculiar circumstances of China as both a socialist country and a practitioner of "neo-liberal" politics, allow an organic form of exploitation of the natural resources for their economic-symbolic power. In Chongqing the objectification of local traditions, stories, myths and historicized practices concerning the surrounding nature, is also linked to the desire to prompt consumerism on several fronts. This "postmodern form of ecological capital" (Escobar, 1996: 56-57) causes the alteration of the environment in a form of "cultural by-product" within the utilitarian circuits of capital production and shift (Strang, 1997).

The phase of advanced capitalism that we are experiencing, has exposed non only the environment but also the whole urban space to the interests of the circuits of capital, or as Harvey calls it, the "spatio-temporal fix" that acts in terms of temporal and spatial displacement. This explains the politics of land renewal and the massive investments in the real

estate sector (Harvey, 2003, 2004). In the case of China, the market saturation that has happened in the coastal regions since the end-nineties, has triggered the spiral of capital displacement towards some (state selected) internal regions, Chongqing included (Goodman, 2004). Since the end of the 2000s, the extension of the urban administrative boundaries has compromised the natural landscape while the local government has encouraged the growth of the upscale real estate market that benefits from the forest resources to build exclusive gated communities, affecting also the local parks purposes and dynamics (cf. Luttik, 2000). The narrative on urban development in China has been recursively object of ideological projects, particularly related to the idea of taming the natural forces in order to ensure the progress in socio-economic civilization (e.g. Bao Maohong, 2010; Shapiro, 2001). With the introduction in China of the modernist concepts of civil society, sanitation, and education on body wellness as a reflection of the well-being of the nation (Ma Chi, 2017; Morris, 2004), the natural environment became more and more objectified through the landscaping practices. The *decodification* of "the landscape as expression of human ideas, attitudes and aesthetics" (Williams, 1989: 95) is therefore the key to grasp its historical significance as ideological representation (Cosgrove, 1998; Cosgrove & Daniels, 1988; Hirsch & O'Hanlon, 1995; Spirn, 1998). Furthermore, the landscape beautification characteristics embodied in the park structures happen to determine the performance of a recursive process of identity-building that the local people are called to, through activities that recollect a form of individuality based on the "self-the others" dichotomy (Said, 1978; Gregory, 1995), and focused on re-establishing the legitimacy of the party-state as the country ruler in a moment of institutional change, thus rebalancing the local-global powers in order to facilitate the process of Chongqing urban metamorphosis (Swyngedouw, 2000; Swyngedouw et al., 2002). To accomplish this objective, the local government exploits also the urban parks for being social spaces embued with symbolic values derived from the past history of the city and the traditional culture, in line with the orthodox vision of *historical continuity* prompt by the aligned scholars, a concept that is itself the result of ideological manipulation (Barmé, 2013; Cheung, 2012; Dirlik, 2012).

2.1 Methodology

For what concerns the method, I have started making archive research at Chongqing National Library in 2011, and then in 2014-15. At the same time, I have carried on an ethnographic fieldwork mainly based on a prolonged period of participant observation in relation to the creation of new urban spaces, in particular in the main districts of Chongqing city. I have made large use of photography as a "way of looking with intention" (Sanders as cited in Hall, 2009: 4; cf. Hall, 2015; Sanders, 2007; Sidaway, 2002), but also to unravel a narrative concerning the re-construction of a sense of place. In this sense, photographs are acting as representations (Ballerini, 2004; Rose, 2008, 2016). I also acknowledge the connective and performative power of certain photos: For example, in this work the landscape pictures go further the representative scheme, enabling the performance of the "re-construction of an atmosphere or a feeling" (Crang, 2009: 14-16). The spatial analysis has been done using satellite images from Google Earth and Baidu Ditu. The discourse and visual analysis of state informative charts, local advertising, and online advertising, is based on semiotics following Barthes' theory of signs (Barthes, 1964).

The analysis aims to highlight the planning of three different urban parks which spatiality is structured through a process of signification, legitimation, and performative activity in their specific contexts. These spaces contribute to the shaping of the image of the city, making Chongqing recognizable through its historical-cultural, and naturalistic specificities while the local government dreams about the city future role in the global market scenario.

2.2 Literature review

Since the establishment of the municipality in 1997, Chongqing urban space has doubled the surface of built-up area in the core city from 361.63 sq.km in 2005 to 647.78 sq.km in 2018 (CJW, 2006: 1; Zhujiang shangbao, 2018). This process has seen the simultaneous increase in the rate of green space within the built-up area, mostly thanks to the absorption of forest zones within the urban park circuits so that the green has reached 40% of the urban (Tab. 1).
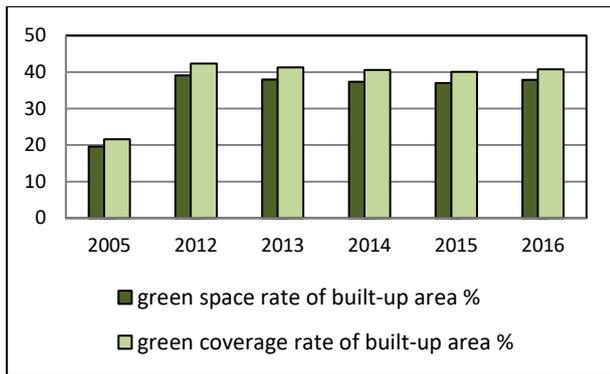
Tab. 1: Rate of green space within the built-up area (CJW, 2006: 59; CTJ, 2017, Ch. 8: 2)

Despite the local directives promoting environmental protection (e.g. Decree 204/2007), there are some loopholes that allow the spreading of activities consuming the territory such as zoning and gentrification. For instance, the promotion of urban parks and the administrative power to take planning initiatives "for the good of the people" are two of them, as explained in the aforementioned decree (Chinalaw.gov.cn, 2007). The directive n. 3/2009 on Chongqing "comprehensive planning of urban and rural development" stressed further the understanding of the natural environment as a source of economic profit, "the only sustainable way to boost a harmonious economic development" (Hu Xiaoxia, 2009; World Bank, 2013; Yu Yongding, 2009). This reflects the general internal politics carried on by the Party (China Daily, 2018; Yang Lina, 2014). Therefore, the general perception is that in Chinese urban planning "economic growth is always prioritized, with little consideration to sustainable development in legislation and political instruments" (Yu Cheng & Huang, 2012: 4). Being Chongqing a sort of experiment *suis generis* (Huang, 2010: 35), more value has been ascribed to all those practices that could potentiate both the economy and the level of social development, including the visit to the urban parks. Even if there can be manifold reasons to visit a park (health, historical-cultural interest, curiosity), however, the local government directs the citizenship towards the assimilation of a certain knowledge through the spreading of linguistic and visual sources in the environment. As Nyíri explains, this learning practice envisages a form of aesthetic fruition of the landscape based on the visual senses, where "the observer looks more for *authentication*

[process of identity building and confirmation] rather than authenticity" (Nyíri, 2006: 6).

3. Case studies

In this section I analyze three urban parks located in three different districts of Chongqing (Fig. 1). These parks differ from one another not only because of the historical moment in which they have been established, but also for the variety of promoters involved in their development, and their spatial characteristics. I dive in the logics behind the planning of these spaces, their distribution with respect to the surrounding area, and their aesthetics.
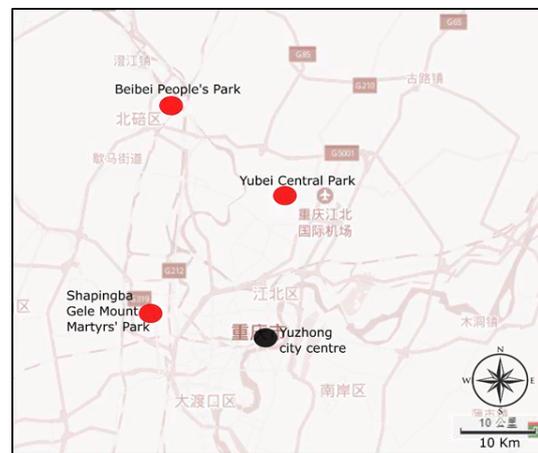

Fig. 1: The three case studies (rough map retrieved from Baidu ditu, and modified by Bonato, 2019)

3.1 Beibei People's Park

Beibei was originally a market place that had been founded during the Qing dynasty along the Jialing River in the countryside of Chongqing prefecture. Lu Zuofu, a self-made man born in 1893 from a poor Sichuanese family, is the architect behind the realization of Beibei as an incubator of modernist projects or as it was actually defined, "the Beibei model – *Beibei moshi*" (Zhang Jin, 2003: 172), that consisted of a comprehensive planning of the territory in the form of a *satellite town*:

"[...] No one cared about this little town in the past, until there appeared an outstanding figure, i.e. Mr. Lu Zuofu, President of Minsheng Shipping Company, and [Beibei] gradually won people's admiration" (Zhang Yuanheng, 1939: 26).

"[…] Beibei architecture follows a planning, it is in order and clean, the streets have a net shape with the intersection of meridian and parallel lines; it owns the distinctive style of a big city and in addition, it has a surplus of space that can be provided for the development of an urban district […] In the thirtieth year of the Republic of China [1941], the provincial government has specifically planned four county-districts (Bishan, Baxian, Hechuan and Jiangbei), whilst Beibei has been set up as administrative office. If every county town could have the same scope of Beibei, the political, economic, social and educative reconstruction of China would certainly see some progress!" (Huang Dashou, 1946: 32).

The project of the park started in 1927 as *pingming gongyuan*, lit. "park for the common people" or "civil park". It is important to underline the meaning of "*pingming*" since it keeps alive the essence of the reformist will of the new mercantile gentry in the first decades of the twentieth century, when this emerging social class was trying to compensate for the absence of a modern urban community:

"Lu Zuofu established this park to drive the masses towards the indoctrination [*jiaoyu*]; it is an important place to cultivate [*peiyang*] the modern organized livelihood of the urban residents, and it also represents one of its successes" (Beibei People's Park commemorative plate, author's field research, 2015).

The park which surface nowadays is 7.3 ha, is designed on a combination of tradition and modernity. The general aesthetics follows the *shanshui* pattern ("mounts and river") since the park is actually a hill that faces the Jialing River, as visible in Figure 2. In particular, the detailed map shows the hill where the park was located in 1939 in Beibei Town, and the *min kang jiaoyu lu,* i.e. the "teaching people to stay healthy" road on the top of it. Figure 3 demonstrates how the grid structure of the modernist settlement has been preserved to the present day, and Lu Zuofu house has been converted into a Memorial Hall to remember the prestige that Beibei reached in the 1930s (Fig. 3). The map in Figure 4 allows us to locate the park within the urban centre near those buildings fundamental for the establishment of a civilized town: The primary and secondary schools, the museum, the zoo, the assembly hall, the new dormitory block, and the "people's sports field" with the annexed tennis field. A progressive touch is given by the assimilation of a "Gothic taste" made of mysticism, and curiosity for the hidden and the unknown. As a sort of esoteric practice, the participant is called to walk following a circular way ascending towards the top of the hill, where a statue of Lu Zuofu is now located to commemorate his heroic deeds (Fig. 5).[1]

The traditional aesthetics of the "sightseeing" is emphasized through the building of pavilions, whilst the research for a modern Chinese culture is expressed by a particular architectonic structure that should represent the evolution of the typical Chinese bamboo and wood house: The brick and concrete house is characterized by windows with fake bamboo grates, and decorations resembling the traditional landscape painting and calligraphy that are reproduced in the concrete (Fig. 6). The westernized design of the zoo area, which is said to be the first one in the world where pandas were raised in captivity, follows the dictates of the art nouveau with stones set to form stylized floral schemes (Fig. 7).

The route map in Figure 8 is actually the result of a later Communist remodeling of the park, done with the purpose of re-assembling the republican period to the post-1949 China. Idealizing the modernist aesthetics, the map uses icons resembling the Egyptian hieroglyphics, and Chinese traditional characters of the *small seal script* (before 220 BCE).

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[1] Even if Lu Zuofu was a businessman, i.e. he belonged to the social class later object of fight by the Comunists, his figure and the memory of his gestures have represented no contradiction after 1949 for three reasons: 1) He died in 1952, well before the Cultural Revolution; 2) he was in favor of the statalization of his naval company, thus recognizing the legitimacy of the PRC; 3) his philanthropic and patriotic deeds during the anti-Japanese war had a strong symbolic value that could be used to forge a "pre-1949 hero" necessary to the historical foundation of New China.
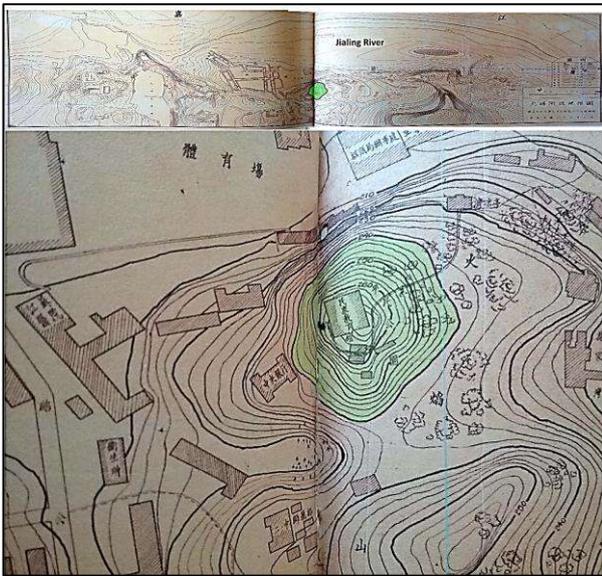
Fig. 2: Detail of Beibei Park from "Map of Beibei Area" 1939 (© CLDJ, 2013: 136; modified by Bonato, 2019)
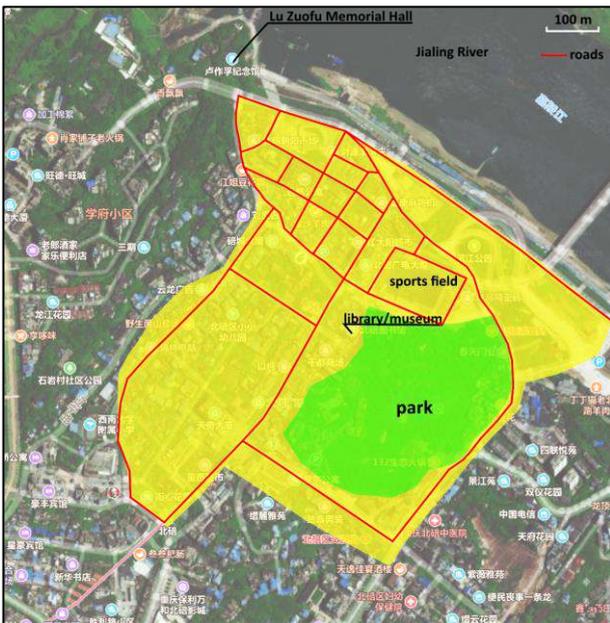

Fig. 3: Grid structure of Beibei Town as planned in 1920s (© Baidu ditu; modified by Bonato, 2019)
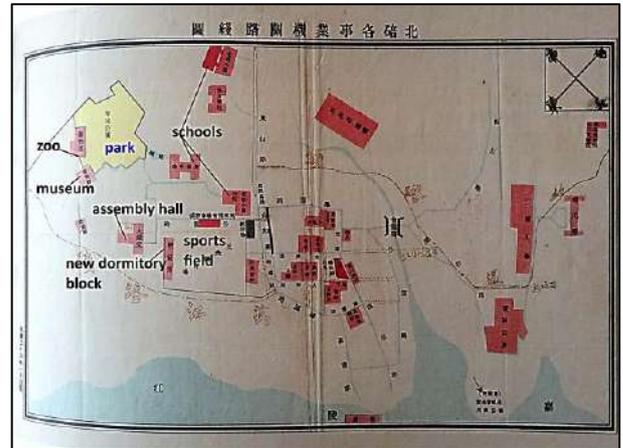

Fig. 4: "Beibei Public Institutions Map" 1937 (© CLDJ, 2013: 135; modified by Bonato, 2019)
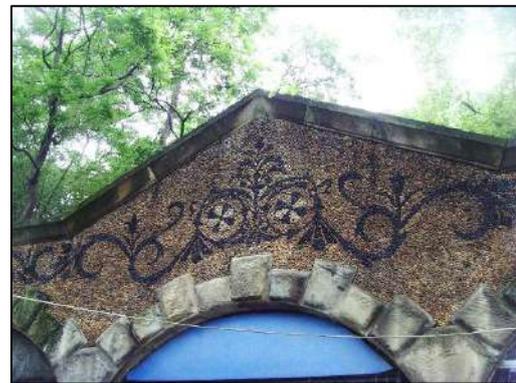
Fig. 5: Mosaic decoration above the animal cages. According to the entrance information board, Beibei People's Park was the first park-zoo in the world to raise pandas in cages (Bonato, 2015)

Fig. 6: Path to the top of the hill (Bonato, 2015)

Fig. 7: Wall decoration resembling a traditional landscape painting (Bonato, 2015)
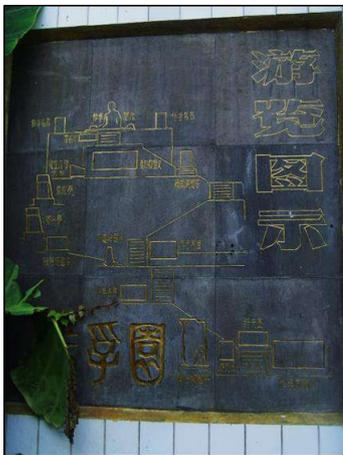
Fig. 8: The park route map, with hieroglyphic signs and ancient Chinese characters (Bonato, 2015)

3.2 *Shapingba Gele Mount Martyrs' Park*

Since the establishment of New China in 1949, radical modifications of the urban planning take place that allow the change in the previous conceptual spaces, and also the performance of new social practices later institutionalized as part of the orthodox use of the public space (Bray, 2005; Bjorklund,1986; Hua Lanhong, 2006). The Martyrs' Park on Gele Mount in Shapingba District, is an interesting example of ideological manipulation. The educative message conveyed to the visitor is related to the construction of a "red memory" which happens to be constantly re-staged during the touristic performance. This park demands a more challenging experience than the previous one, both in terms of material culture provided to the user, and of physical effort along the almost three kilometers of the path (Figure 9).[2] After entering the park, the first step along the pathway leading to the identity-construction in line with the "good socialist citizen", is the Zhazidong Prison. The site was designated as "Important Preservation of Historical Relics by the people's government of Sichuan Province" already in 1956, and then "National Preservation of Historic Relics by the State Council" in 1988. Originally opened as a coal pit in 1920s, many Communist prisoners were later moved here in 1940s, and lost their lives in 1949 when the prison was set on fire by "secret agents" (park informative board, Bonato 2015; Figures 10, and 11). This park holds also a great significance for the fact that it cherishes the spaces of what was called in 1943 "the Sino-American Cooperation Organization" during the anti-Japanese war of resistance: *Baigongguan*, a traditional architectonic structure build as the villa of the Sichuanese warlord Bai Ju, was later transformed into a KMT (Guomindang)[3] prison before stationing American soldiers. Here the walls are written with slogans such as in Figure 12: "The youth does not come back. Think carefully about it! Testify here and now, do not be ostinate". There follows the "forest of stones engraved with poems" dedicated to the valiant behavior of the communist militants dead in Chongqing (Fig. 13). The last step is the arrival at the long "Martyrs' Park stairs" that was signed by President Deng Xiaoping. As visible in Figure 14, the stairway is half covered by a red installation representing the national flag. On the top, a Soviet-style statue dominates the view. No matter in which direction one is walking, the symbolic power can be clearly perceived: The martyrs have enabled the country to become the super-power it is nowadays, and everyone should be grateful and show respect for this historical moment crucial to the establishment of New China.
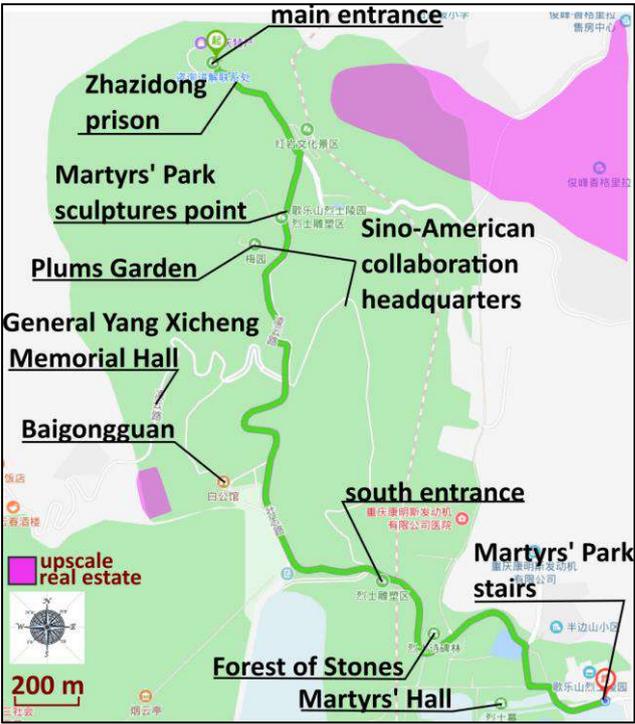
Fig. 9: Map showing Gele Mount Martyrs' Park main spots (© Baidu ditu; modified by Bonato, 2019)

Fig. 10: A torture room. A portrait of KMT Generalissimo Chiang Kai-shek is hanging under the writing "*tianxia wei gong*, the whole world as a community" (Bonato, 2015)

Fig. 11: Communist martyr Ye Ting, 1896-1946 (Bonato, 2015)

Fig. 12: Slogan on a wall at Baigongguan (URL: https://youimg1.c-ctrip.com/target/tg/426/251/877/d7930bb7a0784b4f9e9552540cc6219c.jpg; copyright unknown)

Fig. 13: The "forest of stones engraved with poems" (Bonato, 2015)

Fig. 14: Martyrs' Park square (Bonato, 2015)

3.3 Yubei Central Park

Chongqing contemporary urban planning has been envisioned with the purpose of enlarging the urban boundaries of a city in continuous growth. In fact, as stated in the "Chongqing comprehensive urban planning 2030" official directive and remarked in 2014 by the local Party Secretary Sun Zhengcai, the city should definitively affirm its strategic role as international hub by 2030 (Chongqing ribao, 2017). Yubei Central Park is located in the northern part of Yubei District where the urbanization process that

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[2] The pathway is actually longer than three km seen the many detours along the way. The visit to all the park attractions takes at least four hours.

[3] The KMT or Guomindang/Kuomintang was the Nationalist Party of China during the republican period. Its leader since 1925 was "Generalissimo" Chiang Kai-shek.

started in the 2000s, has been speeded up in the recent years. The area had been used for extensive agriculture before the local government started the confiscation of the land – it is therefore misleading to speak about "urban renewal" for a place that was formerly considered as countryside (Fig. 15). In 2009 the responsible for the building of the park and member of the provincial Party standing committee, Mr. Qin Wenmin, explained that Huan Mount (as the original hill was called) was unsuitable for further development because of the altitude (max. 458 m): In fact, building factories or skycrapers there would have affected the air traffic at the nearby airport. Therefore, the hill had to be leveled. Mr. Qin also said that

"At the periphery of Yubei District there have already been planned the Taishang Industrial Park and the International Expo Centre. Yubei needs now a green area to erase this 'taste of industrialization', thus allowing it to preserve the green blueprint that makes it the most livable district in the core city. As Huan Mount has been included in the future Liangjiang New Area, it is possible to exploit the hilly landscape to create a park" (Chongqing chenbao, 2009).

Thus, the Central Park was designed in 2011 to respond to the national expectations of majesty and technological-logistic excellence, combining together the characteristics of the "hilly countryside park" (*shandi jiaoye gongyuan*) and the "metropolis theme park" (*dushi zhuti gongyuan*; *ibid.*). In 2013 the local government reported it as "China biggest urban park among those established after the Opening Reforms [1980s]" (Baidu baike, 2018). The north-south length is 2,400 meters, and the width reaches 770 meters with a surface of 1.53 sq.km. The total investment for the project is estimated to be around 4.6 billion yuan:

"Merging together Western and Chinese culture, and relying on Chongqing typical 'mount and waters' [*shanshui*] elegant view, the modern [lit. contemporary] urban park reflects the beauty of the natural harmony. The five major scenic spots include the central square, a vivid waterscape, grassy hills, a peninsula reflecting on the lake, and the forest-stream combination" (*ibid.*).

As visible in Figure 16, the land surrounding the park has been developed into a business centre based on the local government attempt to partially

decentralize the activities out of the congested historic centre in Yuzhong District, following the practice of zoning in accordance with specific economic and social specializations. The park is structured according to the schemes of the so-called English garden: In fact, the landscape of this estate garden reveals a detailed study of the geometries and the aesthetics. The mysticism given by the contrast between open spaces and dense forests, the pseudo-ruins, the waterscape, and the exotic elements are all consciously employed to encourage the staging of an idyllic bucolic scene (Fig. 16). The park is aimed not only to help this "new place" to easily construct its own "soul", but also to increase the flow of tourists in an area of little interest from a historical point of view. For this reason, there are used particular exotic devices such as the building of a pseudo-church that has already become a famous spot where to take wedding pictures (Fig. 17). The purpose behind the design of the park has been to satisfy the population at different social levels, trying to capture the attention of the diverse costumer categories and relative age groups:

"This is a park for the *whole* people [*quanmin gongyuan*]. Because of its dimensions it has been planned following a complicated pattern based on multi-functionality to avoid the risk of resulting monotonous. It should fascinate and activate people's interest and enthusiasm. In this way, Huan Mount can become "an amusement park for everyone" [*quanmin leyuan*], the expression of an eco-dynamic civilized tourism, valorizing the natural landscape, the ecologic values and the personal recreational experience" (Chongqing chenbao, 2009).

The land near the park has been parceled and put to auction by the local government, with the consequent creation of a bubble of environmental gentrification all around the park where China bigger real estate developers are building their exclusive gated communities (Longfor, Wanke, Jinke, etc.). One example is Longfor Jinglin Jiuxu ("Clear Landscape New Order"): The name indicates the ability of the city to use the "old", i.e. the given landscape, to produce something "new", i.e. the Central Park, thus making the political vision of Chongqing as "megacity" emerge and establish at a global level.[4] The names of the other enclaves turn

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[4] Longfor Jinglin Jiuxu houses are on sale at the moment; the minimum price is 21,000 yuan/sq.m (Fangtianxia, 2019; retrieved on July 25, 2019). Chongqing average price for a

house in the new suburban districts, is around 9,000 yuan/sq.m.

around the idea of ecological shift, environmental protection, and the idyllic landscape as described in Chinese tradition (Tai Mount, jade stones, spring, pavilions, etc.).
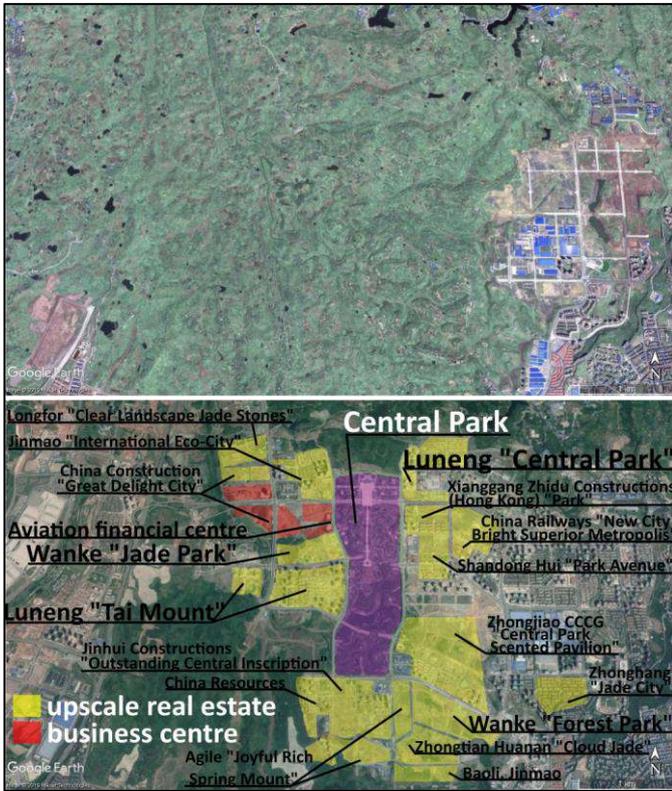

Fig. 15: Yubei land plot before urbanization in 2009, and in 2019 during the development of Central Park adjacent area (© Google Earth, and modified by Bonato, 2019)

Fig. 16: Bird-eye view of Yubei Central Park (© Baidu baike, screenshot Miaodong baike, 6'', n.d., URL: https://baike.baidu.com/item/%E4%B8%AD%E5%A4%AE%E5 %85%AC%E5%9B%AD/5215823?fromtitle=%E9%87%8D%E5 %BA%86%E4%B8%AD%E5%A4%AE%E5%85%AC%E5%9B% AD&fromid=4394223)

Fig. 17: Church built for touristic purposes within the park (© Baidu baike, screenshot Miaodong baike, 24'', n.d., URL: https://baike.baidu.com/item/%E4%B8%AD%E5%A4%AE%E5 %85%AC%E5%9B%AD/5215823?fromtitle=%E9%87%8D%E5 %BA%86%E4%B8%AD%E5%A4%AE%E5%85%AC%E5%9B% AD&fromid=4394223)

4. Analysis

The three case studies offer diverse interpretations of the public as space where the social relations can be modified according to temporary hegemonic discourses. Beibei People's Park designed during the republican period, was supposed to be one of the strengths of the modernist urban planning of Beibei, envisioned itself as a satellite-town on the garden-city model. The park promoted a sense of enchantment for the mystique, in Gothic and esoteric manners; its design encouraged the experimentation of aesthetic avant-gardes. A combination of Western and Chinese stylistic elements provided a double form of fetishism, one linked to the identity construction and the other one based on the idea of "the exotic other". The forms of fetishism related to the grotesque, are instead a typical Chinese heritage including the aesthetization of rocks as described in Tang-Song poetry in reference to an actual practice (Yang Xiaoshan, 2003: 91-103). The natural environment was supposed to "host" the new "superstructure", with no drastic rehash of the landscape. The philanthropic desire of the new gentry, appealing to a global knowledge of civil sharing and nationalist propaganda, idealized the park in the terms of a social project designed for the diffuse benefit of the local people's bodies and minds.

Shapingba Gele Mount Martyrs' Park is a clear example of spatial reinterpretation of pre-existing buildings for the construction of the socialist process

of mourning, and conceptualization of heroes' figures. The different artificial landscapes along the pathway reveal different purposes: Shock (the prisons), knowledge (the villas/American headquarters), emulation and admiration (the poetry), release of tensions (the stairway allows the view to spatialize the future of the socialist Chongqing through the opening of the view to the square, while the city beneath spreads a sense of reassurance, signified by the passage from the forest to the urban). The process of identity-building is linked here to the institution of the "red memory", a political education that differs from the civilizing desire of 1920s. This park has been a resource for mass tourism since 2010s, thanks to the combination of environmental experience and historical heritage.

Yubei Central Park reveals the functionalist essence of its planning through the surrounding practice of land gentrification, based on the commodification of the natural environment and its metamorphosis into an "acculturated" symbol of this phase of advanced capitalism (a phenomenon partially visible also in Shapingba). The park enables the increase in the land exchange value, one of the main revenues of the local government. The cultural understanding of nature as social product goes beyond the human desire to dominate the natural environment, touching the question of a "true Chinese" aesthetics within the flow of concepts in a globalizing network of resources. The modernist "city at human scale" finds a visual practice through the use of geometry, with a homogeneous disposition of the full/empty spaces within the park macro-structure. Looking at the unfinished harmonious balance, tension arises because of the ideal fix: A sense of immobility pervades the environment, due also to the socialist political sense of public space as manifesto of sobriety and power. Since nothing unexpected seems to possibly happen in this space, this park is somehow the antithesis of the modernist model that struggled for spaces of wonder. Finally, the visual experience is more valued than the performative gesture: More than a living space, this park is designed as a background for luxury practices related to the zoning process, and its planning seems to bring a tangible benefit to the upper-middle class residing in the surrounding enclaves. To conclude, the remaking of the landscape through these urban parks, conveys specific meanings related to 1) postcolonial discourses, in particular "nationalism-external enemies" discourses (Shapingba); 2) "local-global" perspectives for the acceptance of an iniquitous urban planning that favors the environmental gentrification (Yubei and Shapingba); 3) "republican modernism-contemporary renaissance" historical parallelisms to re-spread a legitimate view of historical continuity hitherto criticized by the Party (Beibei).

5. Conclusions

Through the presentation of three different urban parks, Chongqing appears as both a place of contemporary flow, and of assertive power derived by a solid historical tradition. The historical moment compressed between 1920s and 1940s is ideologically connected with the modernist ideas of rationality, science and sanitation, therefore, it is still useful in the ongoing process of patriotic identity-building. It also provides with a rejuvenated knowledge of the city as a "historical place before 1949" that seems necessary to feed the all-devouring industry of tourism. However, the socialist construction of the civilized Chinese can still be performed in the public parks that show specific references on the revolutionary martyrs. Since Chongqing is rich in places which memory and architectonic heritage have been selectively preserved, the local administration is able to turn these spaces into instruments of political legitimacy. Finally, the construction of the Central Park has allowed the re-politicization of urban and suburban spaces previously slipped away from the control of the local government, thus legitimizing arbitrary acts of dispossession and land grabbing. The local government propaganda on the need to build a "global image" for Chongqing in order to attract more investments in the territory, passes also through the creation of an idyllic pseudo-bucolic landscape which indelibly alters the actual beauty of Chongqing natural environment.

GLOSSARY

Dushi zhuti gongyuan 都市主题公园
Fengshui 风水
Jiaoyu 教育
Min kang jiaoyu lu 民康教育路
Peiyang 培养
Pingmin gongyuan 平民公园

Putong chengshi 普通城市
Quanmin leyuan 全民乐园
Quanmin gongyuan 全民公园
Shandi jiaoye gongyuan 山地郊野公园
Shanshui 山水
Tianxia wei gong 天下为公

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NEW RECONSTRUCTION PARADIGMS

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Abstract

The paper aim is to reflect and rethink the contemporary logic underlying the post-disaster emergency settlements.
Although in the world today there are more than four hundred disasters per year, the main consequences of which are always, on the part of affected people, the loss of their home and the forced start in a new temporary housing dimension (often very long), there is still no real interest and commitment to this particular subject in the architectural field. The organization of this unlucky category of ephemeral urbanism has so far been left to international relief agencies or national and international civil protection departments, which, if they play an irreplaceable role of first aid, perhaps they are not the suitable subjects to play also a territorial and architectural planning role.
The result of this way of working is indeed a housing response that is always the same and depersonalized, resulting mostly from the serial repetition of standardized modules, replicated indifferently in any part of the world, above the social, cultural and territorial characteristics of the single places.
Furthermore, the rigidity of this "urgent approach" never recognizes the need and importance of public space in these temporary settlements. Still today, after a disaster, in these villages, each family is simply the assignee of an accommodation, without the possibility of using a meeting and shared space. But if the main task of temporary settlements should be to guarantee resilience, how can one think that this happens if public space planning is taken into minimal consideration? Public space should always be declined in every programmatic phase, as a true place of reconstruction of the community. To guarantee this, architects should take part in the preventive planning of these settlements, and if there has not been (almost always), in the temporary phase, they should activate new participation methods, as practices of Tactical urbanism. To this end, the following paper illustrates both the serious problems that exist at global and national level, as well as the international examples and winning case studies, trying to outline new guidelines and action strategies in the central chapter.

Keywords

1. A global problem

Despite the wide theoretical production, the programmatic documentation and the drafting of several guidelines by the States and international organizations, it is difficult to find, in a practical and operational level, very real changes in the contemporary management of the emergency. In particular as regards the housing issue, it is sufficient to browse through the images of the many temporary camps, to realize the total disconnection between the good intentions of international theories and the real conditions of emergency management.

If on one hand psychology and sociology have developed specific knowledge with respect to psychosocial protection in typical situations of a calamitous event, on the other hand there is still a serious lack of attention to the spatial dimension, due to complete lack of architectural knowledge, still totally uninterested in these design spheres. The attention of architects and designers seems to be exhausted by the single housing module and its performance studio, without ever coming to consider the design of the entire masterplan of these ephemeral settlements.

In reality, the state of emergency continues to be often considered not as the result of serious design mistakes, to which to respond with a long-term multidisciplinary approach, but is rather understood as an urgent situation to be resolved exclusively with quick and instant actions. This persistent theoretical mistake, inevitably, produces the methodological error of considering as the only possible answer an intervention based exclusively on a cause-effect approach. This setting, by its nature, it is intended to provide only a formal and technocratic response, aimed at solving only

physical and technical problems, losing sight of all the other possible social and relational effects that the disaster has on the community.

Still too often, throughout the emergency phase, people tend to consider people affected by the disaster exclusively as "victims", alluding to the idea of an predominantly fragile humanity, totally dependent on external aid. This conviction leads to the implementation of a top-down intervention process, managed almost entirely by external administrators and military forces. Local authorities are deprived of their powers and there is a progressive militarization of the territory. Security comes before individuals, who have the sensation of being constantly dispossessed of their own places and experiences. In sharp contrast to the current manuals, the displaced people, labeled a "victim state", are not involved in any way in the management of the new temporary camps. They see continuous changes, to which they never have an active role. What results is a strong stress due not so much to the disaster's changes, but rather to the position of impotence from which it is suffered.

The lack of local participation and the serious gap between the theories and the actual methods of intervention, lead to the creation of settlements, mostly depersonalized, whose settlement and morphological logic often too closely follows the guidelines of the military field, which therefore it is always the same, whatever the geographical coordinates of the intervention. A neutral and neutralizing space, composed, almost exclusively, by the disorienting repetition of always the same housing modules, whose proximity relationships do not take into consideration the sense of privacy and then of home. Often used for the simplicity of design and rapidity of implementation, the linear or grid layout not only takes the interaction of the population into minimal consideration but also presents serious difficulties in the right location of the services. The latter tend to concentrate in a single area, not guaranteeing equitable access to resources, especially in the larger fields. Lastly, the rigidity of this "urgent" approach does not recognize the need for public space, in all its possible morphological and meaningful variations, often relegating to the closed and delimited space of a single module. The outer space is thus lacking in its own symbolism, remaining a resultant space. For all these characteristics, the people who live in these fields do not become inhabitants of it but simply passers-by, as the place is not experienced as such but it is as a simple location. Moreover, it should be known that "a home does not satisfy the need for a home, but this need is satisfied only when this house is inserted in a social context" (Solnit, 2009). In this regard, the proposals on the various and possible forms of settlement should constitute a central part of the programming.

Any place, be it permanent or temporary, has the ability to act actively on the psycho-physical well-being of people; to contribute to the personal fulfillment of the individual and to make it possible to anchor him in social life. Space is never something objective, but it is always a condition and symbol of relationships between individuals. It is, in fact, starting "from and through where" that the experience of each person is configured, and consequently, his being more or less well. Currently, as temporary buildings are designed, being able to be located virtually anywhere, they are made for nowhere.

It is precisely the lack of territorial ties and plurality of these spaces, which instead of bringing out individual identities and relationships, levels everything up, developing solitude and similarity. A place, therefore, conceived only around a single purpose, regardless of relationships, is always a space in which people do not recognize themselves, do not create a social fabric and consequently do not develop a common memory. It is, by definition, a non-place.

CHANCES

Fig 1. Refugee camp of first emergency, located in Sichuan, China, after the 2008 earthquake and refugee camp of second emergency in Japan.

2. The Italian context

More than fifty years after the terrible events of the Belice earthquake, which marked the beginning of the emergency debate in the history of the Republic, Italy is still without an effective post-earthquake policy. Despite the high frequency of calamitous events in our country, involving practically every generation and social class, unfortunately there is a sort of "historical incapacity" to derive a true guiding principle from the accumulated experience (Nimis, 2009). In addition to the positive experiences of the Friulian post-earthquake (1976) and the Umbrian-Marches earthquake (1997), in which the local communities were able to be protagonists of a reconstruction able to really maintain the identity of the places, it is found in all the other case studies a disappointing and bankruptcy management, in which administrative defaults, urban planning mistakes and scarce participation have not allowed the socio-territorial recovery.

In particular, the response to both the first emergency (tents) and the second phase (containers and prefabricated buildings) seems to have seriously stopped at a mere urgent logic, incapable, in all these years, of implementing a real design renewal

of the intervention methodologies and the materials used. The photos on the following page, not surprisingly, propose to show, through the most immediate comparison by images, how little the planning of temporary housing has changed, in all the Italian emergencies.

3. New paradigms, New architects

Therefore, in view of the particular contemporary world and national situation, which is increasingly emerging, the need for temporary housing developments, the architect must certainly review his intimate theories and mistakes about this particular architectural object. As temporary and ephemeral as any architecture, which wants to be called such, can no longer ignore the study of the place and the knowledge of the people who populate it. It must no longer be possible to treat temporary settlements such as military bases in the same way as temporary settlements for war refugees or displaced by disastrous events. If in the first (military bases) a planning of the social and relational fabric can be avoided, in the latter

Fig. 2: Photos of different first emergency fields. In order: Friuli 1976, Irpinia 1980, Abruzzo 2009, Emilia 2012, Marche 2016.

Fig 3: Photos of different second emergency fields. In order: Belice 1968, Marche 1997, Emilia 2012, Marche 2016.

(refugee camps and displaced persons) this becomes ethically unthinkable.

The architect is called upon to abandon, as soon as possible, the spasmodic and self-referential search exclusively for the aesthetics and performance of the single accommodation, to instead devote himself to planning the temporary masterplan in which these accommodations are placed. And it is very important that this awareness is born precisely by the architects themselves, who, for the authority dictated by their profession, are the first and perhaps the only ones capable of triggering a true cultural revolution, capable of bringing about and guaranteeing a change systemic and governance.

We need to return to asking questions that are as simple as they are fundamental, such as: For whom do you build? What needs do I solve with my project? after all, before devoting himself to the fruitful design of the very contemporary "non-places", such as stations, airports, shopping centers, tourist villages and others, the architect has always designed houses. He has always designed that physical and mental protection, that place of silence and habit in which everyone hopes to return at the end of the day. Because we all, though different, actually spend our lives "coming home".

Therefore, from what has been said so far: in what other context, if not in that in which a population (following a natural disaster) finds itself living, deprived of its own house, in a situation of extreme hardship, it may not be is the role of the architect considered to be very important, by its technical-humanist nature? Only the architect, always prepared to relate to a range of disciplines and knowledge, even many distant from each other, can be that figure able to make a substantial paradigm shift in temporary-emergency housing management.

Working and designing not only together with a team of landscape architects, geologists, urban planners, sociologists and psychologists but also and above all relating to local populations, in a process that is always participatory and inclusive. To do this, however, he must first implement a first major change in himself, which allows him to abandon the much-desired as well as static Architecture Study to lower himself more and more often among the people. For the geopolitical and economic changes taking place, the architect of the future will no longer be able to survive by continuing to work, as he does today, only for the most affluent class on the planet, but will necessarily have to open up to new and wider social classes.

Hoping that this change will take place soon, the following is the drafting of the fundamental actions, concerning the architect's possible role, in the planning of the temporary post-disaster settlements.

Preventive planning. In terms of safety and prevention, as has always been seen, the interest of the national scientific community and the support of institutional bodies, is activated only and always following the dramatic events (extemporaneously amplified by the media), and then systematically diminished immediately later, distracted by other and new emerging issues (Latina, 2001). Unfortunately, therefore, since there is no preventive and effective planning of temporary settlements today, still too often in the face of a disaster, are implemented mass evacuation actions, displacements and forced transfers of the affected populations.

In view of this, although emergency planning may appear to be very paradoxical and extremely difficult to perform, especially in the housing sector, it must necessarily be implemented: first and foremost precisely to allow the hard-hit populations to continue, despite everything, to live in the own places of origin.

The preventive planning could be composed of 3 main and interconnected phases, such as the selection of the most suitable site for temporary settlement, the design of the masterplan, the choice of architectural interventions. Each of these, to be performed with seriousness and therefore with positive results, should be implemented by professionals belonging to different scientific classes, so simplifying: the first concerns above all planning and territorial experts, geologists and landscapers; the second, architects, urban planners and sociologists; and finally the third, architects, designers and technologists (D'Auria, 2014). Particularly in the first phase, inherent to the choice of the site, every decision must always be taken in the respect of the European Landscape Convention, in order to guarantee the safeguard of the aesthetic and cultural peculiarities of each territory. Any settlement, in fact, even if only temporary and transitory, always requires a series of installations on the territory and therefore consequently has an

environmental impact in terms of infrastructures and network connections. Aware of this, therefore, designers should pay particular attention to the design of infrastructure systems capable of meeting reversibility requirements as much as individual housing units.

Masterplan care. A design of the settlement masterplan, concerted and preventive, which derives from a multi-disciplinary approach capable of understanding and activating all the professions, is the only way to be taken to ensure a truly dignified existence even to those affected by a disastrous event. To guarantee this, they must be designed:

The settlement plant. For a long-term transition settlement, an excessive geometric order can be ruled out, for example of the much used (and abused) Hippodamian plant, while a more organic plant should be privileged, so as to understand, of the many historical centers Italian and European (D'Auria, 2014). In fact, the plant itself, although temporary and transitory, must in any case embrace the spatial morphologies, in use by the local populations, and typical of the place in which it is located. The planimetric design should therefore move away from the rigidity that so distinguishes it today, in order to configure itself with greater freedom, in an attempt not to design the lives of others, but to allow life itself, harshly tried, to return to take over, charged with all the singularities it brings with it (Botti, 2010).

Public space. If the main task of temporary settlements should be to ensure a good degree of psychological resilience and tolerance to hardships (induced by forced relocation to a new place), as one may think that this happens by continuing to take minimal consideration the design of the public spaces and meeting places, within these fields? Public space should always be declined in every programmatic phase, as a true place of reconstruction of the community. It is in fact only in public space that the foundations are laid for the processes of local development and community cohesion, both important and fundamental for a good reconstruction. To this end, the reader is taken to the reading of the next chapter, in which is illustrated the example of the Japanese experience, worthy of having designed for the first time, small architectures of meeting for the communities, located just within the same temporary villages.

Residential units. The programmatic intent of the configuration of a transitional field, will be able to deploy its effectiveness only if the individual housing units will be designed to avoid the stylistic and formal poverty that has as a first consequence the creation of standardized, uniform and depersonalized villages. It is therefore necessary to try to re-propose as much as possible that formal and functional mixité capable as far as possible of delineating a saving social and relational mixité. In order to progressively lose those characteristics of serial constructions, the residential units could immediately be designed and planned for eventual additions, planimetric modifications, aggregations, remodeling of the exterior (D'Auria, 2014). Modules could be designed that do not give rise to anonymous houses, but that on the contrary can be made more and more individual and recognizable, to accentuate the correspondence to each personal life model (Botti, 2010).

Participation. Although bestowed and encouraged, in all the most authoritative international manuals, the theme of participation (following a calamity) can hardly become a real and concrete practice. This difficulty is unfortunately traceable especially in the richest and most advanced countries, where a complex and rigid bureaucratic system and widespread command and control practices (managed by institutional and governmental bodies), make this approach "bottom up" too often inert and little incisive, in favor of the most classic "top down" interventions.

Before an emergency phase, all the appropriately planned interventions should increasingly respond to metacriters, able to guarantee not only the immediate effectiveness (in case of emergency) of planning, but also and above all the involvement of the residents and therefore the recognition and identification between citizenship and the future emergency settlement (D'Auria, 2014). And the architect should be the true advocate and guarantor of the rise of this participatory and sociocratic model, attentive to the evolving needs and demands of the social partners.

After the outbreak of an emergency, if all this ex ante participatory process was not completed, the architect's main goal should be to provide emancipation tools, to allow citizens to act alone and be able to improve their own temporary environment. In this case, dynamic practices of Tactical Urbanism could be implemented within the

same transitional settlements imposed from above. Born in America, above all to stimulate potential changes inherent to street design, in the last decade Tactical Urbanism has become an international movement, resulting in a profound change in the way communities think about developing and delivering projects. Because of its participatory and temporary nature, being able to involve the inhabitants in urban regeneration processes on a small-scale neighborhood and through short-term spatial and political interventions, Tactical Urbanism can be a very interesting and effective design methodology, to be implemented and to experiment precisely in those temporary and term settlements.

4. The Japanese example

In the week following the big earthquake-tsunami, which hit eastern Japan in 2011, a group of architects led by Toyo Ito created a voluntary organization in order to devise a project that could really help the affected populations. From this initiative, which also involves many young architects, the "Home for All" project is developed: community spaces or play areas, mostly located in temporary villages or near fishing ports, where people can meet, talk and eat together. Even here, in fact, due to the homologated (and homologating) emergency response, which until now is about the same in the whole world, the displaced people find themselves living in small standardized temporary lodgings where, lacking any space for socialization, they are often forced to lead an isolated existence. With the intent of keeping the social network alive, the "Home for All" project creates small, welcoming and original designs, in which displaced persons can really develop a resilient and pro-active approach to future events. This resilience develops not only in the moment of use of these spaces but already from their conception, being designed from the first moments in a shared and participatory manner. Once the traditional architect-client barrier has been eliminated, the Toyo Ito team establishes a constant dialogue with the people affected by the disaster: an exchange of meetings, shared time, questions and a lot of research. And it is precisely this positive mixture between those who "make" structures and those who "live" them that ultimately represent the true distinctive note of this successful project. So far 14 architectures have been

created and 3 are in the planning stage. All made possible only thanks to the system of national and international donations or charitable organizations. Even in Japan, in fact, the slow and highly bureaucratic reconstruction often involves only high-level politicians, landowners, large companies, technicians and planning experts to the detriment of the many independent architects, generally ignored and discouraged by the legislative mechanism. In this context, however, privately sponsored projects such as "Home for All" are changing the conception of the role of the architect, increasing the possible approaches in reconstruction situations and bypassing the official processes, to work directly with the local communities (also of the all or ignored by the business of reconstruction). For these reasons, the systemic and extremely organized activity of "Home for All", fielded by Toyo Ito and colleagues, turns out to be an example, today unique in the world, for all those designers interested in creating bottom-up construction processes in vulnerable contexts.

Fig. 4: Photos of different Home for All. In order: Higashimatsushima (playground) and Rikuzentakata (community space).

5. Other examples in the world

Although the Japanese experience is still the only true organized systemic design, other positive experiences of participating designs can be found also in other places in the world.

Italy. Starting from our country, it is interesting to mention the Parcobaleno experience. It is a multi-purpose space, created through a process of participatory planning and self-construction, conceived by VIVIAMOLAq, an informal group of students and former students of the University of L'Aquila, formed following the 2009 earthquake. The intervention develops in the M.a.p. area of Santa Rufina, in particular in an empty space, in front of the already existing multi-purpose room: the intent consists precisely in bringing the recreational and recreational activities even outside.

After a door-to-door investigation, conducted in these temporary settlements, was found the strong need for gathering and meeting places, to be dedicated not only to children, but also to adults and elderly people. The project idea then materialized in a single fluid element, a "ribbon", which envelops the area and incorporates the various functions, subdividing them into thematic areas: creativity, sports, traditional games, equipped green areas.

China. After the earthquake of 2012, thanks to the initiative of the architects Ottevaere and Lin, the University of Hong Kong decided to promote the realization of various wooden micro-architectures in some temporary villages.

It is the Pinch, a small library to promote the recovery of social life; the Sweep, a viewing and gaming platform located at the entrance of a local elementary school (built in six days by 65 students); the Warp, meeting and trade point, located on the main street of the village.

These three projects reaffirm the potential of wooden buildings, which despite being traditional in these areas, are nowadays less and less used for temporary camps, to the detriment of the great skills of local carpenters and craftsmen.

Greece. The synergistic collaboration between the Spanish collective BoaMistura3, which carried out the project of artistic decoration of the square and the ABVM studio, which created it above the Maidan Tent, gave rise to the first public space, so far never existed, in a refugee camp.

Taking inspiration precisely from the cultures of the refugees's countries, the square's artists are inspired by the girihs, the geometric forms of Islamic art, in order to strengthen the sense of belonging to the place from which the inhabitants of the camp were forced to escape. Then the project of the Italian ABVM Studio, called Maidan Tent, is based on this artistic basis: a covered space designed to be easily installed in all contexts where a temporary community and community place is needed. It is in fact a simple inflatable tent, characterized by a particular installation speed and excellent thermal insulation characteristics.

Lebanon. Catalytic Action, a non-profit design studio that works internationally, has designed a special playground in a refugee camp.

It is interesting because during the whole process, both in terms of conception and realization, children were given the highest priority, involving them within a dynamic participatory process, characterized by multiple actors and organizations. The playground, which can be easily dismantled and reassembled, in the event that refugees return to their homes, includes a central playing field, able to support different activities (events, shows), and semi-covered play areas made of wooden elements and recovery.

Fig. 5: In order: Parcobaleno, L'Aquila in Italy (2012); The Warp in China (2015); Ibtasem- playgrounf for Syrian refugee children in Lebanon (2015); Maidan Tent in Greece (2018)

6. Conclusion

If on the one hand this paper has dramatically highlighted the serious existing deficits in the contemporary emergency response, on the other, through theoretical and empirical investigations, it has emerged how a better and new approach is really possible. To do this, we must first stop dealing with the emergency as an urgent practice, focused only on primary and material needs, and instead recognize how it is more realistically composed of a multitude of different and distinct phases. For this reason, the way and the methodology used to heal the housing demand, dictated by a disaster, must be considered of fundamental and central importance. Although temporary, the types of housing put in place, if properly and previously planned, can contribute to affirming that much needed resilient approach, so precious both in the individual and at the community level.

In this particular planning, at the same time territorial, architectural and social, the figure of the architect is more than ever necessary. It is in fact the only expert, by his nature a technologist-humanist, able to make substantial changes in what today is outlined as a lack of housing planning. Rather than "finished projects", "completed processes" must be pursued, in which the architect, together with a team of sociologists, psychologists and landscape architects, is finally able to co-design alongside the local populations.

In fact, in the face of the future that awaits us, today more than ever, the architecture, be it temporary, ephemeral or lasting, is called to be increasingly participatory.

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THE "OPEN SOURCE PARK": INNOVATING THE DESIGN-BUILD-OPERATE CYCLE IN BOTTOM-UP MANAGED PUBLIC SPACE

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Abstract

The paper will present the experience of the "Open Source Park", an experimental public space, furnished by systems digitally fabricated by small local laboratories and based on a bottom up community management. The project started as a collaboration between the Department of Architecture of Roma Tre University with the "Roma Makers" movement, that federates all Fab-Labs of Rome Metropolitan area, and the "Casetta Rossa" community, a social experiment of community-managed park called "Crazy Horse" and located in the "Garbatella" district, one of the most active and community-rooted neighbourhoods of the city.

The Open Source concept aims at a "bottom up" design/fabricate/use cycle for public parks, where an open design is released to local facilities like Fab-Labs, and maintained by a community that participate to production of its parts, often vandalized or abandoned. But Open Source also aims at generating "open" forms, that allow for evolution and change over time, according to use evidence but also promoting, at the same time, its ambiguity, following up on a research on multi-sense sculptural space for kids originally developed by Sculptor Isamu Noguchi. The project focuses on a lightweight, sustainable material like wood. The result is a "collective authorship", with a series a projects that provide a combination of uniformity of material, color, approach, with a great and urban variety of forms. After showcases in two editions of the European Maker Faire, the project started its "wild file" in the "Crazy Horse" park in Rome in 2018 and in a secondo space in Caserta, in 2019.

Keywords (max 4)

Open Source, Design, Digital Manufacturing, Subsidiarity

1. A new kind of public space

The Open Source Park project is the attempt to build a new kind of public space, based on an active attitude by citizens and a local, digitized and not expensive fabrication of its furniture.

2. The history of the project: its actors

The Open Source Park project starts from the meeting of social and digital innovation. While digital innovation is provided by a direct, digitally managed design-to-fabrication stream, social innovation in this case is embodied by the "bottom up management" of public space. Local communities get from Administrations the responsibility of maintenance and management of Public Goods, and of parks in this case, thanks to the allowance introduced in Italian Constitution by a Reformation Act approved by Italian Parliament in 2001[1].

The core concept behind this marriage is a different framework of responsibility that can be symmetrically found in both domains. In the digital innovation it is introduced by the concept of "distributed fabrication" linked to the birth of the Fab Lab movement (Gehrshenfeld, 2001). In this new context the designer, or the private invidual, both identified by the new role of "Makers", embrace a new responsibility on Direct Fabrication of goods, originally rooted in dedicated production companies.

In social innovation, symmetrically, such new responsibility pattern is introduced when a community embraces a new role in public space

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"The Constitutional Reform Act of 2001 that recognized the importance of 'active citizenship' by introducing the so-called "principle of horizontal subsidiarity" in article 118, par. 4, of the Italian Constitution, which establishes that: "The State, regions, metropolitan cities, provinces and municipalities shall promote the autonomous initiatives of citizens, both as individuals and as members of associations, in carrying out activities of general interest, on the basis of

the principle of subsidiarity". The constitutional reform, by recognizing that citizens can act for the common good and instructing institutions to support and encourage such efforts, confirms both that citizens have several capabilities and that they can use them to solve not just their own problems but also those that concern the community". Retrieved from https://www.labsus.org/progetto/

management, originally rooted in the State. It is normally identified by the definition of "Active Citizenship". The "Active citizen" and the "Maker" are both actors of a "responsibility disruption". The Open Source Park project aims at explore what happens when they collaborate and builds a "design framework" to allow this collaboration to happen to build a new kind of public space.

The idea to build such new concept for pubic space was born during a brainstorming event called "Misticanza"[2], organized by Rome Administration to gather together social and digital innovators of the Rome Metropolitan Area. The workshop atmosphere of the event led to the first collaboration between the University Design Department and the "Roma Makers movement", an association federating the Fab Lab network of the Rome Metropolitan Area. The collaboration started from the shared idea to fight "the frustration of parents" in public parks. In Rome they are forced to watch their kids play in vandalized playgrounds and feel to have no weapons to solve the problem, no possibility to fix anything. The same frustration that can be extended to unmanaged vegetation, diffused garbage, the sensation of seeing spaces that seem abandoned. The question raised was "Why can't this be fixed?" and the immediate response was that It's a matter of responsibility: if I fix something, then I become responsible on possible damages occurring to other people using it

During the discussion, he started to involve the existing groups of bottom-up management of parks: the actors started to be all on stage, waiting for the future drama to happen.

Let's take a closer look at the actors of this collaboration:

o   A community managed space;
o   A local digital fabrication facility;
o   A network of designers;

2.1. Actors: community managed spaces

When we mention a "community managed space" the defitnition comes from the studies done by Labsus, achronym of "Laboratory for subsidiarity".

Labsus is an Italian volunteering group born "on a certainty: people do not only hold needs but also

capabilities, and it is possible that such capabilities are offered to the community to contribute finding solutions to issues of common interest, in alliance with the government". The group promoted the birth in Italy of the "Collaboration Pacts". They are legally recognized contracts between a group of citizens, or, better of *active citizens*, and the Administration of towns. They basically translate into actual legal rules the general principle introduced in the Constitution. The first one of its kind was written with the help of Labsus and approved by the city of Bologna in 2014 (Arena, 2014). It was, definitely a very important achievement, and after its adoption an incredible interest emerged in the whole country with people downloading the text from Labsus website, and from that point the movement grew up to over 400 approved "Collaboration Pacts". Labsus aims at having the highest possible number of people aware of this possibility and possibly mobilize themselves, but despite their efforts, they seem to have found a real trend, a way to give a name to a deep wish of contemporary citizenship. Then the question becomes: how do we design for subsidiarity? Digital fabrication can be a great ally.

2.2 Actors: the Fab Lab movement

Digital fabrication can be considered of course an innovation in itself, but Neil Gershenfeld in his brilliant book highlighted how big was in the fabrication domain the parallel "personal" revolution that happened in early 80s for computers. The notion of "distributed fabrication" is one the core paradigms that the Open Source Park uses, in that sense looking at experiences like OpenDesk, the successful start up providing projects licensed in Creative Commons and fabricated by a network of local laboratories. But the Fab Lab idea and the related movement have their origins in research, being an educational outreach of MIT's Center of Bits and Atoms, as stated in its description on the Fab Foundation website. It starts as technical prototyping platform for invention and innovation. A place intentionally "loose". A place to play, invent, create, learn, born to open up possibilities and work as a "stimulus" to local entrepreneurship, born clearly this way in its original vision, evolved in time and found several identities with different names: aside FabLabs we've seen grow Hackerspaces, Makerspaces, Techshops, with slightly

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[2] The name is inspired by the name of a spring salad that combines randomly very different leaves and flavours

different rules and approaches (Gadjanski, 2015). The Fab Lab became closely associated with the Maker movement (Dougherty, 2012), followed then the birth of a magazine called MAKE, in 2015, and by the lucky series of Maker Faires. During those times, authors identified a key in the "democratization of technology", that was leading to a new way of making things, and in the most radical vision, to an Industrial revolution (Anderson, 2014). Democratization, in our context is a keyword, since it brings back a large audience to technical issues, it builds a social and creative "space" around technology. It's a philosophycal approach, allowed by a practical availability of accesible tech. And yes, the Open Source Park started its experimentation with Fab Labs, and was firstly exhibited at European Maker Faire. So the path is there and can work. But a third actor is necessary : a different design mindset.

2.3 Actors: the network of designers

The third actor of the Open Source Park is the "design framework" and the question here starts to be even more crucial, since bottom up processes often conflict with the idea of a design, often seen as a purely centralized, unique idea, coming off a unknown inspiration. The Open Source Park originated in a University Design Studio, focused on a particular interpretation of parametic design, where on the contrary designs have been developed by a network of students under a precise set of rules, including a clearly defined fabrication technique. A strange pattern of "collective authorship" emerged. It could be defined as authoring the environment and leave freedom on its last miles, but the rules used play a crucial role and are explored in the next paragraph.

3. The technical aspects. Defining principles of an "Open Source" design brief

Producing an "Open Source" approach to design and architecture is course an already explored topic, with different interpretations and is linked to the main question of how to "embody" concepts rooted in digital environment into a spatial and physical environment that go from the most bottom-up and experimental to the most top-down Academic efforts (Ratti, 2015).

If SHoP Architects explored the idea of versioning (SHoP, 2013) and how to explore the translation of this software design approach into architecture,

people like Alejandro Aravena and Elemental tried to produce a physical space able to evolve with people contribution in the pluri-awarded designs tor their social housing, later released for public reuse on its office website. In both cases, a profound wish is to be effective in real-world processes, no matter if at manufacturing or urban scales.

The Open Source Park approach established three levels to be explored in the Design Studio:

1. Open Form
2. Quickly Social
3. Wooden Fashion

They together formed the set of rules providing three cores to be integrated in their projects by the students of Parametric Design Studio run at Roma Tre University.

3.1 OS principle #1: Open Form

One of the strangest reactions to the digital approach to architecture and design is seen into it providing a "rigid" cage around form and architectural conception, often due to seeing it bound to being "just in the black box". On the contrary, the research on the impact of digital culture to architecture since the pioneering period not only focused on how to extend the domain of architectural design and empower it, but also looking at ways to introduce, as much as possible, unpredictability, data from real life, impromptu facts, and most interestingly, *vagueness* (Spuybroek, 2004). What should be, then, such "structure of vagueness" is open to different interpretations. It can be a form made of continuously variable components, or, rather, a rough, undefined space. In both cases it's full of ambiguity and therefore open to interpretations. In one word: playful. This aspect was the link introduced to the design of playgrounds by sculptor Isamu Noguchi, who produced an entire activity inspired by providing kids its powerful combination of scuplture and play in extremely poetic designs, unlucky in being realized at its time, but incredibly foreseeing a sensitivity now easily accepted (Larrivee, 2011).
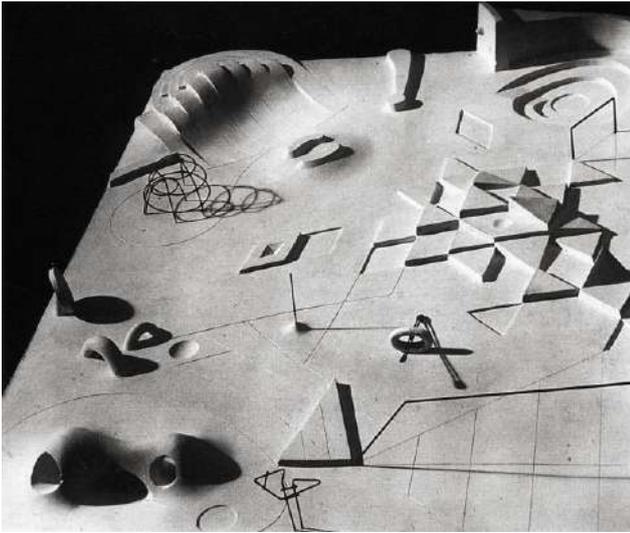
Fig. 1: Isamu Noguchi model for the UN playground, 1952

Students were constantly pushed towards ambiguity, towards extending their forms not only on allowing more different activities to happen on the same object, but also to allow unpredictable uses, to leave, somehow, the question open. A "rule" more seen as a push rather than as a constrain.

3.2 OS principle #2: Quickly Social

The second principle provided to students is the inspiration from direct, quick, social occupancy of public space through installations that can be rather temporary, made of recovered materials, and in any case generating unusual, unexpected uses. It can be bringing temporary green spaces to city centers, up to the extreme peformances of the "guerrilla gardening" movement or, also, experiences like furnishing green spaces abandoned or recovered from crime through recovered, reused materials in unsual configurations, using innovation, like the "recycle game" built using 3D printed parts in the former villa of a gangster close to Venice. Or, again, lightweight installations in the city that are fully populated, becase they basically just act as social "enzymes". A structure not made to respond to a program, but rather to actually generate it. But of course the attitude to freely occupy public space with furniture, often taken from homes, right outside their doors, it's a typical feature of Mediterranean villages

3.3 OS principle #3: Wooden Fashion

The third principle exposed to the students is directly related to the digital fabrication paradigm. It is, in fact, very much linked with the previous paragraph since CNC, direct manufacturing and file-to-factory are here seen as direct applications of the Makers movement, but interpreted to become "quickly social". Fabrication and assembly methods have the role to allow all the actors and notions introduced until now start to come together.

Projects had to take into account their immediate fabrication starting from the most simple principle that is considering all parts as being cut from flat wooden sheets of plywood. The main design metaphor chosen here was fashion: garment design includes generation of its patterns: the same happens here. But pieces, patterns have to "express such process", and therefore the connection method chosen is the so-called "Press-Fit": no glue, no steel, all connections are visible, evident, somehow "open". The choice to work with laser cut at the scale of furniture was in that sense making this principle even more evident to people perceiving the built structures, and to young designers as well: they had to fabricate scale models of their pieces, and their simple assembly started to stimulate big changes in the original conception. A "serendipity of assembly" started to come into play into the design process.

4. The Design Phase

The actors and the design principles introduced until now started to come into play in a Design Studio at Roma Tre University that involved two fabrication laboratories: the "Roma Makers" Fab Lab Network and a private woodworking company and the firsr community of the "Crazy Horse" park, located in Garbatella neighbourhood, righ in front of Roma Makers first Fab Lab location. Students have been put directly in touch with fabrication partners and with the community, with a very strict brief: designs had to be buildable by Fab Lab machinery and easy to be assembled with a "Press-Fit" technique, meaning with no glue and no screws or metal connections. Their design, then had to be used by the community, taking into account their needs and their park management routines. A crucial instrument for building their awareness was the organization of On site workshops, where their proposal were discussed directly by the actors, in a public space in the neighbourhood.

4.1 Design development : on site workshops

The importance of being on site was important in that sense not only to raise awareness in students and designers, but also bo build awareness it in the actor themselves. In fact, if now actors and factors are presented as coherently involved, they came in one by one, slowly, understanding the project thanks to a first contact with a group of proactive students and researchers. This granted, generous first move is somehow an uncoscius application, for that time, of what later was discovered as "active citizenship" in the definition of Labsus.

Fig. 2: Students, researchers, people from Fab Lab, the neighboughrood and companies during the project presentation night, event included in 2018 Rome "Maker Week"

One the most significative aspects of the enzyme approach in this case is that the project was imagined as a "Fab Lab in the park": the first application involved a very active and lively neighbourhood of Rome, such as the "Garbatella" District, where the Roman Fab Lab established its first workshop, lying right in front of a "community managed park" (initially squatted: Collaborations Pacts were not yet available at that time in Rome), called "Crazy Horse". Significantly, while people knew each other, they weren't really taking on joint initiatives until the beginning of the Open Source Park project. So the first move was to invite the community park people to come and comment the students projects and enter the Fab Lab exhibition space, right in front of the park. The projects remained on exhibit for some time, and people would enter randomly to ask about them. Kids played with their small maquettes, built

the same way as press-fit models, and therefore ready for a play attitude.

Fig. 3: Kids playing with maquettes of the Open Source Park projects during one of the exhibitions in the neighbourhood

Kids interaction says a lot about a possible reason the general acceptance and fascination of people for the whole set of designs. An exposed fabrication method in final form makes it "rough and provisional", to quote an interesting article on post-digital architecture by Hopkins (2018). But most importantly it provides a feeling of possibilty of intervention, form becomes inclusive, without being too specific, a problem often associated with designs targeted to specific groups, being kids, but also disabled people[3]. During a public evening event, open to public, the whole group of stakeholders, students, people gather together to choose the projects to prototype. A decision made easier by the clear definition of their impact in terms of panels, fabrication time and therefore global effort needed, included since the beginning in their designs. Two very efficient projects were selected and were fabricated in two different endeavours.

4.2 Prototype fabrication and first public testing

Fabricated prorotypes of the projects selectred through the interaction with the neighbourhood were publicly tested during Maker Faire exhibition, hosted in Rome in its European Edition. The University booth hosted both the whole set of Maquettes, providing an image of the park atmoshpere, and two 1:1 scale prototypes. The Maker Faire was a big step for the students that

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[3] While inclusive and universal design look for a design open freely to different users, often park furniture is designed "for disabled people", reaching exactly the opposite effect.

Fig. 4: Opening day of the First Open Source Park Installation in the "Crazy Horse" Park in Rome, Italy:

explored the effects of trust and of the different responsibilities involved in allowing a direct relationship between design, making and use. In parallel an unspoken but powerful character is in having architecture and design exhibited in an event based on innovation, on bottom up experimentation, on naivete, stimulating people on discovery.

The event was also a good mean to stimulate fabrication donation from the partners, and was hosted for free in the University booth of the Fair so, again, a combination of "active" contributions by all parties. Of course these contributions were launched, promoted, stimulated by a "design framework initiative", discussed later in the conclusions. But Making, intended as a renewed contemporay embodiement of authoring through producing, (Benjamin, 1934) is its core. The importance of this first step, and of the fair as providing witnesses was a crucial move, pretty much like what happened in Bologna for the Collaboration Pacts. Interest started to raise and Case Study was mature for its city application

4.3 The first case study: opening of the first "open source" public park in Rome

In Spring 2017, after the first winter fair, the prototypes were donated to the "Crazy Horse" Park in a wonderful day. Kids were absolute leaders of the adoption of the new mobile, strange furniture to their park. The Crazy Horse park can be defined a "Point of Presence", to recall a definition once popular in the first Intenet Scene.

Fig. 5: Kids playing with one of the Fit It! Chairs in the Crazy Horse Park opening event

Thanks to a small restaurant/café in a recovered old building, somebody is always there, and there is a gated storage behind the house.

The park life is in an interesting balance between a purely public space, and an "open house garden". The issues arrived during the discussion with students were the fixed location of seats, avoiding people to gather together in groups easily, the presence of slopes that made most parts of the park unused, the wish to host a book crossing activity, among others. The idea, given also the idea of lightweight, happening-like furnishing scope given as design brief, was to produce lightweight mobile structures, able to be easily brought at night in the fenced part, easy to be moved by kids and old people, strange and playful, of course.

Fig. 6b: Kids and a family playing with the "Four C System" imagining it in different configurations as a "mobile reading machine".

Fig. 6a: Kids playing with the "Four C System" constantly changing its meaning: a spaceship

The two selected projects were the "Four C System", a system of forms working as seats, vases, bookshelfs, able to combined and rotates to form a chaiselongue and different configurations, and the "Fit it!" chairs, incredibly efficient from the point of view of nesting, since they were coming from just one sheet of plywood. They were though as working for the sloped parts of the park, and to be easily moved around. Both had a great success and started to animate the park configuration, by being constantly moved around. The space of the park started to change immediately, the "happening effect" took place.

Another effect observed by the Park Community was how kids started to put their imagination on the new objects, and use their ambiguity. The seats and containers of the "Four C System", aside of hosting books and bring them around the space, and offer also finally the additional chair to groups that wanted to gather together, they became also and soon "spaceships", but also "boats" and became part of a open air class simulation game, where they would become alternatively the professor, the students and so on. Something became fully available to them.

Fig. 6c: Assembly and disassembly, moving and even fixing dry assembled furniture was a funny and important component of park city life

Fig. 7: The Open Source Park at Maker Faire 2018: the "Trunk Pyramid" project
soon opened-up a finite and unforeseen space of play involving moving, digging, climbing and even disassembly.

4.4 A second series of projects and prototypes

In Winter 2018, a second series of projects were deveoped and prototypes exhibited in the new edition of the Faire. Projects followed the already defined path, with new topics involving cables in the dry assembly but also a deeper involvement of play.

The impact of the project called "pyramid trunk" during the Faire was pretty impressive in its capacity also to represent clearly the intentions of the Open Source Park. While people would sit and lean on it, kids started to go inside, combine the modules, climb its parts.

The *impromptu*, unpredictable serendipity came then into play when parts, intentionally not assembled with low tolerances, started to be forced and opened up in some parts. The "pyramid trunk" soon became also a giant assembly set, incredibly playful.

Fig. 8: A proud "student-Maker" showing the protoype of the "Pyramid Trunk" in its assembled closed configuration at 2018 Maker Faire setting up.

Even student intention was in a way overcomed by the group interpretation, by fabrication interpretation, by people interpretation. But, in this case, the projects seemed to react positively, embodying in their essence the notion of versioning (ShoP, 2012) as inherently linked to an architectural interpretation of a system of open parts, that are not a "universal system" but rather a vague one, clearly defined with such a formal scope.

Fig. 9-10: The "exploded version" of the Pyramid Trunk being played by a Faire young visitor ioin the first steps of kids increasing adoption and interpretation of its open structure.

Versioning also, can lead to a different design licensing as well. Opendesk, an experience that shares many technical and fabrication features with the Open Source Park, licenses its projects under the Creative Commons rules, for example. And following what happened for the other "philosophical assets" of the Open Source Park initiative, even versioning happened right at the next steps, in Southern Italy.

Fig. 11: The "exploded version" of the Pyramid Trunk being played by kids finding continuous new combination and way to physically interact with them.

4.5 The second social outcome: Caserta

In Summer 2018 a second outcome came into play, this time with a social enzyme, since some of the many people and associations and communities that showed interest during the Faire become, to recall a previous definition, "active citizens" and started to push for an Open Source initiative in Caserta, a small jewel town of Southern Italy widely know for its *Reggia.* But Caserta is also host of one of the most active "Collaboration Pacts" in Italy, in a park recovered by a local community called "Villa Giaquinto". In the attempt to reconstruct the same actors of Rome experience, the community was asked to look for Fab Labs or local fabrication

facilities, counting on the Fab Foundation with to establish a network of laboratories, and in fact they found a fertile and icnredibly creative and open partner in the Fab Lab embedded in the "Science City Foundation" of Naples (Città della Scienza). A network of minds and intentions, here also rooted in a look to the previous experiences, was the starting point of a fast immediate action of fabrication. Here again, the notion of enzyme, of putting something on field, to fire up people is also part of a shared wish for active citizenship.

Fig. 12: A young designer, operator at Science City Foundation of Naples Fab Lab holds the plywood sheet with the layout of "Fit It!" chairs in their 2.0 version.

So two chairs here were selected from the existing designs, to start up the new context, but were already "remixed" from the original ones, thought for a sloped grass. They were selected for their nesting efficiency and based on a talk with the Caserta Community that asked them to finally have some seats with a back to be used for old people, wishing for chairs were to lay comfortably in the park where they are incredibly active. The collaboration is growing in the times of publication of this paper, and design workshops are already planned to bring into the notion of play the tradition of knitting,

Fig. 13-14: The activists of the Villa Giaquinto Committee assembling and enjoying the "Fit It!" chairs in their 2.0 version, after bringing to the park the pieces from the Naples Lab. Below: one of the older ones mostly requesting comfortable new seats with a back!

that has in Caserta the wonderful complex of San Leucio, established in 18th century by King Ferdinand as one of Europe's first industrial complexes.

easy way, and allow such codes to be immediately shared, reused, redistributed in different manners. But design is of course there, design is a big part of

Fig. 15: "Social assembly and testing" of the prototypes by locals in Caserta's Villa Giaquinto park:
the chairs got increasing trust in a funny sequence of test and attempts

Fig. 16: The young president of Caserta "villetta Giaquinto" park committee proudly seating on the chair prototype v.2.0.

Chairs here a remix, pretty much like the projects loaded online on the Scratch software platform website, again invented by Mitch Resnick, again at MIT, to allow young people to play with coding in an

the game in the Open Source Park as well. Where and what, then, the design happens, and where does it end?

5. Conclusions: between variation and repetition

The Open Source Park is an ongoing process. It is at first a reflection on social innovation from the point of view of a contemporary architect and designers. Noguchi's vision was originally proposed to the famous Robert Moses in New York for the first time in early 30s, an era where almost none of the contemporary premises were there. But today this "open vision of playground space" seems to encounter a wish for flexibility, participation and looseness of space widely accepted. But reducing it to a question of style seems not the right path, based on this experience. Of course the design plays its part, but it definitely comes from a new process, from the enthusiasm of getting things in different ways, with different roles, and, with one sentence,

with a "precious waste of time" from almost all the partners involved. Some might observe that there is no economy behind it. Projects here were funded randomly by peers with no clear structure behind it. Material is very little and quite affordable in this case, but man labour and machining time were donated by the different partners. It is true, on the contrary, that "distributed funding patterns", as well as distributed responsibility can be observed as clear paths in Real World economy and politics that go beyond this experience and whose discussion, started by authors like Jeremy Rifkin and questioned by others, exceeds the scope of this paper.

They apply to sectors like energy, for examples,

Designwise, Van Eyck was working on a subtle and very sophisticated balance combination of simple elements in a minimalist space, helping budget but at the same time opening the already discussed "space of play" for kids and people minds. Pretty much like in his masterpiece building for Amsterdam's Orphanage not so much space is left to further additions or changes, as it would happen for example for Hertzbergers' approach. And this formal equilibrium is undoubtly a big part of their quality and success, even if not so many of them survived now, sometimes due to the temporary birth for many of them. What is then the right approach to follow in a contemporary experience like the Open Source
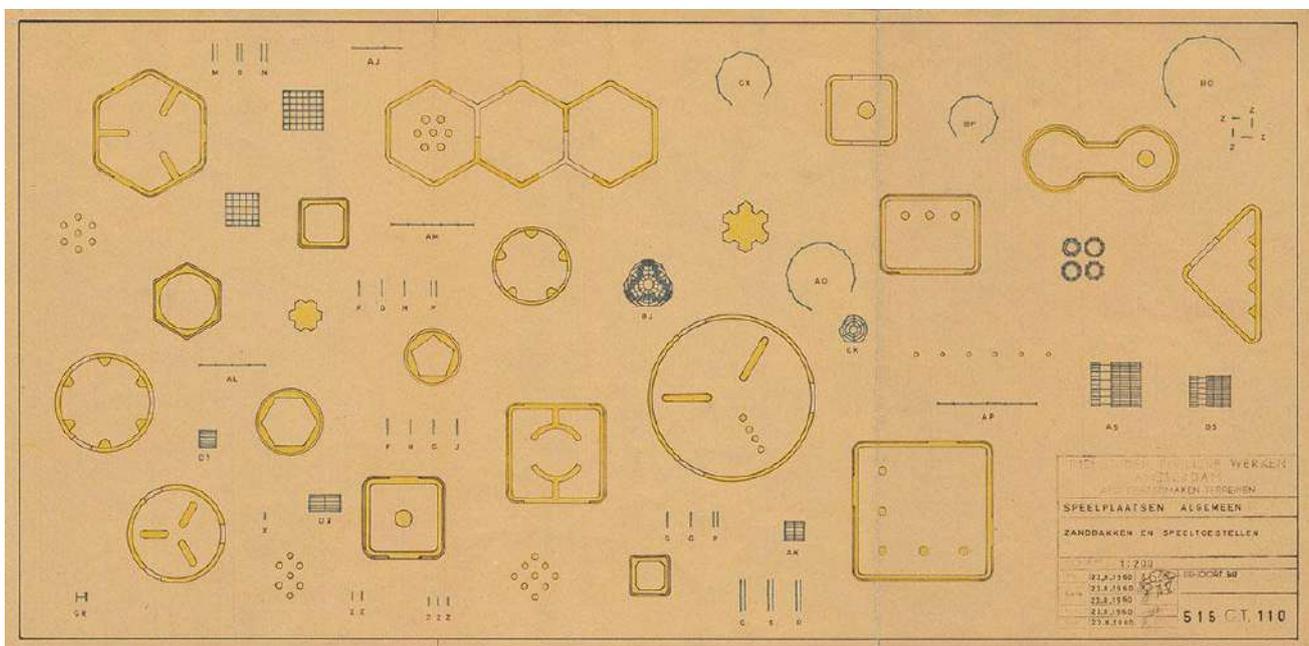
Fig. 17: A technical drawings listing some of Van Eyck's designed furnishing compoennts for Speelplatsen Playground in Amsterdam

where industry moves from the two poles of centralized and distributed production. But a linked question for us remains on how much this approach overcomes the "Industrial Design" paradigm still applied to playgrounds, despite some past brilliant architectural experimentations like the minimalist game of formal variations of Van Eyck in Amsterdam. Van Eyck's work is among the most influential for the topic of playgrounds, but it also extends significantly on the interpretation of space and the role of architecture beyond CIAM's approach (Oudenampsen, 2010), starting a research path later on bringing to the birth of Team X and the studies around Huizinga's *Homo Ludens* approach.

Park with all the context and premises done, when not only components but parts themselves are subject to possible change? How much vagueness and space of play can be embedded in the digital "rough" prototypes and where then the core of aesthetics lies, if it must allow bottom up use and versioning? The projects developed showed a great uniformity of approach, despite of very different sensitivities of their authors, thanks for a forced uniformity of technique and material, and for this reason also found different interest from different people. What is true is that overall cultural acceptance of the Open Source Park has shown to be very high. The responsibility of designers, though, is

still there: the context changes, some problems are always there, like Code compliance, increased here by the possibility of variation of form and therefore pushing for a different and performance based compliance, but also Administrative approval, if it's true that even Kahn and Nouchi suffered to have

their joint playground project approved in Riverside despite of private funding supporting it. And sometimes, when officials were ok, the project got refused by local community. This design research, rooted in her "strange alliance" will keep on pushing to reach the "field tests" as much as possible.

Fig. 18: Shots of daily life in "Crazy Horse" park.

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REGENERATING MEMORY, REMEMBERING SPACE. COMMEMORATIVE POLITICS ON THE 'AVENIDA 26', BOGOTÁ, COLOMBIA

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Abstract

This paper investigates the role of politics of memory in the culture-led urban regeneration of the 'Avenida 26', one of the main streets of Bogotá, Colombia. The peace agreement between the Colombian government and guerrilla groups reached in 2016 unfolded a proliferation of municipally led commemorative interventions on the street, ranging from artistic performances to public art installations.
Drawing on 4 months of in-depth fieldwork on the 'Avenida 26' and its surroundings, the paper explores the encounter between politics, which aim to transform this public space into a commemorative space, and everyday uses by local inhabitants. In doing so, this paper underlines fundamental discrepancies: while current politics of memory claim to promote a participatory and bottom-up regeneration of the 'Avenida 26', they are in fact unaware of - and often disregard -a multitude of collective uses of this street, which engage with the space in commemoration of the conflict through affective informal practices and everyday usages. These practices, although unrelated to commemoration in the eyes of policy-makers, reinvent the 'Avenida 26' and negotiate its prescriptive uses, by experiencing it as an open and common space.
The research reveals that the promoted separation between 'public' and 'commemorative' space reflects exclusionary conceptions of public spaces' legitimate users, and fails to see how attachments to the past are tightly related to issues of urban citizenship and social justice. Aiming to nourish a dialogue between the fields of memory studies, urban commons, and urban regeneration, this paper highlights that a sustainable, culture-led regeneration of public space cannot avoid confronting the latter's diverse and often informal uses. The livability and vibrancy of public spaces therefore depends on the acknowledgement of these different uses and on a re-design that builds on and express them, yet avoids disrupting them.

1. Introduction

This paper investigates the effects of politics of memory - intended as institutions-led initiatives over commemoration of past conflicts - on inclusivity and accessibility of public spaces, and particularly of the street 'Avenida 26' in Bogotá, Colombia (Figure 1).

This research positions itself at the intersection between memory studies, urban regeneration, and social practices on public space. It wishes to bridge the many gaps between literature on memory studies and on urban regeneration, by analyzing politics of memory from an urban perspective, and thus to insert politics of memory in debates over culture-led urban regeneration processes.

The premise of this research lies in the acknowledgment of a frequent lack, in the growing field of memory studies, of an urban focus. This is particularly true for memory studies' analysis over spaces of memory – varying from commemorative monuments and initiatives, to museums and centers of remembrance – which represent a central component of politics of memory.

The tendency among memory studies' scholars – and especially those focusing on post-conflict political contexts - is often to analyze the conceptualization and construction of spaces of memory as a confrontation between two opposing poles: state-led organizations on the

one end, and associations of victims on the other. Particularly the increasing global recognition of the framework of Transitional Justice, advocating for the reparation of victims in situations of conflict (Rush & Simic, 2014), has largely contributed to centralize research on spaces of memory around the latter's capacity to represent the most oppressed – and, in the words of Pollak (1993) their "underground collective memories" [mémoires collectives souterraines]. This focus results in a lack of interest for the urban spaces surrounding the perimeter designated for the construction of a space of memory, and in the implicit interpretation of the latter as isolated from urban dynamics (Perez, 2015).

In this paper, I argue that this approach is insufficient to understand the complexity of politics of memory's relations with and effects on public spaces' uses and attachments. Cities are increasingly taking the lead in the conceptions of politics of memory – through municipal investments in the creation of organizations and institutions dedicated to victims of conflicts, as well as through funding of commemorative initiatives. In light of this municipal protagonism, this paper embraces a reflection of spaces of memory comprehensive of the urban space where they insert themselves. Spaces of memory are de facto embedded in a space that is also affected and transformed by local uses, which themselves inevitably involve a greater number of actors than merely victims and official institutions (Till, 2012; Yarker, 2018). As for politics of memory, not only do they shape the form and design of public spaces, but they inevitably impact their accessibility and inclusivity (Donovan, 2008; 52).

It is precisely due to the social and spatial implications of both politics of memory and urban regeneration of public spaces, that this research includes grassroots practices and everyday uses in its reflection over memory and space. In fact, the necessity of an urban angle in analysis of politics of memory invites to enlarge the vision of actors and uses implied in spaces of memory and thus, to add to the analysis of politics of memory a reflection on practices (De Certeau, 1990) of memory. The dimension of practices can show how politics of memory are

themselves constructed and reinforced by the interest of certain social actors, as well as to grasp the potential local conflicts and tensions that emerge from them. Understanding the interpretation and resignifications that are made of these politics can reveal whether the "symbolic associations of spaces line up with their theoretically ideal purposes, or official purposes, or their actual use" (Parkinson, 2012;89). Committing in particular to this last premise, this research engages with literature on urban commons and builds on three commons-inspired driving concepts - "refusal of enclosure", "search for conviviality" and "sense of responsibility" - to reveal gaps, negotiations and future possibilities for sustainable urban regeneration of public spaces.

Finally, through the choice of a case study stemming from the Latin-American context – that of the street 'Avenida 26' in Bogotá, Colombia - this paper advocates for a stronger comparative approach between Global South and Global North cities, and for a more critical investigation on how both academic and policy-making literatures engage with debates on regeneration of public space, on urban commons and on commemoration in these two contexts.

Without underestimating the specificity of each local situation, I argue that the necessity of a global and comparative perspective at the intersections of the above-mentioned literatures is even more important since, as argued by Huyssen (2003) and Macdonald (2013) among others, politics of memory are increasingly embedded in global politics of branding and attractiveness of places.

Furtherly exploring such complex and intricate trends appears necessary to understand the relationship between politics of memory, urban regeneration and social practices in various context, and to gain a better perspective over the global implications of such phenomena.

The first section of the paper looks closely at the relationship between political visions guiding the politics of memory on the 'Avenida 26' and non-institutional actors engaging with the space on an everyday basis, so as to gain an understanding of how spaces and initiatives of

memory regenerating the street are confronted with social and spatial dynamics. The second part of this paper investigates how both literatures on urban public spaces and on urban commons can provide tools to interpret the multitude of informal and diverse everyday uses and practices on the 'Avenida 26'.

1.1 The research setting: Bogotá and a global appraisal of memory

On 17 January 2019, in Bogotá, 20 were killed in an attack on the Santander Police Training College. The attack, which the guerrilla group National Liberation Army (Ejército de Liberación Nacional, ELN) claimed, withheld the already uncertain negotiations of a peace process with the Colombian government. The peace processes with both FARC- the country's main guerrilla group – and ELN had already been stalling with the presidential electoral campaign in 2018 and the election of right-wing president Ivan Duque in August 2018.[1]

In spite of – or perhaps because of – these difficulties, the entire world has had its eyes upon Colombia for its turbulent peace process. At least since the 2010s, when speculations over the peace process became more concrete, Colombia and especially the country's main cities invested in institutions-led initiatives linked to the understanding and overcoming of the armed conflict. These politics of memory are in continuity with those implemented by other countries having undertaken post-conflict transitions - from South Africa, Bosnia and Ireland, to many Latin American countries. In Latin America, politics of memory – or the "bringing of memory to the public sphere" (Andermann, 2015; 6) - has developed particularly in cities through heterogeneous initiatives, varying from the opening of museums and centers of memory, the renaming of streets and parks, to municipally-sponsored public art.

In this context of global network of memory-related activities, lies the street 'Avenida El Dorado'. Also called 'Calle 26' or 'Avenida 26', this street serves as one of the main thoroughfares of the city. With a length of almost 14 km and a width of a highway, the 'Avenida 26' cuts cross neighborhoods with very diverse socio-economic patterns (Mayor de Bogotá, A., 2016). It represents one of the most congested areas of the city and, because of its commuting profile, considerably lacks recreational areas. In spite of this unfriendly infrastructure, the street has been at the center of Bogotá's politics of memory for many years. In official documents, this is justified by the presence of elements directly linked to the conflict and the country's past along this street (Mayor de Bogotá, A., 2014). These are, firstly, the ample complex of the city's central cemetery - the burial ground of many of the country's renowned figures and many victims of the conflict; secondly, the CMPyR or Centro de memoria, paz y Reconciliación (Figure 2), a center dedicated to the victims of the conflict standing in a revitalized area of the cemetery; and thirdly, a series of municipally-sponsored graffiti referencing the conflict. In order to attest the street's strong symbolic tie with the country's past, the section of the 'Avenida 26' that includes the elements mentioned above was officially renamed in 2014 "the axis of peace and memory" [Eje de la paz y la memoria] (Ibid).

The municipally-led symbolic and regenerative investments in a public space such as the 'Avenida 26', sparked my interest for several reasons. The street's infrastructure is radically different for the typical design of spaces of memory, centered around silence, reflection and contemplation[2]. Hence, this research aimed to understand the political dynamics around the choice to designate a space, which is heavily congested and infrastructural averse to pedestrian uses. Moreover, the street intrigued me for its dual identity of a public space and of an arena of different politics of memory. The 'Avenida 26' could, on the one hand, reveal

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[1] Ivan Duque is much more reluctant to the implementation of the peace process than its predecessor, Juan Manuel Santos, who had even won a Nobel prize for peace the year before for its considerable effort in ensuring peace with guerrilla groups FARC.

[2] Inviting for reflection and triggering strong emotion was, for example, the intention of the architect of the "Holocaust memorial" in Berlin, arguably one of the most famous spaces of memory worldwide (Spirova, 2013).

conflicts between different actors on the way memory should be represented and portrayed in space (Foot, 2009). On the other, it could also shed light on wider dynamics linked to accessibility of space, marginalization and urban citizenship as a whole. It thus constituted the perfect scene to understand the intersections between memory, urban regeneration and local appropriation of space.

1.2 Methodological approach

This research is based on a total of 32 semi-structured interviews, 30 non-participant observations, and a qualitative survey[3] involving 50 passers-by all along the 'Avenida', over a total period of 4 months. A preparatory fieldwork was conducted in August 2017, while the fieldwork took place between January and March 2018. The interviews were divided between 13 Institutional representatives; 7 cultural actors explicitly claiming their involvement in the politics of memory on the street; and 12 everyday users of the 'Avenida 26'. I conducted, both, the interviews and the survey in Spanish and later translated them into English.

The non-participant observations were conducted all along the 'Avenida 26' and in its surrounding areas, 3-4 times per week, in different times of the day. Particular attention was given to the area included in the project "Eje de la paz y la memoria": the cemetery; adjacent areas on the side of neighborhoods Santa Fe, Teusaquillo, Los Martires, Samper Mendoza. I wished to include in this research areas of the 'Avenida 26' not incorporated in the project "Eje de la paz y la memoria", so as to better understand the criteria used for the selection of such an area by the municipality, as well as the potentially different developments that other sections of the street might have experienced.

Because of the inevitable short timing of this research, this aspect was tackled mostly through observations and the survey.

I chose to place the 'Avenida 26' at the center of this investigation. Through this centrality, I intended to contribute to research focusing on physical spaces both as objects of research and methodological tools, following the line of Dinardi (2013) in the *building-mediated approach* she applied in her study of urban regeneration in Buenos Aires. As the catalyzer of different visions, representations, physical and symbolic transformations, the 'Avenida 26' appeared as the primary object of this research, embedded as it is, in symbolic and material disputes over its meaning, form, function and use. The 'Avenida 26' also embodied a methodological tool to identify research participants, both for interviews and survey. As I was particularly interested in uses of space in relation to memory, interviewees were selected according to their physical location and implication on the street itself and their spatial relation to institutions of memory (Fig.6). This methodological choice allowed me to bring together multiple levels of analysis, spatial scales and temporal dimensions. Starting from the space as methodological tool was also important to break the selection criteria for research participants undertaken by politics of memory, which is usually based on the participants' involvement in the event or circumstances the politics of memory are dedicated to – i.e. involvement in a traumatic experience, or status of victims.

2. Discrepancy between politics and practices of memory: an urban regeneration of two 'Avenidas'

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the survey in comparison to the daily users of the street. However, it was for me an extremely useful tool to gain a general understanding of *Bogotanos*' knowledge and imaginaries over the 'Avenida''s main features, their awareness or unawareness of politics of memory on the street, and even a general sense of the perception of the peace process in the city. I consider it an inspiring tool to direct qualitative research when conducted mainly through interviews and observations, as in the case of this investigation.

Understanding the investment on the 'Avenida 26' as a space of memory means asking, firstly, how debates on memory translate to urban politics on the street. Secondly, what version of the past is represented, for what audience, and who is excluded by the profiling of legitimate users (Naef, 2018).

We turn here to the analysis of the spatial and symbolic effects of politics aiming to regenerate the 'Avenida 26' into a space of memory. The first element of regeneration involves the construction of the Centro de memoria, paz y Reconciliación (CMPyR), located in a revitalized area of the central cemetery. The center, inaugurated by the municipality in 2012 (Vignolo, 2013) organizes commemorative events and educational activities on the country's history and acts today as a space honoring the victims of the armed conflict. An element of pride for the initial team of the CMPyR with regards to their work is their participatory involvement with actors in the surrounding area. These actors are defined by the team as a community of "actors of memory" (Uniandes, 2017) and is constituted by a series of residents whose working activities are located on the 'Avenida 26' (Figure 6). These are 'marmoleros' - builders and decorators of

gravestones for the cemetery- who have their laboratories facing the street; flowers and candles sellers, whose stands are located on the sidewalks of the 'Avenida 26'; priests, celebrating masses in the cemetery.

Probably the most well-known example of the CMPyR's participatory work concerns the regeneration of the area through public art (Figure 5). In 2013, through a collaboration between the municipality and the CMPyR, a public call invited for the painting of murals on the 'Avenida 26', provided that they relate to the Colombian conflict (Mayor de Bogotá A., 2013). Graffiti artists participating in the call also identify the involvement of communities on the street as one of the priorities of their work, in a similar discourse as the one by the CMPyR administration.

However, the mapping of the local actors involved in these municipally-led projects and their position on the 'Avenida 26' reveal that their involvement on the street is not equally distributed in space.

Both the actors leading politics of memory, as well as those taking part in their

Fig. 1: The 'Avenida 26' from a Transmilenio station.

initiatives. either reside or conduct their activities on the side of the street adjacent to the middle-class neighborhood Teusaquillo, and not the other side, part of the low-income neighborhood Santa fe, where both the cemetery and the CMPyR are located (Figure 6). The side of the street in Santa fe – historically known for its violence and traditionally the place of arrival of many displaced from the Colombian conflict (Mayor de Bogotá, 2011) - is nowadays extremely precarious, as demonstrated by both the high presence of drug addicts and homeless and the frequency of knife crimes and robberies. The current administration of the CMPyR is not afraid to mention their sense of unease in their being associated to what they feel as the wrong side of the street: "we work looking at that side [pointing the Teusaquillo side], or we go to the mayor's office, but we do not transit there [the Santa fe side]. […] One is always between two parallel worlds [...] let's say that, amongst ourselves, we know that on the other side [the Santa fe side] there is the jungle".[4]

Fig. 2: The Centro de Memoria, Paz y Reconciliación

Overall, the involvement in official initiatives of memory mirrors the actors' position on the street, in a perfect separation between the Santa fe and Teusaquillo side. The 'Avenida 26' acts as an actual frontier between these two areas of the city, deemed incompatible in the eyes of policy-makers and institutional representatives. This separation between the two sides of the 'Avenida 26' is so evident that it is reflected in people's imaginaries surrounding

the street. Representations of the street seem almost to portray two different 'Avenidas': one 'Avenida', associated with violence and insecurity; the other, where the revitalization of the area can be implemented without major flaws.

How do the politics of memory contribute to the shaping of this public space? Inadvertently, they reinforce this separation, both physically and symbolically. In fact, even though planning to limit their regeneration of the street to the side of Teusaquillo, their presence affects the practices and uses of the street of inhabitants of Santa fe. Due to installation of gates and security guards around the CMPyR, the center's presence contributes to the securitization of this area of the street, including the cemetery (the access to it is now restricted through identity checks). For example, since candle and flower sellers work mostly informally, they are now subjected to stronger police control, which prevents them from developing a regular clientele. This contributes to a general diffidence of the actors on the Santa fe side mentioned before, regarding the politics of memory, and in some cases to a true opposition to such initiatives. This general sense of diffidence demonstrates that the appropriation of spaces of memory or, on the contrary, the conflicting practices over their presence, depend on the multiplicity of urban dynamics – such as urban violence, spatial segregation, social inequalities – that impact how memory is perceived and reproduced and how a sense of belonging and meaning-making of a space of memory can be sustained (Palermo & Ponzini, 2014; 7).

The regeneration of the cemetery is exemplary in revealing these restrictive dynamics. Bogotá's central cemetery, located on the 'Avenida 26', is notoriously frequented by families visiting their loved ones, but also by sex workers, thugs and drug dealers. Especially on Monday, what is popularly considered "the day of the spirits" [el Día de las almas], the cemetery fills up with pilgrims who pray, bring flowers, light candles and wash the gravestones of those deceased

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[4] Interview with Carlos Arturo Charria, current coordinator of the CMPyR

who are believed to perform miracles (Figure 3). Politics of memory have expressed increasing attention towards commemorative practices at the cemetery, through numerous publications of the CMPyR, the organization of cultural events in the cemetery, and the inclusion of the cemetery itself in bike tours of the city. According to C. Klaufus (2016,2454), by turning the cemetery into a "cultural stage", tourists become the legitimate users while usual visitors, labelled as potentially dangerous, are either denied access or relegated to isolated areas. In addition to the increased securitization previously mentioned, this attention for certain groups of visitors, defined by Klaufus (2016,2459) as "gentrification process" of the cemetery, increases social inequalities in the accessibility to the cemetery.

The separation between actors involved in processes of urban regeneration (the side of Teusaquillo) and those excluded from it (the side of Santa fe) is even more evident symbolically, by a difference in discourse. In spite of a general vision based on inclusivity and attention to bottom-up initiatives, inhabitants on the poorer side of the street are not only unaware of the exact role of politics of memory, but are also unfamiliar with the vocabulary used by their representatives, graffiti artists and tour guides included. 'Memory' for example - a word that is often written in public art projects on the street and is part of the title of the CMPyR - is not a concept that all actors feel comfortable using. It thus appears that the use of vocabulary stemming from the Transitional Justice framework, assumed to be a relevant common framework to all actors of the street, is unsuitable. This is because it fails to recognize how the unfamiliarity of certain actors with this framework prevents it from being all-inclusive. Julia, a flower seller, well expresses this fracture: "That [a center, a museum] is like for kids who are studying [...] it's not for everyone, for example for me ... why should I go to a museum, what for? All these museums, what for? ... Me, my museums are my flowers".[5]

Fig. **3**: Affective expressions at the cemetery. Caressing statues and giving them water is a common act of faith

As the analysis of urban dynamics on the 'Avenida 26' suggests, an acknowledgement of spaces of memory's surroundings should be a duty for policy-makers and municipal institutions. As K. Till (2012;7) well underlines, "places and sites of memory have meanings that exceed their forms as authorized representations of the past because of the ways individuals and social groups experience them affectively".

We now move to the second section of the paper, focusing on the encounter between social practices and the politics of memory on the 'Avenida 26'. This section will show how culture-led urban regeneration - and particularly commemorative urban regeneration - is always entangled with issues of representation, where what is spatial and what is symbolic is hard to divide. As Crang & Thrift (2000; 142) highlight, "spatial practices are equally bound up in an economy of representation and difference", where "representation itself is worked through in spatial terms ".

3. *Politics and practices of memory: between prescriptive uses of space and conviviality in urban change*

As the first section of this paper has shown, the investment of politics of memory being limited to one side of the street, coupled with the

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[5] Interview with Julia, flower seller

employment of an exclusionary vocabulary, result in a separation of various areas of the street, both physically and symbolically. Politics of memory contribute, - partly intentionally and partly inadvertently - to a division between certain activities officially recognized as linked to commemoration, and other uses of the street that are considered mundane; between spaces dedicated to memory, and parts of the street that are disinvested in, as they are deemed merely infrastructural.

However, both interviews and survey reveal that such a division clashes with visions and representations of non-institutional actors. In interviewees' discourses related to the 'Avenida 26', the mentioning of the most functional elements of the street triggers their reflection on Bogotá's transformations, on the impact of the conflict on the city, as well as on personal past experiences, resulting in the impossibility to separate the 'Avenida 26' as a public space from the 'Avenida 26' as a space of memory. Affective attachments to the personal past, but also rituals and behaviors associated with memory are often related to the 'Avenida''s most functional elements, such as the Transmilenio[6] bus stations, supermarkets and parks. Equally, most of the official spaces of memory are associated by many people to the urban transformation of the 'Avenida 26' and not, as intended, to their role in reconciliation and peace-making[7]. The CMPyR is associated with the securitization of the space much more than with its official function; the adjacent park renamed "of the reborn" [del Renacimiento] to the presence of homeless and lack of lighting; the graffiti of memory to the noise created by skaters who enjoy training in that section of the street. Memory thus invades parts of the 'Avenida 26' that are not labelled as spaces of memory and would not be taken into account as proper "territorial marks" [marcas territoriales] (Jelin & Langland, 2003).

I claim that this symbolic and physical division, enacted by the politics of memory - even more when done inadvertently or due to limited resources - is dangerous for its exclusionary social assumptions, the most evident being an idea of the 'Avenida 26' as a blank space, "abstracted" (Craig and Thrift, 2000; 2) from local practices. This division is reductive as it disavows the profile of the street as a "lived and perceived space" [espace vécu et espace perçu]. As Lefebvre's three-folded analysis on "The production of space" (1974), highlights, "the sum of the realities of individuals prevents determining a unique and exclusive function to space" (Lefebvre, as cited in Arias-Romero & al., 2016; 17).[8]

The 'Avenida 26' is in fact crossed by a myriad of other uses and practices that continuously unsettle the physical and symbolic divisions created by politics of memory. Despite the feeling of powerlessness, forms of collaboration have developed among actors on the side of Santa fe (Figure 4). Marble workers rely on waste pickers, highly present in this area, for the provision of water. Informal coffee sellers and lottery sellers exchange lottery tickets or coffee for charging their phones or resting in marble workers' laboratories. Informal flower sellers use marble workers' laboratories as a deposit in exchange for help to carry heavy tombstones.

In addition to these forms of solidarity, the 'Avenida 26' is constantly remodeled with practices that are seemingly unrelated to commemoration, unremarkable and thus often overshadowed, ranging from tagging walls to simple acts as walking or buying products at informal selling points.

The question is how to interpret, both, these everyday uses of the space, and forms of solidarity networks in relation to the 'Avenida''s official investment on this public space as a space of memory. In particular, are these uses and mobilizations identifiable with explicit

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[6] Transmilenio is the bus rapid transit (BRT) system serving Bogotá

[7] This aspect represents one of the key findings of the survey. Only 8 participants over 50 indicated 'spaces of memory 'such as the CMPyR and the cemetery as the

most important spaces on the 'Avenida'. In comparison, Transmilenio bus stations and the supermarket 'Colsubsidio' are much more popular key references for participants of the survey.

[8] Translation by the author

resistance towards the idea of a space of memory?

Fig. 4: Waste pickers' carts. Waste pickers use the gates of the CMPyR as a deposit.

I acknowledge that the whole possibility of thinking of accessible and livable public spaces, and even more the possibility to associate public spaces with urban commons, stems from the very basic notion of public space as "not threatened by darker forms of urban division and exclusion based on the erosion, excessive surveillance or manipulation of public space", as pointed out by Amin (2008;10). The urban violence and extreme segregation of the 'Avenida 26' clearly prevent it from being both accessible and inclusive. However, while recognizing Amin's preoccupation, I believe that much can be said on a space such as the 'Avenida', thus taking the distance from "many urban scholars [who] have assumed that collective action is unlikely in urban communities where social disorder exists" (Foster, 2001; 58).

In interpreting these uses and practices, the effort is however to avoid romanticizing them. As De Certeau (1990; 156-157) points out in his pioneer reflection, practices indeed represent ways to circumnavigate prearranged space, and continuously reinvent it for ordinary, everyday uses. However, bluntly affirming that these uses of the 'Avenida 26' necessarily and unconditionally act as a deliberate resistance to spaces of memory, or even as "counter-memories" (Crang & Thrift, 2000; 18) would mean reducing the complexity of relations witnessed during this research's fieldwork.

In order to better understand the intricacy of these practices, I turn to literature on urban public spaces and urban commons. Debates over the interpretation of local practices often focus on a supposed "end of public space" (Mitchell, 2003; Low & Iveson, 2016), attributed to increasing privatization and neoliberal strategies; consequently, many authors claim that reinforcing interpersonal relations in public spaces is the most effective way to sustain their democratic use. At the same time, the increasing fascination with literature on the commons – very present in recent policy-making in the cultural sector - often indifferently identifies everyday uses as commoners' practices, aiming to tick the boxes of Elinor Ostrom's common pool resource design principles (1990).

However, as the case of the 'Avenida 26' shows, an excessive focus on interpersonal relations is reductive because the everyday uses that people make of the 'Avenida 26' go beyond social ties and involve affective relations with the infrastructure of the street, as well as uses of spaces influenced by visions over the past. Amin defines this multitude of elements as "situated multiplicity", or "the thrown togetherness of bodies, mass and matter, and of many uses and needs in a shared physical space" (Amin, 2008; 8). In the case of the 'Avenida 26', this situated multiplicity is constituted firstly, by the physical infrastructure of the street, with its double profile of securitized and insecure space; but also, as previously demonstrated, by representations of the different areas of the 'Avenida 26', transcending the officially promoted division between space of memory and public space.

In addition to Amin's "situated multiplicity", literature which interrogates the relationship between public spaces and commons (Castro-Coma, & Martí-Costa, 2016) and which sees in the act of "commoning" the expression of critical awareness of capitalist governmentalities (Harvey, 2012; Bollier & Helfrich, 2015; De Angelis, 2010), can also give us the tools to interpret practices on a space such as the 'Avenida 26'. In the next paragraphs, I elaborate on ways in which the 'Avenida 26' gives us a sense of the commons by employing

three concepts stemming from this literature: "refusal of enclosure", "search for conviviality" and "sense of responsibility".

Firstly, the separation between space of memory and public space reflects a tendency to enclose the 'Avenida 26' in different sections. Building on the many interpretations of enclosure by literature on the commons, I intend it as an expansion and intensification of barriers, walls, frontiers that privatize or commercialize the public spaces previously accessible and open, in favor of urban elites and at the detriment of the urban poor (Jeffrey, McFarlane, & Vasudevan, 2012, Porter & Shaw, 2013). As this research has shown, the networks of solidarity, the affectionate use of space, and the different representations of the 'Avenida 26' negotiate this enclosure. Inevitably and even involuntarily, these uses and projections break the division between space of memory and public space and prevent the reduction of the 'Avenida 26' to a showcase of concepts such as memory and peace. These uses are guided by routines and habits which are inevitably related to memories of the changes of the 'Avenida', but equally to imaginaries and representations of possible changes, including the political situation of the country. In this sense, they deliver forms of attachment to past and mobilize visions of the future, without the necessity of a codified discourse on memory.

Moreover, these uses of space express the "search for conviviality" and for creative resolutions of everyday conflicts linked to the sharing of a public space. Even when not organized, even when not explicit, tagging a wall or using the Transmilenio bridges as selling points, are all uses that testify a presence in a space that is mostly perceived as transitory, as a "non-place" [non-lieux] (Augé, 1995). These uses are efforts to make sense and domesticate a space in-between two very distinct neighborhoods, to regain a sense of attachment, or "conviviality" (Amin, 2008; 9) in a part of the street whose infrastructure discourages recreational moments and the convergence of interpersonal relationships. I see a tendency – and potentially a need - to legitimize one's presence in this space through everyday uses

and symbolic projections, and to find coping strategies towards both urban and memory politics. These are ways to regain familiarity, to give "rhythms" (Ibid) to life on public spaces while refusing the ossification and enclosure created by the category of space of memory.

Finally, these practices are telling of a "sense of responsibility" and care for the street itself. I agree with Amin and Howell's (2016) claim for a need to analyze these solidarity networks and affectionate relations to space beyond "the dissolution of singularities into the single community or 'people'" (Amin & Howell, 2016; 10). This is because the idea of 'community' oftentimes undermines the different and often competitive uses of space by various actors (Gilbert, 2014). One way to limit these reductions, is to shift the focus from the idea of 'community' to the relationship between activities and space. As Gilbert rightly highlights, "what is particularly useful about the idea of the commons as distinct from the idea of community is that [...] they [the participants] will be related primarily by their shared interest in defending or producing set of common spaces (Stavrides 2015), and this shared interest is likely to be the basis for an egalitarian and potential set of social relationship" (Ibid, 165). Focusing on the common uses of space gives a stronger sense of agency and legitimacy to a wider scope of actors than what done by politics of memory. It suggests that what brings together different actors is not a thing or a quality – for example an assumed common identity - but is the set of collective actions on space, which is guided by a sense of responsibility, a shared interest, a sense of care and protection of a space, even of its most material elements.

In the case of the 'Avenida 26', this reflection opens new considerations for a sustainable urban regeneration of public spaces. On the one hand, we can say that these practices - be it tagging a wall, lighting candles in unauthorized parts of the cemetery, resting or chatting on Transmilenio bridges, - all represent ways to answer and negotiate imposed symbolic representations and prescriptive uses of the street. They express the will to both regain a sense of belonging to the physical space of the

'Avenida 26', but also to avoid excessive restrictions over its use. This continuous negotiation is well expressed by Pedro, skater on the 'Avenida 26': "I can literally paint mine [graffiti] today and tomorrow it's not there anymore because someone else was there … then I have to go again to cover it, I have to be constant in everything ... because that's what it is, the necessity to be visible in the city, so that people see you [your tag] everywhere".

Fig. 5: The area of the 'Avenida 26' occupied by skaters. In the background, one of the municipally-sponsored public art, now covered with tags

Moreover, these practices attempt to tighten social bonds in a space subjected to constant change. The unpredictability and diversity of networks of solidarity imply that regeneration of public space should interact with the local practices in a dynamic and unfinished way (Sendra, 2015; 823), adapting itself to the needs and the organizational conditions of the settlers, without disrupting them. This consideration suggests that the planning of a space - even more a space or an initiative related to traumatic pasts, should never pretend to completely predict the future uses of that space. As Othman, Nishimura and Kubotas (2013; 561) point out, estimating to resolve the appropriation of a space within its planning can only lead to its misunderstanding: "designating an area on a drawing as a cultural space or performance area without fully in view of the full potential of that space […] brings out the selfish idea that architecture is the event rather than the site of event".

4. Conclusion

In spite of their intention to focus on the reparation of the past events and on the imagination of a better future, politics of memory cannot escape from their own embeddedness with the urban present. There is no way out: it is time for politics of memory to recognize their role as regenerative forces, as well as to acknowledge and include everyday local practices in their initiatives, if they wish to avoid increasing marginalization and reinforcing exclusionary cities. Practices and everyday uses are unpredictable, continuously changing, negotiating when not conflictive. They cannot be stigmatized or romanticized as rebellious or as commons, without an attentive understanding of the dynamics guiding them.

In the case of the 'Avenida 26', the dialogue between politics and practices of memory is far from complete. In many ways, it could benefit from starting from scratch, questioning the very premises upon which politics of memory were introduced to the street. The results of this research are indeed very critical towards the relation politics of memory entertain with their surrounding space, often interpreted as a blank space where spaces of memory and other commemorative initiatives can be planned, projected and implemented without major obstacles. This paper has in many ways emphasized that the unawareness for urban issues has important social consequences, particularly the risk to increase marginalization, and further exclusion of already precarious actors. The sense of estrangement to politics of memory can truly result in the opposite effects intended by them, first among which being that of failing to unite in the commemoration of the past and in a common vision of peace.

Thus, the mission for culture-led urban regeneration – whether focusing on collective memory or not - is doubly complicated. Firstly, as Bianchini (1993; 212) well highlights, a sustainable regeneration requires a comprehensive perspective. It should be truly "rooted in an understanding of local cultural resources and of cities as cultural entities". Secondly, a sustainable urban regeneration demands an attention for the political, cultural

and social life of local residents that "precede and sustain the formulation of physical and economic regeneration strategies'' (Ibid). This comprehensive approach is an ongoing process, hardly reducible to success stories and 'best practices'. As the case of the 'Avenida 26' suggests, however, several considerations can surely facilitate improvements in sustainable urban regeneration and in inclusive politics of memory.

Firstly, a stronger attention for the urban global dynamics and trends, the politics of memory are inevitably confronted with.
The case of the 'Avenida 26' has shown that the entanglement of urban regeneration and politics of memory involves global and local scales, at the risk of standardizing practices in both fields.
On the one hand, as mentioned in the introduction of this paper, many authors have spoken of "memory boom" (Huyssen, 2003) or "memory mania" (Macdonald, 2013), denouncing that the employment of similar commemorative instruments in different contexts results in the homogenization of spaces of memory at the detriment of local actors and place uniqueness. When doing so, they are in fact echoing similar debates in urban regeneration, where standardization of practices is also denounced by many as unsustainable.
On the other, when authors criticize the unsettling and disruptive character of urban regeneration (Harvey,2012; Porter & Shaw, 2013), where the flow of best practice and flagship projects translate a vision of space often responsible for gentrification and other forms of urban exclusion, they speak of issues politics of memory also contribute to in many ways.
As the case of the 'Avenida 26' has shown, standardization of commemorative practices, but also issues of segregation and marginalization, indistinctively call into attention both urban regeneration and politics of memory.

As this paper has hoped to demonstrate, this awareness can truly be reinforced by greater synergies between literature on memory studies, urban regeneration and urban commons, especially when employed in comparative perspectives.

Secondly, and most importantly, the inclusion of local actors in debates over memory and space, and the acknowledgment of their expertise over public spaces' uses and representations is more than ever necessary. The overall possibility of a space of memory – but we can now enlarge this reflection over a livable and accessible public space – always depends on the acknowledgment and the greeting of local uses and representations which shape it and constantly transform it.

I wish however to make a final qualification about this paper. The critical stance taken in this research does not, in any way, concern the work that the politics of memory are undertaking with regards to the reparation of victims. The institutional representatives and the many cultural actors encountered during my fieldwork are extremely committed to the implementation of the peace process and demonstrate an incredible empathy with traumatic experience, an admirable strength and determination in finding the appropriate ways to change the direction of their country. This research's suggestion for them to open their eyes to their surrounding territory and its residents, adds yet another task for these already extremely committed actors. But it is, I believe, a necessary step for them to see that the construction of a better future goes hand in hand with the commitment for a more just city.

Fig. 6: Actors on the 'Avenida

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THE MONUMENTAL COMPLEX OF ST. PETER CLOISTERS. THE "UNFINISHED" AS A REGENERATION STRATEGY

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Abstract

The project involved the regeneration of the Benedictine Cloisters of San Pietro, one of the most valuable monumental complexes in the city of Reggio Emilia. A disused military area, this place represented an inaccessible area in the heart of the city until the rediscovery for temporary events such as Fotografia Europea festival. With the aim of strengthening its strategic cultural vocation, the works were financed with European funds through a regional program to fully return it as a cultural-innovative center of international importance. The project involved in a single operation three closely related interventions: the completion of the restoration of the Renaissance monumental body, attributed to the hand of Giulio Romano, to return it to public use; the urban regeneration through the demolition of the annexed buildings behind and the reconstruction on the same site of the new building of Open Urban Laboratories, in close relationship with the monumental complex and in functional continuity with the adjacent building also restored of the old Scuderia; the redevelopment of the courtyards that insist between buildings, rediscovering the role of urban crossing, of space for relationship, of a place that is once again returned to the city. The new natural paving remarks the continuity of the permeable soil from which they emerge the buildings culminating in the Chiostro Grande. The intervention was oriented in searching for a balanced relationship between ancient and contemporary, between rediscovering spaces by stimulating new relationships and establishing new compatible uses with attention to the role also social of urban regeneration.

Keywords (max 4)

Heritage, Urban, Regeneration, Social, Innovation

Fig. 1: the monumental body and Urban Open Laboratories from old Stables - Ph. Alessandra Chemollo

1. An innovative intervention between ancient and contemporary

A now obsolete reading of our cities contrasts historical centers, places of conservation, to the outskirts, a place of a more arbitrary building replacement in the best cases. It is rare to lead a project that at the same time encompasses, in central locations of a city, the complexity of conservative intervention together with the challenge of building replacement and that of rediscovering a public space.

Fig. 2: the location of the complex in city centre

It is therefore an unusual case the one described here in which we found ourselves, as architects and construction site supervisors, facing the challenge of an ambitious intervention for a courageous public client, trying to answer operationally even more general methodological questions. The challenge was grafted onto the particular nature of the object of regeneration, an ancient monastery unused for centuries as such and once a protected and circumscribed place within its cloisters, by its very nature introverted spaces destined for the internal use of a few, with the aim on the contrary to re-open it and return it to the city and to public use without distorting its salient aspects.

The intervention concerned the restoration of the Benedictine Cloisters of San Pietro, the most extraordinary monumental complex in the city of Reggio Emilia. As a military area then abandoned, this place represented an inaccessible area in the heart of the historical city until the moment of rediscovery for temporary events such as the European Photography festival.

With the aim of strengthening its strategic cultural vocation, the reconversion of the complex, started at the end of 2017 and completed in March 2019, was financed with European funds through the regional program POR-FESR Axis 6 "Attractive and participated cities" with the goal of returning it to the full as a cultural-innovative pole of international relevance.
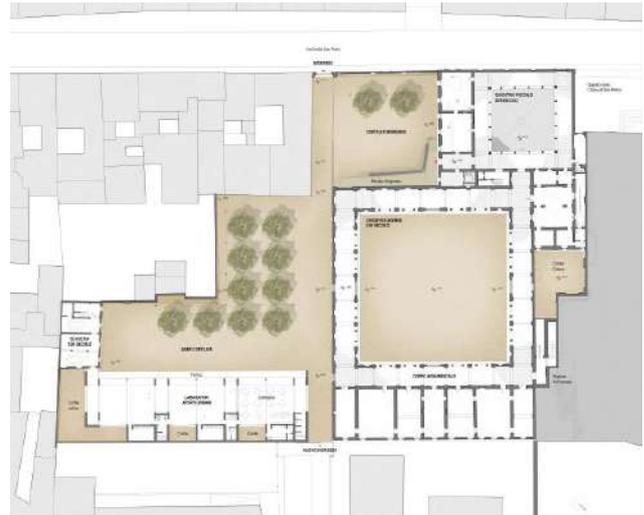
Fig. 3: general plan of the complex

The project involved three closely related interventions in a single operation: the completion of the conservative restoration of the Renaissance monumental body, attributed to Giulio Romano's hand, to return it to public use as the city's main cultural container; urban regeneration through the demolition of the minor bodies behind and the reconstruction on the same footprint of the new building of the Urban Open Laboratories, in close management relationship with the monumental complex and in functional continuity with the adjacent building of the ancient Stables building, also restored as an integral part of the Laboratories; the redevelopment of the courtyards that pre-existed between the buildings, rediscovering their role as an urban crossing, a relationship space, a place once again returned to the city. The intervention also involved the restoration of the facades of the adjacent Caserma Taddei that overlook the external areas of the monumental complex.

Fig. 4: model of the complex and interventions

2. *The restoration of the monumental body*

The regeneration of the monumental body was carried out through the completion of the conservative restoration and the adaptation of the functional equipment for an excellence cultural use. In this case the constraint placed by the Superintendency was not only of a tutelative nature but also operational, since the construction site carried on, compared to the monumental body, the one previously carried out by the Superintendency itself and interrupted several years before, thus placing constraints, mainly technical and regarding plant engineering, which conditioned the restoration project, which takes it up and brings it to completion.

Given the nature of the complex, and the attribution of the Great Cloister by Bruno Adorni to the hand of Giulio Romano, but also for the complexity of this extraordinary building that testifies, between the large and the small cloisters, a period of incredible vivacity of the monastic and Benedictine architecture, our work between project and construction site was conducted with "velvet gloves" and with the utmost rigor.

One example is the methodology used in the Chiostro Piccolo, the first space that is discovered by accessing the monumental part and the oldest, where the logic of maintaining the traces of time also prevailed in the terracotta flooring, integrating it in a timely manner with re-used tiles from the building itself and leaving signs of material consumption.

In the Chiostro Grande, on the other hand, whose pavement were previously removed and had not

been traced except in the ancient photos, a terracotta of ancient style was laid.

Fig. 5: Chiostro Piccolo - Ph. Alessandra Chemollo

Conceptually, the project has kept in filigree not only the signs of the transformations that the complex has undergone over time, avoiding bringing it back to a falsely original condition that is today irreproducible, but also the unfinished character that the centuries have given us back, a conceptual thing that the project has made its own. A clear expression of this is the emergence of the base part at the lower level of the Chiostro Grande, the subject of a debate among historians on what was the share of the floor in the original project, on which reliable documents are missing.

Fig. 6: the inner façade of Chiostro Grande - Ph. Kai-Uwe Schulte Bunert

Fig. 7: basement part of Chiostro Grande - Ph. Schulte Bunert

This space today gives us back in a completely natural way, without forcing the historical-critical reading of a completion never occurred and certainly interrupted as shown by the signs in the bugnato showably visible in the base parts, the ideal condition of an arena or a natural cavea lowered compared to the porch of Chiostro Grande, located at the same height as the courtyard areas behind. This condition allows not only a fruition in connection with the external spaces, but also a privileged use for events, a situation that the project has enhanced and emphasized also in relation to the choice of flooring. In the project then we decided to reveal the unfinished also in the wall finish of the base part, leaving all the traces of the layered transformations under a veil of lime.

It is evident, in addition to the unfinished in the altimetric sense of which the base part of the Chiostro Grande is clear evidence, the unfinished in planimetric sense, since evidently the complex was destined to an extension towards east, as clearly shown by the current state of the great wall which

delimits the monumental body with respect to the areas behind it, to all intents and purposes an unfinished front with openings ready to be reopened when expanding the corridors serving future cells.

Fig. 8: Chiostro Grande from courtyard level - Ph. Schulte Bunert

Moreover, the large size of the Chiostro Grande is not explained otherwise than the small number of rooms present only in the West and North wings. This aspect of unfinished has allowed conceptually and methodologically to consider the space behind as autonomous with respect to the monastery, with which it also maintains a direct relationship thanks to the lowered height of the Chiostro Grande. This relationship is highlighted by the only opening that from the height of the mezzanine floor overlooks the courtyard areas, towards the building of the Laboratories and towards the old Stables, allowing to perceive the boundary walls that once delimited the rear and productive areas of the monastery, today recovered rediscovering the ancient wall construction protected with a slaked lime veil.

Once the construction of large fabbriche lasted centuries and usually went beyond the earthly life of their creators and builders. In a sense, they were dynamic entities that in part left a legacy to later generations and to the custodians of such complexes, large portions of unfinished buildings with which they had to continue their work, perpetually adapting them to the transformations that the building required. It would be wrong to imagine such factories, where they are handed to us by history with the many transformations they have undergone, like entities frozen in a period or with the hands still at an "original" stage of which no traces remain because never completed, for the continuous

prolonging and overlapping of transformation actions over time.

The Cloisters of St. Peter follow the casuistry of other coeval and large complexes, partly showing the unfinished and partly signs of stratified transformations that must be interpreted carefully. Both situations were accepted and made their own, intervening even where there were missing functional elements that required choices and materials methodologically consistent with the building. The greatest effort has been towards the search for a balanced relationship between newly inserted materials and those carefully restored. The doors and covering elements that house the fan coils, the only interventions in a contemporary key, are clearly recognizable albeit with a material and chromatic consistency with the remaining materials and finishes. They are made of burnished brass and create a dialogue at a distance, like elements that wink at ancient materials, and as such they will age taking the patina of time and wear. Among the rediscovered parts, certainly the most important was the reopening of the last rampant of the seventeenth-century stairwell, which was incorporated with the function of storage on the side of the adjacent church of San Pietro at the time of the separation between the monastery and its church itself.

Fig. 9: the north side exhibition rooms - Ph. A. Chemollo

This operation made it possible to avoid the construction of incongruous and external staircases, completing the entire staircase and rediscovering the courtyard space between the monastery and the church, previously inaccessible and now reopened to the side of the lower level corridor. We also intervened on vertical connections, creating an elevator that connects all the levels of the ancient monastery starting from the basement. The latter was reopened to the public and the new toilet block and the plant rooms housed inside spaces on the side of the corridor corresponding to the loggia above were built.

Fig. 10: the brass doors of the North rooms- Ph. A. Chemollo

3.   *The new Open Urban Laboratories building*

The Urban Open Laboratories represent the management "machine" of the complex, an aspect emphasized by the architectural form and by the emergence of technical volumes also serving the monumental body in the inclined roof. The new building, with a single floor with a balcony, defines the completion and closure to the North side of the monumental complex, ideally representing the limit and the edge towards the twentieth century city that lies behind. Conceived as a sequence of three large serial spaces, it is characterized by maximum internal flexibility also in relation to the external spaces and the courtyards that favor the natural passing ventilation. The south façade allows the maximum contribution of controlled natural lighting through a

polycarbonate system and wooden strips, from which the heads of the concrete septa emerge to denounce the scanning of the interior spaces.

Fig. 11: Open Urban Laboratories and Stables - Ph. A. Chemollo

All the masonry structures are in white washed concrete and left exposed. The glass wall that runs the length of the laboratories allows the uninterrupted view of the perimeter wall of the ancient monastery and excludes the view of the upper part, as if to underline a protected area enclosed in the heart of the city. The serial aspect, the bare structure, the rhythm of the facade in the repetition of its elements and the interruption of the strips as the beams head emerges, the contrast between the material surfaces, all this contributes to recalling a dialogue at a distance with the monumental order of the ancient building and its unfinished basement part.[1]

Fig. 12: Open Urban Laboratories at night - Ph. Schulte Bunert

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[1] It is a reference to some practical and theoretical aspects found in the essay by José Ignacio Linazasoro "The memory of the order. Paradoxes of modern architecture" in which the

4. The restoration of the ancient Stables

The restoration of the ancient Stables building, located on the terminal side of the cortilive areas to the East, was carried out with the same criteria. Anciently akin to the sheltering of horses, it has been the object of multiple transformations over time which have nevertheless preserved its original character. The interior vaulted space on the ground floor remains and has been restored and the unified space of the upper floor has been rediscovered, regenerating the partly restored and partly rebuilt wooden roof. In the façades the intervention rediscovered the original openings, marked on the ground floor with metal linings, and the ancient masonry texture treated with a lime veil that allows to read the wall facing and its "scars". The objective was also to seek a balanced relationship between ancient and contemporary through a material dialogue with the adjacent washed-out concrete of the Laboratories.

Fig. 13: the courtyard behind Laboratories - Ph. Schulte Bunert

author seeks a principle of timeless legitimacy for architecture, even in the current condition of fragmentation, in search of a lost order.

At the head of the building and at the point where it converges with the building of the Laboratories, was rediscovered the ancient courtyard once walled between buildings and the oldest wall that originally encircled the outer edge of the rear areas of the monastery, today having the role a visual focus of the internal portals that define the three serial spaces of the Laboratories.

Fig. 14: Open Urban Laboratories from parking area behind - Ph. A. Chemollo

5. The regeneration of courtyard areas

The project was completed with the rediscovery of the courtyard areas as new public spaces once again returned to the city, previously asphalted forecourts and resulting spaces deriving from the prolonged use of the entire complex as military barracks. The definition of the new public spaces has been achieved not only through the rediscovery of the connections between the monumental body, the old Stable and the back areas, but also through the planting of large adult plane trees and the creation of a lighting system, together contributing to define the rediscovered areas, while the new calcareous flooring highlights the continuity of the public space. Like a natural ground from which the buildings emerge, this finds its culmination in the lower level of Chiostro Grande, without binding the use of the spaces for any kind of events at any point.

The flooring is the result of a mixture of crushed quarry with locally sourced material that gives a nutty color. Its resistance allows it to be driven in an exceptional way for the loading and unloading linked to the events that take place in outdoor spaces, it being understood that the whole complex in its entirety is designed to be a space only for pedestrians, to walk on or by bicycle, to stop and enjoy the tranquility of a central location without cars or other disturbing elements.

The same flooring continues uninterruptedly in the Chiostro Grande by recreating the internal and external spaces of the complex through a material continuity that contributes to restoring a perceptive unity that keeps the different buildings together in a dialogue at a distance, whose soil is the fundamental element of connection. The same impression of unity has been sought in the choice of materials throughout the intervention, in the research of proportions between the parts, in the balanced relationship between the buildings and the way in which they dialogue with the public space that creeps in, keeping them together.

Fig. 15: the courtyard areas with lighting - Ph. A. Chemollo

The greenery newly inserted in the courtyard areas is not of the horizontal type but vertical, also to allow maximum flexibility in the use of the spaces, and is defined by the large crowns of the plane trees and by the creepers in the ancient walls that originally held the complex towards the surrounding countryside and today towards the nineteenth-century city (on the side of the via Emilia) or twentieth-century (towards via Monte San Michele). The perimeter walls of the ancient monastery have been rediscovered and enhanced as an ideal backdrop that defines the edges of the restored complex, a place of quiet and public space like a system of small squares where it is possible to imagine different public activities.

Originally the entrance to the monastery took place from the churchyard of San Pietro through the Chiostro Piccolo, for this reason also called Chiostro della Porta (Door Cloister). It was only recently that the entrance was consolidated on the opposite side,

through the entrance courtyard from the Via Emilia, where once the vegetable gardens and the productive areas of the monastery were located. Confirming the now consolidated access on this side, the problem of defining a ramp remained to allow the widest accessibility. Because of these two aspects, the ramp dialogues with the courtyard areas rather than with the monumental body, from which it becomes an autonomous element, contributing to the definition of the entrance courtyard and giving form to the entrance to the monastery. The parapet made of wooden slats constructively recalls the facade of the Laboratories by introducing a dialogue between the two contemporary elements introduced in the external areas of the complex. Acting as a seat on the outside, the high back that defines the backrest defines a perceptive game for those who enter, along the ramp, as a preparation that progressively accompanies the raised height of the Chiostro Piccolo.

Fig. 16: the entrance ramp and wooden bench - Ph. A. Chemollo

The steel gates placed in the openings of the Chiostro Grande on the low floor allow an autonomous and flexible use, together with the remaining public spaces, compared to the upper floors of the monumental building.

More generally, the most innovative aspect compared to the situation inherited from the centuries is that of a monastery and its cloisters, conceived for an internal and introverted fruition towards the surrounding space once in the open countryside, which today, being in the center city, they open towards the surrounding areas without changing the preexistence and also allowing entry

from the lowered level. A fruition that allows the contemporary and autonomous use of the courtyard floor compared to that of the Great Cloister, as well as an extraordinary view for those approaching from the public spaces behind, in turn reconnected to the system of public spaces in the city. In this way Chiostro Grande becomes in all respects an extension of this system while maintaining its integrity.

Fig. 17: the entrance courtyard with the ramp - Ph. A. Chemollo

But by far the most important aspect of the intervention was the re-opening of the external access from the two sides of the Via Emilia and from Via Monte San Michele, allowing the urban crossing that had been prevented for centuries, literally allowing the city and letting it flow through these rediscovered spaces like all streets and squares in the city centre. The intervention, conducted under the supervision of the Superintendency, was oriented towards the search for a balanced relationship between ancient and contemporary, between rediscovering spaces, stimulating new relationships and establishing new uses compatible with the bounded good, with attention to the social role too of urban regeneration.

Fig. 18: the main entrance from via Emilia- Ph. A. Chemollo

6. Conclusion

The interaction between Architect and Costruction supervisor, in this case coincident figures in our person and in our architectural office Zamboni Associati Architettura, with the Municipality and Public Administrator, client and owner of the complex, and the Superintendency for Architectural Heritage has been continuous throughout the process with the shared aim of achieving quality architectural that the object of recovery required, in the context of an unusual and extraordinary operation of biggest complexity in terms of project and construction that involved, in the core of historic center, the challenge of conservative intervention subjected to the utmost protection with the challenge of the regeneration of a piece of city enclosed for centuries within its perimeter walls. It is on the basis of this dialogue that it was possible to successfully complete an operation of this delicacy.

If in conceptual terms the spirit of valorisation of the unfinished character guided the project and the construction works, preserving in filigree the signs of alterations, changes of destination and transformations that the complex has undergone over the centuries, in relation to the foreshadowed and foreseen uses, which guided the project choices, the intervention was based on the spirit of Benedictine rule "Ora et Labora", combining conservation with innovation, with the goal not only to give back to the city one of the most extraordinary monumental complexes but also a place to blend together and to bring together different knowledges - culture and technology - in a wide-ranging cultural and innovative project open to citizens and international users.
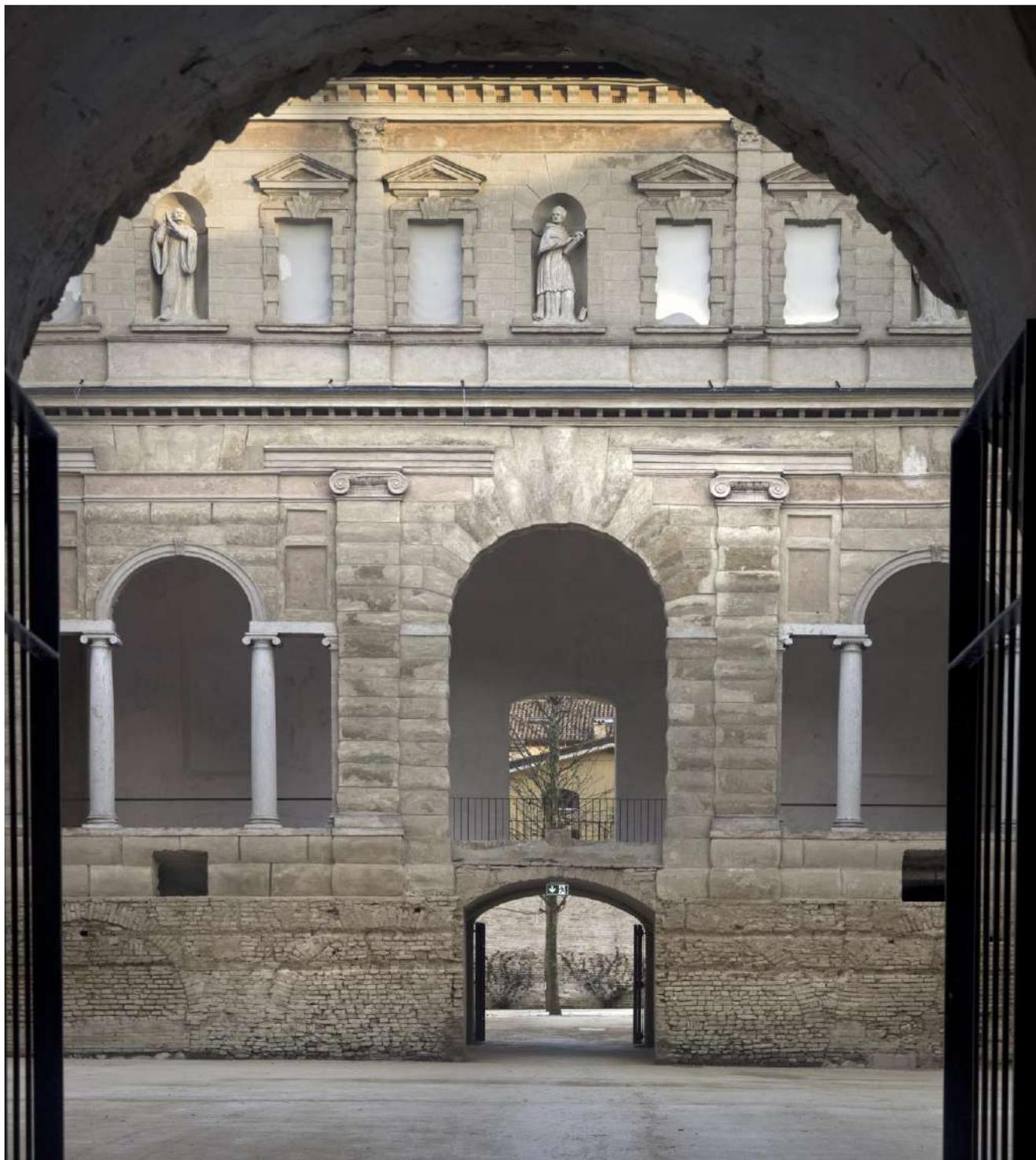
Fig. 19: Chiostro Grande - Ph. A. Chemollo

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THE CASTLE AND THE CITY. CHALLENGES AND OPPORTUNITIES FOR THE EURIALO CASTLE AREA IN SYRACUSE FOLLOWING THE RECENT ESTABLISHMENT OF THE REGIONAL ARCHAEOLOGICAL PARK

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Abstract

Eurialo castle area in Syracuse represents one of the most relevant archaeological sites of the city and its importance among the Magna Grecia's fortresses, along with the Dionigi's walls to which the castle belongs, is nowadays widely recognized. Nevertheless, the peripheral position of the castle (6 km far from the city centre) and the large Dionigi walls' extension (almost 17 km in their original substance surrounding the city) have always made it difficult to achieve their appropriate promotion and preservation. Alongside, due to the Twentieth century's out-of-control urban expansion, several in-depth analyses have been recently produced in order to suggest possible solutions to the fragile relationship between the ruins and the growing city, trying to consider this connection as a guide for the future urban development.

The recent establishment of the Regional Archaeological Park (April, 2019) seems to be an important opportunity to involve the entire Dionigi's defensive system into a new and positive management of the city's archaeological sites: on one side, a three-years program consisting in archaeological research, monuments restoration and road network implementation is expected; on the other side, the great natural interest of the Eurialo castle and the walls, as the lawmakers underline, suggests a fruition for a larger spectrum of users, leaded both to the cultural and the leisure activities. After illustrating the main subjects on the defensive system's features and the particular urban dynamic occurred throughout city's history, the paper aims to outline some design purposes mainly focusing on the castle, recognized as a strategical subject to provide both the valorisation of the defensive system and the complicated dialogue with the city within the new established Archaeological Park's general objectives.

Keywords

Archaeological Park, Eurialo castle, Syracuse

1. Introduction

The recent establishment of the Regional Archaeological Park in Syracuse (D.A. No 18/2019) can be considered the completion of a number of protection and dispossessions' measures involving the city of Syracuse since the '50 of the XX century. Since the "Parco della Neapolis" was created (1952-1954) an archaeological heritage's preservation process began in order to face the uncoordinated and massive urban expansion started after the end of the Second World War. Among other monuments, some of these actions were focused on the Dionigi's walls ruins, the vast defensive system designed by the tyrant Dionigi the First at the end of the fifth century b.C. The Eurialo castle represented the most eastern and relevant military stronghold of that system and its importance had been finally recognised mainly thanks to Paolo Orsi's excavation works at the beginning of the XX century.

Dionigi's defensive system's particular features make its preservation as fascinating as complicated:

undisputed monumental and historical importance and current ruins' poor substance; relation with territory's morphology and consequent high landscaping quality (the walls follow the ridge of Epipoli's plateau overlooking the surrounding territory); walls' wide extent and the dialogue between the city, the eastern side of the ruins' (in strict relation with the growing urban system) and the western one (in a peripheral position, compared to the city centre).

The relation between the walls' path and the present urban system is of particular interest and requires new thoughts and proposals, starting from the opportunities endorsed by the Regional Law No 20/2000. This law - established for the Archaeological and Landscape Valley of the Temples Area in Agrigento but only outlined the Archaeological Area's system in Sicily - overcoming the simple role of safeguard and conservation of the archaeological heritage, contains a regulation providing the best conditions for scientific, social, economic and tourist purposes according to needs of the actual situation of places. These concepts'

application to Syracuse's territory and archaeological heritage works undoubtedly well with the abovementioned characteristics of Dionigi's walls and has suggested a key role for the defensive system also thanks to the possibility for the walls to enclose a big amount of the city's archaeological sites and landscape areas.

Since the first Archaeological Park of Syracuse's boundaries proposals (started in 2003 and finally approved in 2014) academic research, national ideas' competitions and international workshops have been dedicated to investigate the role and possibilities offered by the Dionigi's walls in the context of the contemporary city. On the side of the archaeologists, the interest on the Dionigi's defensive system did not decrease from Paolo Orsi's studies dated back to the beginning of XX century. Last huge analysis on the monument is due to the German Archaeological Institute that have recently issued the work "Die mauern von Syrakus: das Kastell Euryalos und die Befestigung der Epipolai" (H.J. Beste, D. Mertens, 2016[1]): the publication presents upgraded plans of the walls (the previous one dated back to 1883 by F. Cavallari and A. Holm) and the castle, with new information of great interest for the knowledge of the remains.

Nowadays, the castle is considered as the most important fortress in Magna Graecia's military constructions: its dimensions and its variety of elements make it hardly comparable with other structures of the same period. Nevertheless, the current inadequate measures relating to the conservation and the fruition of the site call for new provisions and actions. Moreover, its marginal location on the west end of the Epipoli's plateau allows an all-embracing view on the surrounding landscape and its privileged geographical features show assonances related with the same evidences on the walls' circuit, based on the coexistence of archaeological, landscape and urban matters.

Starting from the abovementioned remarks and taking into account the opportunities that the park establishment seems to offer, the paper tries to outline some proposals for the Eurialo castle, considered as a strategical point of intervention

both for its own fruition criticalities and the resolution of more extended questions related to the entire Dionigi's defensive system.

2. The defensive system and the city

The castle and the walls' construction dates back to 402 b.C., when Dionigi the First, tyrant of Syracuse, designed a massive review of the city's defensive system. With almost 17 km of length, Dionigi's walls are nowadays considered one of the largest defensive systems of the ancient world.

The fortifications' project was conceived in order to increase the natural protective attitude of the Epipoli's area, the plateau which, during the Greek period, delimited the city on the western side and proved to be a tactical place for the previous wartime events. According to the Greek military building traditions, Dionigi's walls and the Eurialo castle, its defensive peak, have a strong connection with the geographical features of the site: the walls strictly follow the plateau's edge and the castle, at its western end, closes it in the highest point. These essential characteristics give the defensive system its own great landscape and nature value. Currently, for most of their path, nothing but the walls' foundations can be recognised. In fact, since its abandonment, Dionigi's fortifications started to be used as source of building material for farm houses growing in their nearby.

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[1] The huge studies by H. J. Beste and D. Mertens started in 90' were published in 2016 with the title: *Die Mauern von Syrakus: das Kastell Euryalos und die Befestigung der Epipolai*. This work, among its aims, encloses and organizes all the knowledge on the castle collecting the experiences of the XX century.

Fig. 1: P. Mortier, 1701. Hypotethical reconstruction of Syracuse during the Greek era according to the nine plates from *Dichiarazioni delle antiche Siracuse* by V. Mirabella. Dionigi's walls surround the plateau; the castle is represented in the upper right corner.

Because of their acknowledged importance, the castle and the Dionigi's walls have been deeply studied since the XVIII century; quite apart from the interest on piecing together their original texture, since the beginning it was clear the importance of the investigation through their integration with the ancient urban context.

From the XVII century onwards, thanks to a new view on the matter of ancient historical literature, many hypothetical reconstructions of the ancient city have been proposed. In this regard, the reference to the Dionigi's walls and the Eurialo castle in classical writings dealing with the most important events of Sicily's history and the opportunity to recognise them through the direct observation of the ruins is at the basis of Vincenzo Mirabella's work *Dichiarazioni delle piante delle antiche Siracuse*[2]. The nine plates published in the

book describe the city during the Greek age, placing each monument known at that time by the written historical sources. Although distinguished by iconic representations, among these Eurialo castle and the Dionigi's walls appear for the first time (figure 1).

Misrepresenting the defensive system as common city walls, Vincenzo Mirabella proposes a vision of the Greek city extended to the whole Epipoli plateau which is reconstructed as an uninterrupted urban fabric containing both residential buildings and famous monuments. Actually, the ancient Syracuse really never filled the Epipoli's plateau even during Gelone's reign, when the city reached its largest expansion.

Such a large extension of the walls compared to the real size of the ancient city (which probably

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[2] Between V and III century b.C. Syracuse enjoyed its greatest rise in popularity. Dionigi's walls and the Eurialo castle had a key role in several battles which characterised city's events involving the greatest powers of the time. The defensive system had to show for the first time its effectiveness during the war against Carthage in 398 b.C.; sources suggest that

even when Syracuse fell under the hand Roman in 212 b.C. (probably following a treason) Eurialo castle had never been conquered. The book *Dichiarazioni delle piante delle antiche Siracusae e di alcune medaglie d'esse* of Vincenzo Mirabella retraces these events, and the ones belonging to the war against Athens in the V century, trying to recreate the ancient city's image. The brilliance of Mirabella's work was so high that his hypothesis had been considered at the basis of the several following studies on the same topic.

extended to the eastern limit of Epipoli plateau[3]) can be explained tracing the reasons behind the Dionigi's project. In the original tyrant's aim, the defensive system was conceived as an advanced protection which overcame the extension of the city in order to protect the countryside and avoid any trying of siege by enemy forces, as Athenians had done few years before (415-413 b.C.) (figure 2).

After the thriving period of the Greek and Roman occupation, the city has undergone a process of progressive contraction due to the population decrease by which new urban dynamics occurred and led to the abandonment of the ancient defensive system. During the VII century's Arabic occupation, Syracuse was reduced to the Ortigia island until first measures relating to town planning and the built up area's enlargement were proposed at the end of XIX century, after the Unification of Italy. The demolition of Ortigia island's Spanish fortifications, from 1865 and over the next twenty years, was a crucial stage in the 1885 and 1891's town planning and of extension: the plans proposed urban development guidelines in the area between the island and the south-eastern edge of the Epipoli

plateau setting up the current Santa Lucia quarter.

At the end of the Second World War, the new industrial settlements occurred at fifties generated indeed what could be defined as an urbanistic blast. In less than fifteen years the population had increased by twice and the old on dry land quarters, ran out inhabitant for several centuries, became again centre of the urban life with a new and reinforced economical life. During this fast growth's period, especially because of a not efficient coordination between urban planning and protection instruments, the city has inordinately spread towards the west on the Epipoli plateau, lapping - in some cases - the eastern part of the Dionigi's walls, however never overcoming their original path[4] (figure 3).

Fig. 2: At the left in the image the geography of the Epipoli plateau, ancient quarters and fortifications during the Greek era: 1. First defensive system of the city before the greek occupation; 2. Kyklos built by greeks during Syracuse's besiege in 413 b.C.; 3. Dionigi's walls; 4. Eurialo castle. In the upper right: archaeological heritage in Syracuse. Main monuments and remains are placed in Neapolis' archeological park, in Ortigia island and along the walls' path. In the lower right: current urbanization and the Dionigi's walls.

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[3] Mirisola, R. & Polacco, L., (1996) *Contributi alla paleografia di Siracusa e del territorio siracusano (VIII-V sec. a.C.),* Venezia 1996.

[4] A very detailed reconstruction of the events in the city expansion in the post Second World period is in: M. Nucifora, *Le "Sacre pietre" e le ciminiere. Sviluppo industrial e patrimonio culturale a Siracusa (1945-1976)*, Franco Angeli, Milano 2017.

The new condition of nearness thus determined between the walls' remains and the contemporary city needs nowadays deepenings dealing with both


context located in proximity of the walls. The importance of a careful management of the Dionigi's defensive system on the redevelopment of these peripheral areas cannot be overlooked. According to this intention, after physiologically losing their physical character of fortification, the Dionigi's walls could change their conceptual nature too: from dividing line to protect the city to opportunity of connection between the contemporary city and the naturalistic and archaeological value of the Epipoli's edge.[5]

Recent interventions on the city public spaces seem more related to this consciousness in the actions on the city transformations. Some examples can be proposed.

The presence of the late 1800s railway along the eastern and northern Epipoli's edge, basically retracing the walls' path along a more internal position, represented since the creation of the surrounding urban areas a substantial separation from the specific archaeological and landscape value of the places. Recently the decision to replace the old railway with a bike path opened new possibilities for the outskirts' enhancement thanks to the renewed connection to the cliffs and the seascape[6].

Nowadays the new "ribbon" between the archaeological ruins and the bike path presents itself as a very precious place for new and diverse functions thanks to the very different realities recognised in form, function and scale. Many studies and architectural proposals in the last years have been carried out in order to take advantage of this new occasion for the city[7] (figure 4).

Fig. 3: Urban sprawl during the 20th century. From the top down, urban configuration in 1967, 1986 and 1999.

the preservation of the archaeological evidences and the creation of positive relationships between these evidences and the neighbouring urban areas.

This last point proves to be of particular interest considering the lack of architectural qualities and moreover basic life services of the outlying urban

[5] These issues has been studied in recent national research program PRIN 2009: "Paesaggi dell'archeologia, regioni e città metropolitane", scientific coordinator A. Capuano, Sapienza Università di Roma. The research's results are collected in: A. Capuano (editor), *Paesaggi di rovine, paesaggi rovinati*, Quodlibet, Macerata 2014.

[6] Taking advantage of the need to speed up the railway connection between Catania and Siracusa, in 1998 a new underground stretch was built to replace the 1871's previous one, parallel to the coast.

[7] Since 2012 a significant commitment was launched to deepen the relations between the Dionigi's walls ruins and the city. Among them are mentioned: *The landscape archaeology. Three opportunities to the city*, International seminar design, Siracusa 2012; *The landscape archaeology and the contemporary city*, workshop IP Erasmus, Siracusa 2014; *The archaeological park of Siracusa. Ideas competition for the development of Dionigi's walls*, Siracusa 2014; *Architecture, Archaeology and tourism. International workshop DHTL*, Siracusa 2018.
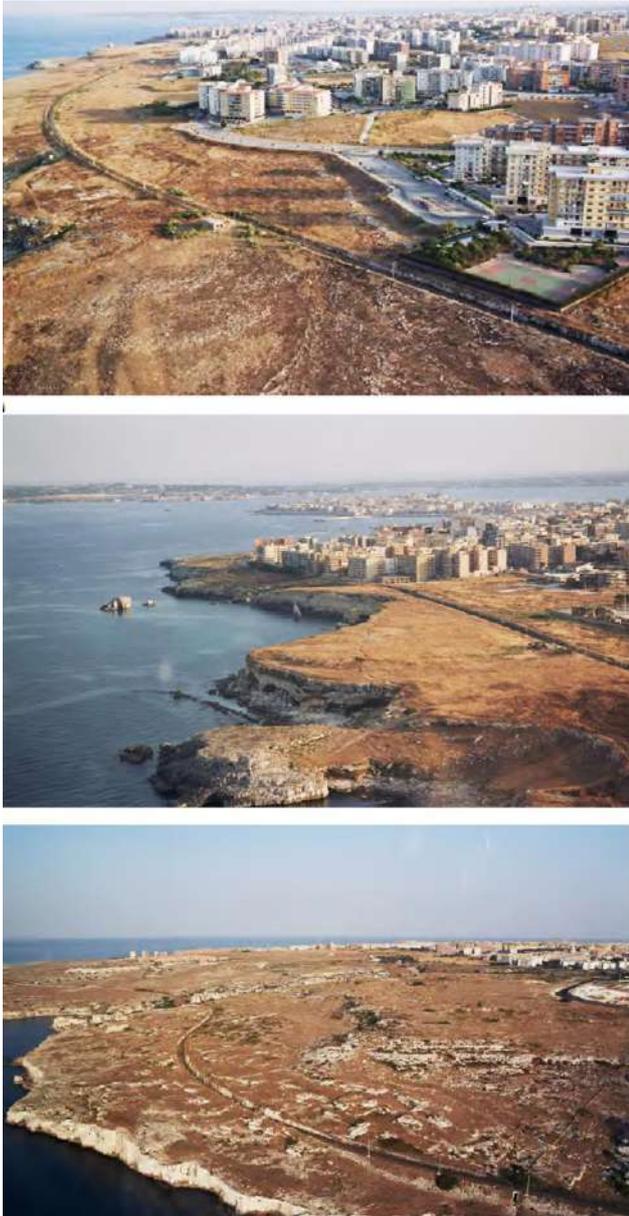
Fig. 4: Aerial photographs (from *Parco delle mura dionigiane* award databases) of the eastern and north-eastern Epipoli's slope showing the city losing its substance to the west.

3. The city and the archaeological heritage

As abovementioned, the history of the establishment of the archaeological park of Syracuse dates back to 2000, when a Regional law was issued for the institution of the Agrigento Temples' Valley Archaeological Park and for the identification of an integrated system of Sicilian archaeological parks[8]. The basic ideas contained in

the regulation entrust to the archaeological park not only the role of safeguard, management, conservation of the archaeological heritage (three-years program consisting in archaeological research, monuments restoration and road network implementation) but also the function to provide the best conditions for scientific, social, economic and tourist purposes; from this point of view, the park is a necessary tool to better protect the archaeological and cultural heritage and make it available to the people.

It can be said that Syracuse faced the first time the items related to the preservation of its huge classical heritage in the '50, when the "Parco della Neapolis" was established. Thanks to this existing protection, during the booming construction period, the ancient architecture placed on nation property lands was saved, even if many archaeological remains were crushed by the out-of-control urban expansion. The ruins and the archaeological rests had been considered as an obstacle to the free expansion of the city instead of being recognised as resources to make the modern city better.

This never stopped process makes the contemporary city completely different from Ortigia, the Old Town, which presents itself as a beautiful continuous layering of different ages' monuments and minor residential buildings. The contrast between the Ortigia Island and the rest of

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[8] A. Badami, *Mitopoiesi del paesaggio archeologico siciliano. La valorizzazione del patrimonio paesaggistico e culturale*, in: A. Capuano (editor), *Paesaggi di rovine, paesaggi rovinati*, Quodlibet, Macerata 2014, pp. 190-195.
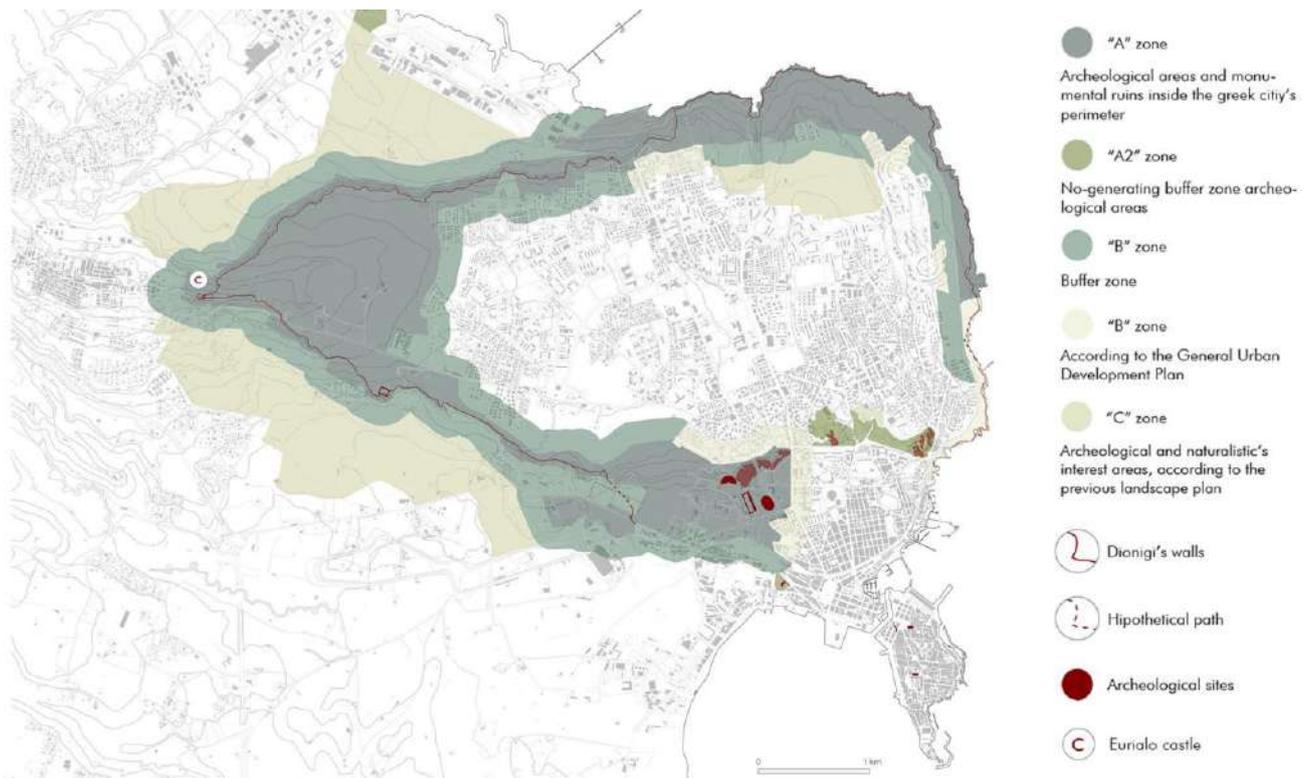
Fig. 5: Scheme of the Dionigi's walls Archaelogical park delimition purpose of 2014 and the archaeological heritage of Syracuse. Beside the identification of archaeological interest areas and their buffer zones, the plan identifies also the naturalistic ones, showing the double direction of the subject matter protection.

the city is becoming unbearable and could be one of the reasons of social difficulties never existed till now. The establishment of the new archaeological park could answer also the social request of reunification of the city under the idea of a common past to use as a cultural widespread value. The nowadays boundary, which date back to 2014, seems to follow this aim. In fact, including the previous areas, it enlarges the park involving the entire city. «The perimeter follows the grandiose ancient intuition of the *poliorcetica* on the basis of which Dionigi I unified in a single defensive plan the territory constituted by the island of Ortigia, by the promontory of *Plemmirio* and by the plateau wedged between the Iblei and the Climiti mountains, characterized by a particular hydrogeology that gives life to numerous sources of fresh water, often close to the sea; thus the two stretches of water of the *porto Grande* and *porto Piccolo* become inseparable and constituent elements of this landscape, as a place where much of those historical events have given life and shaped the dense anthropization of the territory itself»[9] (figure 5).

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[9] Extract from Gazzetta Ufficiale della Regione Siciliana, part 1 n. 18, 5-2-2014.

4. Some remarks and proposals on the castle

The great extent and the substantial "path aptitude" of the Dionigi's defence system seem to suggest design solutions based on punctual actions in strategic places. In this respect, Eurialo castle constitutes undoubtedly the most relevant evidence for importance and substance, able to give new sense and matter of concern for the entire system, also with regard to the city.

The castle's outlying location has influenced in

Fig. 6: Starting with the top row: the main moat of the castle; the five-tower battlement seen from the west side; the prince door at the north of the keep.

different ways the actual relation with the city: if on the one hand this preserved the ruins from the same urban expansion which destroyed Dionigi's remains in other city's areas, on the other hand the castle was ruled out the worldwide well-known archaeological monuments of Syracuse[10]. Anyway the connection with the Dionigi's walls can create different types of neighbourhood on which our design proposals are based. In addition, the new quarter of Belvedere on the western limit of Epipoli creates new circumstances of proximity that also have to be investigated.

As the Dionigi's walls, the fortress is strictly influenced by the peculiar ground, which shapes the castle in all its elements establishing an organic relationship with the area (figure 6). Despite its two-millennial story and seismic events, the greatest and best-preserved fortress of Magna Grecia has always been clearly recognizable. But it's only through the XX century's studies in ruins, which brought to light the castle in its entirety that was possible to trace its original global configuration (figure 7). The fortress is substantially composed of a main keep and its battlements: among them is the distinctive five-towers bastion, nowadays considered as the identifier of the entire fortress (figure 8). To the North of the keep is located the "prince door", also called Tripylon because of its three accesses that allowed the entrance through the walls to the ancient city from the western side. A very intricate tunnels and digs system - that shows also nowadays its complex intervention - connected the different castle's areas. The mixed construction defined by dig and built portions can be certainly considered as the distinctive character of the fortress.

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[10] Since the fifties, dynamics that concern the urban expansion's planning witnessed the succession of some intents which tried to suggest an evolution of the city along the coast in the north-south direction instead of the western inland (Cabianca, 1952). However, periods between complex events of the several master plans' approval had been characterised by unplanned construction just towards the castle and the western Epipoli plateau. Only the most recent regulations took care of the Epipoli ruins' specific protection.
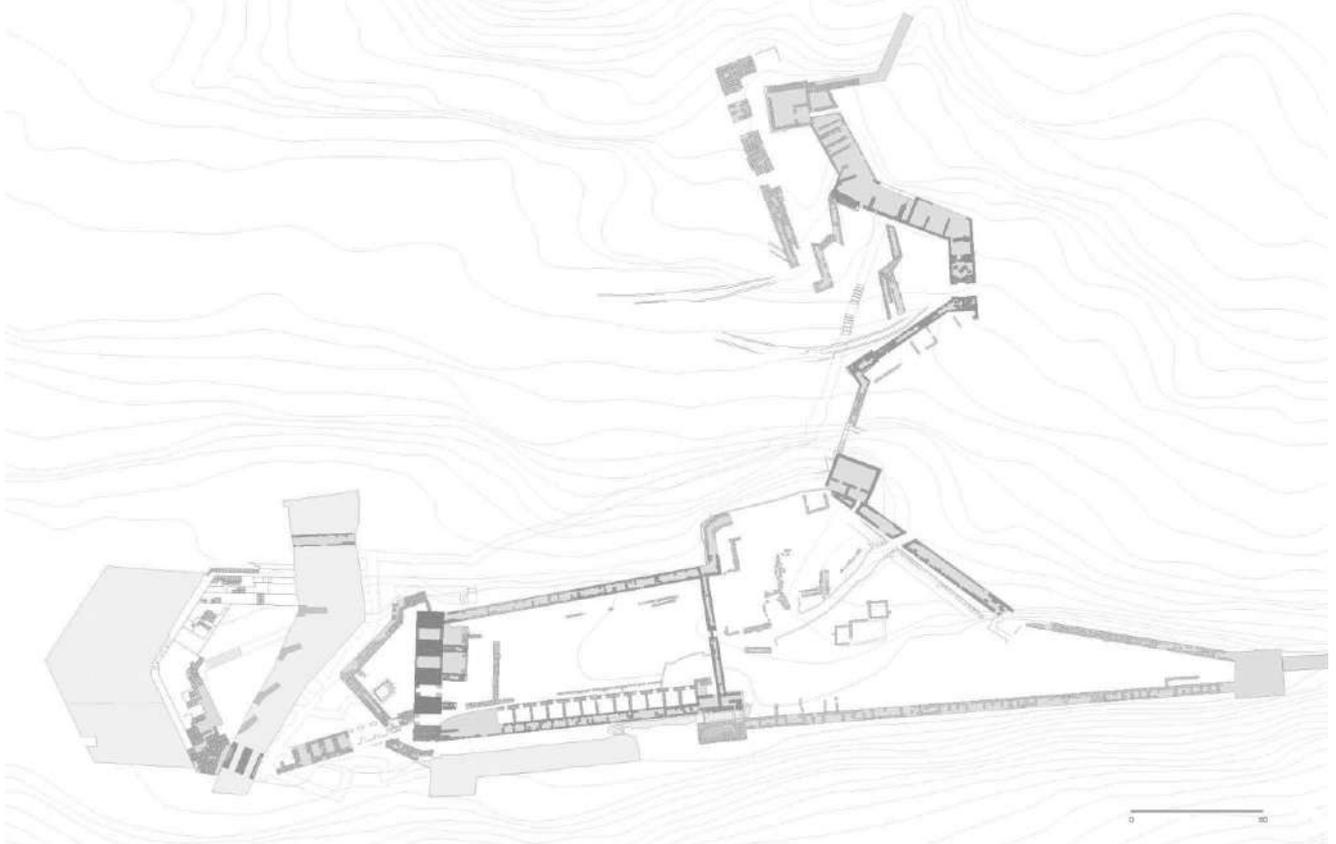
Fig. 8: Eurialo fortress. Redesigned on the basys of the plan published in D. Mertens and H.J. Beste, the map shows the ruins' different substance throught the use of color: the greater opacity, the greater height.

Except for the main keep, the five-towers battlement and the digs system, most of the structures at the castle present a substance no more comparable with the original one. Most of the walls belonging to the castle are no higher than one metre or even limited to the foundation structures.

So, because of the great amount in their number and the differences between all the castle's structures, the recognition of many elements, and

Fig. 9: Leaving behind the keep, walking to the east remains begin to vanish and the naturalistic value prevails over the archaeological one.

Fig. 7: Comparison between the keep before Paolo Orsi's excavation works (1910 ca.) and the current state.

especially their functions' understanding, is very difficult for visitor who come in contact with the fortress for the first time. In a similar way, the presence of several building elements' layers built up over time (the castle saw five important organisational reviews within a period of two centuries) makes hard to figure out the castle's general configuration. These aspects are part of the fortress' complexity and the actual system of fruition (characterised by not well studied guided tours and lack of info panels) can certainly be considered as the main reason of the comprehensive difficulties of the monument. At the same time, the different state of substance and recognition of the castle's structures make the fortress characterised by different facts: on one side the strict architectural presence, given by the clearly defined spaces of the keep and the underground system; on the other side, when the structure loose progressively their substance, they assume a more "sculptural" identity leaving the landscape value take more importance (figure 9).

Finally, the privileged geographical characters, the essential formal and conceptual link with the walls' circuit, the position on the periphery and the subsequent central issue of the dialogue with the urban context enable to develop design purposes referable to the whole system's problems.

All these features have suggested, in this context, a strategy of fruition based on two different ways.

On one side the combination of archaeological, naturalistic and urban evidences seems to refer to different types of visitors: tourist users are probably the first category interested on the archaeological value of the site and the naturalistic value attracts likely both tourists and local people; finally, the urban context especially referred to the suburb of Belvedere, in close proximity to the fortress, provides another strategy to satisfy local people's needs. On the other side the strict connection with the system of the walls requires undoubtedly strategies oriented towards different scales of intervention: a local one, strictly focused on the enhancement of the archaeological ruins in order to make more understandable the fortress and all its constructive elements; an urban/territorial one, focused on the connections with the city in order to involve the archaeological site inside the network of cultural touristic attractions.

4.1 Design intents

The analyses at the base of the previous considerations about the main features of the Eurialo fortress, in terms of structures and landscape characteristics, made it possible to look in a critical way at the actual fruition system in order to recognize its weaknesses and strengths and propose its possible remodelling. The present state of use system has been recognised as one of critical point to face through the design proposal in order to define appropriate intervention for the fortress' new enhancement.

According to the double-value castle's qualities (the architecture/archaeological one and the landscape one) the new system of use proposes two different types of path. New and diversified visitor trails are depicted in order to attract, through their different characteristics (length, declivity, etc.), diverse types of users. A first path, strictly thought for touristic use, is specifically defined by a clear mark which guides the visitors through a first general approach to the ruins, following a quite chronological introduction to the different constructive phases of the castle. More over thanks to its ascending development this path lets the tourist to find out the strict relation between the fortress and the natural ground, bringing to the main dig which, as well as in its original function, represents the fortress' distribution core.

It is probably the most significant architectonical space of the entire fortress and in the rethinking proposal it naturally becomes the centre of the new distribution. In fact, the several wormholes starting from it reveal themselves as particularly suitable underground itineraries able to reach all the main fortress' structures, otherwise impossible to join through the actual system of use. The new way to visit the castle - deriving from the reuse of the original defensive system - permits the understanding of its "war-machine nature", nowadays completely unintelligible.

As regards the proposal related to the landscape value recognized for the castle, the idea is to define a more flexible and outlying track able to approach the ruins just in particular and strategic points and in this way establishing a stricter relation with the surrounding landscape. Not strictly defined as the first one, the landscape pathway presents in this way features considered more appropriate to the different fruition proposed for the castle areas,
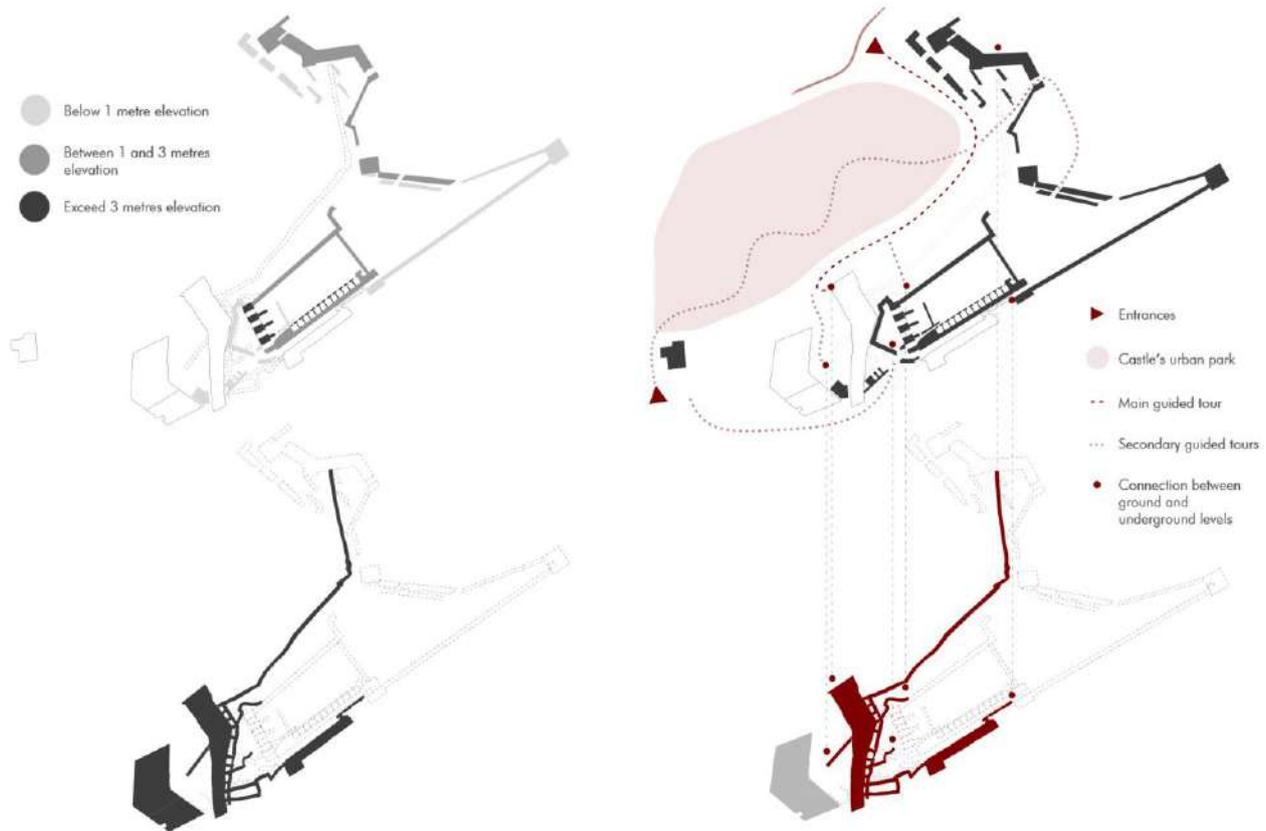
Fig. 10: Diagrams show the current ruins' substance (left in the picture) and the new fruition design's purpose (right in the picture). For each of them it is possible to recognize the importance of the underground system (in the lower part of the illustration) both for its state of conservation and its role in the new distribution.

where both the landscape experience and useful spaces use are not only designed for the touristic audience. In addition to the castle's new use itineraries design, two other precise actions are proposed in order to face questions closer to the urban contest's connections. In contrast with the quite irregular orographic conformation of the Eurialo site, its northern area, at the foot of the main keep, is characterized by a rather flat ground. This is the reason because the first works in Eurialo's site were the ones belonging to the Tripylon which defended this area very suitable to access the Epipoli plateau. Also today, this area presents itself as a natural plaza bordered by fortress' ruins on the southern and eastern side and open towards the marine landscape on the northern side. In the proposal this area is supposed to become a space for the city in which events and activities for the city can be settled. As well as the actual entry, located at the west end of the area, another new entrance is proposed nearby the prince door. Its function is specifically thought strictly to connect the new fruition paths of the castle and the ones conceived for the Dionigi's walls (figure 10).

4.2 Connections to the Dionigi walls' archaeological park

Both the Dionigi system's large extent abovementioned and the draft guidelines proposed for the Institution of the Archaeological Park delineate, in our opinion, design purposes directed at the diversified and flexible use of the walls' defensive system, taking care of its features and values. From this remark derives the proposal of a differentiated path-based fruition, in which particularly attention is payed to the diverse capacities of the users. The aim is to give them the opportunity to choose different itineraries depending on length and levels of difficulty. To that end, most relevant places linked in different ways to the walls' track, or very close to it, become functional to the partition of the fruition path itself: caves, intermediate fortress, towers are spread especially along the western section of the defensive system. Particularly two of these are important historical buildings situated on the north-western and south-western area of the walls.

The *Palacium Targia*, a fortress of the XIII century, located on the northern foot of the Epipoli plateau, nowadays gives place to an agricultural enterprise. Easily connected to one of the main road infrastructure of the contemporary city, it shows the agricultural vocation of the land between the Epipoli plateau and the sea. The second one is *Villa Tremilia,* a building made of a medieval church and a residence which take their origins from previous ruins belonging to an intermediate fortress of the greek Dionigi's fortifications. Due to its historical relevance and its strict relation with plateau's ridge, the villa has been recognised as one of the significant object involved in the Archaeological Park's institution (figure 11).

The circular connection between these significant entities and the Eurialo castle lends itself surprisingly well to the fruition ideas proposed. Characterised in this way by pedestrian paths both strictly following the walls' deployment and crossing the countryside, they also suggest deeper analysis on the city's western limit urban resolution above

mentioned, outlining new strategies of evaluation linked with the Archaeological park's purposes.[11]

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[11] Design purposes made in the report proceed from deepening carried out in the Restoration Design Workshop of the School of Architecture of Syracuse of the 2016/2017 academic year, guided by Fabrizio Foti, design's teacher.

5. Conclusion

It appears that the first interest in Dionigi's defensive system has been addressed mainly to its historical and archaeological value. Just recently the specific development dynamics of the city have explicitly raised questions involving purely urban themes. The contemporary debate takes its bases from the awareness of the potential role which the walls and the castle themselves could play for multifaceted urban planning's issues. First of all the management of archaeological heritage and its strictly connected touristic flow's organization which is nowadays quite imbalanced on Ortigia island, despite other important punctual archaeological remains are spread all over the city. The walls' path, thanks to its conformation, proposes itself as a natural and deeply-value infrastructure able to create a valid network of punctual archaeological and historical remains showing its utility in the promotion of the touristic flow's decentralization. Lately, guidelines at the bases of the archaeological park suggest the importance of giving to the heritage an active role in the urban development's management instead of aiming only its protection. On the other hand its management through the new archaeological park becomes a valid mean for the resolution of questions referring to the evaluation of peripheral areas of the city which deeply differ from the downtown areas in terms of services and public spaces' quality. The fruition purposes for the castle, far from the accuracy of an architectural scale project, want to suggest an operative prototype for such a relevant site inside a more extended archaeological-infrastructural network as far as other remarkable evidences inside the new Archaeological Park.

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TRACK 3 / BUILDING DESIGN

The transformation of the cities has a direct connection with the practices of intervention in the building market sector. The dialogue between architecture and engineering allows intervention in urban contexts to respond to the needs for densification, expansion or requalification. The heterogeneity of the buildings determines a multitude of practices, starting from preventive conservation interventions and ending up, sometimes, in complete buildings' reconstruction. This process brings continuous changes in terms of strategies, instruments, design methods and techniques.

The implementation of new building design along with energetic retrofit, structural renovation, restoration, conservation, reuse, demolition and reconstruction interventions are the necessary steps to tailor and customize the built environment to cities challenges and transformations. Furthermore, the widespread use of innovative technologies has accompanied these processes to renovate design methods and digital detection.

This section introduces papers on new building design, innovative techniques, instruments, and interventions for buildings' representation, renovation and restoration.

THE EPISCOPAL SPORTS CENTER: AN OPPORTUNITY TO REUSE THE EXISTING GREEN PLACE AND TO RESTORE THE RELATIONSHIP BETWEEN LIÈGE AND ITS MEUSE RIVER

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Abstract

This contribution elaborates on the preservation and reuse of a modernist sports complex, part of the episcopal seminar in Liège (BE). The sports complex, designed by EGAU group in the 1960s, comprises three pavilions - a swimming pool, a sports hall, and a central volume of two stories that houses the entrance hall, changing rooms, offices and a small library - is located on a 'roundabout' enclosed by busy roads and parking spaces at the bank of the Meuse river. First constructed for the seminarians, the site was surrounded by trees and connected to the main seminar complex through an underground tunnel, to allow them some privacy. Later, it opened to the public. Nevertheless, the exterior was never used as a public place. Following the non-respect of safety standards and heating problem, the sports center became abandoned. To densify the site, trees are planned to be felled, buildings to be demolished and replaced by a new tower. This decision, however, generated strong critiques by the local community and conservation authorities.

As an alternative for the planned demolition, a project for the conservation and reuse of the site has been developed. The proposed plan does not only save a significant piece of modernist heritage, but also uses the intimate and green character of the site as a public space. Moreover, the project also investigates the potential impact of the proposed reuse on the urban context; by reorganizing the traffic flows around the site, the project could be an opportunity to (re)connect this area of Liège with its water front. The paper includes (1) a description of the site and the controversy around the planned demolition, (2) an analysis of its qualities and potentials in relation with the city, (3) two design scenario's for regeneration of the site and its surrounding.

Keywords

Green public space, Waterfront development, Adaptive Reuse.

1. Introduction

Context

All across the world, we can see the expansion of new buildings, new architectural projects, with new technical developments and more new ambitions. We can also notice the restoration and rehabilitation of some buildings. Furthermore, there is a growth of architectural projects from contemporary architects that relate to the adaptive reuse concept. However, the practice of destroying the existing to build new projects is still incredibly common.

Hidden, forgotten, unknown or rejected, sometimes places catch our attention by their current state. A negative connotation can create the desire of changing things: proving or improving things.

The episcopal sports center in Liège is a hidden place along the Meuse river, with architectural, urban and historical qualities but endangered.

The site is a green spot surrounded by main roads, as an enclosed fairy tale next to the Meuse river. It is also close to the center and nearby pedestrian streets. The place is remarkable by its serenity mostly due to its delicate vegetation that asserts itself in the middle of the city. The building is one of the most interesting modernist projects in the city.

However, what makes this specific subject intriguing is that it is ambiguous and topical as a new construction project that includes the demolition of the building and some of the old trees is supposed to begin soon. Following two processes that happened simultaneously - one to list the building and the second to destroy it - the public opinion implies a controversy apparent by some debates, articles and petitions from conservation associations, architects, students, etc.

Problem statement

An important element that influences the project is the Meuse river, which defines Liège, and its connection with the city. Nevertheless, the relationship between the water and the city is not as strong as it could be.

The sports complex discussed in this essay has been chosen as an example of the mistreated opportunities that can emerge in the city in terms of urban developments.

In this paper, we elaborate on the adaptive reuse potential of the sports complex building and its surrounding, as an alternative for demolition.

Methodology

This work is divided in three points. The first one to establish the context of the project with a description of the site, the surroundings and the controversy about it. The second point is more critical: it includes an analysis of the city of Liège and some of its recent urban developments to start the design of the sports complex building and its surroundings. The qualities of the site are pointed out too. In the third and last point, two urban scenario's are presented along with a proposal for the adaptive reuse of the building itself.

1. Description of the site

Situated on a parcel in front of the main entrance of the episcopal seminary, the sports complex is a work of the post-war, modern architecture. It is an emblematic building in Liège that has been created in the beginning of the 1960s by EGAU, a group of three architects: Charles Carlier (1916-1993) and Hyacinthe Lhoest (1913-1983) who gathered in 1940, and Jules Mozin (1914-1995) who completed the team in 1944. Following the demand of the bishopric, this place was first made to offer more facilities to the seminarians. Three volumes constitute the project: one for the swimming pool, one for the sports hall and the middle one, which has two stories, welcomes different spaces such as the reception, cloakrooms, offices, a « game area » and a little library. Later, the complex opened to the public.[1]

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[1] Cohen, M. (2015, February - March). Destinés à disparaître? In *A+: Architecture en Belgique, n° 252.* (p. 18-20). Bruxelles: A+ magazine.

CHANCES

The episcopal sports center: an opportunity to reuse the existing green place and to restore the relationship between Liège and its Meuse river

Fig. 1: Photo of the episcopal seminary and its sports complex from the Kennedy tour, made by G. Bissot.[2]

Fig. 2: Photo of the building, made by F. Niffle.[4]
Fig. 3: Photo of the sports hall, made by F. Niffle.[5]

The establishment of this low building on an empty plot considers the existing large trees, the orientation and the access of the place. Additional trees were added to visually detaches the building from the surrounding streets and give more privacy to the seminarians. The sports complex is connected to the episcopal seminary with an underground passage which already existed, but was redesigned for the project.[3] After this first step, the architects worked on the scenography for the entry of the building. There is a continuity between the steel structure that shelters the opening of the private tunnel and the structure of the covered path that goes to the entrance. A water pond and some new

trees enhance the direction towards the building.[6]

At the exterior, a steel gate with brick pillars encircling the plot strengthens the impression of inaccessibility.[7]

Other factors which the architects had to take into consideration were time and money. The choice for a sober structure results from those needs and is in line with the historical context of this project: the reconstruction logic of the post-war time. The steel structure made of beams and columns that works as porticos each three to four meters, gives an industrial characteristic to the

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[2] Delville, J.-P. (1992). Le Grand Séminaire de Liège 1592-1992. Liège. p.8.

[3] Le centre sportif du Grand Séminaire de Liège. (1966, November). In *La Maison, n°11.* (p. 366-368).

[4] Le centre sportif du Grand Séminaire de Liège. (1966, November). In *La Maison, n°11.* (p. 366-368).

[5] Ibid.

[6] Ancion, S., & Thonon, J. (2014, 25 December). *Requiem pour la piscine de l'évêché.* Retrieved from https://lechainonmanquant.be/en-ville/piscine_eveche.html.

[7] Ibid.

building.[8]

The facades result from the balance between the presence of the structure's light feeling, the powerful expression of the brick infill and the creative distribution of the openings depending on the orientation, which creates a strict rhythm.[9]

For the sports complex, EGAU group used the same approach than for other projects and paid attention to work on details. They designed, for example, the backboard for the basketball hoop. They also worked in association with an artist during the design process. Inside the building, a piece of art made by Paquot is the effect brought by the natural and respectful collaboration between the architects and the artist. This sculpture is highlighted in the swimming pool space while it hides some technics on the wall.[10]

In 2005, the swimming pool closed due to the non-respect of safety standards, although it was still used by some educational institutions in Liège. The sports hall served a few sports associations for courses or traineeships until 2014, when it closed due to heating problem.[11]

1.1 The episcopal seminary

The episcopal seminary was founded in 1592. It was first intended for education of priests of the Catholic Church of the diocese of Liège. The sports complex was added in 1962. Today, the number of seminarians has strongly decreased and parts of the building are used for other functions: an institution for catechesis and pastoral training, a bookshop and library for religious books and multimedia; several spaces can be rent for other activities such as reunions, meetings, conferences or courses and a few students rooms are available on the upper floors of the principal building.[12]

If the seminary is still alive in general, thanks to

different activities, it is not the case of every part of the complex. Indeed, the church of the seminary welcomes only some events: exhibitions, the book flea market which happens twice a year and one religious celebration per year. During the rest of the time, the church is unused and closed for the public.[13]

1.2 The direct surroundings

The sports center is located in a strategic place in Liège. Despite the vegetation and the Meuse river that are two powerful features, the activities around the area give another qualitative aspect to the

place.
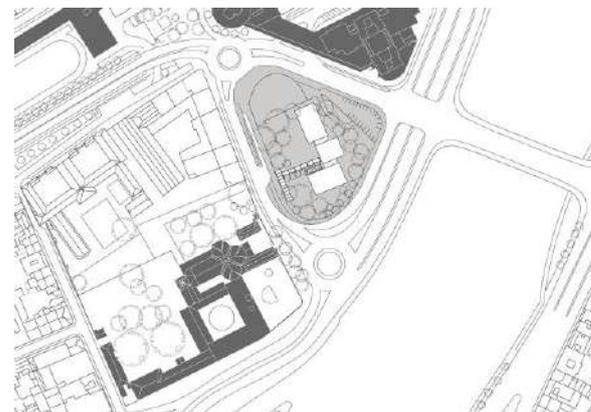
Fig. 4: Areal photo of the site, COGEPHOTO.[14]
Fig. 5: Plan of the site and the direct surroundings.[15]

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[8] Ibid.

[9] Le centre sportif du Grand Séminaire de Liège. (1966, November). In *La Maison, n°11.* (p. 366-368).

[10] Ancion, S., & Thonon, J. (2014, 25 December). *Requiem pour la piscine de l'évêché.* Retrieved from https://lechainonmanquant.be/en-ville/piscine_eveche.html.

[11] Wagener, A., Wuidar, P., & Fernandez, J-A. (2015, 25 January). *Quel projet immobilier pour la piscine de l'Evêché ?* RTC Télé Liège. Retrieved from https://www.rtc.be/video/sport/video/info/quel-projet-immobilier-pour-la-piscine-de-l-eveche-_1476567_325.html.

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[13] Fréson, T., & Université de Liège. (2017-2018). *Dimension urbaine de la réutilisation adaptative et application au site du Grand Séminaire de Liège.* Retrieved from https://matheo.uliege.be/handle/2268.2/4510.

[14] Cohen, M. (2015, February - March). Destinés à disparaître? In *A+: Architecture en Belgique, n° 252.* (p. 18-20). Bruxelles: A+ magazine.

[15] Drawing made by author 1.

Although the building was the first construction present on the site, a gas pump, a little shop, a car wash and an underground parking were added later and strongly define the present character of the plot; those equipments do not have any architectural quality but nevertheless serve the citizens.

Next to this plot, there is also Les Chiroux : a cultural center with a public library. The Kennedy tour residence adjoining Les Chirroux marks the area as the verticality of this tower strongly contrasts with the horizontally conceived sports complex. This tower's characteristic is used as a deciding factor to create a new housing tour instead of EGAU's work by the people engaged in the demolition of the site.

Close to the entrance of the cultural center, the Place des Carmes is a square with bars and restaurants. Positioned at the end of an old, lively street and nearby a secondary school, this commercial area is now under renovation.

1.3 Controversy

After the bishopric revealed their intention of selling the sports complex, different construction projects were suggested since 2008 but none of those have been achieved.[16]

A controversy about the site begun the 29th May 2017, when a new « Plan communal d'aménagement » (Municipal planning plan) n°44/6 has been voted by the city of Liège. This new plan includes the destruction of the sports complex of the episcopal seminary, and most of the existing trees to make place for a housing complex: a project attributed to constructors - promotors.[17] One of the purposes of this project is to densify the site and to exploit it 'better' to create more new houses and some offices.

What makes this situation more complicated is that a listing process for the sports complex has been introduced the 11th Octobre 2016. Indeed, the Commission Royale des Monuments et Sites did took measures to protect the building before the

city voted the new municipal plan.[18] We can then interpret this action from the city as inconsiderate for the measures that have been taken by responsible authorities to save this piece of modernist heritage.

Under this threat, UrbAgora ASBL, DOCOMOMO Belgium, SOS Mémoire de Liège and Le Vieux Liège ASBL created a petition online, now closed. In 2014, UrbAgora did already talk about this subject with an article they published online: *Requiem pour la piscine de l'Evêché*, here used as a main source. Websites were created to discuss about the sports complex case. A councilor from a political party in Liège participates in this debate too. We can read some of his publications on his website, including one, directly addressed to the mayor of Liège, where he asks: if the city will support the protection of the sports complex and the listing process for the building and its surrounding, if the college could introduce a file to renovate the swimming pool and what measures do they intend to take to ensure the preservation of the site.[19]

Today, we know that the new housing project will start soon. Unfortunately, it seems like the city and the bishopric did not take all of those interventions into account.

2. Analysis: the site as a public place

Throughout its history, the city of Liège had an ambiguous relationship with the Meuse river: using it but at the same time also rejected it. During the Middle Ages, the river boarded the outside city's wall and hence served as a means of defense. On the other hand, the river also caused hygienic issues which was one of the main problem for the citizens.[20]

Today, the urban context has radically changed as the city expended far beyond its medieval city wall and now occupies both banks of the river. Therefore, the Meuse river is still, or maybe even more, an emblematic characteristic of the city. Nevertheless, the morphological relation between

[16] Cohen, M. (2015, February - March). Destinés à disparaître? In *A+: Architecture en Belgique, n° 252.* (p. 18-20). Bruxelles: A+ magazine.

[17] Cardoen, M. (2017, 19 October). *Non à la destruction de la piscine de l'évêché.* Retrieved from http://www.maximecardoen.com/blog/piscine-eveche.

[18] Ibid.

[19] Schreuer, F. (2016, 24 October). *Avenir du site des Prémontrés.* Retrieved from https://www.schreuer.org/conseil/interpellations/avenir-du-site-des-premontres.html.

[20] Binet, V., Degives, V., Dubuisson, E., Modolo, M. & Putzeys, V. (2013, December). *La Meuse UN LONG FLEUVE PAS SI TRANQUILLE…* Retrieved from https://www.wallonie.be/sites/wallonie/files/dossier_vlw22.pdf.

the city and the water is not strongly developed: it is restricted to the buildings along the waterway that face the river and one park which is connected to the water.

2.1 Urban developments in Liège

In 2009, the Guillemins train station, also designed by EGAU group, has been replaced by a new building of Santiago Calatrava. The renewal of the station was accompanied with an ambitious urban revitalization of the area. A new urban axis from the train station, situated in the north of the city center, to the mall Médiacité, has been created. This new connection passes by a new esplanade ; the new highest tour of Liège: La tour des Finances ; the river with a part of its refreshed banks ; the new footbridge Passerelle La Belle Liégeoise ; and the Parc de la Boverie, where you can find the musée des Beaux-Arts de Liège : the old « Palais des Beaux-Arts », constructed for the universal exhibition in 1905 and restored and rehabilitated by p.HD Office and the architect Rudy Ricciotti.[21]

The city redesigned one part of the left bank, from the new footbridge until the episcopal seminary but this water front redevelopment comes to a brutal stop just next to the sports complex site.

The Place des Carmes, positioned in a strategic area for the redevelopment of the site, reinforces the following proposals.

The place is situated between the secondary school Athénée Royale Liège 1 and the cultural center Les Chiroux, nearby the sports complex plot. It is also an important commercial pole. Presently, the Place des Carmes is under restoration works as the city want to redevelop this square, which is an essential entry of the pedestrian area in the center of Liège, by enlarging it, in order to provide a feeling of security and comfortability to the pedestrians.[22]
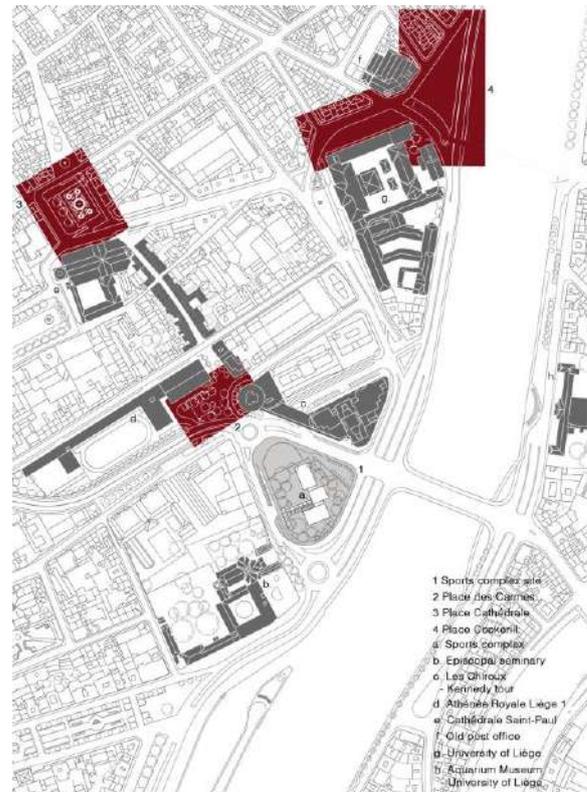
Fig. 6: Plan of the site and the surroundings.[23]

Another interesting feature is that the city would like to give a natural aspect to this access that goes towards the center, by changing some old and sick trees and adding other tree species.[24]

The Place Cockerill is an example of the mistreated places in Liège that have a real potential. The 'square' is essentially characterized by traffic, car parking and wide lanes while it is mostly occupied by students. There are bars and restaurants, a well-known library, the old post office and above all, the main building of the University of Liège. There is almost no place left for cyclo pedestrians, although the footbridge is a privileged place for pedestrians by its direct relationship between Outre-Meuse district and the city center. This place could also have a connection with the water alongside it. Despite urban projects that have

[21] Ville de Liège. (n.d.). *L'esplanade des Guillemins et le Périmètre de remembrement urbain.* Retrieved from https://www.liege.be/fr/vie-communale/projet-de-ville/grands-projets/realisations/lesplanade-des-guillemins-et-le-perimetre-de-remembrement-urbain.

[22] Ortmans, E., & Wlodarczyk, J.-L. (2018, 18 February). *Le lifting de la place des Carmes.* RTC Télé Liège. Retrieved from https://www.rtc.be/video/info/amye-nagement-du-territoire/le-lifting-de-la-place-des-carmes_1497672_325.html.

[23] Drawing made by author 1.

[24] Ville de Liège. (n.d.). *La Place des Carmes bientôt réaménagée.* Retrieved from https://www.liege.be/fr/vie-communale/services-communaux/travaux/actualites/la-place-des-carmes-bientot-reamenagee.

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been suggested, these have not been implemented.

2.2 Qualities and potential of the site

We believe that the reuse of the sports complex could play a key-role in the regeneration of the area as it became a symbol of the fight between the conservation and the destruction, memory versus forgetfulness.

Indeed, Liège is a city where those conservation protests are overly usual and ignored. Too many valuable sites in Liège have been demolished, such as the Guillemins train station that has been replaced irrespective of its architectural qualities and its good state. « La Dentisterie » (The Dentistry), a building with a Bauhaus style from the 1930s, which solicited loads of debates, petitions and even a hunger strike from an artist in Liège, has been demolished last year. The destruction of the old hospital Bavière, inaugurated in 1895[25] and located close to the site where used to be « La Dentisterie », has now begun.

3. Two design scenario's

The potential of the site of the episcopal sports centre was studied in the context of a master project in the Master of Interior Architecture Adaptive Reuse at the Faculty of Architecture and Arts of Hasselt University. As a brief for this project, we investigated how the preservation and reuse of the sports complex could become a catalyst to better connect the city centre of Liège with its water front. Two scenario's have been developed: one that creates a connection between the site and the water front by means of a bridge, and another that connects by means of an underpassage. In what follows we elaborate on each of these scenario's.

To summarize, the work consists of an exercise to revitalize a part of the left bank in Liège and create a new relationship with its Meuse river, through the study of one public space: the abandoned but promising sports complex of the episcopal seminary area. This urban development, in addition with the adaptive reuse of the building, is an opportunity to attract people in this area and to enjoy the water front in the city.
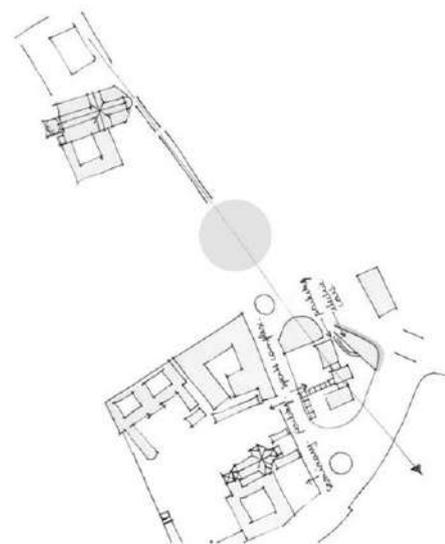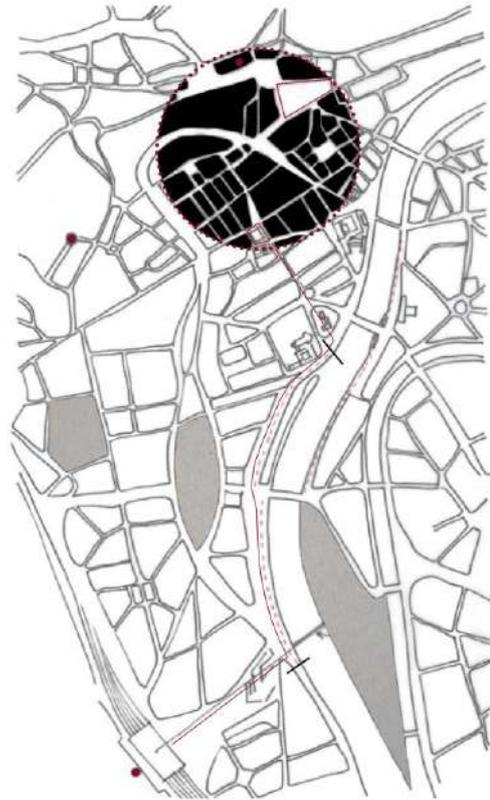
Fig. 7: Schematic drawings access Guillemins - center.[26]
Fig. 8: Schematic drawings access Place Cathédrale - Meuse.[27]

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[25] Demeyer, W. (2018, 20 January). *Historique du site de Bavière.* Retrieved from https://www.willydemeyer.be/billet/liege/2018-01-20/historique-du-site-de-baviere.

[26] Drawing made by author 1.
[27] Ibid.

The concept of the design has a double orientation, depending on the scale we look at it. We can see the sports complex and its connection with the Meuse river as a link to bring the center of Liège in touch with the water, as much as we can say that the aim of this design, on a larger scale, is to offer a pleasant way to go from the main train station Guillemins to the city center, through the sports complex place.

The fundamental idea of this design is to preserve the sports complex area and the building presents on the site. In both scenarios presented, one part of the strategy is to slow down the circulation along the Meuse river.

3.1 Concept of the design

The purpose of this approach is to use the site of the sports complex to continue the gesture of the developments along the Meuse, made by the city, and to create a link with the center of Liège. The main idea resides in designing this smaller area with a different strategy from the Guillemins district, which has a bigger scale.

The intention is to offer a special green place which has a proximity with the water, intimate and peaceful, close to the chaotic center.

There are three different routes to go by foot from the Guillemins train station to the center of the city. Two of them are not very pleasant due to the crossing and noise of car traffic. The third alternative is to traverse the new square in front of the train station and to follow the Meuse river, but this more enjoyable pedestrian track along the river comes to a rather brutal end next to the episcopal seminary.

The transformation of the sports complex area into a green public space, hence would be an opportunity to become an extension of the bank developments, together with the Meuse river. It could evolve into a pleasant place to live.

An access to the site of the sports complex already exist from the Place Cathédrale, situated in the center of the city. On this axis, a lively space leads the way towards the potential public place.

An authentic, old and narrow street, composed by several small shops, guides us to the Place des Carmes before arriving to the sports complex area. This place is a focal point concerning the design

because it is situated on the access highlighted for the proposal : Place Cathédrale - sports complex plot. It strengthens the project of having a park in relation with the water to end the way towards the Meuse river and its renewed banks. Indeed, having a green space adjoining this restored square seems ideal. The Place des Carmes is turning into a larger public square, where vegetation will be present to attract pedestrians and create a safe and comfortable place that could become a transition between the pedestrian streets and the charming small park near the river.

3.2 Bridge Scenario
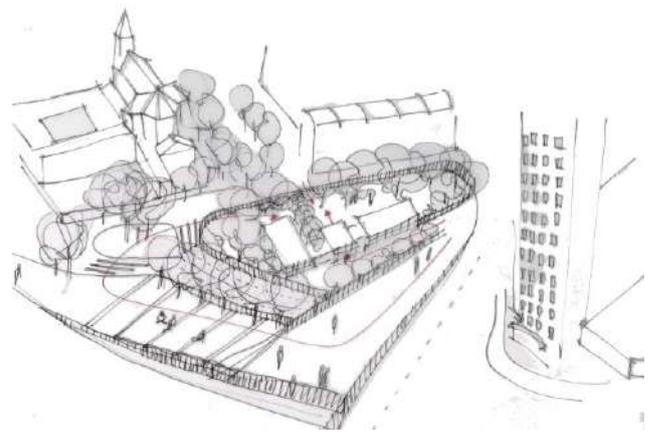
Fig. 9: Sketch first scenario.[28]

The first scenario works with the different existing levels by extending the bridge and enlarging the bank to create a public space above the traffic. A slope along the Meuse river would link the distinct places of the site.

The suppression of the gas pump, the small shop and the car wash could open the plot. The underground parking could be kept and a new entrance for it could be created. The original gate that surrounds the plot could be restored. This element offers the coveted privacy.

Similar to EGAU's concept, this proposal implies the addition of new trees that strictly follows the trace of the old gas pump and the new enlargement to disconnect the site from the roads.

To offer an instinctive way to traverse the site,

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[28] Drawing made by author 1.

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two new entrances are created, the roundabouts are redesigned and become stepping stones.

3.3 Underpassage Scenario
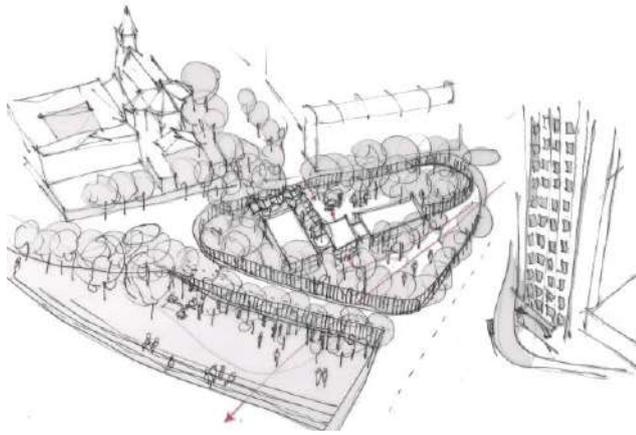
Fig. 10: Sketch second scenario.[29]

The second possibility is to pass underneath the higher roads to have a direct physical connection with the river, imaginable with steps towards the water. This is an extension of the greenery towards the water. With this option, the vegetation would grow naturally, without any grid or structure.

In this case, the old structure of the gas pump could be reused as a signal, a 'door' to enter the site. The small shop and the car wash could be suppressed and the underground parking relocated. The gate could be kept and restored as well.

The design of the entrances and roundabouts is the same in this proposal.

3.4 Reconversion of the building

As we argue to redevelop the sports complex and surroundings as a public space that benefits from the water front of the city, the new use of the sports complex need to be a public function, that would serve the citizens of Liège but also that might appeal to tourists.

Therefore, we propose three new functions that generate slightly different atmospheres but are also complementary: a polyvalent space where small events, exhibitions and conferences would serve young artists early in their career in the actual swimming pool space; a co-working space on the upper floor of the central volume for a more quiet and private ambiance; and a small art café with a powerful identity in the sports hall. Doing so, the ensemble becomes a cultural, artistic and inspiring place.

As in the whole concept of the urban development, the notion of circulation is a focal point on this project. The structure of this modernist building is also important: it gives an industrial aspect to the sports complex which leads us to the brutalism movement.

The idea is to reuse some elements of the building itself - such as the covered paths that guide the way towards the entry - to create one precise intervention.

The middle volume acts as a transition in order to distribute the functions and the spaces in the park. Two new entrances of the site correspond to the accesses towards the building. Therefore, a new entry of the building is created.

The addition of a new steel structure based on the rhythm of the building permits to accompany people to the new entrance and to play with the east facade of the swimming pool volume - the facade that comprises the smallest openings - and to frame it. Moreover, it offers an indoor/outdoor circulation to the building which can be used during events such as a fashion show, an exhibition, etc.
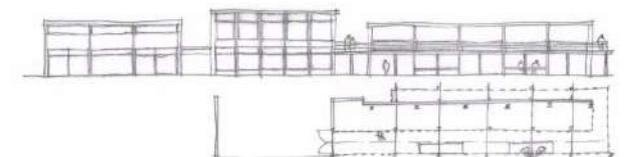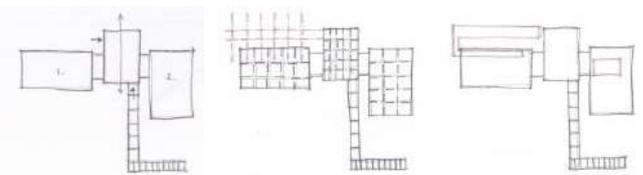
Fig. 11: Intervention on the building.[30]

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[29] Drawing made by author 1.

[30] Drawings and model made by author 1.

4. Conclusion

This paper illustrates the adaptive reuse potential of a modernist sports complex in the centre of Liège to become a green place for social gathering and cultural hub. Moreover, the conservation and reuse of the site is also an opportunity to redevelop the surrounding square and streets and (re)connect the city to its waterfront.

As many cities are becoming increasingly densified, the need for green, public spaces in the city is growing while the possibilities to create such places are diminishing. Abandoned heritage places - like this sports complex in Liège but also former industrial sites, religious buildings, etc – may be an excellent opportunity to create such places combining public interiors with green open space. As such, conservation and adaptive reuse of heritage becomes a chance to change something in the city and to contribute to the quality of life of its inhabitants.

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IN SEARCH FOR AUTHENTICITY IN A POST-SOCIALIST CITY. ADAPTIVE RE-USE OF SOCIALIST MODERNIST ARCHITECTURAL HERITAGE IN POLAND

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Abstract

After the collapse of socialist system in 1989 in Poland, the continuous transformation of urban space can be observed. The turn towards capitalism resulted in rejection of socialist-modernism both in architecture and urban planning. However, the generation that entered the adult life after 1989 often perceives the "ill born" heritage of the Polish People's Republic mostly through the perspective of aesthetics. The proof of the growing interest in the architectural legacy of the socialism can be found in the constantly growing number of cases of the secondary use given to particular objects. This "search for authenticity" makes the relics of the socialist modernist architecture gain a growing interest of architects, architecture historians, conservators and stakeholders.

The aim of this paper is to present not only the significant examples of adaptive reuse of post-war modernist architecture, but also the general problems related to the preservation of "dissonant heritage" of socialism. They go beyond issues of purely conservation nature and lead towards the studies on collective memory of the society and symbolic meaning of modernist architecture in the socialist countries.

Keywords

Socialist-modernism, adaptive reuse, dissonant heritage, Polish architecture

1. Introduction[1]

Alain Badiou wrote that in traditional societies the elderly fulfilled a particular role: "their function (…) was to transmit" (Badiou, 2013, p.3). This transmission across generations was to convey tradition, and to embed a specific social identity. A similar role can be played by the architecture of past times, as it is co-creating a sense of continuity.

Modernist architects believed that "man must constantly destroy himself in order to construct himself all over again" (Haynen, 1999, p. 8) and their buildings were to become the foundations for a new identity. The postmodern counterrevolution not only negated modernistic ideas, but also, for the most part, rejected the tangible aspects of that heritage. In Poland this rejection had two reasons as it focused on the incomprehensibility of the aesthetic and also connected that heritage with the disavowed socialist system.

Today the relics of Polish, post-war modernism present a variety of narratives about contemporary history and the values with which the society identifies. They prove that a new identity doesn't have to be built on the ruins of the old world, but can be based on a creative re-adaptation of its authentic achievements.

2. Post-war modernism in Poland – the unwanted heritage

In the year 1956 Polish architects officially rejected the doctrine of socialist realism and declared "a return to modernity" (Skolimowska, 2012, p. 88). At the same time the authorities of the Peoples Republic of Poland saw the modernistic architecture as a tool with which they could create a new social identity, as well as a means to bridge the gap between the country and the capitalistic West. Architects were given the possibility to confront their accomplishments with those of their western counterparts. The successes achieved in that field confirmed the authorities that the proposed architectural policy was a correct one (Ciarkowski, 2017, p. 123-125). An example of this is the

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"Supersam" designed by Jerzy Hryniewiecki and Maciej Krasiński, which received critical acclaim for its innovative construction system of the hanging roof. This was confirmed with the honorary award in the São Paulo Biennale in 1965. The history of the "Supersam" showcases the turning points of the history of post-war Polish modernism, from the universal affirmation of the 1960's, through the rejection of the 1990's. Michał Wiśniewski called this rejection "the anticommunist iconoclasm" (Wiśniewski, 2012, p. 88) which, due to economic reasons, didn't occur right after the fall of communism but a dozen or so years later (Wiśniewski, 2012, p. 93). The final phase of this history was the vindication that started in the early 21st century however the building itself has not prevailed to witness this rehabilitation.

The demolition of the "Supersam" in 2006 began a heated public discussion on the value of architectural heritage of post-war modernism in Poland. It's at this time that the term "ill born" architecture was coined, which to the point expressed the society's feelings towards the communist constructions. In an interview from December 2008, architecture historian and conservator of monuments Jakub Lewicki called the architecture created in the times of the Peoples Republic of Poland "the unwanted child" of the times (Lewicki, 2008). A little more than two years later, in January 2011, Filip Springer published the book "Ill born" (Springer, 2011), and that title became synonymous with the architectural heritage of post-war Poland. Both names, although apt and admittedly very catchy, do not cover the complexity of the issue.

The buildings from the years 1945-1989 are a challenge. Not only to scholars, but also architects, conservators and authorities. Their evaluation and interpretation is often ambiguous and the social response to them, despite the increase of architectural awareness, is polarized. This is confirmed by the low number of socialist modernist buildings covered by conservation protection (Świdrak, 2017, p. 87-88).

"What causes their [late modernism buildings – authors note] degradation is not the material, the reinforced concrete, nor the architecture. It's the aura that surrounds them"[2]. This was said by Fulvio Irace during one of the lectures about the Vele Di Scampia in Naples in which he hinted the possibility of adapting the brutalist housing complex into luxurious apartments or hotels. The understanding of ideas behind late modernism architecture and its genesis seems to be the key factor for the adaptation to a new functional program without the loss of vital qualities.

Should the post-war modernism remain petrified, as was the case of monuments from earlier eras? Rafał Zelent, an architect from G5A (Grupa 5 Architekci) made a point that the adaptation to new functions is the foundation for working with heritage. While talking about two important pieces of Polish, post-war modernism architecture – hotel Cracovia and the PKP office building in Cracow – he stated that "they should not become sarcophagi, but change with the times […] icons such as the St. Stanislaus Kostka church in Warsaw or the BHP (Work Safety and Hygiene) Hall of Gdańsk Shipyard should be sealed capsules frozen in time, but the majority of buildings should embrace the change" (Klimczak, 2018, p. 131). What is interesting is that the author of those two buildings – Witold Cęckiewicz – expressed interest in planed adaptations, hoping that he will live long enough to see "these buildings having other, new functions" (Klimczak, 2018, p. 131). Change is, according to Alain Badiou "the law of the world" (Badiou, 2013, p. 10).

In the 1920's the Dutch architect Adolf Behne made a division of modern architecture using two main categories: rationalism and functionalism (Behne, 1996, p. 137-138). The first category contained those buildings that, according to him, possessed a relatively elastic structure that could be given various functions. The second of the mentioned category consisted of buildings that were the polar opposite. These embodied the idea of Louis Sullivan ("form ever follows function") and their architectural form was a direct result of the functional program. Due to that they seemed to be perfectly fitted to their purpose, but the possibility of their later adaptations were very limited (De Jonge, 2002). The distinction made by Behne became not only a proposition to systematize the achievements of modern architecture but also the starting point for contemporary monument

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[2] The quote comes from a lecture „Overview on the concreto Cultural Heritage in the Mediterraneam area" given by Fulvio Irace during InnovaConcrete Rome Workshop „The concrete architecture in the Mediterranean areas and the work of Pier Luigi Nervi", Rome, 22.02.2019.

conservators in creating strategies for modernist buildings (De Jonge, 2004).

3. New functions and authenticity

One of the key issues in the process of the adaptation of buildings is to adjust them to new functions while retaining the authenticity, be it the authenticity of form, technology, materials used, but also the ideas that were the foundation of a particular design conception. The level of success is dependent mostly on the awareness of the designer and the selection of the correct functional program.

In the years 2015-12016 the architects from the mentioned studio Grupa 5 Architekci created an adaptation project of an old printing house in Lodz into a modern dormitory. The building itself was designed by Jerzy Brandysiewicz in the 1960's. Due to an elaborate program and a relatively small plot of land Brandysewicz designed a multi-storeyed building in which the production process took place not in one large hall (as was normal at that time), but across multiple stories. The lack of renovations made on an ongoing basis led to the degradation of the printing house, which eventually shut down in 2012. Despite the fact that the building was under conservation protection, the designer from G5A decided to input a new, precisely formulated functional program into the historic structure of a post-industrial object, while retaining its unique aspects. Although the poor preservation state of some of the elements didn't allow for their retaining which meant that reconstruction and some additions were unavoidable, the building kept its aesthetic integrity. The design concepts emphasized the necessity of exposing of historic elements vital to the functioning of the old printing house such as: "an open space on the ground level, the unique bearing structure, prefabricated elements of the façade" (Klimczak, 2018, p. 140).

The work of G5A was met with positive reception, which proves that even the functionalist architecture created during the times of late modernism can become a medium of new meaning and functions without losing its authenticity. At the same time, according to the architects from G5A, each building is an individual issue that needs to have a well thought out plan of actions. Unfortunately it is still easier to point out existing buildings and designs that raise questions and doubts regarding their quality, rather than those

meeting public acclaim. Among the outstanding examples of industrial architecture created in the times of the Peoples Republic of Poland, many have been permanently altered, demolished or remain in a state of ruin (Bardzińska-Bonenberg, 2017, p. 13). Some retained their former function, but this is more often due to the limited financial resources of their owner, rather than the awareness of their architectural significance. A positive example can be made of the "Runotex" plush factory in Kalisz which was designed by Stanisław Sikorski and Jerzy Główczewski in 1962. A distinctive hall, 30 meters long and covered with a saw-tooth roof (the construction designed by Wacław Zalewski) was left practically untouched, its current owner openly references the post-war history and tradition.

Fig. 1: Former printing house adapted into a dormitory, Lodz. Architect Jerzy Brandysiewicz, 1965. (photo of the author, 2019)

The issue of adapting functionalist modernist architecture into new functional programs is not only pertaining to industrial structures. Examples of such adaptations showcase a wide spectrum of conceptions and strategies introduced by investors and architects. At the same time, despite the number of different types of the buildings and their newly designed functions, what is made evident is that before the designs are drawn, there has to be made a thorough analysis both of the ideas governing the original structure and, intertwined with it, the choice of its new role.

In 2009 an adaptation was made of the lower pavilion of the Warszawa-Powiśle train station, which became a club-café. Built in 1963 to the design by Arseniusz Romanowicz and Piotr Szymaniak the pavilion with a distinctive disc shaped, shell canopy of reinforced concrete was originally the ticket office of the station described

by Owen Hatherley as "the space-age neo-constructivism of Googie" (Hatherley 2012, p. 215). One of the designers of the adaptation, Małgorzara Kuciewicz from the Grupa Projektowa Centrala, mentioned a number of problems that arose for the architects who decided to transform the small structure into a catering establishment. First of all the increase in space of the main room meant the downsizing of the kitchen area. Furthermore, due to the existing layout of installations, it was possible to install only one bathroom (Fudala 2012, p. 260-261). An extensive redesigning was never an option as in the opinion of the architects the intervention in the existing substance was to be minimal. A limited budget was also a factor. For those reasons some of the problems (like the issue of water collecting in the valley of the roof) were never solved. It's worth mentioning that many of the original construction features of the Warszawa-Powiśle train station pavilion had to be replaced, despite the efforts of architects. This was the case of the window metalwork which originally had been hand made from steel and practically impossible to recreate (Fudala, 2012, p. 261-262).

Fig. 2: PKP Powisle Cross-City Line railway station. The old ticket office pavilion became one of the trendy cafeterias in Warsaw. Architects Arseniusz Romanowicz and Piotr Szymaniak, 1963. (photo of the author, 2017)

A conservators approach to a building from the early 1960's presented by the architects from Centrala made the Warszawa-Powiśle almost into a document showcasing the history of the structures change. In comparison the old suburban tram station in Lodz from 1952 is an example of a completely different approach. Designed by Witold Wiśniewski and Roman Mann, the building was adapted in 2014 by Michał Winiarski to be the main office of the Lodz Regional Chamber of Architects. A complex refurbishment was conducted which kept the original character of the building. What is interesting "Przystanek Architektura" ("Architecture Station") as it was named is fulfilling its original role. Under the long roof which connects the offices of architects, people waiting for their trams can find shelter from the weather.

Fig. 3: "Station Architecture"- the main office of the Lodz Regional Chamber of Architects in old suburban tram station. Architects Witold Wiśniewski and Roman Mann, 1954. (photo of the author, 2018)

Retaining the original role of a structure seems to be the utmost desired result, but is often an impossibility. It's worth mentioning that the introduction of a new functional program, seemingly alike to the original one, can lead to irreversible changes in the structure and the loss of important features. This was evident in the case of the "Iwanowo" cinema in Lodz, build in 1975 after the design by Stefan Łobacz. The transformation into a music club meant that the innovative system of internal communication was permanently altered[3]. A similar fate met the theatre in Łask designed by Wiktor Jackiewicz. Build in 1968, this small structure was an example of innovative thinking about the actor-spectator relation. Within a hexagonal space a permanent, multidirectional audience located. The usage of rotating chairs allowed the audience to watch events occurring on both the main stage as well as the smaller side stages (Szafer, 1972, p. 115). Unfortunately this innovative design didn't stand the test of time. This examples makes the fate of the "Kijów" ("Kiev") cinema in Cracow an uplifting story as throughout the years it retained its role. The building designed

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[3] Currently the building remains unused.

by Witold Cęckiewicz was not only refurbished and adapted to the expectations of contemporary users, but it kept preserved the character of the body of the structure and the most vital elements of the interior design. In this case the identity of the space is still being shaped by its story.

Fig. 4: The buililding of the "Iwanowo" cinema in Lodz was built in mid-70s. Since a decade remains unused. Architect Stefan Łobacz, 1975. (photo of the author, 2018)

4. Social reception of socialist modernism

Juergen Habermas described "modernity", the idea being one of the foundations of the modernist movement, as a constant questioning of one's identity and freeing from all forms of external authority (Habermas, 1987, p. 7). Sociologist and culture expert Jan Sowa talked about the fact that the idea of modernity is poorly ingrained in Polish culture, highlighting the fact that as a phenomenon it was usually an imposed, alien one (Sowa, 2016, p. 13-14). His conclusions evoke the discussion of architects in the early 1980's , when the attempts to "discard the Corbusier" were made and to seek inspiration in local tradition. The poor anchoring of modernism in social awareness and culture isn't a satisfactory answer to the question: why did the modernism of the Peoples Republic of Poland become the "unwanted child of its time"?. An important argument in this discussion is the fact that modernist architecture doesn't age well. Szymon Syrkus, one of the leaders of Polish architectural avant-garde, wrote in 1926 that "Modernism is the current moment" (Wujek, 1986, p. 221). Considering that presumption it was always meant to be the art of the contemporary, in which the methods and solutions utilized were perishable, as after solving a particular issue they lost their

raison d'être. Modernist buildings – as Giuliana Bruno wrote – do not age in a manner that is easy, full of grace and elegance (Bruno, 2007, p. 81).

Zdzisław Bieniecki in his article "Potrzeba i drogi ochrony obiektów architektury najnowszej" published in 1969 was one of the first to bring up the topic of preservation of modernist architecture. In the introduction he focused on a vital phenomenon on which hinges the reception of heritage – "the regularity of the pendulum-like reaction which is negative towards a past period closer to us but is positive to the one anteceding it". He used the aphorism: "the times of the parents are only funny, whereas the times of the grandfathers are spellbinding" (Bieniecki, 1986, p. 83) which very aptly describes the situation of architectural heritage of the Peoples Republic of Poland.

Here one should point out to the memory which is a factor conditioning the way a particular place or object is seen. Pierre Nora defined the idea of memory as an opposition to history. He pointed to the memory being rooted in concrete phenomena, in places, gestures, paintings and objects, whereas history is connected only with the time continuum, with the progress and with the relations between things (Nora, 1989, p. 9). According to Nora, memory is an absolute notion, while history remains the domain of relativism. Following that idea, one should come to the conclusion that historians "are representing a particular memory" organized by a specific narrative (Nora, 1989, p. 9-11). They create a fragmentary image that is flawed by subjectivism. At the same time the attempts to write down, to archive the fragments of memory become the basis on which the system of sites of memory (lieux de memoire) is based. These in turn are the foundations of our identity and in such sites a particular society stores its memories. But can we even talk about shared memories of a society, or is it rather a shared history and memories that are loosely connected with it?

The generations that remember the times of the Peoples Republic of Poland view the architectural heritage of that period differently that the younger age groups. The fact that a particular location can be "a site of memory" is often not sufficient enough an argument to protect it – this is especially true in the case of individual memory and not the collective one. Furthermore, the generation that grew up in the communist times is often prone to forgetting which, according to Paul Connerton, is a part of the

creation process of a new identity. The political transformation led to the state in which, everything that harkened back to the previous system was to suffer "damnation memoriae" (Connerton, 2008, p. 60-63). At the same time – Connerton writes – the forgetting can be directly caused by the deficit of information (Connerton, 2008, p. 64), which in turn leads to the lack of awareness of the a monuments value. A simplified vision of history and the lack of a holistic image of phenomena that accompany the creation of certain buildings or urban complexes often leads to them being seen as symbols of totalitarian oppression, "a medium for bad memories". What is omitted is their significance to social designs bearing the marks of modernization.

The generation that entered adulthood after 1989 often sees the "ill born" heritage of the Peoples Republic of Poland through the lens of modernist aesthetic. A lens that is drastically different to the one of their parents (Wiśniewski, 2012, p. 92). A sign of the growing interest in architectural achievements of the Peoples Republic of Poland is visible not only in the increase of publications, but also in the more common examples of secondary life being given to buildings.

The Warszawa-Powiśle train station pavilion became one of the more popular clubs. The big part of its uniqueness is the remarkable architecture designed by A. Romanowicz and P. Szymaniak, but also the preserved authenticity of the form, the detail (like the recognizable neon) and the interior design. Part of the lobby of the "Forum" hotel in Cracow as well as trade-service pavilions in the centre of Lodz have been repurposed in a similar manner. They have found a new life as a hangout for young Poles. "Across the country, as attitudes toward communism ease, many Brutalist structures are similarly being given new, unexpected lives" (Kapur, 2018). The club located in the pavilion of the former "Powiśle" hotel in Warsaw became an icon, an important site on the city map. The status of a unique location was also given to "Emilia" – originally a furniture shop which became the temporary location for the Museum of Modern Art. Although the social organizations focuses on the preservation of post-war modernism couldn't stop its demolition, they forced the disassembly and relocation of the impressive, reinforced concrete canopy which is to become a part of a new building in the future. It's worth mentioning here, that the users of the discussed buildings shy away from their

excessive aestheticization. Dereliction and deterioration are not an effect of negligence but are treated as "a patina of age" which enriches the architecture rather than marring it.

This "search for authenticity" caused the relics of socialist modernist architecture to become destinations for "alternative tourism" aficionados. Modernist architecture trails are created in numerous Polish cities in lieu of those based on "traditional" monuments. The heritage of the Peoples Republic of Poland is unique not only through its formal distinctiveness but also its authenticity. For those reasons urban complexes, singular buildings and even ruins can be interesting for tourists. However the potential of post-war modernist architecture is not limited only to alternative tourist trails.

5. The potential of socialist modernist architecture

According to Jacek Purchla in Poland after the year 1989 there occurred a "change in the rules of the game" pertaining to preservation of cultural heritage. A monument is not only sacrum but also "towarum" (the English translation of this term would be "productum" as the term "towarum" is a play on the Polish word "towar" which means product/commodity) and its introduction into the market forced the departure from static models of protection (Purchla, 2005, p. 19). This also applied to the heritage of post-war modernism which became evident in new models of its usage. David Crowley pointed to the important role that the developers play in the process of preservation of socialist modernist relics as he mentions the cinema "Praha" in Warsaw that was built in the same site in which there once stood a demolished cinema bearing the same name. The façades of the new building have been decorated with casts of reliefs, that adorned the previous structure. Crowley wrote: „In these casts there is some acknowledgement, however slight, on the part of the developer that people do not wish to see their world completely transformed overnight because that risks alienation". In the same manner he spoke on the decision to reconstruct fragments of the reinforced concrete construction of the train station in Katowice (Crowley, 2015, p. 17).

Fig. 5, 6: Multifunctional building in Warsaw raised in place of demolished modernist cinema "Praha" and casts saved from original building which became a permanent exposition on site. Architect Jan Bogusławski and Józef Łowiński, 1950. (photo of the author, 2019)

It's worth mentioning here, the marketing potential of Polish post-war modernist architecture. The avant-garde aesthetic has in the last few years seen an increase in popularity – especially among the representatives of the younger generations. When in 2016 Wrocław became the European Capital of Culture, one of the most important cultural events was the exhibition presented in the Museum of Architecture, dedicated to one of the most important architects of post-war modernism in Poland – Jadwiga Grabowska-Hawrylak[4]. It coincided with the refurbishment of late-modernist high-rise apartment blocks located in the Grunwaldzki square. This and the exhibition proved that "the

problematic heritage of apartment blocks can be seductive" (Wiśniewski, 2017, p. 113).

Throughout the last decade one can witness the increase of interest of the new generation of artists in the heritage of communist construction. It encompasses both the districts of prefabricated apartment buildings devoid of personal character as well as icon buildings. A number of exhibition such as „Betonowe dziedzictwo. Od Le Corbusiera do blokersów" ("Concrete heritage. From Le Corbusier to the Homeboys") and „W sprzecznym mieście" ("In a contradicting city") focus on the issue of "unwanted heritage". Their curators often tried to show the impact that the modernist architecture had on society. "The genius monsters of socmodernism" were depicted in photographies of Micołaj Grospierre (Link-Lenczowska, p. 217). The icons of post-war architecture became inspiration for the artist Mia Kiesner as seen in her series of paintings called "Weduty warszawskie" ("The vedute of Warsaw") and Katarzyna Jasińska, who created serigraph prints showing some of the "ill born" buildings from major Polish cities.

In the last years the problem regarding the preservation of Polish, post-war modernist architecture stopped being an issue only raised by a group of aficionados and academic scholars. A gradual removal of the odium of "mediums of bad memory" is still in progress, but what is made more evident is the uniqueness of the Polish architectural expertise of the second half of the 20th century and its connection with both the avant-garde tradition of the interwar period as well as trends of post-war global architecture. The discussion about the "ill born" went beyond academic discourse and caused a visible increase of awareness of the architecture's vast cultural potential and the meaning it can have for local identity.

This is confirmed by both the projects which adapt and refurbish particular objects, and by social studies focusing on the reception of post-war modernism. A symbolic potential of socialist architecture was confirmed by the research conducted in 2019 by a group of scholars from the University of Lodz as a part of the "InnovaConcrete - Innovative Materials and Techniques for the Conservation of the 20-th century concrete-based heritage project" [5]. Its main goal was to evaluate the heritage of 20th century concrete architecture in

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[4] This saw a continuation in 2019 with the exhibition held in New York, in Center for Architecture entitled „Patchwork: The Architecture of Jadwiga Grabowska-Hawrylak" (Czupkiewicz).

[5] www.innovaconcrete.eu

Europe, to create innovative means of protection and the raising of social awareness connected to the value. Additional focus was to be given to post-war architecture in the countries of what was called "the Eastern bloc". Interview surveys regarding the reception of the train stations of the Warsaw cross-city line proved that the ideas of their creators – A. Romanowicz and P. Szymaniak – are still recognizable. The forms that the architects had designed in the 1960's, that meant to become symbols in the city space are still having an impact on the viewer. After fifty years they retained their iconic character. Furthermore most of the respondents voiced the opinion that they should be preserved unaltered, or being given a non-invasive adaptation (for example for cultural purposes).

The conclusion of similar surveys and analyses should be reflected in the spatial policy. Gerard Monnier wrote „In the case of local reception, the observation relate to the relative situation of the building (does it function as a landmark?), the way it may have influenced neighbouring buildings, and if not, the control of changes in the environment in the relations to the building. Potential town-planning decisions must be taken into account, and the impact of the building on local publicity and publication: does it appear in tourist guides or in local lists?" (Monnier, 2002, p. 358-359). It's worth to add a commentary to this quote, that the amount of cultural heritage is a collection that is ever expanding (mostly with buildings that are relatively new, or those that up until now have been deemed substandard).

6. The positive outlook on the future

The reception of post-war modernist heritage can be analysed on multiple levels. From the overall evaluation of the socialism era and their material remains, through individual structures and their particular contexts, up to a subjective, emotional assessment. Together they co-create the identity of a post-socialist city in which relics of the 1950's and 1960's are given symbolic value.

This is proven by a number of designs and their realizations. One of the most outstanding examples of Polish, post-war modernism, the "Cracovia" hotel is to be adapted for museum purposes. Social resistance against the demolition and even drastic transformations to the building forced the

authorities to purchase and to donate it to the National Museum in Cracow (Skolimowska, 2017).

Fig. 7: "Cracovia" hotel in Cracow. Architect Witold Cęckiewicz, 1965. (photo of the author, 2019)

One should also positively review the renovation project of the train stations of the Warsaw cross-city line. Kuryłowicz & Associates studio, which a dozen or so years before was associated with controversial creations designed for locations where once stood the demolished icons of socialist modernism (Piątek & Trybuś, 2012, p. 45-48), created a concept which not only highlights the best aspects of dynamic, concrete forms designed by Romanowicz and Szymaniak, but also preserves vital detail and elements of interior design. It appears to be of particular importance, as "the concept of authenticity is an issue requiring particular consideration in the twentieth-century context" as it refers to both original fabric as well as "original design intent and intangible heritage values" (Burke 2018, p. 147).

The article began with the fate of the "Supersam" – the architectural victim of the transformation period. It can be complemented by the history of the "Zodiak" pavilion in Warsaw, which not only showcases the change in attitude towards social modernism but also the potential it has in the creation of local identity. This small building was constructed in 1968 an was a typical example of "international style" in architecture. The "renovation" carried out in the 1990's and the adaptation into a fast food restaurant completely changed the character of the form. In 2010 the Association of Polish Architects came up with an idea to transform the dilapidated pavilion into a

cultural site. The process that ended eight years later didn't bring about a faithful recreation of the original structure, but the preserving of its character – both in the form of the building and the elements of the interior (such as the terrazzo floor, a wall mosaic designed by Magdalena Łapińska-Rozenbaum which harkened back to the work of Maria Leczyńska from the 1960's). The pavilion was crowned with a neon, also a reconstruction of what was designed half a century ago (Kalata, Kalata & Świętorzecki, 2018). Thus the new "Zodiak" became a clear symbol of vindication for the architectural and artistic heritage of the Peoples Republic of Poland.

Fig. 8: "Zodiak" pavilion in Warsaw- contemporary architectural dialogue with the heritage of socialist modernism. Architects Jan Bogusławski and Bohdan Gniewiewski, 1968. (photo of the author, 2019)

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Smart Home goes public – Retrofitting Public Buildings with Smart Home Technologies and Open Source Software

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Abstract

Recent years have seen a rapid increase in the development and use of smart home technologies, gaining more and more user acceptance. Besides being used in private homes, these smart technologies may also complement classical building automation in public and commercial buildings to retrofit existing stock. The research project Smart Public Building at the University of Applied Sciences Stuttgart addresses the needs of public institutions for the utilization of smart home technologies. It therefore develops and prototypically implements use cases and applications based on an open source platform for smart home automation. The following paper outlines a first analysis on the requirements of public buildings, introduces the basic installation at the university and finally presents three use cases, that have been carried out.

Keywords (max 4)

Smart (Public) Buildings, Smart Home, Open Source, Building Automation

1. Introduction

In Europe, around 40 percent of energy consumption and 36 percent of CO_2 emissions are related to buildings (European Commission, 2019a). A big share of these buildings is older than 50 years, they were built before the first thermal regulations and any kind of smart, networked system emerged. While residential buildings of today can benefit from the vast development of affordable smart home appliances to become more energy-efficient and comfortable, the use of such wireless technologies in public and commercial buildings has been cautious so far. The advantages of wireless sensors and actuators, such as lower investment costs (no need of wiring walls in existing buildings) come with some downsides – first of all the huge heterogeneity of technical solutions in the field and thus incompatibility issues and complex installation procedures.

The presented analysis, use cases and prototypes are part of an ongoing research project "Smart Public Building" at HFT Stuttgart. It explores the opportunities for retrofitting public buildings with smart home technologies in order to reduce energy consumption and CO_2 emissions and to increase occupancy rate and user comfort. The requirements of public institutions, such as reliability of functions and services, data privacy, connectivity and safety,

are investigated and taken into account. The methodological approach is based on the design and prototypical implementation of various use cases within the university's buildings.

The smart home market is fragmented, many vendors and solutions exist. They often include closed systems, that are tied to proprietary hard- and software, relying on an Internet connection due to cloud services. Moreover, current technologies might be obsolete within five years, which is why recent recommendations for public institutions (Günthner, 2017; Stengel, 2015) point out the importance of technology and vendor independency. Solutions based on open source offer a possible way to avoid vendor lock-in (Hsien-Tang, 2013). Thus, all developments at HFT build upon an open source platform for home automation, openHAB, that manages devices and services independently from vendors and technology (Alwan, Baravalle, Ciupala, & Falcarin, 2019). The prototypes, such as the Smart Metering, the Smart Lecture Room, and the Distributed Smart Systems, will be published as open source again to enable collaboration and discussion on the scenarios and to engage reuse and adaption by other public institutions.

The underlying research questions, that should be answered during the project, address a) the special requirements of smart public buildings regarding smart systems and technologies, b) the

suitability of different smart technologies for public buildings, c) the opportunities public buildings provide for the application of emerging technologies and d) the impact of smart public buildings on data privacy and how data privacy can be secured proactively.

2. Smart Technologies for Public Buildings

2.1 Public and Residential Buildings

Public buildings differ from residential buildings in many respects. A preceding analysis of characteristic differences has been carried out in order to derive requirements of public institutions on the application of smart home systems (Fiedler, 2017). Although there is no common definition of a public building within the EU – definitions range from "not apartments or are non-residential" (Czech Republic), "provide public services" (Finland) to "occupied by a governmental body" (France) (Department for Communities and Local Government London, 2015) – the DIN standard classifies publicly accessible buildings in "cultural and educational institutions, sports and recreational facilities, health care facilities, office, administrative and courthouse buildings, shops and restaurants, parking lots, garages and toilets" (DIN 18040-1:2010-10). Following, some characteristics of the analysis, focusing on statistical data from Germany, are described (overview see Table 1).

set-up for special needs and preferences of this small group. In a public building, frequented by many different, even changing users, configuring a smart system according to preferences of individuals can not be achieved that easily.

Diverse purposes: While living in private homes is quite comparable regarding its basic room purposes, such as kitchen, bathroom, bedroom, living room, the general purposes of public buildings are quite more diverse, ranging from education (school, library), sports (swimming bath) or culture (museum, theatre) to administration (town hall).

Building size and number of users: On average, public buildings are much larger than private houses or apartments. According to a questionnaire (sample size = 50) undertaken by Fiedler (2017), public buildings in the city of Stuttgart, Germany, have a size of 900 square meters and 300 visitors per day on average. In comparison to that, residential houses in Germany measure 91.8 square meters (Statista, 2017) and count 2.0 habitants (Statista, 2019).

Privacy requirements: Since May 2018, the European General Data Protection Regulation (GDPR) applies to every company or entity that processes/holds personal data (with relation to the EU, see European Union, 2016), whereas the GDPR is not applicable to private homes.

2.2 Smart Public Building (SPB)

Building automation is originally used to describe

Tab. 1: Distinguishing characteristics of residential and public buildings in Germany (based on Fiedler, 2017)

	Residential buildings	Public buildings
Accessibility	Private	Public
Assembly	Habitants (family)	Occupant (public body) and visitors
Purpose	Dwelling	Leisure, education, culture, health, …
Terms of use	House rules (if present)	Statutes and regulations
Size in m^2	Ø 91.8 (Statista, 2017)	~ 900 (Fiedler, 2017)
Users (habitants, visitors)	Ø 2.0 (Statista, 2019)	~ 300 (Fiedler, 2017)
Privacy (e.g. GDPR)	Not applicable	Obligatory

Public accessibility: A public building is accessible by the public. Though it can be narrowed down to smaller groups – for example employees having access to certain rooms of an administration building – in general "public" implies a large group of authorized users, whereas only few people have access to a private home.

Assembly: In a private home, usually the same people (habitants, e.g. familiy) use the rooms and their functionalities. This allows smart systems to be

the automation of facilities and systems closely connected to the building (heating, ventilation, air-conditioning), and is typically based on wired networks using specific protocols, such as KNX, BACnet, and Modbus (VDI, 2019). A smart building furthermore includes systems such as access control, fire alarms, video monitoring and multi-media, focusing on comfort and security (Sinopoli, 2010). These technologies more often connect via radio

Tab. 2: Special requirements of public buildings

	Description	Corresp. proof of concepts
Public accessibility		
Safety	The protection of users, e.g. staff and visitors, is vital in public buildings. This includes evacuation in case of an emergency (escape routes, fire doors) as well as availability of safety-relevant equipment (fire extinguishers, defibrillators).	e.g. Monitoring safety-relevant devices (not presented)
Diverse purposes		
Reliability	Technology in a public building must work stable and reliable, also with regards to security of the network, of devices and software components.	4.2 Smart Lecture Room 4.3 Smart Distributed Systems
Terms of use		
House rules	Besides general laws and regulations, many public institutions rely on house rules. At HFT Stuttgart they refer to opening hours, handling of equipment, closing windows and doors, damage reporting etc. (Hochschule für Technik Stuttgart, 2016).	4.2 Smart Lecture Room
Building size		
Devices	To retrofit a public building with smart home technologies, more devices (sensors, actuators, …) are necessary. Furthermore, there might be additional systems like elevators, utility meters and parking lots that could be part of the smart system.	4.1 Smart Metering 4.2 Smart Lecture Room
Connectivity	Wireless services in a public building have to cover larger areas. Additionally, it has to be taken into account, that radio systems are more susceptible to interference.	4.1 Smart Metering 4.2 Smart Lecture Room 4.3 Smart Distributed Systems
Privacy		
GDPR compliance	Public institutions within the EU that process personal data have to meet the GDPR. Video monitoring people to provide automated comfort functions like the adjustment of heating and lights, for example, may be feasible in a private home. By implication, this does not apply to a public building.	4.2 Smart Lecture Room

transmission and protocols from the Internet of Things (Wi-Fi, Bluetooth, ZigBee, LoRaWAN …). When introducing the term Smart Public Building, we refer to public buildings retrofitted with smart building/home technologies to address the needs of multiple stakeholders.

2.3 Requirements of SPBs

Special requirements of public buildings and institutions on smart systems can be derived from the characteristics discussed in paragraph 2.1. In Table 2, some of these requirements (Safety, Reliability, House rules, Devices, Connectivity, GDPR compliance) are described. They correspond to the proof of concepts presented later in this paper (see section 4).

3. System Requirements and Basic Installation

As stated in the introduction, open source software is proposed as a possible solution to avoid a so called vendor lock-in. This also follows the recommendations of the Smart City Charta by the German Federal Institute for Research on Building, Urban Affairs and Spatial Development (cf. Günthner, 2017).

3.1 An Open Source Ecosystem

OpenHAB (open Home Automation Bus) is one of the currently available, mature open source software projects for the smart home (openHAB, 2019b). OpenHAB acts as a hub, integrating smart devices and services independently from vendors and

technologies into a single platform. Due to its open, modular approach based on the OSGi framework, openHAB can be adapted to specific use cases. OpenHAB has a large, active user and developer community, which can be regarded as one indicator for sustainability (Aberdour, 2007). Another popular open source smart home platform is Home Assistant, though its three week release cycle (Home Assistant, 2019) with regular breaking changes runs contrary to the stated requirements of public buildings (cf. Table 2, "Reliability").

Dobler (2019) referred to the openHAB stack, implying that a usual openHAB setup consists of additional software components. These components provide further functionality outside openHAB, such as persisting data, managing telemetry data transport and adding a network security layer. The typical openHAB stack can be built completely on open source software, as described in paragraph 3.3.

According to a community survey undertaken by Dywicki (2019), 74% of the openHAB users maintain a single openHAB instance, 98% use it to control a house or apartment and 99% users run openHAB with less than 10 people having access to it. These results indicate, that maintaining openHAB in a public building with several openHAB instances, larger (multiple) buildings and more (changing) users can be considered as a new field of application, requiring corresponding research.

3.2 Testbed University

The University of Applied Sciences Stuttgart is located in the city center. The campus consists of eight buildings (see Figure 1) from different years of construction, ranging from 2016 back to the 19th century. The university is tenant of most of the buildings, sharing some with other occupants (public as well as commercial facilities). As stated in paragraph 2.1, usage of public buildings is diverse and at HFT this includes assembly rooms, lecture rooms, student work places, staff offices, a library, workshops, laboratories, a cafeteria and a computer center. Furthermore, the campus has a courtyard as well as several parking facilities.

Fig. 1: Campus plan

The university building 2 (see Figure 2), one of the older existing buildings at the campus, has been selected as testbed. HFT is tenant of this building and the only occupant. Besides staff offices there are lecture rooms and computer labs on each floor. In total, the building spans seven floors (including two basement levels) with approximately 7,000 square meters.

Fig. 2: Building 2 of HFT Stuttgart

3.3 Basic Installation

To provide a basis for the use case implementation, a client-server system has been installed. The system spreads over two floors in building 2, connecting around 60 sensors and actuators to one openHAB server. Sensors and actuators (see paragraph 4.2), mostly Z-Wave devices, have been deployed in lecture rooms and computer labs. The installation furthermore includes two utility meters in the basement as well as two LoRaWAN gateways (see paragraph 4.1).

a)   The Software Stack

On server side, the following open source software components and services are up and running:

openHAB2: The current stable release serves as interactive management platform, connecting sensors, actuators and other sources of data. Rules can be defined for automating devices, and several user interfaces allow management of the installation as well as information of users.

MySQL: Single and aggregated sensor data as well as data collected from the smart metering are persisted in a MySQL data base. The saving interval can be set in openHAB, and can be either time or event based.

Node-RED: The graphical development environment based on JavaScript is used to manage and process data flows from external components to openHAB. It can furthermore be used to define rules for automation.

Grafana: A monitoring tool for visualizing and analyzing time series of data. Having access to the data base, different kinds of charts can be generated with Grafana and embedded into user interfaces of openHAB.

Mosquitto: A message broker for the MQTT (Message Queuing Telemetry Transport) protocol, that allows the connection of devices not natively supported by openHAB. Those devices may publish their data on a broker's channel, whereas openHAB items subscribe to that channel.

Nginx: By default, openHAB is exposed to the local network. The reverse proxy functionality of Nginx provides a way of securing the openHAB server with authentication and TLS certificates.

The above described installation is intended to cover additional floors in building 2, as well as connecting two more university buildings. Therefore, a concept for managing distributed smart systems based on openHAB has been developed (see paragraph 4.3).

4. Proof of Concepts

Within Smart Public Building, several concepts for smart applications have been developed. They include location based services, monitoring of safety-relevant devices, social sensors, reporting and managing damages, and others. During the course of the project these concepts will be prototypically implemented, extending and adapting the basic installation. In doing so, the special requirements of public buildings (see Table 2) should be taken into account. In this section, three proof of concepts will be presented: Smart Metering, Smart Lecture Room, and Distributed Smart Systems.

4.1 Smart Metering

Since 2014, HFT Stuttgart has been certified according to the EU Eco-Management and Audit Scheme (EMAS). To provide remote access to energy and water consumption in real-time, the prototype of a monitoring system for the utility meters should be implemented and connected to openHAB (cf. Table 2, "Devices"). Up to now, responsible technical as well as connected research staff has to read and record the meters of every campus building manually, which is done usually once a month. The monitoring system should allow access to data in a unified way, independently from type and age of the meters, enabling analysis and assistance in detecting possible malfunctions, such as water pipe leakages.

a) Connectivity

Three utility meters are installed in building 2, located in the two basement levels. Down there, a reliable coverage with the university's Wi-Fi is not given. Using the 3G/4G mobile network on the other hand would lead to running costs and the need for a proper power supply per device. Therefore, LoRa (Long Range), a radio technology operating at the license-free 868 Mhz band in Europe, has been chosen to connect the meters (cf. Table 2, "Connectivity"). LoRa was designed for low power consumption and long ranges with good coverage even inside buildings. To provide wireless services with LoRa at the campus, two gateways have been installed (see Figure 3). They are part of an open LoRaWAN network maintained by a community (The Things Network Region Stuttgart, 2017).

Fig. 3: LoRaWAN-Gateway at rooftop of HFT building 3

b) Retrofitting the Meters

The utility meters are of different kinds (water, heat, electricity) as well as types (analog Woltman, digital phase). Furthermore, three different utility companies are in charge for them. One technical solution of retrofitting, that fits for multiple kinds and types of meters, is pulse counting. Each pulse corresponds to a certain amount of energy (kWh) or water (liters). By counting the pulses, it can be determined how much energy or water has been used (Open Energy Monitor, 2019). Either the meter already has a corresponding pulse output or the responsible utility company provides one on request. A Pulse Data Capture (PDC) module with LoRaWAN capability can be installed at the pulse output of the meter. The PDC counts pulses and transmits the current value. At HFT, data is sent once per hour to The Things Network (TTN), end-to-end encrypted using the Advanced Encryption Standard (AES).

c) Data Flow Management

TTN does not store the data received from devices, but provides several possibilities to retrieve it. Originally, MQTT is used to publish the messages. Furthermore, the payload of a message comes as hexadecimal formatted binary data. Thus, several tasks have to be accomplished to integrate the meter data into openHAB: subscribing the messages from TTN, processing the data (e.g. payload decoding, further calculations), and pushing the resulting values to corresponding items in openHAB. To manage the entire data flow, the open source software Node-RED is used (see Figure 4). Node-RED can also be applied to define rules for the building automation, connecting to the REST API of openHAB. In openHAB, the data is represented by items and regularly stored in a data base. Based on that, further analysis, visualizations as well as event based ruling

can be done, for example alert responsible staff, if water consumption raises unusually.

With the above described method, the water meter (Woltman, analog) as well as the electricity meter (phase meter, digital) have been successfully retrofitted. Thus, it is now possible for facility management, eco-management team and researchers to access the meter data remotely.
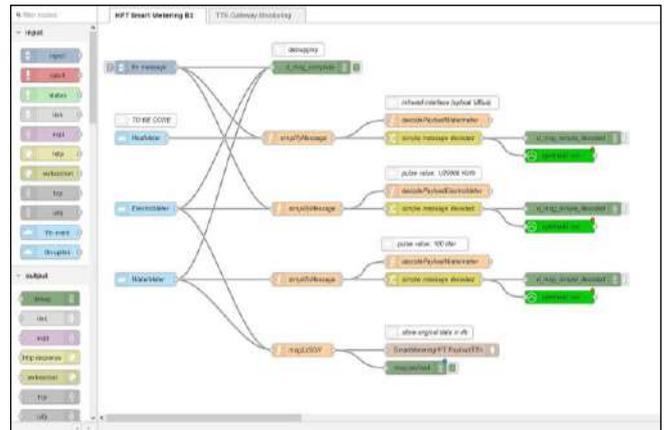
Fig. 4: Node-RED flow of the smart metering

4.2 Smart Lecture Room

The Smart Lecture Room describes a system to monitor conditions in lecture rooms in real-time in order to use this data for rule-based automation, analysis, documentation and user information. With the application of wireless smart home devices and open source software, it should be possible to retrofit lecture rooms at lower investment costs compared to cabled systems, allowing adaption of the system (extension, reduction, relocation) with reasonable effort. Further objectives are the optimization of energy consumption (heating, lighting) and room occupation as well as user comfort.
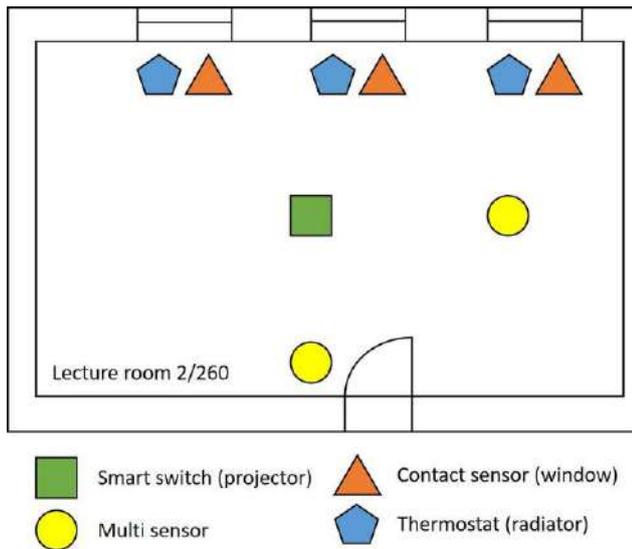
Fig. 5: Installation in lecture room 2/260

Based on the installation described in paragraph 3.3, two lecture rooms on different floors in building 2 have been retrofitted with different wireless sensors and actuators (see Figure 5). Room conditions are constantly monitored and reported to openHAB. The collected data is persisted in a MySQL database managed by openHAB. This database can also be accessed by the visualization tool Grafana to present data within HABpanel (see Figure 6), one of the user interfaces provided by openHAB (2019a).

Fig. 6: HABpanel lecture room 2/260

To meet the GDPR (cf. Table 2, "GDPR compliance"), the data protection officer at HFT has been consulted. The Smart Lecture Room as proposed can be considered uncritical regarding GDPR, because collected sensor data does not relate to an identified or identifiable living individual, thus is no personal data (cf. European Commission, 2019b).

a) Sensors

An off-the-shelve multi-sensor is used to measure room conditions such as temperature, humidity and motion. Because both lecture rooms are larger than 20 square meters, several multi-sensors per room have been deployed to cover the area (cf. Table 2, "Devices").

Temperature: A decisive aspect regarding room comfort and energy efficiency is heating. To be able to automate heating in lecture rooms dependent on occupancy, the current temperature has to be monitored. Additionally, the outside temperature (see "Weather") as well as forecasts can be taken into account to achieve optimized heating.

Humidity: Measuring humidity provides information on air quality and thus can give users feedback on ventilation times. Further use cases have to be evaluated, e.g. combining humidity with the smart water metering (see paragraph 4.1), to detect broken water pipes.

Motion: Detecting motion in lecture rooms may be used to adjust room functions based on presence/absence. The data is not suited for estimating a number of people (people counting / people flow metering).

Windows: In public buildings, a big share of energy costs is related to heating. Therefore, it should be avoided to open heating valves while windows are opened. Furthermore, open windows in unoccupied rooms (see "Motion") can be reported to responsible staff before the closing hours (cf. Table 2, "House rules").

b) Actuators

The selected actuators do not take away manual control of room functions. Instead, they add the possibility to automate functions based on rules. In doing so, openHAB can act on single sensor values as well as on aggregations (averages, thresholds, logical expressions) of multiple sensors. For example, technical staff may be alerted, if within a group of devices, the battery status of one device drops below a specific value.

Thermostats (see Figure 7): So far, in building 2 the only possibility to adjust heating is a generally performed night reduction. Opening and closing the heating valves based on occupation, opening hours, schedules and room conditions could additionally be performed to reduce energy consumption in both lecture rooms.

Fig. 7: Installed actuator (thermostat)

Smart Switches: The deployed smart switches provide several functions – measure energy consumption of plugged devices (detecting a running device), switch attached devices on/off, and repeat signals of the wireless mesh network. Latter might be necessary in large buildings to cover the entire area reliably (cf. Table 2, "Connectivity").

To provide functionality of battery driven sensors and actuators, an automated alert has been set up. System administrators get notified via smartphone (Telegram Bot), if the battery status of a device drops below a certain value (cf. Table 2, "Reliability").

c) Services

Besides physical devices, such as sensors and actuators, web services and other sources of data can be connected to openHAB to enable cross-linked analysis and actions.

Schedules: To optimize use of resources in both rooms, lecture plans will be connected to openHAB. This can be done with an openHAB binding (CalDAV Command Binding), that connects through the CalDAV interface to calendars.

Weather: Several professional weather stations as well as other kinds of outdoor sensors (e.g. air quality) are maintained by staff and researchers at the campus. This data will be integrated to allow combined examinations with measurements taken inside the lecture rooms (temperature, humidity).

4.3 Distributed Smart Systems

As outlined in paragraph 2.1, public buildings on average are significantly larger than apartments or houses, for which smart home technologies have been designed originally. Moreover, the campus of HFT consists of multiple large buildings. Thus, several technical aspects have to be considered when deploying smart home devices and software in a public institution like a university.

Not only a higher number of devices is required to retrofit a large building, also a larger area has to be covered by the wireless service. Either which wireless technologies are used (e.g. ZigBee, Z-Wave, Bluetooth), it must be taken into account, that more than one hub (gateway) per technology may be necessary to manage a large building reliably (cf. Table 2, "Connectivity"). This is due to limited transmission ranges and specific gateway capabilities, such as maximum number of manageable devices.

Hence follows another setup than typically found in smart homes, where one server, also acting as central hub for the wireless devices, may be sufficient (Dywicki, 2019). The distribution of multiple hubs in a large building connecting to one openHAB server has been subject of a research undertaken by Heimgaertner, Hettich, Kohlbacher, and Menth (2017). To maintain a building complex such as a university, it may be considerable using more than one openHAB server, e.g. one per building, to ensure independent operability and availability.

a) A Distributed System for Multiple Buildings

The prototype developed at HFT focuses on distributed systems spreading over multiple buildings (see Figure 8), that can be operated independently from each other, but still be managed centrally. While the installation and maintenance of openHAB for a single home is fairly simple (openHABian, 2019), it can turn out to be time consuming and complex in an environment with multiple buildings. Therefore, the goal was to ease installation and maintenance of an openHAB stack to ensure a sustainable usage in public buildings (see Dobler, 2019).
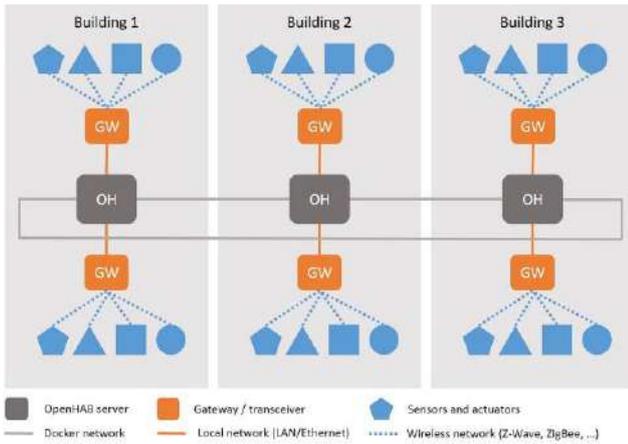
Fig. 8: Distributed system for multiple (large) buildings

Concept and prototypical implementation propose the use of containers to deploy and manage multiple openHAB instances (see Dobler, 2019). Containers are sandboxed environments, that come with all dependencies they rely on to run independently from the applications on the host OS. Furthermore, containers work in different target environments, from Virtual Machine to Raspberry Pi, thus providing a great flexibility regarding the existing IT infrastructure in public institutions, which can vary a lot.

b) Docker and Docker Swarm

Docker is an open source software, that enables running distributed applications in containers. openHAB officially provides a Docker image, that includes a Java Virtual Machine and can be used to run multiple instances side by side as well as to orchestrate and automated deploy openHAB (openHAB, 2019c). Within a single configuration file, all services that should be installed can be defined. These services may include the entire openHAB stack, such as openHAB, Node-RED, MySQL, Mosquitto, Grafana and Nginx. Docker then handles download and installation of all applications.

Using the swarm mode of Docker, this gets even applicable to multiple distributed hosts (e.g. buildings). Swarm is used to define a cluster of machines (nodes), that are part of the Smart Public Building system. Nodes can join and leave the swarm, and even the replacement of machines, e.g. in case of a failure, can be done without much effort (cf. Table 2, "Reliability"). Within the above mentioned configuration file it is defined, which services should be deployed to which servers (buildings).

Security is a major concern when implementing smart systems in public institutions. openHAB as well as most services that are used along with it by default are easily accessible on the local network. Docker swarm creates an overlay network (see Figure 9), that is not accessible by the host system or its local network, but allows communication between applications inside the swarm, even across multiple hosts (Church, 2019). Furthermore, by adding a reverse proxy like Nginx it is possible to reduce the exposed ports to only one and to provide a basic user authentication (cf. Table 2, "Reliability").
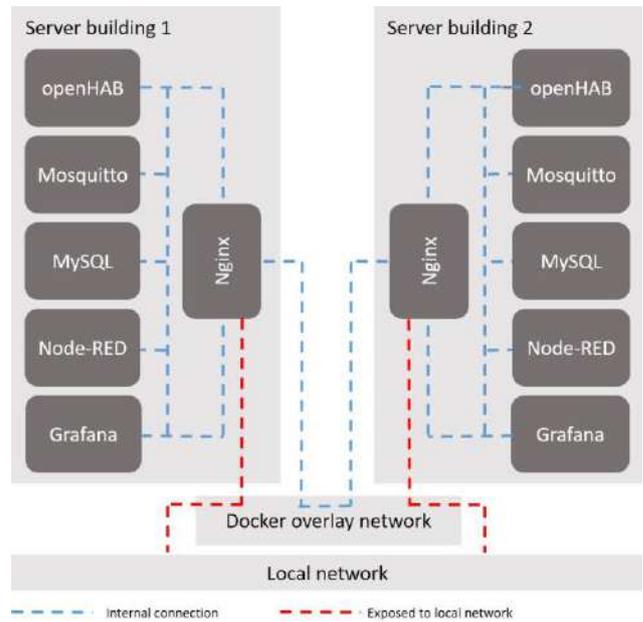
Fig. 9: Docker overlay network (based on Dobler, 2019)

Documentation and code of this proof of concept have been published as open source (GitLab, 2019a) to enable discussion and further development.

5. *Conclusions and Future Work*

In this paper, we propose the application of wireless smart home technologies and open source software to retrofit public buildings. Many public institutions occupy buildings as tenants, thus facing the same limitations regarding installations as tenants of private homes. Other public bodies lack funding to retrofit their building stock with cabled, automation systems. On the other hand, special requirements of public buildings on smart systems pose new challenges towards smart home technologies. The mature open source ecosystem

around openHAB allows interoperability and technological independency. We have presented three proof of concepts, showing that even without adapting the core of openHAB, different applications for a smart public building can be implemented. If a specific device or service is yet not supported by openHAB, connectivity can be established via the provided REST API or MQTT, which has been used to connect the utility meters at HFT (see paragraph 4.1).

Open challenges lie in possible security issues of smart home technologies (Al-Turjman & Altrjman, 2019) as well as in a proper user management and authorization for openHAB (see Werner, Pallas, & Bermbach, 2018), whereas latter has been subject of research undertaken by Heimgaertner et al. (2017). Within the ongoing research project, the requirement of public buildings to allow access to the smart system based on authentication and authorization will be addressed. This includes access to data for different user groups (students, staff, facility management) via smartphones, room based touch panels and information displays in hallways. Future work also addresses further development of the presented proof of concepts, such as:

Smart Metering (see paragraph 4.1): Retrofitting the heat meter – the utility company in charge did not provide a pulse output. Thus, the smart meter prototype has to connect via the optical M-Bus interface, that is exposed by the meter's calculator unit. First tests have already been successful.

Smart Lecture Room (see paragraph 4.2): Further services and devices, such as CO_2 sensors (air quality), light switches (turn off lights in unoccupied rooms) and people flow metering (optimizing room occupation) are going to be implemented to allow more advanced use cases. Besides that, by determining rules and carrying out long-term measurements, the lecture rooms should be managed based on observed usage patterns.

Distributed Smart Systems (see paragraph 4.3): Based on the presented concept, that has already been implemented for test purposes, multiple openHAB servers will be deployed within different buildings at HFT.

Finally, towards dissemination, the prototypical implementation of smart applications within the buildings of HFT will ideally foster adoption and further development at other universities and public bodies. Therefore, all implementations will be documented and published as open source in the

Smart Public Building GitLab Repository (GitLab, 2019b).

6. Acknowledgements

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DIRECT 3D PRINTING FOR POST-EMERGENCY SETTLEMENTS

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Abstract

We live in an era when the already precarious post-emergency housing conditions faced by millions of people have been dramatically transformed from something extraordinary into something ordinary. While waiting for reconstruction, everyday life is further complicated by the insufficient architectural and urban quality of temporary housing solutions (which last well beyond the emergency phase), while standardisation and indifference to context, be it cultural or environmental, generates alienating scenarios. This situation is an invitation to architects to restore housing to the centre of architecture, to reformulate the very idea of the residential unit and to imagine a new and diverse condition of dwelling. The time has come to reproposed multiple relations between private and public space offered by the design of a city, even temporary. Recent advancements in large-scale 3D printing technology and digital fabrication are bringing important innovations to this field of research. The particular nature of this technology lies in its capacity to establish a relationship between the 'virtual world' of parametric modelling (the level to which design can be personalised) and the 'real world' of construction (the potential to simplify realisation). By introducing new methods of construction that continue to bring construction closer to 'production', and design closer to product, 3D printing gives new meaning to the concepts of technical reproduction and seriality. It invites us to rethink the very approach to the design of architectural and urban space. Beginning with these considerations, this text reflects on and identifies limits and possibilities for the application of large scale 3D printing technologies for minimum, evolving and transitory housing. A design experiment is presented as an opportunity for a multidisciplinary, cross-scale and iterative investigation, verification and exploration of different thematic issues: prerequisites of spatial quality (flexibility of use, personalisation, expandability over time, versality of use and aggregation, etc.), logic and the reversibility of construction and strategies of intervention referred to the entire building process.

1. Unknown[2]

The unknown is by definition a "magnetic frontier of knowledge", that limit toward which man is both drawn and repelled, passing through a territory of utopias, visions and blunders that often confuse us to the point we are unable to find the way back home.

The unknown is also uncertainty, anguish and expectation and, at the same time, free will, imagination, creativity and concreteness, and thus Chance.

Likewise, in the field of architectural design, the challenge of the unknown, curiosity about overcoming the limits of what we know, what we are familiar with, is the privileged key for starting the process of knowledge; it is an opportunity to rethink old problems from a new angle; it is cognizance of the separation that pushes us toward a new goal.

In addition to being supported by the latest tools of design and construction, any experiment with space must include, together with the leading questions of our preliminary era, other issues that have yet to be raised, but which may arise. In the case of projects for post-emergency settlement systems, the condition of the unknown and the indeterminate is, structurally, an uncertainty. It is a prerogative that induces us, as architects, to push beyond the confines of design and attempt to include unpredictability by prefiguring housing scenarios capable of offering differing levels of versatility in aggregation, adaptability and flexibility of use.

In this particularly complex field of design, an experiment involving a system of settlement to be deployed under emergency conditions[1] represents an occasion for accepting the challenge (Chance)

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[1] This article presents part of a study of housing for emergencies conducted by professors of Architectural Composition from the Faculty of Engineering at the "Sapienza"

Università di Roma, with members of the LAPIS_Laboratorio sull'Abitare - Progetto Indagine Sperimentazione research group. The theoretical reflections in the text are supported by

presented by the unknown. It is also an opportunity for entering into a multidisciplinary investigation, verification and exploration of thematic issues linked to considerations of the dualism of space-time: flexibility of use, personalisation, expandability over time, versality of use and aggregation, etc.; temporariness/reversibility of building systems; strategies of intervention referred to the entire building process.

1.2 Ordinary Emergencies

'Emerging' means breaking through the surface of a body of water, unexpectedly, after a lengthy period of immersion. Believing that this 'below' world (submerged) does not exist, means refusing to look at the reality of facts, or fear of being unable to confront them.

This alarming vision, at a time when knowledge has provided us with the tools and methods of forecasting and analysis, is unjustified, above all if we consider the consequent results, in some cases catastrophic.

This definition of an emergency has legitimised the use of chaotic 'resolutive' actions that are not immediate and have a strong impact on the environment and the economy.

The 2018 annual report by the United Nations Office for Disaster Risk Reduction refers to approximately 60 million people who have been affected by extreme meteorological events around the world, millions of people who have been left homeless.

According to studies by the UNHCR (United Nations High Commission for Refugees), every two seconds someone in the world is forced to abandon their home due to conflicts or persecutions; 70.8 million people around the world have been forced to flee their homeland; 25.9 million are refugees, more than half of whom are under 18 years of age (UNHCR Global Trend 2017).

These numbers clearly describe how the precariousness of post-emergency housing has dramatically passed from something extraordinary to something ordinary. We live with the paradox that a state of chronic emergency is now something normal, and stripped of its original meaning.

The everyday life faced by survivors is often made even more difficult by the insufficient architectural or urban quality of temporary housing solutions (which last well beyond the emergency phase). This generates scenarios of alienation caused by standardisation and indifference toward context, be it cultural or environmental. Furthermore, these aspects imply significant delays in, when not the complete elimination of a phase of reconstruction, and thus a return to 'normality'.

The theme of a post-emergency housing system is one of the experimental workshops par excellence for architecture. It involves the study of how to integrate the principal variable of time with that of space, to create solutions proposed by and shared with users based on bottom-up practices.

This situation invites us, as architects, to restore housing to the heart of architecture, to reformulate the very idea of the residential unit, to imagine a new and diverse condition of dwelling. We must prefigure the multiple relations between private and public space through the design of a city, even temporary.

1.3 Time-Space. Virtual-Real

During the past century, studies of the relations between the parameters of space-time, fundamental to the design of architecture, produced a number of fundamental reflections on the concepts of minimum dwelling in evolving and transitory situations.

Largely standardising approaches, focused on the optimisation of functional spaces according to a uniforming logic of needs and necessities, which gave us the definition of the 'typical user', were accompanied by interesting reflections on the evolutionary potential of architectural design. These latter produced different strategies intent on providing space with a dynamic quality using standardised modular components.

Keeping pace with the new forms assumed by an increasingly more global society, in which the sense of belonging to a nation has been replaced by that of belonging to the entire world. This is reflected, what is more, in a model of nomadism, not only digital, which has defined the premises for a renewed form of temporary and transitory dwelling.

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the presentation of a design experiment developed by Giulio Paparella for his graduate thesis in Civil Engineering-Architecture 2016/17 (advisor prof. Maria Argenti; co-advisors: prof. Maura Percoco, prof. Salvatore Perno).

The period in history in which we live, dense with impressive technological innovations, leads us, other than to formulate unprecedented relations between space and time, to the necessity to introduce new design parameters linked to the relations between the real and the virtual. While new technologies of surveying, management and data manipulation have provided us with exceptional instruments for controlling the sphere of the 'virtual', it is only with the spread of new digital fabrication technologies that these products of the imagination have become useable in the 'real' world.

In the field of digital fabrication, large scale 3D printing technology offers a series of advantages and potentialities for the building sector as well: capacity to optimise the use of materials, speed and precision of fabrication, autonomous management of production costs with respect to the number and type of elements produced, instantaneous adaptation to particular environmental characteristics or specific user needs, additional reductions in the use of specialised equipment and labour on site. Recent applications in the field of architecture consider 3D printing technology particularly appropriate to a sharing economy inspired by principles of collective responsibility and respect for the environment in the name of future generations.

Among the different approaches to the realisation of building components, we can identify two principal strategies for the use of this technology: direct and indirect 3D printing. While direct 3DP (3D Printing) is an additive process of manufacturing whose final product is used directly for its intended purpose, indirect 3DP produces an object that, without additional work or added materials, would not reach its final performance criteria. The different strategies adopted at the architectural scale use these technologies for structural systems, infill and integrated components. Structural solutions are largely hybrids, primarily when used for horizontal structures, given the process of additive production.

Materials employed for structural purposes include fluid-dense materials (concrete, clay), metals (steel) and thermoplastics (PLA-Polylactic Acid, PETG-Polyethylene Terephthalate Glycol). While fluid-dense materials and thermoplastics are used both for direct 3DP and formwork 3DP, the use of metals, given their elevated mechanical performance, are used only for direct 3DP. Another question is linked

Fig. 1: Experimental projects illustrating the two principal strategies for using 3D printing technologies. Urban Cabin by AECTUAL (2015) realised in formwork 3D printing (© Sophia van den Hoek, AECTUAL). Below: Gaia by Wasp (2018) produced by direct 3D printing. (© WASP)
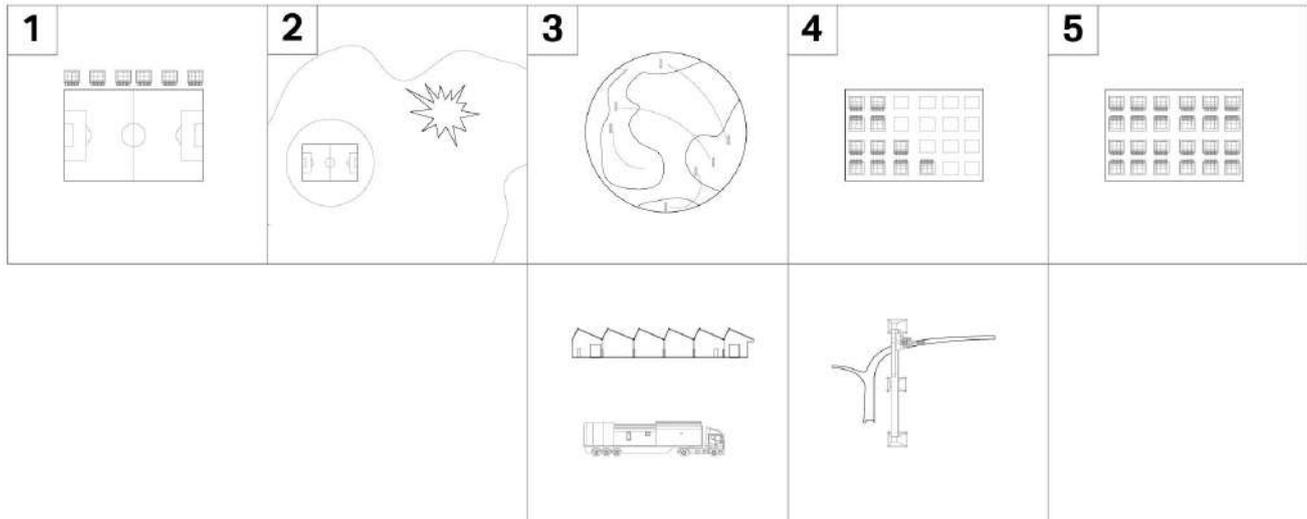
Fig. 2: Description of the sequence of phases of intervention. The programme is based on an alternation between 'peace time' and 'emergency time' and an iterative process of design updates that precedes the realisation of the temporary settlement.

to reinforcing bars, which may be continuous, like the bars used in traditional reinforced concrete, or smaller bars and meshes, or the particularly innovative use of fibres.

These possibilities, fortified by their strong ties with the world of virtual modelling, bring the theme or evolving housing to a new level of research that takes use toward the extreme limit of the condition of flexible space.

2. Intervention Strategy-Project Methodology

Dealing with such a complex theme as post-emergency housing means not only offering valid design solutions for dwelling units and settlements that must also include collective services and urban spaces; it also means rethinking the entire process focused on moving past the condition of emergency by taking advantage of the latest tools offered by technology.

While during the past century the highly functional model of the military camp provided an effective reference for supporting populations affected by calamitous events, in reality it shows little regard for the human qualities of individuality and difference.

At the end of the century, in Italy, the close relationship binding the model of emergency management with the different tools employed to

face up to an emergency suggested the creation of the Protezione Civile Nazionale, the National Civil Protection Department, and the identification of four different phases[2] :

1. Forecasting
2. Prevention
3. Rescue
4. Overcoming the Emergency

This approach, while pioneering with respect to activities of risk forecasting-prevention and the rescue of populations affected by calamitous events, has demonstrated, during the course of events, a strong dichotomy between the scenario hypothesised during the forecasting phase and the real conditions of intervention.

What is more, while the requisites prescribed for SAE – Soluzioni Abitative in Emergenza (Emergency Dwelling Solutions)[3] refer to basic criteria (safety, environmental comfort, usability, disassembly, movement, erection and positioning, integration, management), in reality they do not offer a suitable level of functional and morphological flexibility. This generates conditions of settlement that are alienating and with no regard for their context or users.

Given the new surveying and data management tools offered today by the world of Big Data, the

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[2] Italian Law n. 225 dated 24 February 1992: Institution of the National Civil Protection Department

[3] Tender, on behalf of the Civil Protection Department, subdivided into three geographic Lots, for the conclusion of a

Framework Agreement pursuant to ex art. 59 of Italian Legislative Decree n. 163/2006 for the supply, transportation and erection of *Soluzioni Abitative in Emergenza* and relation services – Edition 2 (ID 1490).

mono-directionality of the current model of intervention, also with respect to the results obtained, is outdated and unable to offer the solutions required by an emergency situation. Instead, rethinking how we overcome the emergency phase as an iterative process of updating data and developing almost instantaneous solutions to housing is undoubtedly of great interest.

Another aspect of innovation involves design methodology. New parametric modelling instruments applied to design offer specific solutions to the type-number of users and to environmental and cultural contexts. In addition, they are also open to new forms of participatory design.

Thanks to the new tools offered by virtual-augmented reality, users can actively participate in the different phases of the building process, even remotely; they can express their needs and verify how they can be 'materialised' in space.

In parallel with the reconstruction of the urban fabric, the return to 'normality' can occur only after the reconstruction of a social fabric, which must be preserved during the various phases of an emergency. In this case, the intangibility of the Network takes on a concrete role as a powerful tool of aggregation that works to restore a sense of community, all too often considered secondary to people's primary material needs.

Once again, design loses its connotation as an occasional episode and becomes a shared and participatory process. While it varies in its form and function, it remains univocal and determinant through the coherence between intentions and instruments.

Creating a continuous flow that links parametric design, methods and digital building technologies makes it possible to activate a coherent building, flexible and changing process, specific to the area affected by an emergency, and with a cost that is independent of the type and number of building components produced.

Among the different digital fabrication technologies, the process of additive manufacturing differs from a subtractive or formative approach, for the simplicity of transportation of materials and a reduced need for complex tools and equipment during construction.

These considerations served as the basis for a design experiment studying the application of an iterative model of emergency management. The hypothesis was based on direct 3DP using a robotic arm fitted with an extrusion device for fluid-dense materials.

This design solution is founded atop a fundamental hypothesis that is part of national planning strategies in Italy: providing an area for hospitality activities, an infrastructural backbone and surface foundation systems. During 'peace time' these elements should serve public activities such as, for example, markets, supporting services and sports facilities, parks, spaces for events, performances, etc. This system represents the '0 phase' of an emergency and defines a particularly advantageous condition by making it possible to drastically reduce construction times for primary urbanisation works, in turn speeding up the ability to offer housing solutions in a short period of time.

2.1 Building-Material Systems

To satisfy the prerequisites of functional and morphological flexibility linked to the indeterminacy of contexts and the variability of the needs of users over time and, in order to guarantee the cyclicity between the 'peace time' and 'emergency time' of the planned intervention strategy, this solution proposes a 'building organism' constructed using an open building system comprised of different modular elements, each opportunely studied to permit a possible hybridisation of technologies and a versatility of languages.

The components of the building system are of two types: industrially produced servant modules necessarily transported to the site and containing a range of technological components (kitchen, w.c. or laundry module) or structural elements (stair module); non-servant modules produced in situ: structural elements, wall and roof systems and furnishings.

The architectural concept originates with the primary concept of 'shelter' and the archetypal idea of configuring a covered space by applying the principle of continuity between roof-wall. This is achieved here using modular elements. In addition to responding to the concept of 'structural form', the section of the unit was also determined by the desire to allow for different floor layouts.

The type of standardised production and the ordinary means of transport planned for the servant components influenced choices relative to their dimensions, content and reduced variability.

In situ production using large-scale 3D printing technologies, applied to the remaining parts of the system, makes it possible to modify the dimensions and quality of different elements in relation to the needs of users and the context in which they the units are to be inserted.

The ground and other floor plates, for example, are composed of modules, whose combination allows
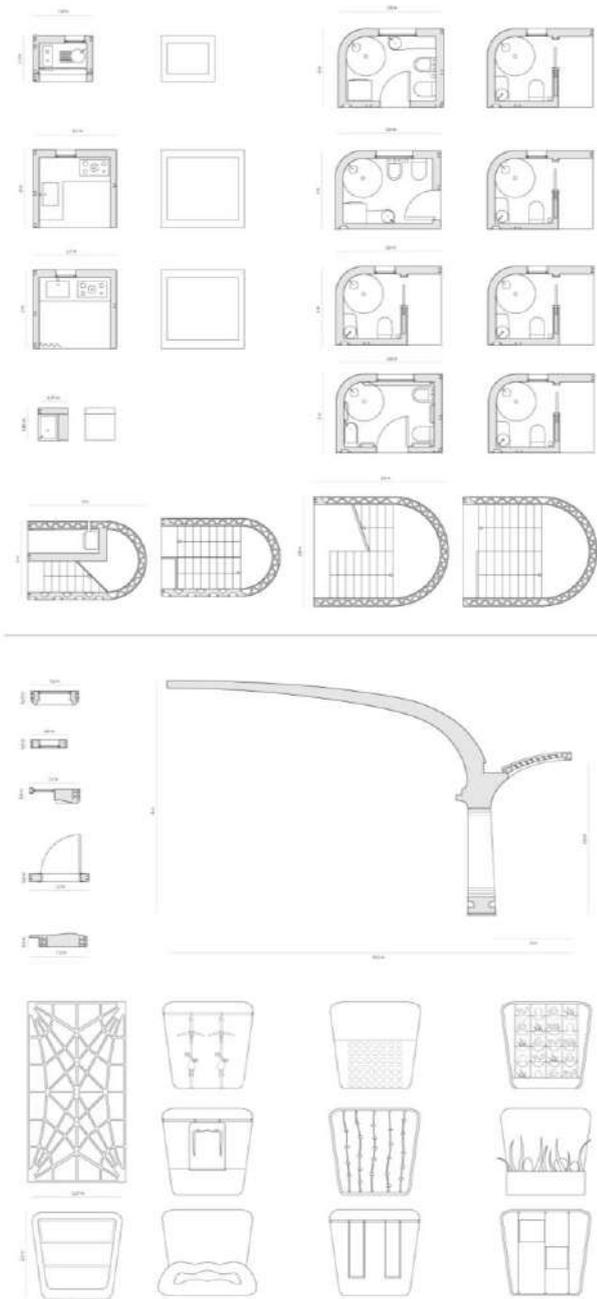

Fig. 3: The basic elements of the building system are graphically illustrated in relation to production systems: industrially produced building components and components produced in situ using large-scale 3D printing. Prefabricated modules are dimensioned to meet transportation requirements.
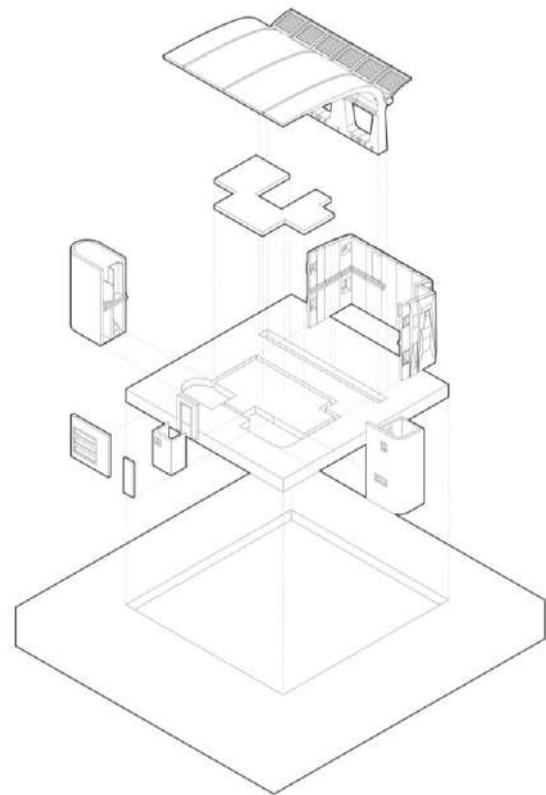
Fig. 4: The different elements of the building system arranged in one possible configuration to create a 60 sq. m base housing unit. The total volume of the unit measures 10.20 m x 9.60 m x 6.00 m.

for the insertion of radiant panels or chases for mechanical, electrical and plumbing systems. Similarly, the selection of materials allows for the integration between primary materials, used for structural elements, and secondary materials, used for infill panels and/or finishes. The objective is to guarantee an effective definition of the building system in relation to the context in which it is used. In particular, structural elements are proposed in a carbon fibre-reinforced geopolymer (a material with a mechanical resistance similar to concrete, though with minor emissions of CO_2); the remaining elements are proposed in PEEK (Polyether Ether Ketone).

2.2 From (Non)-Residential Unit To City

The basic residential unit is the 'key' to the composition of a fragment of an urban fabric developed according to the principle of bidirectional correlation, effective at a vast range of scales.

The underlying premise of this system is the desire to provide, also in 'emergency' situations, a quality of space together with housing and
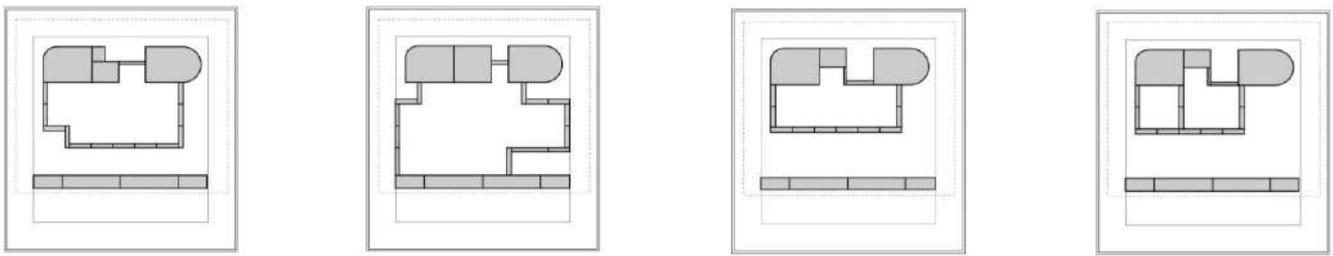
Fig. 5: Versatile layout. Diagrammatic plans of residential units in different configurations: 18 sq. m (2-5 people), 50 sq. m (2-4 people), 60 sq. m (2-6 people), 96 sq. m (4-8 people, accessible by the disabled).

programmed growth with a vast range of possible variations. It is presented as a possible 'cure' for the body and soul and a stimulus for residents to move beyond the phase of emergency.

Solutions were developed for residential units measuring 18 sq. m, 50 sq. m, 60 sq. m and 96 sq. m, suitable for a range of different families and to ensure accessibility by those with temporary or permanent disabilities.

The unit is structured in three parallel linear bands, each of which identifies a functional and compositional element: the served space and servant space inspired by Louis Kahn, and the structural axis. This division, other than ordering the interior layout, is also fundamental to the simplification of preliminary works related to the foundations and systems to be realised during 'peace time'.

The choice to concentrate the structural system along a single axis, despite the elevated loads this generates, is motivated by the desire to ensure the maximum flexibility of interior space. In detail, the portion of inhabitable space defined as served or dominant has been placed between the structural axis and the servant band resulting from the aggregation of different technological units.

The preferred typology is the duplex, with daytime spaces on the ground floor and nighttime spaces on the first floor (alternatives are proposed for this with disabilities), connected by a stair module that terminates the servant band.

The presence of a double height area creates a unified space with richer interiors, in addition to creating a potential condition for the expansion of the upper level. The development of different layouts confirms the effective flexibility of the system at the scale of the unit.

Far from ignoring external space, the threshold between interior-exterior is imagined as a free covered space, a terrain of progressive saturation that allows for the expansion of the basic unit or its appropriation for outdoor activities.

The voids marking the lower portion of the structural elements and roof can become 'containers' for equipment used for different activities (chairs, garden, exhibition panels, etc.). This strategy is also focused on stimulating the use of the external spaces and creating situations that favour encounters and integration between inhabitants.

With regards to the spatial prerequisite of functional flexibility, the project also considered an
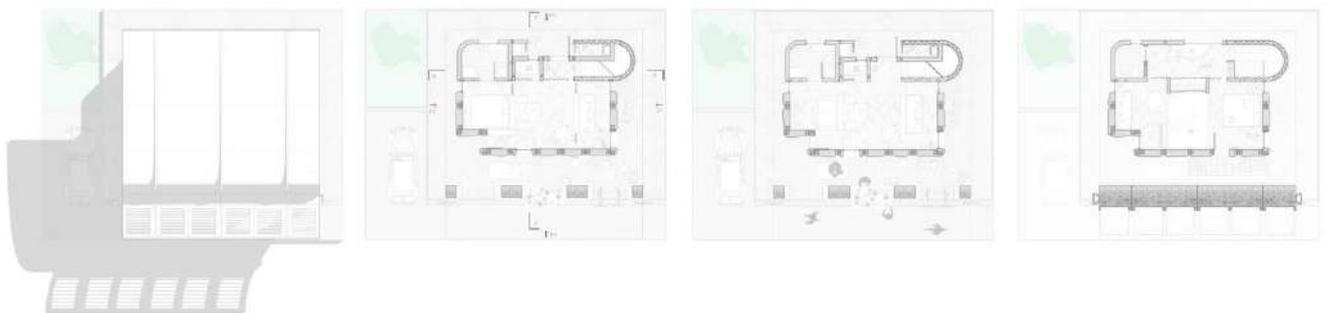
Fig. 6: The 60 sq. m unit can host between 2 and 6 people. The total roof area measures 10.00 x 9.60 m in plan. The study of the flexibility of the interior spaces is represented in different scenarios referred to the alternation between daytime and nighttime functions.
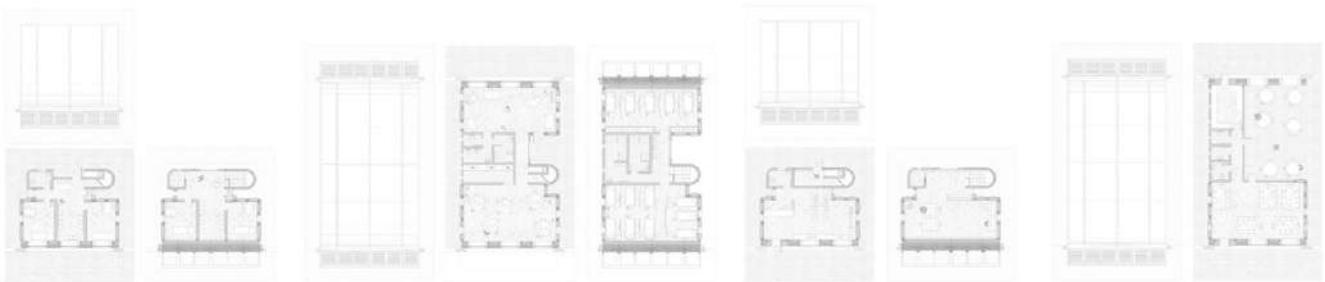
Fig. 7: Design proposal to verify the applicability of the system to non-residential uses, including, for example: healthcare facilities, dormitory, canteen, offices-commercial activities.

application of the same design logic to a non-residential function.

To avoid the creation of a dormitory neighbourhood, a post-emergency settlement system must also offer a series of complementary services and other functions: a business park, healthcare facilities, storage, school, canteen, religious buildings and administrative facilities.

As the majority of the solutions adopted to date demonstrate, the repetitive arrangement of these buildings in a checkerboard to create 'welcoming camps', rather than true fragments of a city (temporary as it may be), while functional to an approach to management inspired by military history, tends to have a negative effect on the fragile post-trauma situation experienced by those who live in them. The serial and alienating character of the units, the anonymity of the open spaces between them, the absence of a hierarchy of routes, the poor design of street widenings and public squares, all fail to recognise the values of identity and society capable of transforming banal interstitial voids into public spaces, and an ordered 'encampment' into a fragment of the city. Based on these considerations, the design experiment demonstrates the aggregative versatility of the proposed settlement system thanks to its different possible layouts, inspired by the row house, patio house, townhouse and urban block.

2.3 Construction Sequence-Details

In addition to spatial issues, the experiment also proposed technical-building solutions deemed fundamental for reaching the objectives described.

To achieve the desire level of spatial flexibility, and the reversibility of construction, the decision was made to adopt dry assembly technologies. The proposed solution uses two types of bolted joints: external (primary) connecting the elements of the system to the foundation and internal (secondary) connecting the different modules to one another.

The raft foundation, constructed during peace time, features built-in anchor bolts along the structural axis for connecting the elements of the roof.

The assembly sequence proposed begins with the different modules of the roof, followed by the servant blocks and, successively, the elements of horizontal and vertical enclosure.

The modules the floor slab benefit from principles of structural optimisation that, thanks to the use of 3D printing technologies, consent an effective reduction in the weight of different elements, which benefits the dimensioning of the resistant elements.
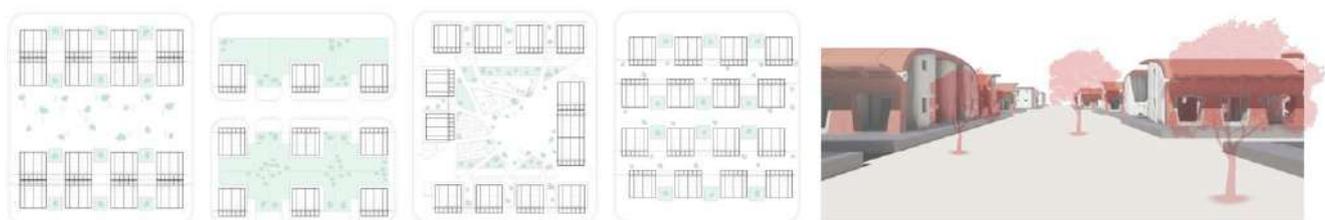
Fig. 8: Verification of the versatility of aggregation of the system based on experiments with alternative configurations inspired by residential typologies: row house, patio house, townhouse and urban block.
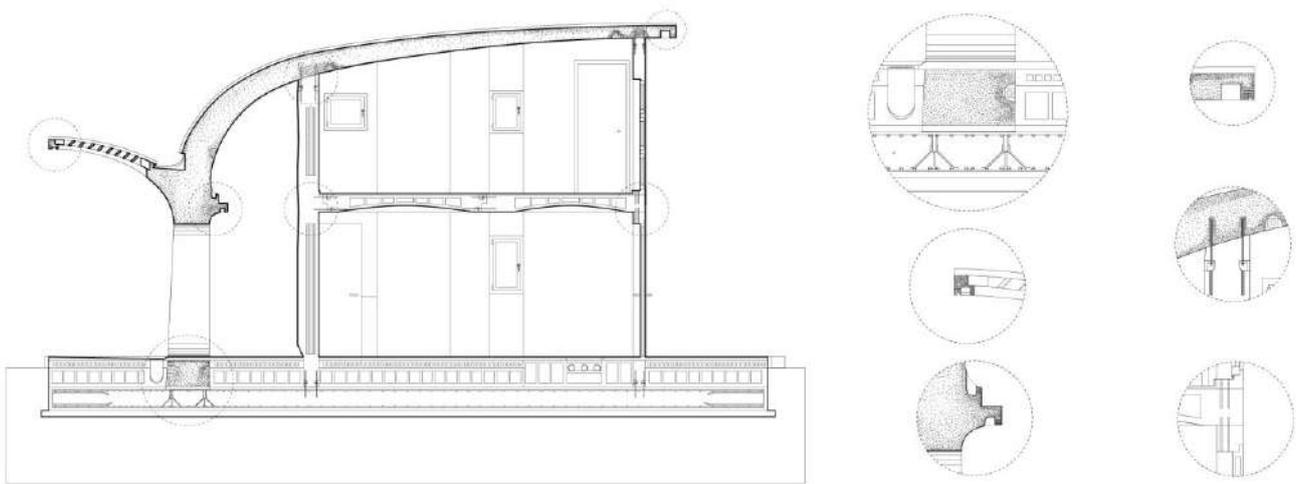
Fig. 9: Building details that satisfy the criteria of flexibility and reversibility of use of the system's components. The foundations built during 'peace time' feature anchor bolts for erection of the roof structures. The floor slab features roughed-in connections for wiring, cabling and plumbing in correspondence with the servant spaces.

Vertical infill panels, also 3D printed in situ, are characterised by an elevated number of apertures that can be left closed or opened as required by inhabitants. Furthermore, once again to the benefit

Fig. 10: Realisation of the scale model of the dwelling unit at +LAB (3D Printing Lab of Politecnico di Milano, arch. Michele Tonizzo). The 3D printing using a polar 3D printer (max. cylindrical printing volume 40 cm x 70 cm) and the extrusion of white PLA filament. Below: post-production of the component modules of roof.

of the personalisation of the building system, these panels can be substituted using alternative solutions that employ local building methods and materials.

2.4 Making the Model: 3D Printing Experience-Design Iterations

The spatial model of the dwelling unit was a fundamental tool for verifying the proposal itself and for comprehending the logics behind the process of additive manufacturing and the potentials of this innovative technology for the field of design.

In concrete terms, after the file of the model was exported in STL format (Standard Triangulation Language) the components were printed using PLA filament. The model was created using a Cartesian 3D printer (PowerWasp Evo) and a polar 3D printer (Wasp 4070), both of which employ FFF technology (Fused Filament Fabrication).

In more general terms, the operative context of 3D printing technology is the "Fabrication Laboratory", commonly referred to as a FabLab: laboratories experimenting with digital fabrication where a younger generation of architects, working online as part of a network, collaborate as part of a multidisciplinary approach to identify and produce new sustainable solutions. The vision that animates and links these research communities is founded on the educational theory of "learning by doing" proposed by the American philosopher John Dewey, and the cultural logics of "Do It Yourself" and Open Source Software.
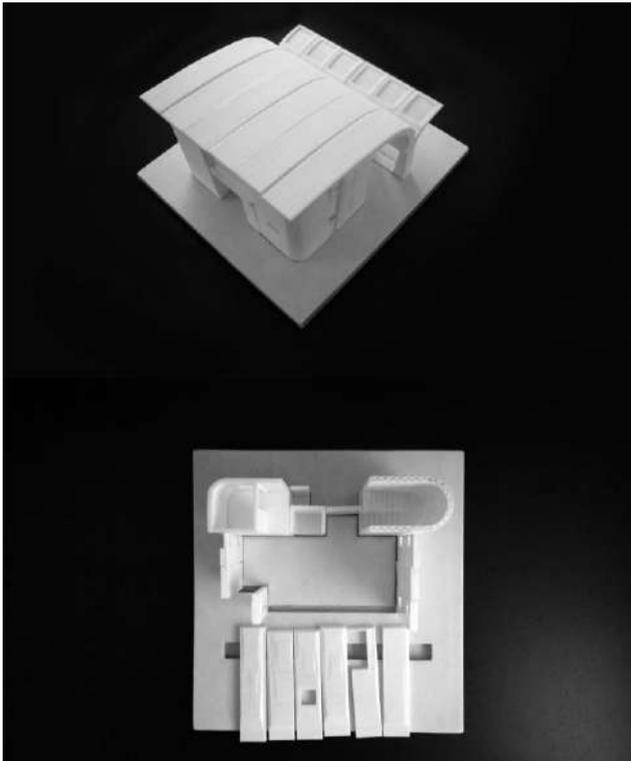
Fig. 11: 1:50 scale model of the base 60 sq. m unit.

The transposition of these theories and approaches into the field of architectural design transforms how we intend design, and the very figure of the designer.

3. *Results Discussion. Open-Ended Questions*

The investigation presented focused on defining the potentialities and limits of large scale 3D printing in the building industry, in this specific case applied to the theme of emergency housing.

In methodological terms, the theoretical-design study began with an identification and analysis of the state-of-the-art. This step was propaedeutic to the definition of an approach to the development of a model of emergency management and the operative phase of 3D printing. The association between these two themes, which converged during the successive phase of the design experiment, is the true characteristic of the proposed research and key to its understanding: attempting to satisfy the needs and necessities of temporary housing in emergency situations by offering an instantaneous solution to housing that is both sustainable and flexible thanks to the use of additive manufacturing technologies.

In synthesis, the proposed technical solution demonstrates a notable flexibility resulting both from the selection of the robotic printing arm (6 axes of rotation offering a very high level of freedom in the positioning of material) and the method of its use (positioned on a sliding rail) during the printing process, which makes it possible to overcome the maximum volumetric dimensions allowed by fixed support printers. This characteristic orients the experiment toward the definition of building components whose volumes have been optimised to reflect a growing awareness of the need to limit the consumption of materials. Together with this dimensional and geometric freedom, the proposed solution also guarantees elevated flexibility during printing. This is important above all for in situ work. In other words, this solutions makes it possible, for the same cost, to realise a vast range of products, almost instantaneously, of the project-type required by the adoption of an iterative model for emergency management.

The pioneering nature of this investigation highlights a number of important criticalities. Other than the strong limitations imposed by the reduced mechanical and compressive strength of deposited material, there was also a need to test new materials that can be integrated in the process and which are able to respond to tensile forces. The proposed solution to use direct 3D printing with a carbon fibre reinforced geopolymer raises questions about the effective mechanical resistance of the structural members hypothesised, as well as the complexity of their in situ realisation and movement.

The advantages and limits revealed make it fundamental to the development of the study to proceed with a second phase that metabolises the previous experience.

An interesting part of the search for light and more reversible structural solutions is represented by a comparison between direct printing and formwork printing. In parallel, there is also a need to reflect on the validity of the integral use of 3D printing for the realisation of all of the building components, as opposed to hybrid solutions that may resolve a number of criticalities (realisation of elements subject to bending, for example, as part of the roof) and to consent an effective definition of the system in relation to local building technologies as part of a collaborative objective that wishes to involve future residents in the building phase.

In this specific case, the future objectives of the study involve experiments with new parametric modelling tools to explore spatial flexibility, to reflect on the effective validity of the modular logics of

digital fabrication and to analyse possible form-finding strategies to be applied to structural elements. Other objectives include the identification of solutions for reversible foundation systems and an in-depth study of the assembly sequence of the system's various components. Finally, an a posteriori comparative analysis of the design proposal using different traditional settlements adopted during an emergency, based on shared parameters, may provide important results for comprehending aspects of the research worth pursuing in successive studies.

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ENERGY RENOVATION OF HISTORIC BUILDING: THE CASE STUDY OF HUNTING LODGE IN ROME SUBURB

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Abstract

Regeneration of suburbs is one of the main tasks for architects. These places are characterized by energivorous buildings with lack of technology, poor quality and social deterioration and without identity. For this reason, it is necessary to rehabilitate the meaning of suburb, overthrow the prejudice, and renew their identity. How to renovate suburbs reducing consumptions and improving sociality? The approach adopted from the beginning of the study has been to recover the historical and cultural identity of the district through the building design, the Massimina *locus*. The research suggests a methodology of intervention to improve energy efficiency on the historical hunting lodge in the Massimina neighbourhood. This building, which now has a residential function, was the first construction of the district, therefore it represents the identity of Massimina. Combining historical aspects and energy efficient technologies, active and passive strategies, smart metering and smart home devices, the building achieves a reduction of 60% of consumptions and returns to its ancient identity. The methodology is applied to write guidelines, which can be used to the entire Massimina neighbourhood, which is made up of unauthorized buildings in the western outskirts of Rome during the 60s and is characterized by low density residential buildings with average consumption of 150/200 kWh/m²year. The proposal starts from CO_GOAL Project, a multidisciplinary project of the Department of Urban Transformation of Rome, ENEA, Inarch and LUISS, which participates in the European Call "Smart Cities and Communities".

Keywords

Historical building, renovation, reuse, smart home

1. Why the choiche of the Massimina neighborhood?

In 2016 InArch, through the Master Sustainable Architecture, decided to face the issue of suburbs renewal, becoming like a spokesperson for the European Call Horizon 2020 "Smart cities and Communities". 60% of the Italian territory consists of suburbs to be recovered: however, recovery cannot be separated from the spatial and environmental context that becomes an integral part of the project.

The programme of the call (H2020-LC-SC3-SCC-1-2018-2019-2020) (Europea Commission, 2020) supports cities and communities to "act as motors of innovation, smart technologies and growth" and focused on the issues of smart cities learning and learning transformation induced by smart city. Sustainable development of urban areas is a challenge of key importance. It requires new, efficient, and user friendly technologies and services: in particular in the field of energy. The

focus on Smart City lighthouse project will result in integrated solutions with a high market potential, in the field of energy.

To the call already ENEA joined, starting 24 projects on as many smart districts (three in Italy, Milan, Florence and Bari) (Papa et al., 2016). These projects had as their goal to demonstrate at the level of urban district, solutions that integrate smart building and home, electric mobility, ICT platforms, with particular attention to environmental climate aspects and also social ones (like a housing discomfort and social activation) (Annunziato et al., 2017).

ENEA first, and after InArch, decided to apply these issues to proposals for the suburban site in Rome: Massimina neighborhood.

The first part of the research was to find smart strategies for the district (for example electrical mobility, smart home devices for buildings ecc.). The second part was focused on the energy efficient design of building-types, to create guidelines for interventions on Massimina neighbourhood.

1.1 Historical analysis

Our case study is in the Roman suburbs, precisely between Via Aurelia, Grande Raccordo Anulare and Valle Galeria, in the district of Massimina, which was born largely spontaneously from the 1960s until today[1] (Figure 1).

Massimina represents a typical case of the Roman suburbs halfway between the city and the countryside and preserves all the typical characteristics of urban agglomerations connected without a urban plan that surround Rome: a disorderly and chaotic building growth following the struggle of agricultural areas, a rather low building average with a high percentage of open spaces at risk of degradation, a limited presence of public spaces and services, a fragmented road network, the absence of a fluid road network (Farina et. al., 2017).

For these reasons Massimina represents an exemplary sample area for the experimentation of urban regeneration actions exportable in the whole peripheral zone of Rome (Ercolani et. al., 1980).

Massimina developed near Via Aurelia, at first on the ridge of Via del CasaleLumbroso and later on the one of Via della Massimilla.

The neighborhood is divided into two parts that are not very communicating due to a road system made up of dead-end routes and an orographic structure made of steep slopes.

The lack of internal roads leads to that of public transport systems, both on a local and on a vast scale. This is one of the reasons why residents prefer to use private vehicles as their main transport system.

The reduced road sections imply the absence of sidewalks and pedestrian paths and is the cause of the widespread unregulated parking.

This condition is aggravated by two-way mobility, which also involves problems related to road and residence safety, and the failure to connect and fluidize the main traffic rings.

There are no bike paths or soft mobility systems.

Public squares, services and public spaces are almost entirely absent.

Existing buildings are mainly small buildings (few are buildings that exceed 4 floors) with low energy quality, which have undergone extensions and elevations over time. Most of them are characterized by the presence of spontaneous vegetable gardens and small green areas. However, these quality elements are compromised by the presence of the Malagrotta landfill, currently closed, (Antonucci, 2015) but where for more than thirty years, Rome has given all its waste, making the air unbreathable, contaminated aquifers and polluted land, and former Purfina Refinery, also in the process of disposal and responsible for serious pollution of groundwater, surrounding lands and air.

Fig. 1: Massimina location.

In the context of these critical issues, an archival research conducted by us, has brought to light that already at the beginning of the 1900s on Via della Massimilla (from which the name of the neighborhood derives) there was the only building in the neighborhood, at the time it was a ancient hunting lodge on the estate of Massimilla, of Prince Francesco Massimo[2], completed in 1925, whose expansion project is deposited and preserved in the Capitoline Archives (Figure 3).

The comparison of the plans, the inspections and the consultation of different oral sources, allowed us to identify today the building in question (Figure 2).

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[1]However the area was inhabited since the 4th-3rd century b. C., as evidenced by the archaeological findings of a villa and a necropolis, during excavations for the construction of a shopping center in the area. Cfr. Rossi Diana, 2008.

[2]Prince Francesco Camillo (1865-1943), 4th prince of Arsoli, married Anna Eleonora Brancaccio to whom he gave the property on the Massimilla estate (as stated in the archival documents). The Massimo are one of the oldest families of the city of Rome. Cfr. Passeri, 1874.

The only documents found on the building, due to the loss of morphological and historical identity, are those preserved in the Capitoline Archive; there is also no bibliographic documentation on it.

Although therefore altered in form compared to the original project, it actually represents the historical memory of the neighborhood, which is why the building redevelopment process could interest this building first and extend it to other buildings in the neighborhood.

Fig. 2: Massimina street.

Fig. 3: Evocating image of the hunting lodge.

1.2 Morphological and climatic analysis

From our historical-morphological reconstruction of the building we can see how, although today the building has a completely modified exterior appearance in the roof, in the external curtain and in the superficies due to the balconies, the building is still the original building. We deduce this from the perfect correspondence that emerged from the plan comparison between the year 1925 and the survey we made (Figure 4).

From this first initial analysis we have been able to identify the potential and criticality of the building. First of all it is necessary to point out that the origin of the neighborhood is represented by the building itself and the name "Massimina" is a demonstration of it.

The critical issues are linked, in addition to the superfetations that conceal the ancient origin of the building, to the characteristics of the parcel: the building has a large asphalted space in front of it, used as a parking area for both the residence and the offices below, and on the back a garden in a state of neglect. The whole parcel is surrounded by a fence, thus attesting its inclusion. The waterproof area represents 72% of the lot area. At the same time the particular position with respect to the surrounding buildings and the north/south orientation make sure that there are no shadows brought and that one can make the most of the solar radiation incident on the southern pitch. Furthermore, the presence of fruit trees in the southern garden mitigates the effect of overheating due to the incident solar radiation (Figure 5).

Fig. 4: Critical issues.

It can therefore be concluded that the analyzes carried out show how essential it is to recover the historical memory of the building, a recovery that cannot disregard the spatial context in which it is located, which becomes an integral part of this process.
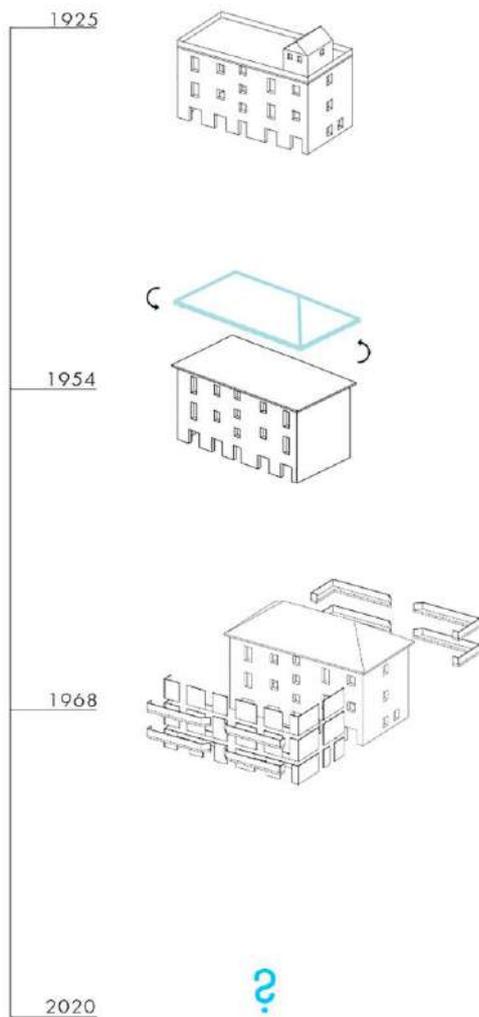
Fig. 5: Historical-morphological evolution.

2. 14423[3]_Genesys of the project

The list of needs that the contemporary building must satisfy should be updated today in the light of new lifestyles. From the background there is collective life, the latter has unfortunately become only a place of work, service or entertainment. Changes in society and its ways of life need original answers. The private and public dimensions need interfaces or places of transition capable of activating a dialogue between the different scales.

In the past the neighborhoods were structured with solid interpersonal ties: people usually habitually frequent and gained in-depth knowledge

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[3]The genesis of the process is represented symbolically by the number 14423_location at the Capitoline Archive of the original project of the building. Capitoline Archive, Roma, *Ispettorato Edilizio*, prot. 14423, 1925, cat. 847.

of themselves and others according to their lived contexts. In this way, people were more responsible for their actions but received in return, from the community, security and a sense of belonging.

The idea of "living the past living in the future" (Figure 6) wants to refer to a free design, able to learn from the environments of historic cities: inventing new lifestyles but preserving the beauty that has been left to us by the past. A neighborhood in which private residences and common services coexist; the living spaces are harmonized in such a way as to safeguard the privacy of each one and, at the same time, satisfy the need for sociability.
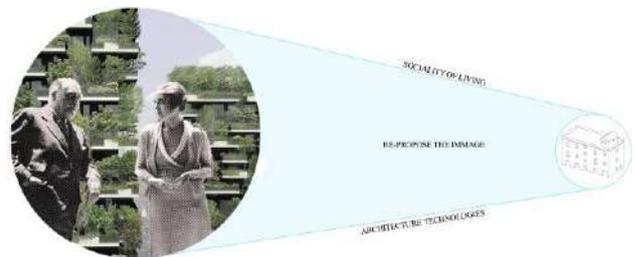
Fig. 6: Living the past inhabiting the future.

The right relationship between innovation and conservation is also the basis for addressing one of the fundamental questions of this century, that of sustainability.

It should not be limited to the important issues of energy conservation and the use of alternative energy,but should be extended to those of the duration of buildings and the quality of life as a whole (Figure 7).

Fig. 7: Sociality of living.

For interventions on the existing, in addition to the mere motivations of architecture are added historical knowledge but also the subjective

interpretation and the multiple technologies aimed at the objective of environmental sustainability and energy containment. Architecture and technology are thus placed at the service of the stratifications of historical events in search of a coherent balance between conservation and innovation, to give the old identity new contemporary meanings.

With the concept "living the past inhabiting the future" we want to indicate also the new awareness and the new approach to architectural design in addressing the theme of quality of life, exploring construction techniques through the various phases of the building process and the performance control of the project at both morphological, typological, technological and plant level in order to improve the comfort of the building through the innovative use of technologies, smart enclosures, components and environmentally friendly materials.

The new technologies are thus placed at the service of architecture in order to guarantee a better quality of contemporary living.

3. Design strategies

In this case, we let ourselves be guided by what has been the history of our building, trying to reread its ancient image, re-proposing the ancient front, on the Massimilla road axis (Chiavoni et. al, 2017).

As Tresoldi writes "The architectural cycle contemplates multiple physical states in the course of its existence [...] Sooner or later abandonment occurs, a phenomenon that initiates the dynamic process of alteration, mutation and decomposition of the place, which is the state of the ruin: the question, due to the cyclical and inexorable action of nature"; for this reason our intent is to return the *genius loci* and recreate the relationship of the pre-existence with its place, also reinforcing the relationship with the inhabitants of the space in question (Campana, 2016).

Through the help of new technologies we decided to evocate historic and symbolic appearance of the building.

The first energy strategy was the use of terracotta slats as a ventilated wall covering, which has a thermal transmittance equal to U=0,28 W/m2K. We used this type of technology to recover the ancient layout of the main front, thus returning to 1925 (Figure 8).
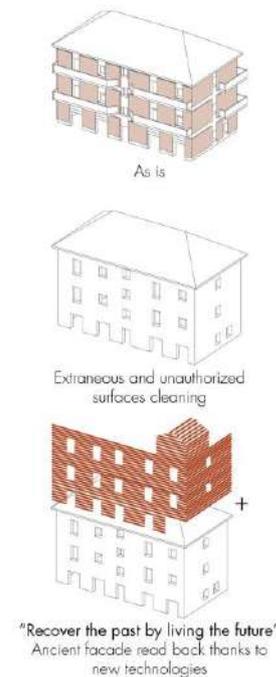
Fig. 8: 2020 vs 1925.

Moreover, the ancient building had a little tower, probably used to observe the neighbourhood. We decided to propose again this structure with a different use. The tower became a solar chimney with an important thermal function: the chimney is linked to the stairwell and has retractable strips which allow solar radiation to entry or to be shielded. It has a different function in every season:

o   Winter daytime: chimney strips are opened and stairwell strips are closed. Window of chimney is closed to create a buffer zone with a delay of heat dispersion to the environment.
o   Summer night: all strips and window are opened to allow the heat dispersion to the environment.
o   Summer daytime: strips are closed to shield solar radiation and window of chimney isopened to allow heat dispersion to the environment.

Solar chimney was modelled on CFD software to verify the fluid-dynamic performance (Figure 9). In addition to the thermal function the new tower becomes the landmark and allows recovering genius loci of Massimina neighborhood.
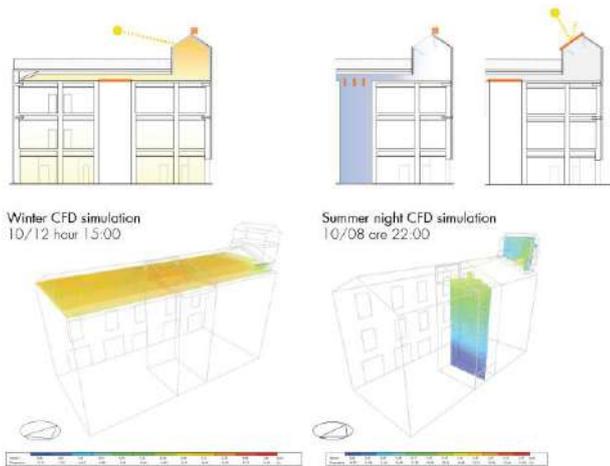
Fig.9: Solar chimney.

Another strategy was to use new technologies to recover ancient sociality. On the opposite site of the building we decided to design new balconies, as transition elements from public to private spaces and as shading system. With the use of balconies the incident solar radiation on south façade is reduced, improving thermal comfort of the building (Figure 10). We studied the best depth of the balconies and used a solar shading system in terracotta as shown in figure 11.
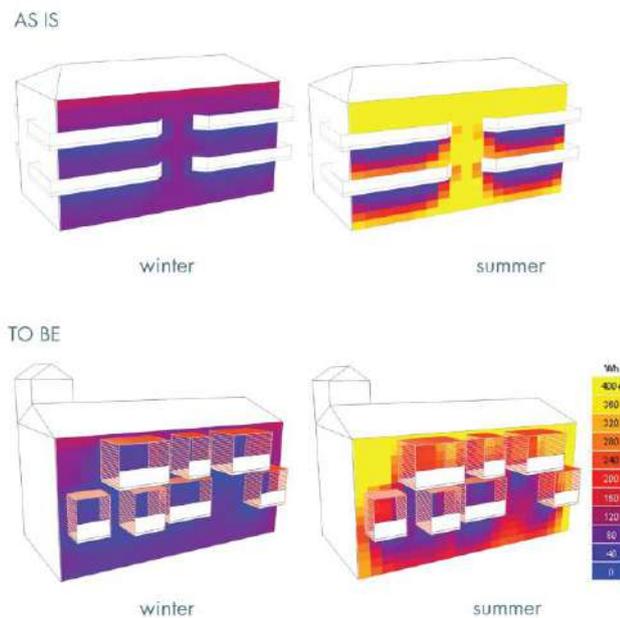

Fig.10: Balconies on south façade.

Fig.11: View of the balconies.

Other design strategies (Figure 12) to improve thermal comfort and reduce consumption are listed below:

o Photovoltaic modules – installed peak power 14,2 kWp and electrical energy production 18464 kWh/year.
o Air to water heat pump – heat pump COP 3,55.
o Solar modules – 70% hot water supply fulfilled by solar system located on south roof face.
o Smart-home devices.

Fig.12: Design strategies. a. ventilated façade; b. photovoltaic modules; c. air to water heat pump; d. solar modules; e, shading system; f. solar chimney; g. rainwater reuse.

These actions allowed transforming thermal energy consumption from 213 kWh/m2year (G Italian energy class) to 27,24 kWh/m2year (A4 Italian energy class).

Moreover, the reduction of natural resources uses (rainwater reuse and renewable energy use) and the use of local materials permit to reach a gold LEED certification.

The conservative approach in this case of study was only conceptual; infact, being originally an agricultural building, the construction wasn't built with high quality materials. For example, the external wall was "a sacco" masonry: with a thick inner wall and a thinner outer wall, where the gap was filled with stones and mortar. What was important of the building was its significance in the nieghborhood. For this reason, we decided to evocate the ancient building through the shape, with the use of modern technology and, especially, with an energetic significance.

Furthermore, for a better accessibility and integration of the lot containing the building under study to the context, it was decided to remove all the surrounding walls. In this way, thanks also to the yield at the masterplan level of via della Massimilla with limited traffic mobility, we can think of a greater liveability on a social level of the lot in its context (Figure 13). This decision also allows us a greater integration of the green area behind it with the building. The increase of the permeable surface leads us to a reversal of the percentages compared to the actual state.
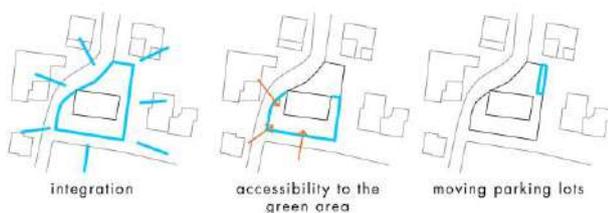
Fig.13: Integration of the lot.

4. Conclusion

According to the 2013 national energy balance, Italy covers over three quarters of the energy needs using fossil fuels; and about 40% is due to the residential sector due to summer and winter air conditioning. Consequently, every action aimed at reducing the demand for energy in this sector is a priority, bringing advantages both from an environmental point of view and from energy conservation.

Energy efficiency in existent buildings is one of the most important challenges today, especially when there are historic aspects to preserve. In the case of individual historic buildings, it is therefore necessary to define a working method in which the integration of knowledge between the disciplines of restoration and conservation and those of technological systems in the building sector is implemented in synergy and effectively. The choice of optimal solutions must therefore start from the design phase and for the entire building process without neglecting the environmental impacts that the solutions adopted may have on all building organizations.

Our personal design approach allows to overcome past-present dualism and to use ancient element as a way to enrich the building and theneighborhood. The study path was necessarily set on the development of a dialogical analysis that led to the implementation of a methodology in which the conservation and rediscovery of historical values, functional and energy adaptation and planned maintenance were organically integrated.

It is necessary to codify by providing a multidisciplinary point of view in the practice of energy and technological requalification and the preservation of historic buildings. The disciplines of architectural and technological design, restoration and assessment of environmental impacts must bring together the different issues that emerge from the regulatory adaptation of these three specifications, in an integrated management of interventions on architectural heritage.

Fig.14: View of the building.

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THE 18TH CENTURY IN FERRARA: ARCHITECTURE ON PRE-EXISTING BUILDINGS. THE CASE OF PALACE ESTENSE GAVASSINI PARESCHI

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Abstract

The city of Ferrara is one of the most significant cases of the Italian Renaissance in terms of architecture and urban planning. During the Renaissance, the members of the Este family, contributed decisively to the development of the Duchy, but, after the Devolution of the city to the Papal States in 1598, they were forced to retire to Modena for lack of a legitimate heir.

The 16th and 17th centuries are marked by a political, economic and cultural crisis that affects the city. However, this critical period does not affect ecclesiastical architecture, which throughout the Baroque era is characterized by the construction of new churches and monasteries in the whole Legation territory. On the other hand, as regards the civil architecture, despite a significant amount of vacant land within the new Renaissance city walls, there is a cessation of constructive development: noble and bourgeois patrons prefer to contribute to the maintenance of their palaces or to buy existing buildings in strategic positions to modify according to the taste of the time.

The latter is the case of Palace Estense Gavassini Pareschi. In 1735, the Marquis Sigismondo Gavassini bought the said building and modernized it to create a representative residence.

As a consequence of structural problems due to foundation settlements, the façade was remodelled and modernized, only the main portal - that Bruno Zevi (1971) attributes to Biagio Rossetti - is preserved.

Subsequently, the monumental staircase was rebuilt with Baroque features.

The most interesting aspect of the Eighteenth-Century architecture in Ferrara is the way in which innovative elements are inserted into Renaissance buildings and how these often contribute to structural alterations and vulnerabilities of existing building parts.

Keywords

1. Introduction

Ferrara, as is known, has been the subject of in-depth studies of urban planning and historical architecture for many years. However, from the analysis of the literature, there is no systematic collection of informations relating to the architectural transformations of the period from the devolution of the Duchy of Ferrara (1598) to the Campaign of Italy by Napoleon Bonaparte (1796-97).

This article, therefore, is part of a doctoral research that deals with the study of palaces of the city of Ferrara that have been subjected to reconstructions and modifications carried out during the 18th century.

The aim is to understand the approach adopted by architects and clients towards Renaissance palaces and to determine whether the intervention was merely transformative or the design had conservative attitudes, respectful of the pre-existence from multiple points of view: stylistic, compositional or structural.

2. History of the building

Estense Gavassini Pareschi palace, shown in Figure 1, was built at the behest of Duke Ercole I d'Este with the aim of donating it to his wife Eleonora of Aragon[1]. This is not a new construction, but rather a reworking of several pre-existing buildings in order to build a fortress-building capable of fulfilling functions of representation, hospitality and control.

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[1] The name of the palace was chosen by combining different names of families whi had owned the complex and made substantial changes to it. The building is also known as Renata of France or San Francesco Palace.

The works began in 1475 under the direction of Pietro Benvenuti dagli Ordini and on his death in 1483 the direction of the building site passed to Biagio Rossetti[2].

In 1485 great works started to convert the palace into Giulio Tassoni's residence, until 1487, when the building was donated to the gentleman for his marriage to Ippolita Contrari.

In 1491, following a violent snowfall, there was a partial collapse of the roof in the northern part of the building and Giulio Tassoni was forced to move to a building in Via della Ghiara[3].

Fig. 1: The complex of Estense Gavassini Pareschi palace

The repair of the building was managed once again by Biagio Rossetti, who set up new tie bars to straighten the walls and closed the loggia, replacing it with eight windows, most likely to make up for the structural deficiencies that had caused the collapse.

Another reason fot this could have been because it was no longer functional as a lookout in terms of defence in as much as the building was in a central position in respect to the new urban extension[4].

Following various hereditary passages, in 1534 the palace became property of Ippolito II d'Este, at the time bishop of Milan, who commissioned new works under the direction of Battista Tristano.

The northern building's staircase, which led to the private apartments of Ippolito, was restructured, the existing partitions were eliminated, and the Rossetti's windows were lowered and furnished with seats. The archival documentation also refers to a supply of 1900 common stones to close the loggia of

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[2] Pietro Benvenuto dagli Ordini (1451-1483) was an architect active in Ferrara in the second half of XV century. In 1469 he was appointed Ducal Architect, a position he held until his death.
Biagio Rossetti (1447-1516) was a pupil of Benvenuti and he was present in many master's yards including the elevation of Schifanoia Palace (1467-69). In 1483 he assumed the office of Ducal Architect under Ercole I, then moved to the service of Cardinal Ippolito II.
[3] The archival documentation report detailes that the roof collapsed because the tie bars had slipped out, so the Tassonis

was forced to move to another family mansion built in a street called *Via della Ghiara*. ASMo, *Camera Ducale*, Munizioni e Fabbriche, memoriale 25, 30th December 1491.
[4] The palace was in a strategic position close to the northern walls of the city, near a ditch-crossing bridge. At the time of the construction of the building, in fact, the so-called *Addizione Erculea* had not yet been realized, and the location facing the countryside and contiguous to the defensive structures entrusted to the building the task of supervising the territory in a particularly delicate direction which was the border north of the Duchy.

the garden, most likely in the form of the continuous wall in the north block of the complex.

This wall is presented in an 18th century plan, thus eliminating the visual telescope towards the garden, originally filtered by three lines of columns, which have still been replaced in this original position, still appreciable today[5].

In 1536 the Cardinal moved to France and the wife of Ercole II d'Este, Renata of Valois-Orléans, was exiled in the palace from 1937 to 1554, accused of heresy. During these years, she had the lantern built above the chapel, a typically Huguenot custom according to which the light must come from the top in places of prayer.

In 1567 the cardinal agreed the Ercole Varano's request and allowed the Tergemini Academy's meetings to take place in the palace, until 1570, when a violent earthquake partially damaged the palace: some roofs probably collapsed as well as the top part of the walls, so the academics continue their dissertations in the garden of the complex[6].

In 1572 Ippolito II died and the palace passed to his nephews, who in 1583 ceded it to the knight Camillo Gualengo for 1000 scudi. The economic difficulties of the Gualengo family, however, caused the fragmentation of the building because it was divided into different units, each with different functions.

In a survery, commissioned by some creditors of the Gualengo in 1732 which had the purpose of establishing the building's variation from 1658 to 1703, the expert Giuseppe Tommaso Bonfaldini writes that he had observed the interior and the exterior of the palace and he had not found new additions, but only repairs designed to maintain and preserve the fabric[7].

In 1699 the palace became the residence of Count Ercole Varano from Camerino and then, in 1735, it was transfered to the Marquis Sigismondo Gavassini, who commissioned a survery from the expert Francesco Maria Frizzi to know the state of the building at the time of purchase.

The specialist reported the most considerable defects, for which it was necessary to partially demolish the façade and rebuild it again, so the modernization works started in 1738 which, likely for the first time, aimed at creating a housing unit for the residence of a single family[8].

Essentially the 18th century renovation had adapted the previous structure to an almost unique type of room of about 7x7x7 meters, useful proportions to accomplish different functions (Bottoni, 1963).

These dimensions are particularly suitable for the construction of vaulted ceilings, intended for the execution of large Baroque paintings. The coffered ceilings are thus covered by false ceilings in wattle and plaster designed to be decorated with stuccoes and paintings. Other works of this period, which will be discussed further in the following paragraphs, concern the main façade and the monumental staircase in the north block of the complex[9].

With the death of Francesco Gavassini, the family was forced to sell the building to pay off debts; an expert report was prepared in 1839 in which the Earl Camillo Laderchi described the presence of a mezzanine in the main body of the building.

In 1860 the lawyer Pareschi became the owner of the palace and, in addition to rearranging the façade containing the chapel of Renata of France according to contemporary conservative theories with an equally romantic attitude, commissioned the complete redesign of the park at the back of the building, which moved from the geometry and symmetry of the Italian garden to the sinuosity of the 19th century landscape curves.

The complex remained the property of the Pareschis until 1942, when it was taken over by the

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[5] The plan is commonly attributed to the expert Francesco Maria Frizzi and dated 1736. ASFe, *Archivio dei Periti Agrimensori Ferraresi*, Serie Mappe, cartella L, parte 3, n. 1, «Pianta del palazzo Gavassini in Ferrara e piano terra del palazzo».

[6] The title of Tergemini is of uncertain translation; from the Greek it could be translated as "coming or born by the stars"; the topics they discussed were based on philosophy and natural sciences.

[7] ASFe, *Archivio dei Periti Agrimensori Ferraresi*, Bonfaldini Giuseppe Tommaso, busta 61, fascicolo 4, 1732-33.

[8] BCA, *Archivio Pasi*, Famiglie, Gavassini, busta 12, fascicolo 725, 9th January 1736. The transcription of this report is anonymous, but it is very likely attributable to the expert Francesco Maria Frizzi, of which other documents of the same period are preserved in the State Archive of Ferrara.

Most of the published literature recognizes the authorship of the 18th century works to Girolamo Dal Pozzo (1718-84). There is no archive document that confirms the authorship of the design to the aforementioned architect. The attribution is given for the first time by L. N. Cittadella, based on a letter signed by Dal Pozzo and addressed to Sigismondo Gavassini in which the architect asked to be paid for his work without specification. It should be noted that the biographers of Dal Pozzo do not refer to any design in Ferrara and the letter is no longer available.

Earl Vittorio Cini who donated it to the Municipality of Ferrara with the clause of destining the building in perpetuity for educational purposes and maintaining the park for public use[10].

After the bombings of the Second World War, the concession of the building to the University of Ferrara was approved in 1959 and renovation works began.

At that time the palace housed 25 families.

The restoration was entrusted to the architect Piero Bottoni, who carried out a critical survey and an accurate analysis of the structures. Bottoni recovered some Renaissance ceilings and decided to keep the 18th century distribution apparatus, dividing the spaces of representation with mobile structures in order not to damage the ancient architecture. In the ballroom he placed a 16th century coffered ceiling from a damaged house in Ferrara and used the room as a great hall. Some mezzanines were demolished, the loggia of the courtyard was closed with glass windows, the wooden structure of the roof was consolidated and the apertures' traces, buffered over the centuries, were left exposed.

With this latest intervention, the succession of transformations that affected Estense Gavassini Pareschi palace, currently the venue of the Rectorate of the University of Ferrara, has ended.

Currently the building is closed to the public for the execution of new restoration works after the damage caused by the 2012 earthquake.

3. The Façade

As previously mentioned, during the 18th century, substantial works of transformation of the building were carried out at the behest of the new owner of the building: Sigismondo Gavassini.

One of these interventions concerns the main façade which, at the time of purchase by the Marquis, presented serious structural problems.

In a document dated January 1736, the expert wrote that there was an overturning of the façade, for a stretch of about 40.4 meters, towards the street with different slopes, the greater of which was approximately 34 centimeters. This, once the resistance of the chains put in place had ceased, had dragged in the same direction two parallel walls of the same building. The first is on the ground floor with a thickness of about 26 centimeters that divides the interior from the loggia, and the second is on the first floor, about 40 centimetres thick, in line with the colonnade below.

The proposal was to dismantle the west portion of the façade and then reconstruct it with the same bricks obtained from the demolition, adding other 20000 new stones[11].

Fig. 2: Left: ground floor plan. Right: first floor plan.
Red: four brick heads wall. Orange: three brick heads wall. Yellow: two brick heads wall.

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[10] ASCFe, *Patrimonio*, XX secolo, busta 2, fascicolo 6, Acquisti e donazioni, Donazione al Comune del Palazzo Estense detto "Belvedere" a scopo di Istruzione, 1942.

[11] BCA, *Archivio Pasi*, Famiglie, Gavassini, busta 12, fascicolo 725, 9th January 1736.

This survey is anonymous and reports the year 1736. Transcriptions of important documents can be found in the Pasi Archive, therefore it is likely that the document is a copy of a technical report prepared by Francesco Maria Frizzi, commissioned in the same year by the Marquis Gavassini.

In Figure 2, the ground and the first floor plans are shown, highlighting the walls which were overturning with the respective masonry thicknesses[12].

Comparing the various archival documents that have been found with the cartography, the historical iconography and the survey of the actual state of the building, some reconstructive hypotheses can be formulated about the ante operam façade and the ways in which the works were being carried out.

No reliable reports of the original front have been found. The only sources that roughly describe what was intended to be the original façade preceding the 18th century works are a plan dated 1728 by Benetti, an 18th century drawing by Baruffaldi and a description of 1912 by Righini[13].

Taking into consideration the design of Baruffaldi, we note that the façade is characterized by the transition style from Venetian Gothic to the Renaissance of Ferrara (Farinelli Toselli, 1997) carried out by Pietro Benvenuti previously also at Schifanoia palace. The architect, in fact, had intervened in this other Estense mansion between 1465 and 1469, a period in which he built the noble floor on the ancient 14th century building with a merlon on the top.

Biagio Rossetti, Benvenuti's pupil and collaborator, instead, worked on the portal.
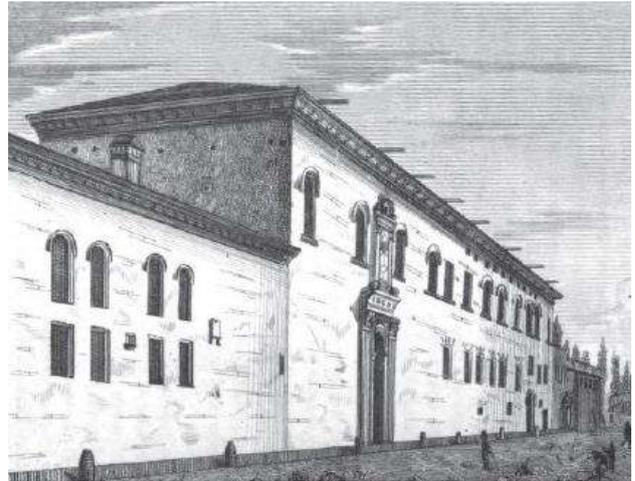
Fig. 3: Schifanoia palace in Avventi, F. (1838). *Il servitore di piazza: guida per Ferrara*. Ferrara: Pomatelli.

After the death of the master, in 1493, Rossetti extended the building towards the east, demolished the upper part of the façade made by his predecessor and replaced it with a solemn terracotta cornice as shown in Figure 3.

In 1912 Righini described the status quo of a part of the Estense Gavassini Pareschi's front that, at his time, could evidently still be detected.

It seems that at the beginning of the 20th century, in the lateral part of the eastern portion of the façade above the near palace, the ancient merlon
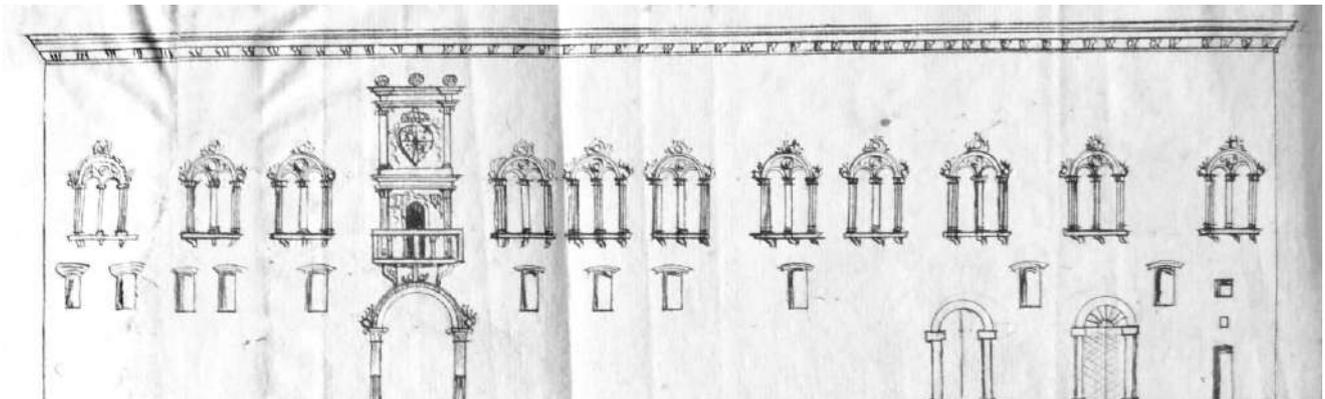
Fig. 4: Baruffaldi's drawing, 18th century

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[12] The façade is four brick heads thick (about 54 cm), the wall in the ground floor is two brick heads thick (about 26 cm) and the wall in the first floor is three brick heads thick (about 40 cm).
A brick head was an ancient Ferrara measure corresponding to about 13 centimetres.
[13] Documents in order of quotation:

Museo Schifanoia, G. B. Benetti, *Pianta della città di Ferrara con le doccie pubbliche delineata dal pubblico perito G. B. Benetti*, Ferrara 1728.
BCA, *Collezione Antonelli*, n. 351, Baruffaldi Girolamo, «Annali della città di Ferrara che incominciano l'anno 172[1] e pervengono al 1729. Vi è unito un disegno a penna del frontespizio antico del Palazzo Estense di S. Francesco, fabbricato dal card. Ippolito d'Este, ora Palazzo Gavassini», 18th century.

that surmounted the original elevation could still be seen.

It is therefore reasonable to hypothesize that Benvenuti had prepared a merlon and that Rossetti, probably during the works from 1485 to 1487 or after 1491, removed and replaced it with a more Renaissance-style terracotta cornice, that was better suited to the insertion of the decoration surmounting the portal. This would be visible both in Baruffaldi's design in Figure 4 and in the axonometric elevation of the building in Benetti's plan in Figure 5, as well as in the drawing of 1813 by the expert Gaetano Frizzi shown in Figure 6[14].

This document resumes and cites the Francesco Maria Frizzi's survey of 1736, proposing an elevation that at the beginning of the 19th century still seemed not to be completed.
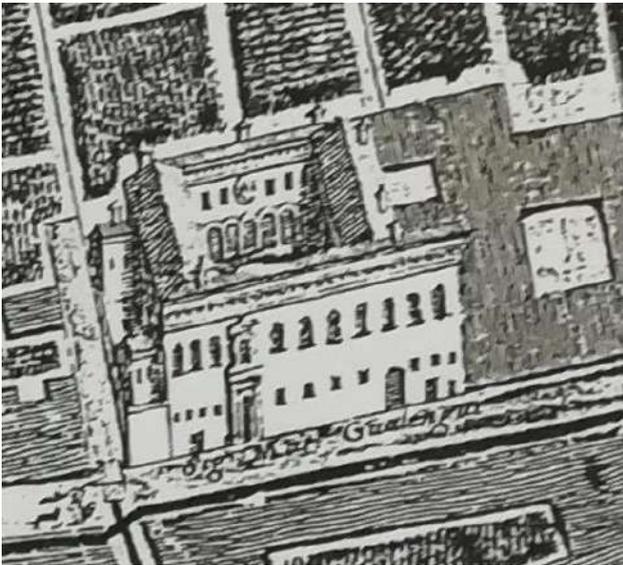
Fig. 5: Detail showing Estense Gavassini Pareschi palace in *Pianta della città di Ferrara con le doccie pubbliche delineata dal pubblico perito G. B. Benetti,* Ferrara 1728

The eastern most part was drawn using two colors: the classic graphite to report the actual state and the red one to highlight the apertures to be made. The appraiser also indicated a part circumscribing it with the letters A and B and highlighting it with two lesions, also shown in red and having the typical trend that displayed a foundation settlement. A note makes clear that the new façade must have the same height as the old façade, a rather

evident indication also from the design drawings contained in the same document.

In the analysis of the apertures, Cittadella (1860) writes that the façade had ogival diptych windows.

In fact, Baruffaldi's drawing shows the presence of mullioned windows, which however are closed at the top by round arches, in turn enclosed by a further semicircular arch surmounted by an ogival spire, an element that underlines the aforementioned style of transition from Gothic to Renaissance and that probably induced Cittadella to mention ogives.
These details cannot be found in the elevation of Benetti's plan, where hardly any round-headed windows can be distinguished.

The plan of 1705 by Bolzoni shown in Figure 7, on the other hand, displays a front in which the element that stands out is precisely a double window, although all the other components of the elevation are not at all well delineated[15].

In the copy of the 1736 survey the expert refers to a reworking of the façade apertures with a change of rhythm and shape. The intention is to replace the original windows with more modern alternatives.
Finally, in the Gaetano Frizzi's drawing, the shape and the rhythm of the ancient apertures can be clearly read compared to the new ones, without, however, obtaining any information on the morphology of the original windows.

Bruno Zevi (1971), observing Baruffaldi's drawing, stylistically attributes the portal to Rossetti; an episode of urban renewal that he defines as unbalanced, a feature that directly refers to the architectural-urbanistic theme of Schifanoia palace.

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[14] ASCFe, *Deputazione di Storia Patria (Ex BCA)*, Atti e documenti vari di natura economico-finanziaria, cartella 18, fascicolo 248, «Miscellanea relativa a palazzo Gavassini, poi Pareschi».

[15] BCA, *Fondo Cartografico Crispi*, Serie XVI-67, *Fedelissimo disegno in pianta della città di Ferrara delineato l'anno presente 1705*, Andrea Bolzoni.

Fig. 6: Gaetano Frizzi's drawing of 1813

In the 18th century guise, the aedicule disappeared, and the documents do not mention any work concerning the removal of it. However, it is evident, not only in Baruffaldi's design, but also in the Benetti's elevation, that the portal was surmounted by an aperture framed by an aedicule, probably containing the Estense coat of arms.

Having analyzed different elements characterizing the façade and how these are reported by the various sources, it is possible to hypothesize that originally the façade was surmounted by a merlon, removed and replaced by a cornice that brought the southern block of the palace to its current height. The windows were very likely similar to those drawn by Baruffaldi, mullioned windows framed by a round archivolt, often the only element used to schematize them in the various graphic apparatuses of the documents found.

As for their number, the elevations present in the analyzed cartography are not in agreement. Considering again Baruffaldi's design and the rhythm of the original windows reported in Gaetano Frizzi's survey, we can hypothesize a number equal to 11, which also includes the aedicule above the main portal. The latter was decentralized compared to the totality of the elevation, especially if we consider the aedicule that surmounted the portal and that identified the great hall.

Although this portal was the main gateway to the palace, it was not the only one. There were in fact two portals further to the east, which allowed the part facing the secondary courtyard to be entered.

With the works commissioned by the Marquis Sigismondo Gavassini, the façade was changed almost radically. It is highly probable that the work was carried out in two phases.

The first, following the identification of static problems, outlines the willingness to rebuild the façade adopting a modern and symmetrical architectural style.

The second, almost a century later, completes the work by pursuing the language of symmetrical correspondence in the eastern most part of the front with the reorganization of windows and portals.

Fig. 7: Detail showing Estense Gavassini Pareschi palace in the 1705 plan by Bolzoni
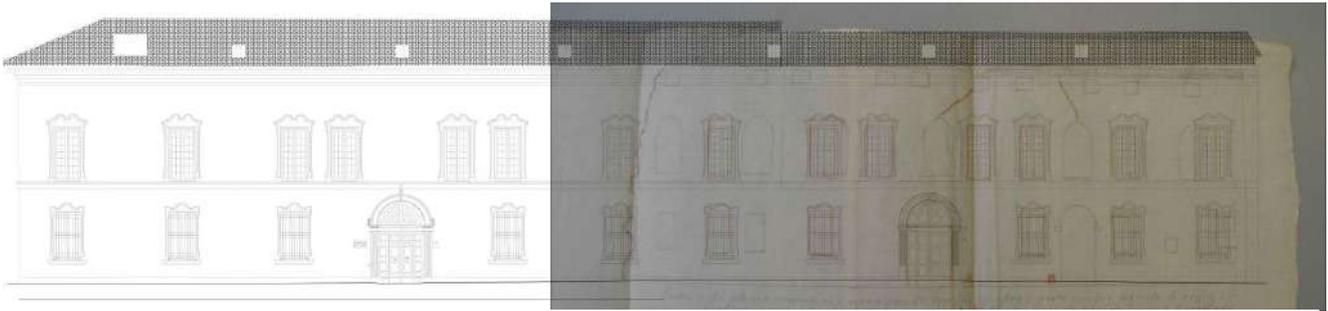
Fig. 8: Overlap of the digitization of the contemporary elevation with Gaetano Frizzi's drawing

It seems plausible to hypothesize that the height has been maintained and that the part of the façade with the overturning kinematic mechanism has been dismantled and rebuilt as the expert wrote, keeping the original door, but removing the overlying aedicule.

The attic, identifiable through the windows placed under the cornice in the drawing of 1813, has also been eliminated, probably to raise the ceilings of the noble floor arranging vaults in wattle and plaster destined to be painted.

If we also report the measurement of about 40,4 meters on the survey of the actual state of the façade, we observe that the part of it that is excluded from the measurement corresponds to the portion of the original facade of the 1813 survey.

If the digitization of the contemporary elevation is superimposed on Gaetano Frizzi's drawing, scaling the figures proportionately as shown in Figure 8, in fact, one can note an almost exact correspondence of the proportions and the aforementioned hypotheses appear to be confirmed.

4. The Staircase

The 18th century works in the north block of the building, in particular those relating to the construction of the monumental staircase, is located between 1744 and 1746 and were carried out on the basis of Angelo Santini's design in Figure 9[16].

The theme of the vertical connection is particularly relevant in the planimetric evolution of Estense Gavassini Pareschi palace. According to the typological criteria of the court building in the Renaissance of Ferrara, the staircase was usually placed in the main body of the building close to the entrance, generally to the right. In agreement with this custom, the original vertical connection had to be in a different position from the current one.

Analyzing the graphic apparatuses of the various documents found, the existence of another rather important stairway, in the aforementioned canonical position, appears certain, but it is no longer mentioned after 1804[17].

We refer in particular to the drawing signed by Francesco Maria Frizzi in Figure 10[18].

The staircase's presence, as well as its importance, is underlined by a step of the load-bearing masonry, currently still noticeable.

It was customary to create a sort of offset in respect to the wall edge to facilitate entry to the first ramp, in order not to have to place it close to the angle identified by the two blocks perpendicular to each other.

The contemporary existence of several important staircases in the same complex can be explained as the original building is realized through the rehash of several buildings incorporated into the ducal property and used solely for the noble residential

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[16] BSAFe, *Albulm Santini*, scheda 39, «Scala del Sig. Marchese Franc. Gavasini nel suo Palazzo di Ferrara».

[17] The staircase in the south residential block is not mentioned in the inventory of assets written by the notary Luigi Vincenzo Manfredini in 1804. ASFe, *Archivio Notarile Antico*, Manfredini Luigi Vincenzo, matr. 1686, «Inventario dei Beni: Descrizione degli stabili di ragione del Citt. Sigismondo Gavassini fatta sulla scorta delle rispettive loro stime cioè dal perito Francesco Maria Giori nel 1766 in quanto agli effetti antichi della casa Gavassini, e in quanto a quelli di provenienza ex Gesuitica e di nuovo acquisto fatto dal sudd.o citt. Sigismondo Gavassini dalla Camera Pontificia nel 1777 sulle perizie di Matteo Tieghi e Giuseppe Zaffarini del 1774 e di altre indicate

ed in testa nell'instrumento d'uso fatto dai beni che si descriveranno in appresso, trovati esistere al detto di 15 aprile 1804. In città Palazzo da San Francesco grande, posto di facciata sulla via di Voltapaletto n. Civ. 1864 e lateralmente sull'altra via de' Coramari n. civ. 1863. Stato formato all'atto di Divisione fra i fratelli Gavassini 1774 non compresi i grandiosi miglioramenti e bonifici fattivi da poi dal Citt. Sigismondo dopo l'epoca della seguita divisione», 15th April 1804.

[18] ASFe, *Archivio dei Periti Agrimensori Ferraresi*, Frizzi Francesco Maria, busta 280, fascicolo 15, «Piante del Palazzo detto di Renata di Francia ora Università di ragione del M.se Sigismondo Gavassini acquistato dai Montisti Gualeguo e Pozzabonelli», Ferrara, 1737-1738.

function. In fact, it had more distinct building units destined for representation and hospitality as well as housing needs[19].
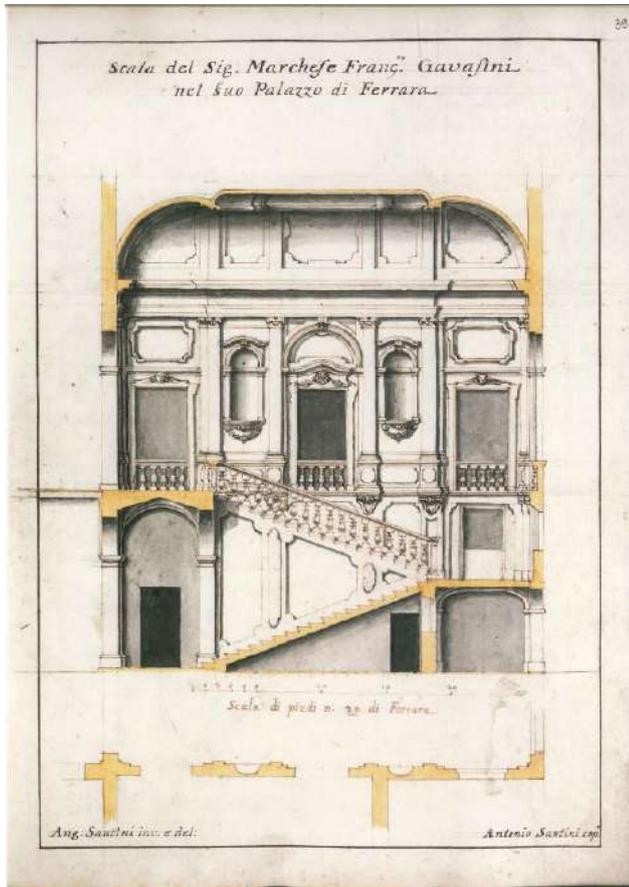
Fig. 9: Section drawing of the staircase designed by Angelo Santini

Only in the 18th century it became the residence of a single gentleman and in that period, therefore, the main staircase became unitary.

Wanting to understand the evolution of the vertical connection in the northern block of the complex, it was already present when the palace was inhabited by Giulio Tassoni.

After the works commissioned by Ippolito II in the two-year period 1534-35, the old staircase was demolished and rebuilt maintaining, however, the same position in as much as it led to the private apartments of the Cardinal. We can find it in the plan

representing the configuration of the complex before the interventions financed by the Marquis Gavassini in Figure 11[20].
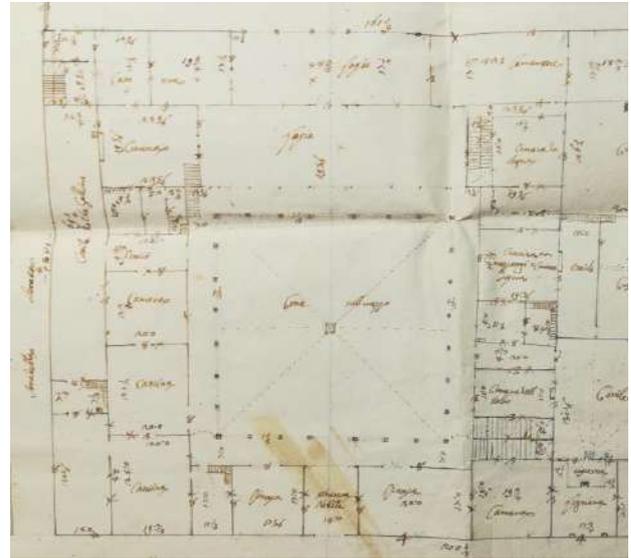
Fig. 10: Drawing signed by Francesco Maria Frizzi 1737-38

With the 18th century works, it was chosen to keep the main vertical connection in the body close to the garden probably because the intention was to create a monumental and representative work and that part of the complex enjoyed the possibility of expansion in plan and elevation.

If we look at the current plan, in fact, we can see that the stair block protrudes into the secondary inner courtyard and, comparing it with the survey showing the conformation of the complex before the works on the staircase. The breaking of the load-bearing wall perpendicular to the façade appears evident in order to obtain the space necessary for the realization of the project. The overlap of the two proportionate plants is shown in Figure 12.

Also, in terms of elevations of the noble level of the northern body and in accordance with the height of the main façade, the staircase introduces a new allowance of measurements, certainly aided by the desire to insert vaults in wattle predisposed to replace Renaissance coffered ceilings.

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[19] The private apartments of Giulio Tassoni and Ippolito II were in the northern block, when usually the noble residents were in the body containing the main entrance. Moreover, over the centuries, it is usually occupied simultaneously by more than one person, performing even more functions.

[20] ASFe, *Archivio dei Periti Agrimensori Ferraresi*, Serie Mappe, cartella L, parte 3, n. 1, «Pianta del palazzo Gavassini in Ferrara e piano terra del palazzo». This plan is conventionally

attributed to Francesco Maria Frizzi and dated 1736. In reality it does not contain either the signature of the author or the year of realization. Most likely it may be associated with the aforementioned expert. The situation depicted could be a hybrid showing the horizontal section of the façade, modified according to the project for reducing access to the building with two symmetrical doors, and the plan before the works commissioned by the Marquis Gavassini.
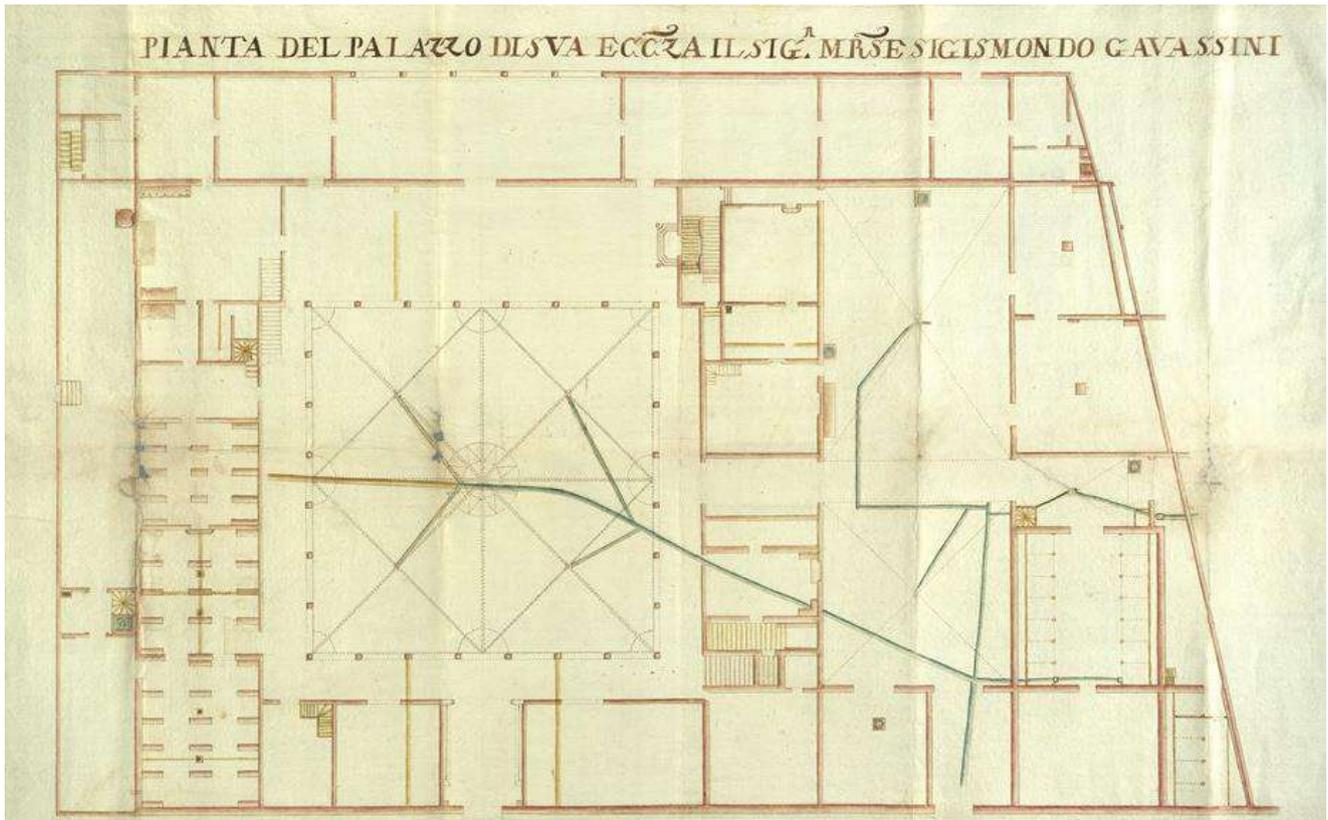
Fig. 11: Plan of the configuration of the complex before the interventions financed by the Marquis Gavassini
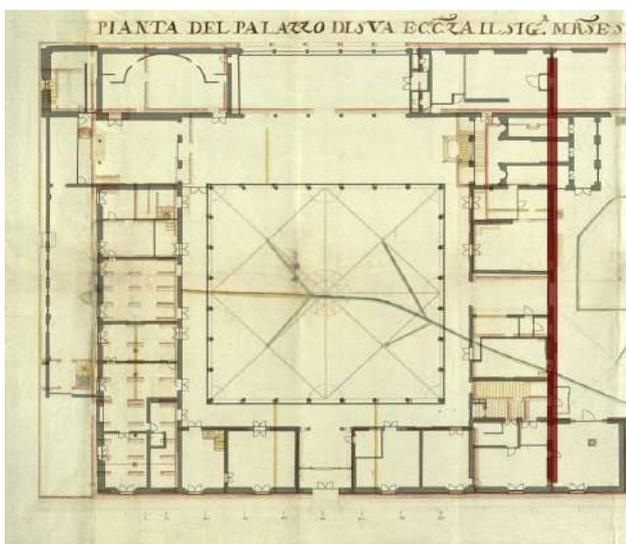

Fig. 12: Overlap of the current plan of the palace and the plan before the interventions financed by the Marquis Gavassini. In red the ancient wall breached by the staircase

Fig. 13: Photo of the northen block front by the inner

Looking at the façade on the inner courtyard in Figure 13, the original height is identified by the cornice still present at the same height as the roofs of the bodies perpendicular to it.
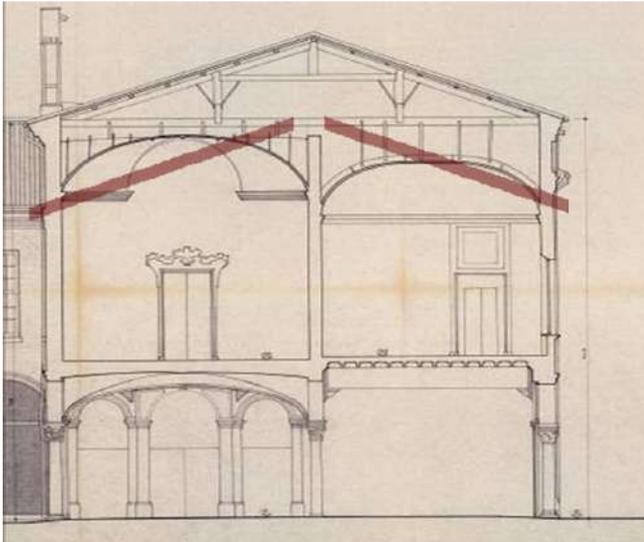
Fig. 14: Section drawing of the Northen block with the hypothesis of the ancient beams' position

Then analyzing the section in Figure 14, the width of the block is particularly notable, while the presence of a median wall, higher than the original height of the external vertical closures, suggests a possible supporting structure of the roof, shown in Figure 15, different from the current one.

It can be assumed, in fact, that there were beams in support of the roof covering: a system that, in all likelihood, caused the collapse of 1491, exerting a force on the walls after the chains had stopped functioning.

With the superelevation, six large Palladian trusses were inserted in line with each of the six columns on the court, keeping their pace and therefore not aggravating the stress conditions on the arches of the ground floor.

The reasoning on the distribution and transmission of the weight to the load-bearing masonry structures is immediate: if with the original system the distribution of the roof load was shared between the external walls and the interior wall, with the introduction of the trusses the load distribution was modified.

The positive aspect of this operation is that the possible pushing configurations due to, in the aforesaid case, ineffective connections between the structural elements, are avoided, in as much as the reticular structure of the truss neutralizes the

horizontal forces transmiting only vertical forces, without having to rely on the constraint condition of the beam-masonry.

With the new configuration, the roof load is transmitted to the external vertical closures leaving the inner wall not subjected to vertical stabilizing forces[21]. Observing the arrangement of the staircase's wooden roof, we can see that, to maintain the elevation and create the pitch, a beam was positioned on the middle wall and the corner of the staircase facing the secondary courtyard. A reticular structure was predisposed to neutralize the horizontal forces.

A break-line crossbeam intercepts the beam at a third distance from the inner wall and a wooden chain connects the terminations of the aforesaid elements on the staircase's edge, preventing its thrusts, Figure 16. This system is known as beam-truss (Malvezzi, 2006).

It should also be noted that the roof structure has numerous consolidation interventions that mainly concern the heads of the beams and chains, put in place during the restoration done by Bottoni.

Moving on to analyze the compositional aspect of the staircase and its peculiar characteristics, it can be defined as a monumental stairway divided into three scissor ramps with an initial central ramp and an atrium.
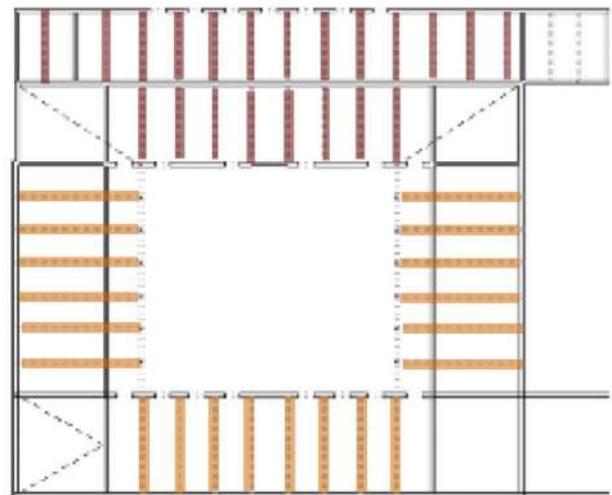

Fig. 15: Hypothesis of the ancient roof structure. In red the beams and in yellow the trusses.

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[21] The considerations were elaborated by referring to the second edition of Protezione Civile (2014). *Manuale di compilazione della scheda di 1° livello di rilevamento del danno,*

*pronto intervento e agibilità per edifici ordinari nell'emergenza post-sismica* (AeDES).
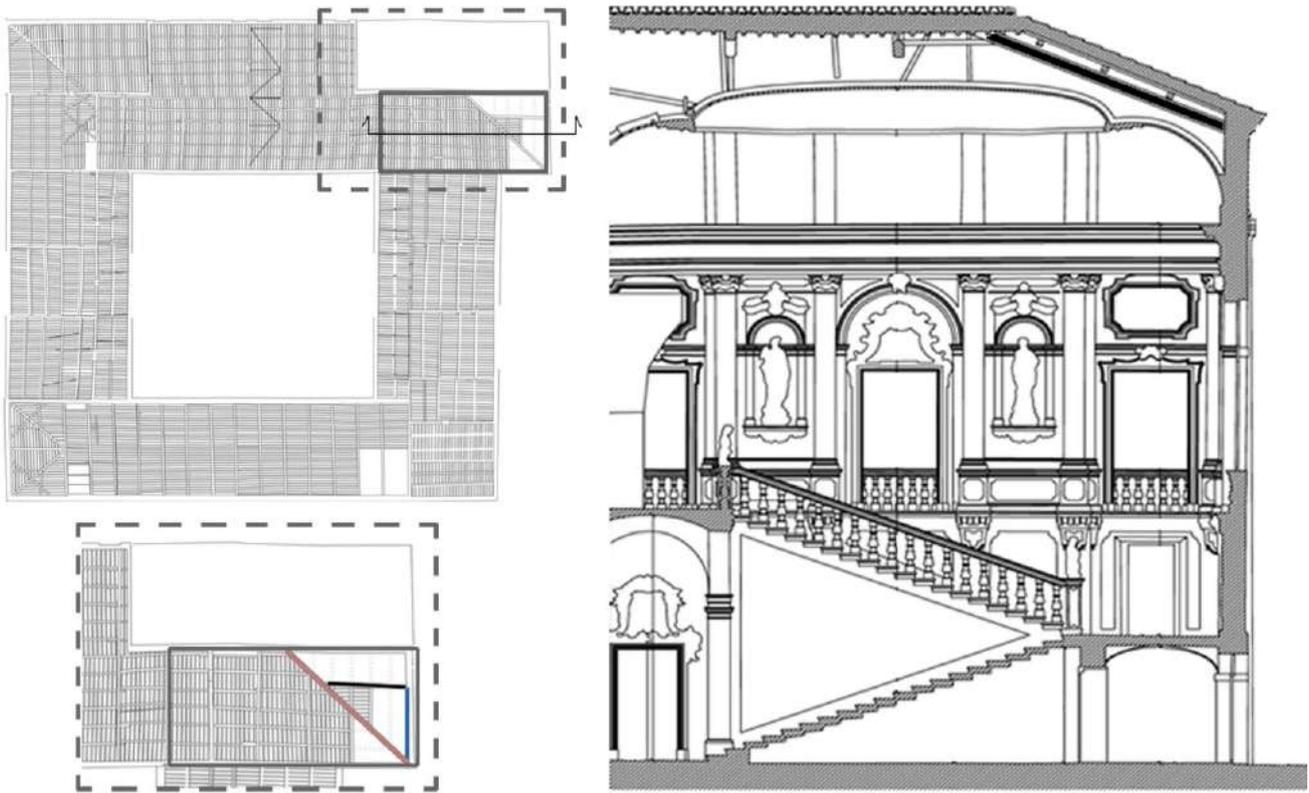
Fig. 16: Left: roof plan of the palace with the detail of the staircase roof. In red the beam, in black the break-line crossbeam and in blue the wood chain. Right: section drawing of the staircase where we can see the break-line crossbeam

Fig. 17: Staicase, view from the middle landing towards the the ground and the first floors of the northern block

Fig. 18: Staicase, view from the second landing towards the back wall with the serliana

In the building it is placed in a position which allows for the bearing walls to be included in the complex and leaves the back wall free, providing the realization of illuminating apertures.

The windows theoretically reflect the design of a serliana, as well as the mirrored correspondence of the stucco decoration made on the wall that leads from the staircase to the main floor. They are characterized by the presence of balustrades facing inwards that refer to environments beyond the walls and therefore to an ideal breakthrough of the limits

typical of Baroque culture. See the Figures 17 and 18[22].

Structurally, the balustrade, presumably realized with plaster elements on a metal skeleton, is released from the wall which, in correspondence with the internal parapet, is reduced to a brick head thick; this peculiarity allows us to affirm that the structure of the wall is comparable to a masonry frame (Malvezzi, 2006).

Analyzing the internal load-bearing partitions, the inner walls supporting the stairway are four brick heads thick and do not reach the vault in stucco, but only reach the height of the steps, each of which is a single block in Verona stone, also supported by the walls three brick heads thick that delimit the stairwell.
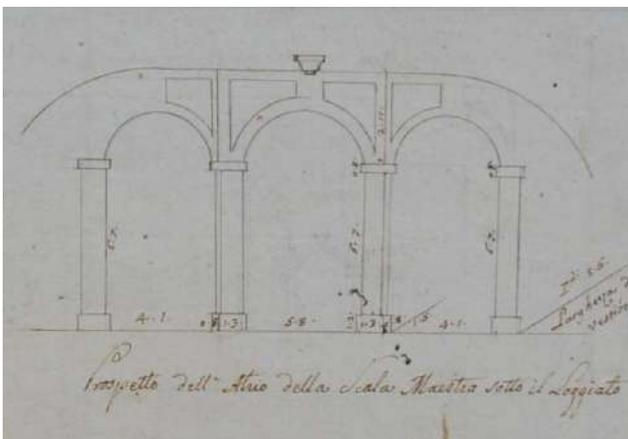
Fig. 19: Gaetano Frizzi's drawing of 1813. Triumphal arch before the atrium

The balustrades and the handrail of the staircase are made of Vicenza stone and recall the elements on the walls at the windows and fake apertures (Di Francesco, Fabbri, & Bevilacqua, 1996).

The intermediate landing is supported by three cross vaults on the side equal to the width of a ramp, while the landing of arrival is supported by three ribbed vaults of the same width that surmount the atrium below. The latter is preceded by a sort of triumphal arch with three arches, probably realized at the same time as the façade completion works. The hypothesis was founded on the basis of Gaetano Frizzi's drawing of 1813, shown in Figure 19[23].

5. Conclusions

Starting from a careful analysis of the archival papers and the document/monument in its stylistic, material and constructive complexity, it is likely, in a first attempt at synthesis, to affirm that the architects of that time, also at the behest of their clients, did not have a conservative approach towards the pre-existence, at least according to the theory of modern restoration. In the case described, however, it is possible to state that the interventions carried out on the pre-existence in the "maniera del tempo" (Miarelli Mariani, 1979, p.89; Sette, 2001, p.10), were often conducted also following an "orientamento retrospettivo" (Miarelli Mariani, 1979, p.93; Sette, 2001, p.22) which can be understood as a reference to the pre-existing local architecture.

It is also important to highlight that the works are always carried out with a particular attention to the technical aspects, denouncing a deep knowledge of the good constructive rules to avoid possible future structural vulnerabilities.

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[22] The Serliana is a larger, arched center window with flanking rectangular windows separated by pilasters or at least trim. The name derived from Sebastiano Serlio, whose architectural treatise describes its origins from ancient Roman triumphal arches.

[23] ASCFe, *Deputazione di Storia Patria (Ex BCA)*, Atti e documenti vari di natura economico-finanziaria, cartella 18, fascicolo 248, «Miscellanea relativa a palazzo Gavassini, poi Pareschi».

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TOWARD A NEW POINT OF VIEW: THE H-BIM PROCEDURE

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Abstract

Aim of the paper is to present a theoretical-methodological reflection on HBIM, pointed to propose a workflow. The BIM procedure deals with new buildings design, construction, and management, and it plays an increasingly important role in the AEC field. Consequently, national and international studies and standards grow: the English PAS 1192-2 of 2013, the American BIM Forum, the European 2014/24/EU, the Italian "Decreto BIM" 1/12/2017 n. 560, the UNI 11337:2017. However, the HBIM procedure is different from the BIM one, because the HBIM roots on a surveying inductive synthesis process, where the real elements and data have to be critically understood, semantized and modelled, and composed to synthesize the whole restitutive HBIM system. Therefore, the following issues become pivotal: how to define and apply the Levels of Development (loD), Levels of Geometry (LoG), and Levels of Information (LoI); how to describe and evaluate Transparency and Reliability; how to expand the database; how to use BIM commercial software that does not fully supports HBIM. For example, the HBIM model usually does not present a uniform LoD(s) – in particular LOI(s) – (but spotty ones) because it rises from a punctual knowledge. Moreover, the historical-critical information often does not relate to the digital representation of physical and functional characteristics of a single object. Finally, yet importantly, there is the problem of the definition of the LoG of HBIM objects – derived from point clouds –, in accordance to the specific modeling aims: in fact, in order to obtain a higher LoG, a different modeling procedure can be chosen, for example for comple geometrical shapes it can be used Nurbs modeling.

1. Introduction

Building information modelling is defined by the US National Institute of Building Sciences (2007) as a "digital representation of physical and functional characteristics of a facility. As such it serves as a shared knowledge resource for information about a facility forming a reliable basis for decisions during its lifecycle from inception onward".

BIM is a process, born for the design of new buildings, which has taken on an increasingly important role in the management of the construction process in the architecture, engineering and construction (AEC) sector. The BIM model consists of parametric three-dimensional objects, semantically related to building components, enriched with a whole series of both qualitative and quantitative informative attributes, concerning architectural, structural, and plant engineering aspects.

The model becomes a virtual abstraction that ecnompasses a whole series of heterogeneous organized information, which allow the control over the entire construction process: from design, to construction, to maintenance and eventually disposal. The organization of this information content allows for greater efficiency, resulting from the management of a large amount of data and information (geometric, plant engineering, structural, economical...) within a single, interactive and Interoperable platform.

The use of BIM allows to achieve higher quality standards compared to the traditional design, which makes it possible to have, during the different stages of the construction process, additional benefits such as: the consistency of the information and homogeneity of data which allows for the reduction in errors (with consequent reduction of the variances during construction) and times, for the optimisation of resources and easier access to information for all involved.

This procedure is also unavoidable in the field of the built heritage because of many reasons: national and international legislation provides for the progressive introduction of BIM in the public procurement sector; BIM encourages careful control of the building process and procurement, allowing for more objective and administratively transparent procedures; BIM, as a whole, is a database specifically dedicated to buildings and can therefore

facilitate the collection and management of information and its use for study and design purposes.
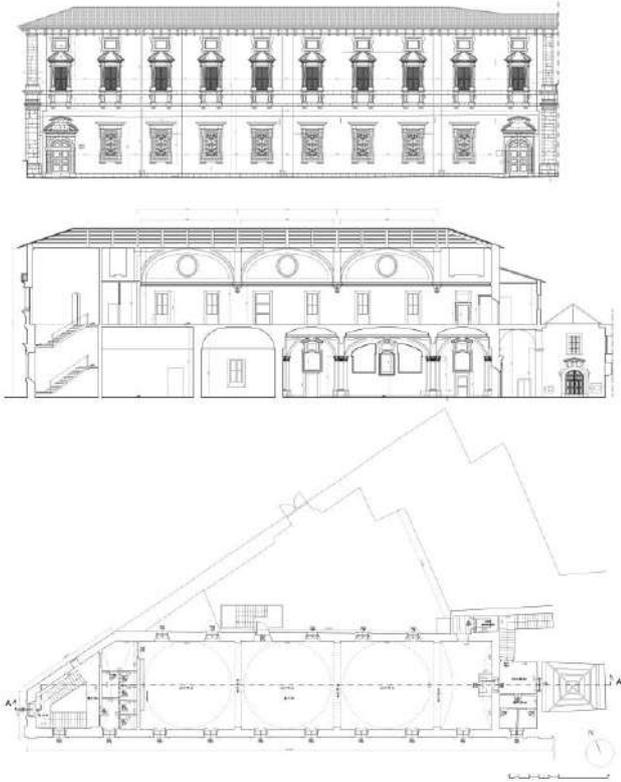

Fig. 1: Interior of convent of "San Basilio" in L'Aquila (AQ). Post sisma 2009 photography of the first floor salon.

Finally, interventions on the built heritage constitute the main economic and research commitment for the immediate future – just think of the so-called "sisma bonus", "ecobonus" Italian Government initiatives and of the legislation in support of restructuring – even in relation to the interventions on historic centers to which we are forced more and more frequently due to catastrophic natural events.

However, the HBIM procedure for historical buildings is based on a different theoretical-methodological approach compared to the well-proven BIM for new buildings, which also requires reflections on concepts of standards, on the level of developments (LoD, LoG, LoI), "reliability", "transparency", database, correlation with historical information (Brusaporci, 2017; Bianchini & Nicastro, 2018).

The aim of the paper is to highlight the different characteristics of the HBIM process as a critical process that is fundamental for an interpretive

knowledge of built heritage and necessary in order to be able to develop projects of conservation, restoration, maintenance, management, enhancement (Monaco, Siconolfi, & Di Luggo, 2019).

The case study is the convent of Saint Basilio in L'Aquila (XVIII-XX Century), damaged by an earthquake in 2009 (Figure 1, 2), (CentofantI, Brusaporci, & Cerasoli, 2015).

2. State of art

2.1 Legislative framework

The reason for this growing interest in the BIM process is due to its undisputed potential and is evidenced by the development of several European and Italian regulations.

The United Kingdom, one of the pioneering states in this regard, was the first to set standards through a consolidated system of levels of design progress (RIBA Plan of Work) and to distinguish, for the first time, the levels of development of objects in Geometrics (Lod) and Infomative (LoI) (NBS Bim Toolkit).

It established - through the CIC BIM, BS 1192: 2007, BS 1192-4, PAS 1192-2 3, 5 and 6 protocols, and the upcoming PAS 1192-7 - standard working methods and the ex-post validation and verification procedures for the LoDs achievement required by the client in the EIR – Employer's Information Requirements – for each BIM project.

In 2014 the 2014/24/EU European Union Public Procurement Directive was published. It represents the first European Directive for the regulatory introduction of BIM for public procurement which calls on EU Member States, starting in January 2016, to "encourage, specify or impose", through dedicated legislative measures, the use of BIM as a standard of reference for all publicly funded projects and works.

Subsequently in Italy with the adoption of the "Decreto BIM" DM 1 December 2017 No. 560, the Ministry has stated the transition from a graphic sheets system to an information models system, typical of BIM. It defines also times and modalities for the introduction of electronic modeling methods and

tools for construction and infrastructures. In addition, in 2017 - as an update of the UNI 11337:2009 standard, in which the concepts of BIM and digitalization of the construction sector have been setted - the UNI 11337:2017 standard was

introduced and definitely approved. The latter is the first Italian technical standard on BIM; structured in ten parts some of which about to be published. It was designed to guide the digital transition, it sets the first Italian standards required for BIM projects and introduces, for the first time, BIM for restoration.

Finally, among the new BIM legislation published in December 2018, there is the international standard ISO 19650 - Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) Information management using building information modelling – of which the UNI stands as complemetary, which follows the CEN's transposition of the EN ISO 19650-1 and EN 19650-2 regulations.

The standard will consist of 5 parts of which the first two have already been published, which describe the concepts and principles for information management in a maturity stage called "Building Information Modelling (BIM) according to the ISO 19650 series". The standard applies to the entire life cycle of an asset, including strategic planning, initial design, engineering, development, preparation of documentation for assignments and construction, daily operational functioning, maintenance, renovation, repair and end of life cycle.

Fig. 2: Interior of convent of "San Basilio" in L'Aquila (AQ). Post sisma 2009 photography of the first floor salon.

One of the most significant introductions will be the proposal of the LOINs, Level of Information Need, which will replace the previous LODs - defined in Italy by UNI 11337-4:2017 - which will have to be respected by each element of the model and will be closely related to the type of use and the needs (De Gregorio, 2018; Pavan, & Mirarchi, 2019).

2.2 HBIM Procedure

The HBIM procedure is based on a different theoretical-methodological approach compared to the BIM one.

The traditional BIM procedure allows the virtual simulation - not only of geometries and spaces but also of chemical-physical properties, materials behaviors, duration... - of an entity in progress. The process starts from a project concept and develops according to successive definition steps (the Level of Development). The model is a predictive model in which, during the design process (from the project, to the construction, to maintenance and finally to the disposal) the building components that compose the digital model are enriched with information and achieve increasingly high levels of development. In this case, semantization is ex-ante (Figure 3).

The HBIM procedure, on the other hand, represents a path of critical knowledge that starts from the survey that is then subjected to a critical analysis and subsequent semantization, and finally leads to restitution through HBIM modeling. (Apollonio, Gaiani, & Zheng, 2012; Dore, & Murphy, 2015)

Therefore, in the built heritage modelling and visualization the themes of transparency and reliability are fundamental. The knowledge of the building, in fact, very often is an incomplete knowledge arising from direct and indirect non-homogeneous sources, for which, it is appropriate to declare, for each element, in addition to the type of source used for the information, the level of interpretation of that information (Brusaporci, Maiezza, & Tata, 2019a).

UNI 11337: 2017 is the first legislation to state a specific LoD for restoration. In fact, it provides for the LoD G, intended as virtualization of the update of the so-called As-Built (current status virtualization) to which corresponds, instead, the LoD F. These LoDs provide for a level of development to the highest degree of definition since this formulation derived from a simplistic transfer of the BIM procedure to the historical buildings.

In reality, however, this validity is fully theoretical since historical buildings derive from modifications and stratifications that occurred over time and that testify to the constructive cultures that have occurred over the centuries. From an information point of view, therefore, the HBIM model is based on a punctual knowledge, more or less in-depth and in

most cases not exhaustive (Brusaporci, Maiezza, & Tata, 2018; Scandurra et al., 2017).

There is a difficulty in establishing an appropriate Level of Development LoD to be achieved within the model, since with historical buildings not all information is available and, while some (physical) can be investigated through diagnostics and surveys, others (e.g. historical ones) may simply be absent because they are not documented or got lost over the years. Therefore, usually LoDs are not uniform, they are spotty with different levels according to the available information for the building element.

Moreover, BIM software and platforms does not fully support the HBIM procedure. In particular, the study of a historical building for a proper understanding includes a large amount of heterogeneous data which, to be included in an HBIM model, requires an expansion of the database (Brusaporci, Maiezza, & Tata, 2019b).

Undoubtedly, to include the field of historical studies in the database can raise questions of not simple solution, that refer to the cultural dimensions of the tangible and the intangible.

A new historical information level "LoH-level of history" can be then introduced, in addition to the level of geometry LoG and the level of information LoI, in which all the information non directly related to the physicality of the individual digital element

transformations that have led to the current reality (historical sections), both in terms of spatial and material configuration (Figure 3, 4).

Relating to the considerations and the differences between the HBIM and the BIM procedure, a change of perspective is considered necessary, in the knowledge that the BIM procedure is not fully applicable to historical buildings and that, in order to be adapted and supported, a different methodological approach is required.

Only in this way it will be possible to define useful guidelines for the realization of an HBIM model useful for documentation, knowledge but also maintenance, management, conservation, restoration and enhancement of the architectural heritage (Di Luggo, & Scandurra, 2016; Brusaporci et al., 2019; Monaco, Siconolfi, & Di Luggo, 2019;).

3. Level of Development

The UNI 11337: 2017 standard defines the level of development (LoD) as a measure of the "nature, quantity, quality and stability of the data and information" associated with each digital element that composes the model.

The transition from one LoD to another involves an increase in both the quantity of attributes held by a BIM object and their quality, understood in the

Fig. 3: Render of the façade of convent of "San Basilio".

can be inserted, for whose definition could help the well-known reflection of Spagnesi (1984) on the field of the "history of architecture", understood as knowledge of "physical space built by man, that is to say of current reality" (p.7), thus the actions and

sense of granularity, reliability and data consolidation (Pavan, Mirarchi, & Giani, 2017).
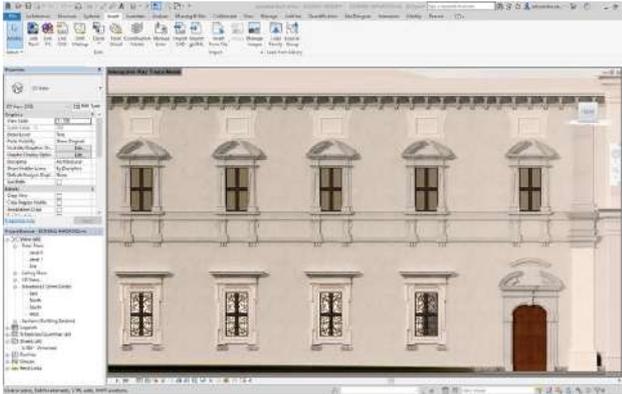
Fig. 4: Screenshot of the BIM model.

The levels of development of digital objects, although very similar to LoD USA, do not use the numerical scale in hundreds but follow an alphabetical one, which goes from the letter A (symbolic object) to the letter G (updated object). Furthermore, in the UNI it is allowed to use eventual intermediate classes of LOD, defined in the Information Specifications and identified with the lower reference letter and a whole number between 1 and 9.

According to the English system (PAS 1192-2 of 2013) and American one (BIMForum), the LoDs are defined on the basis of the levels of development of both the graphic attributes (objects level of development - geometric attributes (LoG)) and the non-graphical ones (level of object development – information attributes (LoI)).

Both LoG and LoI levels refer to aspects of the digital object representing the architectural element that, to a certain extent, can be considered quantifiable and evaluable: for example, the dimensions or the material or, again, the cost of the component. They are information regarding the physical characteristics of the architectural element, or necessary for the management of the project and the construction site.

These aspects also clearly affect the architectural components of historic buildings, but they do not exhaust the field of interest which, in the case of heritage, also includes all the historical information relating to the modifications and transformations undergone by the building and which led it to acquire the current configuration.

The UNI considers the LoD as an attribute of the single element, allowing, therefore, also LoD diversified within the overall model. However, a substantial difference should be highlighted between the BIM process and the HBIM one: if in the first, the difference between the LoDs is linked to the design phase, at the end of which there will be uniformity, the same cannot be said for the HBIM processes for the patrimony, for which, even at the conclusion of the cognitive process, it is very likely to have different LoDs due to the lack of homogeneity of the available information.

The reliability of the digital representation of an architectural asset is not unique to the entire model, which may include architectural components characterized by a profoundly inhomogeneous level of knowledge, but rather refers to the individual semantic elements.

The model's reliability must involve both geometric and informative aspects. While, in the traditional modelling, the geometric reliability is considered as an ex-post verification of the model's accuracy in terms of deviation between point cloud and model; in the HBIM process beyond the geometric reliability, there is also the reliability delle information which, along with their transparency, is declarable a priori by the surveyor.

The informative reliability, therefore, can be defined by the modeler himself through the evaluation of the sources that can be direct or indirect.

The LoG of an architectural component, declared a priori, will influence the modeling procedure, which in the case of more complex geometric forms, may require the help of NURBS (Brumana et al., 2018). In the same way, a more advanced LoI may require a more in-depth analysis of some aspects of the architectural element such as, for example, the definition of the exact stratigraphy of a wall through diagnostics (Figure 5).

4. *Level of Geometry*

The traditional process of architectural survey is based on a succession of phases - the survey project, the taking measurements, the restitution - based on the preliminary study of the asset, in order to define the significant geometric-architectural elements, through a conceptual discretization of the physical continuum (Docci, Maestri, 2009).

Fig. 5: Photographies of the damaged vault extrados details. (Post-earthquake 2009)

Digital survey technologies have led to a partial - but above all conceptual - reversal of the process, where the scan anticipates the critical interpretative phase, delegated in post-processing (Bianchini, 2014; Gaiani, 2012). It is in this last phase, in fact, that the point cloud is critically analyzed, so as to identify the architectural components of the building and their geometric matrix.

The Level of Geometry, understood as "a constituent part of the LODs, together with the LOGs, referring to geometric attributes" (UNI 11337-4, p.3), is closely related to the survey process. In particular, the use of digital technologies means that the modeling procedures are based on the use of the generatrix and directrix obtained by sectioning the point cloud. These profiles, through operations of extrusion, revolution and subtraction, go to constitute the architectural forms of the various elements which, through a semantic modeling, are realized directly within families recognized in their architectural value.

Furthermore, the use of parameters and constraint relationships allows the parameterization

of the generatrix and directrix, favoring the reuse of these architectural components for similar cases.

In this context, the computational design is particularly interesting for the parametric management of complex geometric forms through the use of generative algorithms, reducing both the difficulties and the timing of the modeling.

In this sense, the theme of geometric reliability of the model is of interest, understood as the relationship between the real object and its three-dimensional representation, i.e. as the deviation between the point cloud and the digital surface, resulting from the interpretative process operated on the basis of the survey (Figure 6).

The deviation can be evaluated on the generating elements of the architectural form, or on the entire surface, including also the interpolated part.
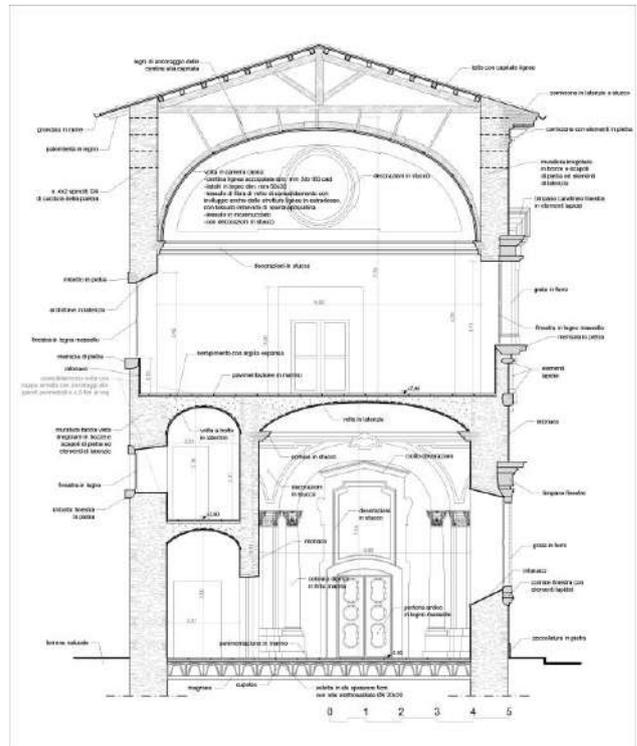

Fig. 6: Section of the construction equipment.

5. *Level of Information and Level of History*

Alongside the LoG, the Level of Development of the objects is also composed of the level of development related to information attributes (LoI), i.e. all the non-geometric attributes that characterize the representation of an architectural element.

This information includes all those aspects relating to the physicality of the component (material, mechanical properties, etc.) or that are

necessary for the design and management of the construction site (costs, structural value, etc.).

These are parameters already contemplated within the BIM platforms that, developed specifically for new buildings, already include, in the database connected to the three-dimensional representation, the fields for entering the corresponding information (Figure 7).

The reliability of these contents is related to the evaluation of the sources used. The concept of Transparency is fundamental, concerning the declaration of sources and the possibility of reconstructing the critical process, operated on their basis, which led to the realization of the interpretative model (London Charther, 2009; Principles of Sevilla, 2012).
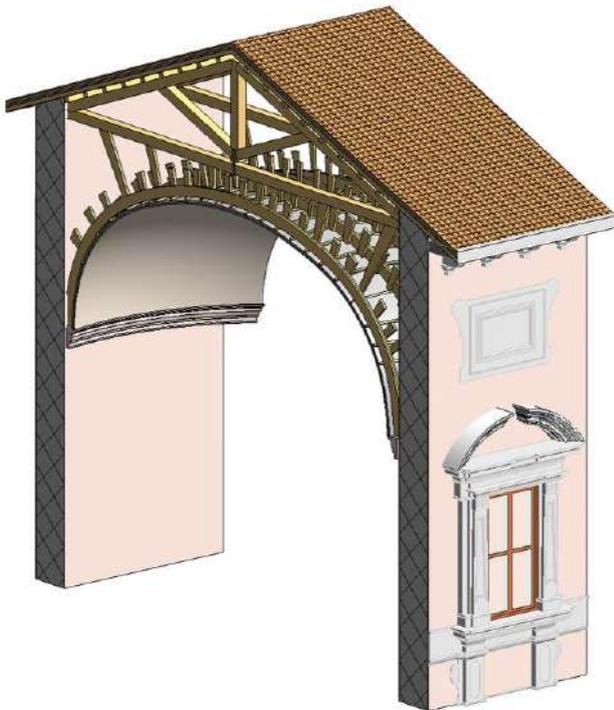
Fig. 7: Screenshot of the BIM model

The theme of transparency concerns all the contents of the model, from the geometric ones to those included within the LoI, up to those of historical nature, not contemplated in the current BIM processes (Figure 8).

Since the representation of the architectural heritage requires the management of information that are not considered in the well-established BIM procedures for the new, it is useful to introduce a new Information level, concerning historical knowledge: the Level of History (LoH).

With reference to the definitions offered by the legislation for the LoD, LoG and LoI, the LoH can be understood as *a constituent part of the LoD, together with the LoG and LoI, referred to historical information attributes*. However, the LoH differs from the LoI because it includes all those historical information relating to the tangible aspects of the architectural asset that in itself are not computable, namely all those aspects that have contributed to the formation of current configuration of the element, such as historical phases.

As this field appears to be in principle immeasurable and difficult to circumscribe, LoH is understood to be constituted primarily by archival and bibliographic references, but also by information relating to the physical transformations of the asset (historical sections). The information related to the LoH are additional to those currently manageable in a BIM environment, therefore they must be merged into an external database, an expansion of the one consisting of the same BIM model, where it is possible to archive and manage historical photos, archive documents, etc. In order to delimit the field of such information, the already cited Spagnesi dissertation on the "autonomy of the history of architecture" is assumed as a methodological reference with respect to the more general "history": "[...] the History of architecture can only be the knowledge of the physical space built by man, that is to say of the actual reality. [...] we can only analyze the occurrence of the essential reasons that produced it in a temporal succession "(Spagnesi, 1984, 7).

Also in the case of LoH it is possible to use the concept of "level", because this information can be more or less exhaustive. The historic information of the current state of the building/element can be grouped within fields such as: epochs, authors, construction site and techniques. For each field there may be more than one piece of information, it depends on the number of events that led the building to its current state, on how many of these events have been documented and if these documents are available and existing today. Three levels of LoH historical knowledge can be assumed: the high level corresponding to an exhaustive historical knowledge, the intermediate level to a partial knowledge and the low level to an absence of knowledge. These levels are related to the information of the model element; the model's reliability, instead, is related to its information

content (the data, intended as documents inserted in the external database). An evaluation of the sources should be done and there can be three levels of reliability: high reliability level in the case of a modelling based on the use of direct sources; medium reliability level for the use of primary but not exhaustive sources; low reliability level for the exclusive use of indirect sources (Maiezza, 2019).
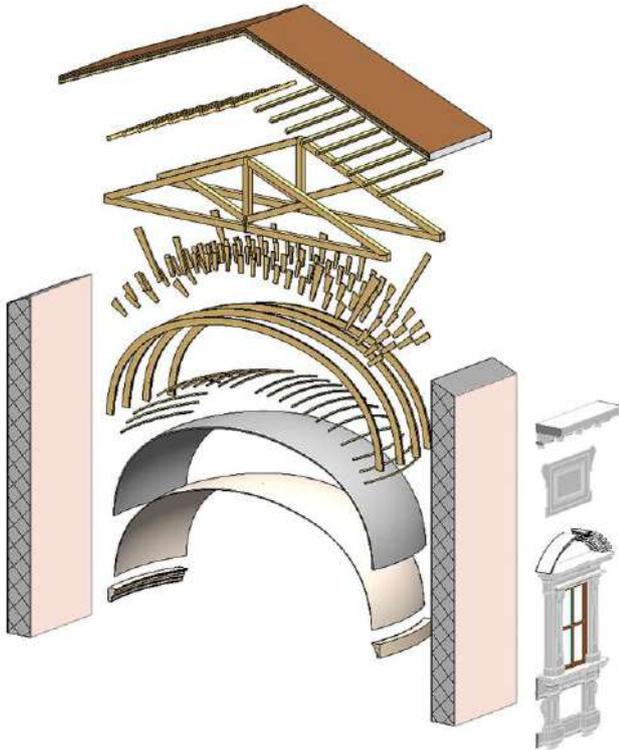

Fig. 8: Screenshot of the BIM model.

6. Conclusions: from knowledge to design

The degree of informational evolution of a digital object is defined through LoDs. Contrary to what happens in the traditional approach, in which the level of detail of object representation changes as the representation scale changes, the level of developments depends on the purposes of the model and are not related to the entire model but to the objects that make up the model.

For a more efficient use of the HBIM methodology, intended as a path to critical knowledge of the building, an expansion of the database is necessary to insert all information not strictly related to specific model elements, in particular the historical ones. For this information, it may be useful to introduce a new level of

development LoH which, together with the LoGs and the LoIs, would contribute to a more accurate definition of the LoDs for the historical building.

The HBIM procedure, different from the BIM procedure, focuses on a critical surveying inductive synthesis process in which the knowledge of the asset is a punctual and spotty knowledge that doesn't stop at the mere survey and documentation of the current state, but which continues and is deepened on site during the restoration works and which can therefore be useful for monitoring and scheduled maintenance.

In this regard, the introduction, by the new ISO 19650, of LOINs could help overcome some of the limits deriving from the extension of the BIM procedure to historic buildings. In fact, especially for historical buildings, instead of trying to reach and fulfil specific classified and established LoDs for new constructions, it is possible to establish a priori, based on the model's purposes, which information is necessary - and therefore, in case of absence, investigable - and which ones are available - for example the historical ones deriving from archival and bibliographic research - and establish, a priori, the level of reliability of such information.

The concepts of transparency and reliability of the digital representation are therefore fundamental, which, like the LoINs, must be referred to the individual semantic elements. Therefore, the LoIN increasing goes in parallel with the more detailed development of the object (both from a geometrical and informative point of view) and the higher accuracy and reliability of the data.

Finally, new LoINs specified a priori depending on the needs and aims of the model, along with the issues of both model and administrative transparency become key issues when it comes to public procurement. In fact, the BIM integrated with the management of public tenders allows an optimization and a speeding up of the procedure. The realization of a single parametric model guarantees a coherence and homogeneity of the information reducing the problems deriving from their inconstistency. (Di Giuda G. M., Villa V., Loreti L., 2015). The use of the BIM methodology for the management of public tenders can benefit the entire procurement process: from the drafting of the call, to the verification and evaluation of the offers, in terms of achievable quality, time and costs reduction, competition and transparency in the assignment

(Ciribini, Bolpagni, & Oliveri, 2015; Ermolli, & De Toro,2017).

7. Aknowledgements

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Architecture that brings urban transformation, the case of two buildings in the Montenegrin city of Nikšić

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Abstract

The aim of this paper is to show the cultural phenomena created by the construction of two buildings in a socialist, industrial city that have influenced its urban transformation.

In the case of the second largest Montenegrin city, Nikšić, two buildings marked the cultural and economic development, the Union house built in 1962 by architect Đorđije Minjević (1924-2013) and the Home of revolution unfinished building which construction began in 1977, designed by architect Marko Mušič (1946).

The Union house was among the first in Montenegro built in an international style and among the first in ex-Yugoslavia with vertical brise-solei. The building contains several functions: a large cinema hall with 800 seats as well the library, classrooms and offices for the Worker's University. For industrial city that was rapidly developing, the existence of the Union house as a place where film projections, concerts, theatre performances, and education took place was of great importance. In the context of architecture, this building brought new trends and contents that soon became focus of everyday urban life.

In the former Yugoslavia during the seventies, it was common to build monuments and memorial buildings dedicated to victims of the liberation struggles in the Second World War. The biggest memorial buildings with more the 22,000 square meters of different functions and contents, called the Home of Revolution is located in the city of Nikšić. The building should present the economic strength of the city at that time but also the unity of all Yugoslav nations, since a large number of donation from all over the country were used for the construction. When Yugoslavia broke up in 1991, there was a suspension of construction of all federal projects including Home of Revolution. Today the building is completely abandoned.

1. Introduction

The modern development of the city of Nikšić begins after the liberation from the Turks in 1877. The key role in the modernization of the town was certainly the First Regulatory Plan of the City from 1883, done by the architect Josip Šilović Slade (1828-1911). The urban matrix, which represents a combination of an ideal Renaissance city with some Baroque postulates, gave precise directions for the development and construction of the city. However, the process of the city's modernization was slow enough for several reasons. The first reason is certainly of an economic context. Montenegro in the constant war for liberation was rather impoverished. The hunger, sickness and poverty of the population were more important to solve in relation to the construction of new facilities and infrastructure.

Before the liberation, Nikšić had only 2,500 inhabitants. It is clear that with a small number of citizens and unfavourable economic conditions, it took time for the city to start developing both in terms of physical construction and infrastructure, as well as in the economy. (Pejović, 1969)

The general conclusion is that in the period from 1877 until the end of the Second World War, Nikšić is not a city in the true sense of the word, but it only has the function of the city as a commercial and economic center of this part of Montenegro. Nikšić is a small town whose existence is based on insufficiently developed agriculture, trade and crafts.

The city architecture of this period is modest without major aesthetic and stylistic values. Only a few public buildings such as the railway station, the palace of King Nikola, the main city church, the theatre stand out. In the architectural sense, these buildings give the spatial identity of the city. However, the main spatial feature of the city remains its unique urban matrix. This situation will be until the end of the Second World War when some of the most important Yugoslav architects are designing buildings in the city.

After the end of the Second World War, there are major and dramatic changes in the life of the city of

Nikšić. Montenegro becomes one of the republics of Yugoslavia; there is a change in the political and social order that will play a decisive role in the development of both the republics and their cities. In this context Nikšić is a striking example of a city that is rapidly developing in economic, cultural and social terms. Physical manifestations of rapid development are particularly striking in the field of architecture and urbanism.
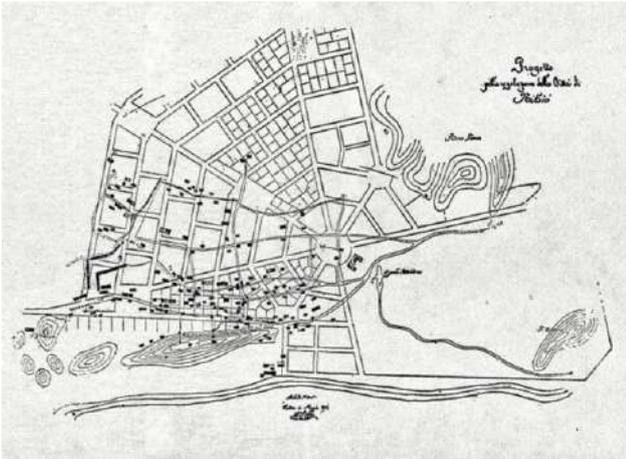

Fig. 1: Regulatory Plan of Nikšić from 1883, architect Dr Josip Šilović Slade (1828-1911)

One of the basic goals of socialist governance was the equal and equitable development of all republics. Since Montenegro was among the most undeveloped, special attention was paid to its economic development. As the carrier of industrial development, the city of Nikšić was imposed. There are many reasons why the base of economic and industrial development of Montenegro was formed in Nikšić, primarily its geographical position and natural resources.

Nikšić's post-war development required the rapid implementation of urban planning. There was no institution for dealing with the implementation of

urban plans and controlled construction of the city after World War II. The organisation of the urban planning service was implemented gradually.

The Council for Urbanism, Communal and Housing Affairs was formed first, then over time it become the Council of Urbanism in 1955. The Municipal Institute for Urban Planning and Design was established in December 1963, and pursued a unique and thoughtful policy of urban and architectural design of the city, ranging from studies and analyses, to detailed projects. Hence, design organisations or individuals from outside of Montenegro carried out all the post-war urban plans of Nikšić.

The project studio of the Stojanović Brothers from Belgrade drew up the first post-war urban plan. The Municipal Commission did not accept this plan due to reasonable criticisms.[1]

The Urban Planning Institute of the Faculty of Architecture, Construction and Geodesy in Zagreb carried out the second post-war urban plan for Nikšić in 1954-58. The author of this plan was the professor and architect, Josip Seissel (1904-1987), assisted by the architects Dragan Boltar (1913-1988), Boris Magaš (1930-2013) and Bruno Milić.[2]

It is important to note that this urban plan, for the first time, clearly defined and determined the wider and narrower construction zones of the city. (Bojković & Bajić, 2015)

This plan had some similarities with Slade's plan regarding the central green belt, in which the construction of social, public and large-scale facilities was foreseen. Seissel's plan also foresaw that the central part of the city should remain as it was built, according to Slade's plan.

The quality of this urban plan is reflected in the fact that it fully accepted the solutions and basic principles of Slade's urban plan as the basis from which the modern city has evolved. Consequently, there has been a continuity in the development of

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[1] This plan demonstrated the desire for the realization and regulation of large-scale interventions. The economic conditions in the city were not suitable for such great undertakings, so we can conclude that this plan was not in line with the economic possibilities. Hence, it is not surprising that its adoption was dropped.

[2] Dr Zdravko Ivanovic, who was the first person to deal with research into the urban plans that shaped Nikšić as a city, gives a description of this plan. It extends within the boundaries from the Duklo Bridge over the River Zeta, then along the River Bistrica to the eastern fence of the Boris Kidrič Ironworks, crossing the Nikšić–Šavnik road. Then it goes along a straight line to the bank of the River Gračanica.

From there it extends along the right-hand bank of the river, including the "Budo Tomović" settlement to the bridge over the River Gračanica, then from this bridge to the road to Ozrinići in front of Trebjesa Hill, then on to the source of the River Mrkošnica, and then along this river to the "Small Bridge". From the Small Bridge, it extends via the industrial railway branchline from the ironworks to the main railway, and then from the railway line to the Petrović houses. Then it extends via the edge of Studenačke glavice to the place where the railway line and the Nikšić-Trebinje road cross and from there along the railway line next to the River Zeta to Duklo Bridge. (Ivanović, 1977)

the city. In addition, the quality of this plan is reflected in the appropriate positioning of buildings of social significance in the continuous zone along the historical core.
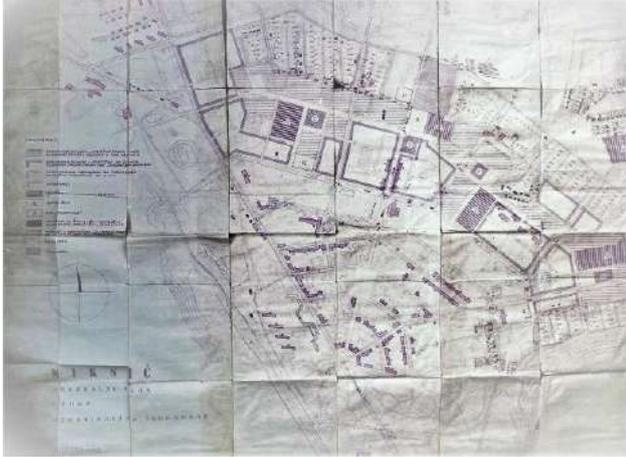

Fig. 2: The original General urban plan of the city from 1958, Josip Seissel (1904-1987)

Seissel's plan seemed to offer a new burst of energy and concept for the life of the city, but without erasing the past. On the contrary, the urban core of the first urban plan was completely protected and totally fitted in with the new urban block.

Post-war urban plans have provided a good base on which important public buildings will be built and which will give a new image of the city and make its social and cultural transformation. In this context, two buildings stand out, the Union by architect Đorđije Minjević (1924-2013) from 1962 and the unfinished Home of the Revolution by architect Marko Mušič (1946) whose construction began in 1977.

2. Historical and political context

If one wants to understand better the circumstances in which the architect Minjević worked, it is necessary to look at the historical and political circumstances that preceded the time in which he was creating his buildings.

After the end of the Second World War, in November 1945, six republics: Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Macedonia and Montenegro formed the Socialist Federal Republic of Yugoslavia. The Communist Party of Yugoslavia, led by leader Marshal Tito, managed the country. SFR Yugoslavia, among other things, was created also

because Partisans were the only pan-Yugoslav movement that fought against occupation and for the equality among all South Slav nations. At the same time, the Partisans established communist rulers in liberated territories.

Expectation was that SFR Yugoslavia will be another Eastern European country under the strong influence of the Soviet Union, this did not happen. In June 1948, the Comintern (the Association of European Communist Parties, the pre-convened USSR) excluded Yugoslavia from this organization due to the confrontation of Marshal Tito with Stalin's plans that Yugoslavia be one of his subordinate states, although the Yugoslav peak wanted to be allies. (Ramet, 2006)

After the breakup with Stalin, the Communist Party of Yugoslavia began a series of reforms. The most significant and most revolutionary reform was the decentralization of political, economic power through the method of self-management, according to which workers are responsible for the work of the company, they are owners and they decide on the work while the state has the role of patron. This political and economic method has resulted in great economic growth, and in the period from 1957 to 1961, Yugoslavia was immediately behind Japan as the fastest growing economy in the world. (Liotta, 2001)

From these brief reviews of the historical and political circumstances, it is clear that after the Second World War, although in difficult circumstances, Yugoslavia was moving through recovery, development and construction. Soon there will be a transformation of most agricultural economies to developed industrialization, which will also affect the transformation of society, from the once underdeveloped rural to developed and urbanized population.

The great transformations that Yugoslav societies had taken had an impact on architecture as a profession, too.

It is important to note that, after the end of the Second World War, nationalizations of all economic branches and activities, including private architectural practices, came about. Architectural offices work under state control. Federal and regional ministries and institutes for buildings and universities are formed. Already in 1947, 60% of Yugoslav architects and engineers worked in such institutions. (Kulić, 2009)

Self-Management also referred to architectural practice. This system allowed architects to freely organize and make decisions, of course in accordance with the priorities and requirements of the state at that time. It is important to note that Self-Management favored collective coordination, so professional criteria determined architectural production. As a result, there was high quality architecture, despite the fact that there were negative phenomena such as wild construction in suburban areas.

At the beginning of the 1950s, architecture in Yugoslavia recorded very high quality results, better than in other Eastern European countries. (Kulterman, 1971)

Thanks to the numerous bilateral agreements between Yugoslavia and the Western countries and the good political position and reputation of Yugoslavia, it was possible for architects to travel and gain experience and knowledge across Europe and the world. Many talented architects were trained in the studies of Lous Kahn, Alvar Aalto, Paul Rudolph, Jaap Bakema, I. M. Pei. (Kulić & Mrduljaš, 2012)

Architect Minjević in his book "Nikšić u sjećanju" underlines that three events of global importance had a great influence on his work, the exhibition Interbau in Berlin in 1957, and the World Expo exhibition held in Brussels in 1958[3]. Minjević in the book states that it was not possible to apply all the construction methods and materials he saw at the exhibitions, because the economic situation did not allow it, so he adjusted his ideas to the given conditions. (Minjević, 2008)

The architecture of Yugoslavia has accepted the principles of functionalism and rationalist architecture that are in line with the tasks and needs of socialism in relation to society and the economic potential. (Nestorović, 1964)

Minjevic's architecture is a response to the demands of a small city that were in line with political, social and economic developments in Yugoslavia at that time. In addition, Minjevic's architecture is a personal interpretation and response to architectural events and trends in Yugoslavia of that time.

The basic characteristics of the objects designed by the architect Minjević were crated are due to several factors. First, the time in which these objects were built was in itself a great desire to rebuild the destroyed land and cities and to design it in the spirit of contemporary architectural trends. Also, this time, besides the great desire for progress, had a great disadvantage both in professional personnel and in materials. The combination of these two factors has led architects to evoke great enthusiasm and in that way represent the profession of architecture in the most beautiful and best form. A wide range of functionally completely different objects, Minjević designed by active improvement in the field of technology, functional processes and activities that those objects demanded. The result was a clear and pure functional organization. Minjević replaced the lack of modern materials, especially for finishing, with the use of local materials, which in the era of modernism nevertheless achieved an associative connection with traditional construction.

3. The Union house

After the Second World War, the city of Nikšić became the industrial center of Montenegro. There are major migrations of the population from the surrounding smaller towns and villages.

The rapid increase in the population of Nikšić demanded cultural content and activities, so the Union house is the first building in a city made for the cultural and social needs of a large number of workers but also of all citizens and the first public building built after the Second World War in the city.
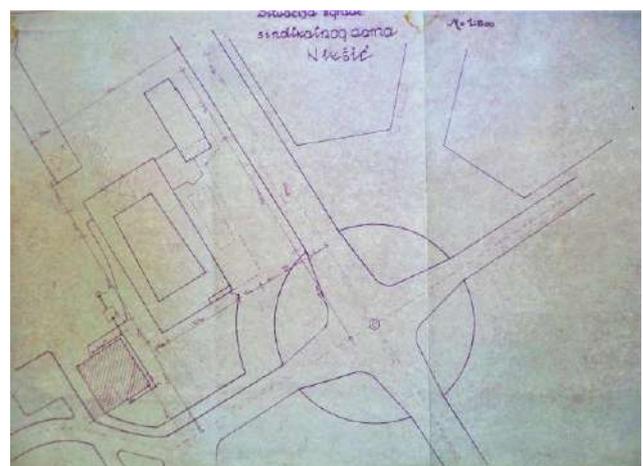

Fig. 3: The location of the Union house

[3] Architect Minjević also mentions a visit to the exhibition of building materials in Paris, but does not specify which year thisexhibition was.

The position of the building is determined according to the Seissel's urban plan, which along the western edge of the Sava Kovačević Square foresees a new urban block. (Bojković, 2018).

Fig. 4: The construction of the Union house and housing buildings in new urban block in 1962.

In this way, the square became the place of meeting the inherited urban matrix and modern urban block. The new urban block is located on the position of the eighth street, which, according to the original Slade's plan from 1883, should connect the square with the former old city and fortress. It seems that Seissel wanted to show a new city spirit with the new urban block and to place significant public buildings out of the old urban matrix. Union House is becoming the most important building in this new block.

Fig. 5: The south facade of the Union house

This building is significant for urban transformation of the city for several reasons. First,

Union house became a new city benchmark and a symbol of the new era. Second, the building has features that appear for the first time in the city and are available to everyone, such as cinemas, libraries, various types of clubs, lectures and education primarily for workers. In the end, this is the first international style building that will affect the construction of other public buildings in this manner.

It is interesting to note that Union house was built in 1962 and is the first building in Montenegro, and among the first in Yugoslavia with vertical brise-soleil built on the southern facade.

The Union house is designed to contain several functions, which are integrated into one whole and can be completely separated. The builidng contains a large cinema hall on the ground floor and the first floor with 800 seats, including halls, dressing rooms, stage with orchestra part with the possibility of holding smaller performances. The building contains a library with reading room, several classrooms for Worker's University, two smaller rooms with a buffet and a terrace. The dynamic form of the building gives the final emphasis to the block at the beginning of Vuk Mićunović Bulevar and gives the character to the square.

In the analysis of the ground floor of the Union house, we can see the distribution of content followed by the form of the building. The main entrance is unusually located in the southeast corner and it leads to the main hall featuring a monumental stairs for the first floor, a dressing room, the entrance to the audience and entrances for two side foyers. One of the foyer leads to the toilets and the other leads to the buffet that can be reached by the external entrance.

The north side of the building contains a separate entrance for the Workers University that contains classrooms, a library and a lecture room.
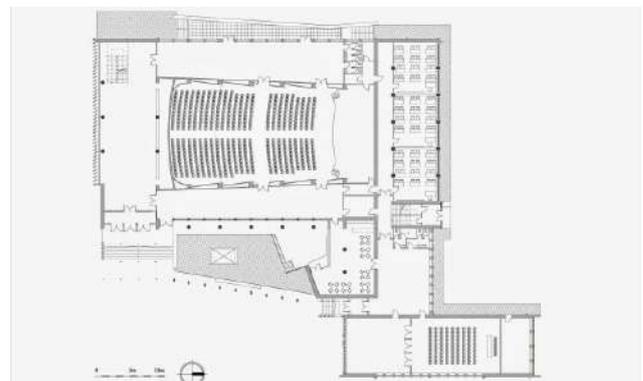
Fig. 6: The groundfloor, reconstruction by architect Branko Todorović

On the first floor there are eleven offices, two smaller studios that can serve for lectures, the library with reading room and accompanying, necessary premises.
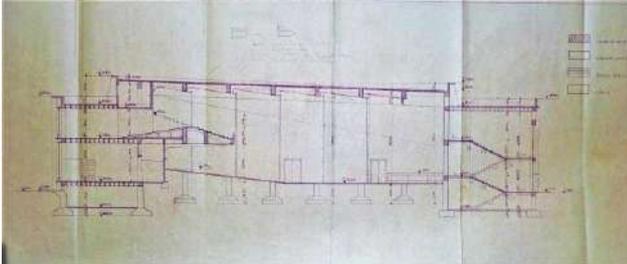

Fig. 7: The longitudinal section

In the basement, there is a Youth club with the external entrance, which is intended for smaller events, dances, sports.

It is interesting that all of these contents are linked by corridors, allowing users to easily access content that interests them. In addition, each of the mentioned contents can be separated from the others.

The construction of the building is a reinforced concrete skeleton combined in certain places with a massive system while the audinece is foreseen in the frame construction.

The achievement of acoustics in the hall, architect Minjević solved in a specific way. In order to avoid echo, special acoustic boards installed, which were not in production, nor in the market. Studying this problem in many halls in the country Minjević, decided to make acoustic boards, gypsum panels sprinkled with wooden nuts, half of which were polished and half rough. The panels were built in alternating order and the acoustics were achieved in a quite satisfactory degree.

There are many reasons why the Union house can be considered as the most important Minjević work. This building combines different functions and purposes, so in this context it is a polyvalent building. This characteristic required that this polyvalence be expressed through the form of the object. Minjević expresses the complexity of the purpose through the design of an object in the form of volumetry and usage of the elements that form composition. Although it looks like a compact, orthogonal object, the Union house is actually a playful formation. Even

the smaller atrium is formed in which fountain with a sculpture is formed, creating an intimate, pleasant environment that cultivates the entire entrance area and represents a well-integrated whole of architecture, landscaping and sculpture.
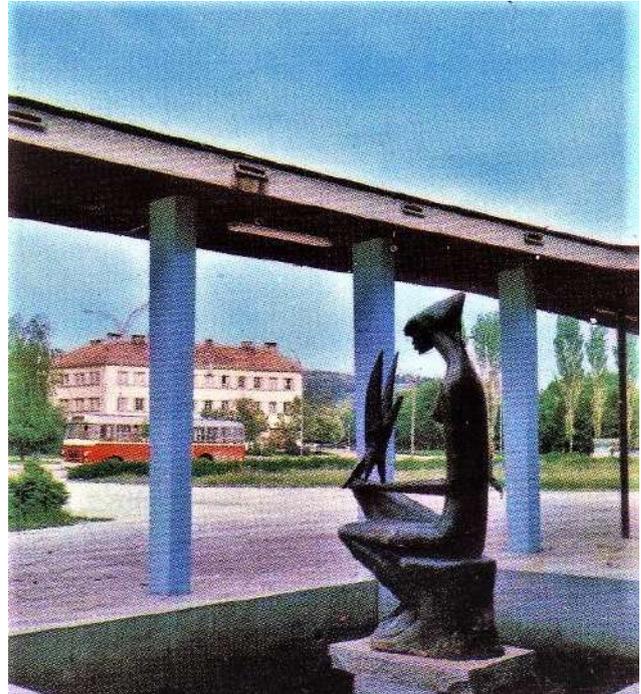

Fig. 8: Fountain with the sculpture in the atrium of the entrance part, view on the Sava Kovačević Square

The Union house was for a long time the first public building that people meet when entering the city, on the Sava Kovačević Square. The expression and impression of the unusual and convincing compositional ensemble was achieved by the effect of unifying the south and east facade into one, since the position of the object is such in relation to Bulevard 13th July, which enters the city from the direction of Podgorica. What makes this Minjević object different from others is the use of the basic colors as blue, red and yellow.

Fig. 9: One of the most famous postcards of the city from the 1960's Union house and residential building

Fig. 10: Location of the building in the city matrix

The Union house is designed to fill all those gaps in the social content that Nikšić did not have in that time.

Over the decades, Union House has been a place of important social interactions among citizens. Numerous theater performances and thousands of film projections had their audience. During the day there were several film projections and twice a week theater performances and concerts. Workers University educated thousands of industry workers giving them progress and new skills.

Unfortunately, today the building of the Union house is completely devastated by the urban plan that enabled the construction of a shopping center along the south facade of the building.

4. The Home of Revolution

In the former Yugoslavia during the seventies, it was common to build memorial monuments and buildings dedicated to memory of victims killed during the liberation struggles in World War II or to the victories on Fascists and Nazis during this war. One of the biggest memorial buildings called the Home of Revolution, that is still unfinished, began with constructions in 1977 in the city of Nikšić, when the Yugoslav competition for this building won Slovenian architect Marko Mušič (1946) in 1976. Construction was stopped in 1989 and in 1992, the building was preserved.

Urban conditions, on which will be built Home of Revolution, are based on the second post-war urban plan of Nikšić city, Seissel's urban plan. It is important to note that this urban plan for the first time clearly defined and determined wider and narrower area of city. The quality of this urban plan was reflected in the fact that it has fully accepted the basic principles of the first regulatory plan as a base from which the modern city developed. The result was a continuity in the development of the city. In addition, the quality of this plan is reflected in the proper positioning of the important social structures and buildings in a continuous strip along the historic core.

Although this plan was envisaged that the buildings are single-storey and double-storey, city planners submitted series of buildings with three or four storeys even five or six storeys, which was in stark contrast to the plan from 1958. (Ivanović, 1979)

The Home of Revolution building is symbolically designed to celebrate the courageous role played by the citizens of Nikšić in liberation struggles with the partisans against Nazism and Fascism. In addition to the commemorative role, the building was supposed to be a place for all cultural events in the city that would be reminiscent of the glorious past and to bring new and modern trends.
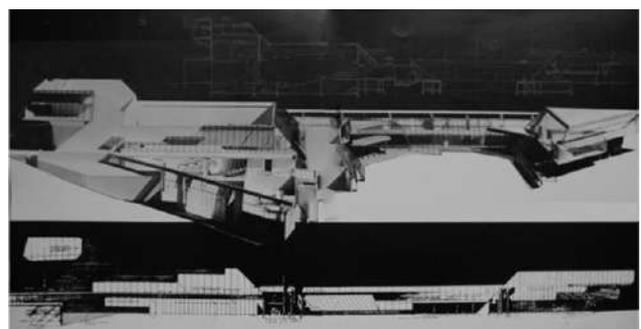

Fig. 11: Scale model of the building

The Yugoslav Journal of Architecture, Urbanism, Design and Applied Art "Architecture" No. 158-59 from 1976 was dedicated to the cultural buildings. Among the many objects, the Home of Revolution was presented. The text about this building presents

the view on the creation of architectural space in specific, Yugoslavian conditions:

"First of all, we consider that with all the forces and in spite of the internationalized schemes of modern architecture, we need to preserve the identity of our space, our customs, our traditions and temperament. Secondly, we need to conceive an inspired, dynamic architecture that is not a formal backdrop, but a wealth of all internal and external spaces with the maximum possibility of adapting to the concrete situation. It remains within the limits of our technology and materials, within the limits of rational constructions and creative logic."(Mušič, 1976)

From this quote, there are a few things clear. First, the Home of Revolution project insists on the identity of the space. Although the relation of the building to the built space is almost abstract, it is clear that the form originated from the morphology of the surrounding hills and mountains that borders Nikšić. It is also interesting that text mentioned the temperament of the Yugoslav and the form that most suit it. Is the calm horizontal volume, which gradually grows into a vertical volume, a spatial interpretation of the Yugoslav temperament, it is an open question. Often, the Home of Revolution is interpreted as a utopian project. But it seems this should not be exactly the case. From the quote, it can be clearly seen that the Home of Revolution is designed for the real conditions of the technology and materials with rational constructions. If an object is not completed due to historical circumstances, it does not necessarily have to be a utopian project.

Fig. 12: Association on Egyptian sphinx!

This building represents a symbolic synthesis of the memorial and cultural contents. The memorial contents are located along the building in corridors and halls. It seems that architect wanted to remind

visitors on their way to the hall and the rooms where the cultural contents were placed, that thanks to the lives and sacrifice of the liberators, they can freely enjoy the culture. In addition, the building through the memorial role was reminding about the victims of other Yugoslav nations, so the ideas and values on which Yugoslavia was built were promoted too. In this way, the building seems to be the guardian of memories. In the design and compositional context, the Home of Revolution has an emphasized, horizontal character that is harmoniously levelled. From the horizontal base, on the western part, the area of the theatre scene rises slightly. In the context of the form, there is even a certain association with the Egyptian sphinxes.

The original plan provided that the Home of Revolution should have 7,000 square meters, but because of the request of political structures it grows on the 22 000 square meters. The project is anticipated that the building can accommodate 7,000 visitors, which at that time represented a quarter of the population of the city. The building is designed to have the following facilities: a large amphitheatre with 1200 seats, a summer amphitheatre, cinema, conference halls, radio and television centers, libraries, educational centers, art studios, galleries, a youth center, a national restaurant etc. Finally, a memorial of the building occupied only 250 square meters.

Fig. 13: Spatial organization of the building

When Yugoslavia broke up in 1991, there was a suspension of construction of all federal projects including Home of Revolution". Today the building is completely abandoned and left to time.

In the Catalogue of the winning solution, printed in Nikšić in 1978, a detailed description of the interior space and content was given:

Passage of public promenade through the building represents a major move by the spine of experiencing the activities in the building. Like a city street in sequent series of different environments, promenade goes from the east entrance and free fair with books, artistic products and design activities with the youth club to an open forum. Forum, like the town square is a functional extension, intended for spontaneous and organized activities on the hub west entrance and the transition to a group of memorial space.
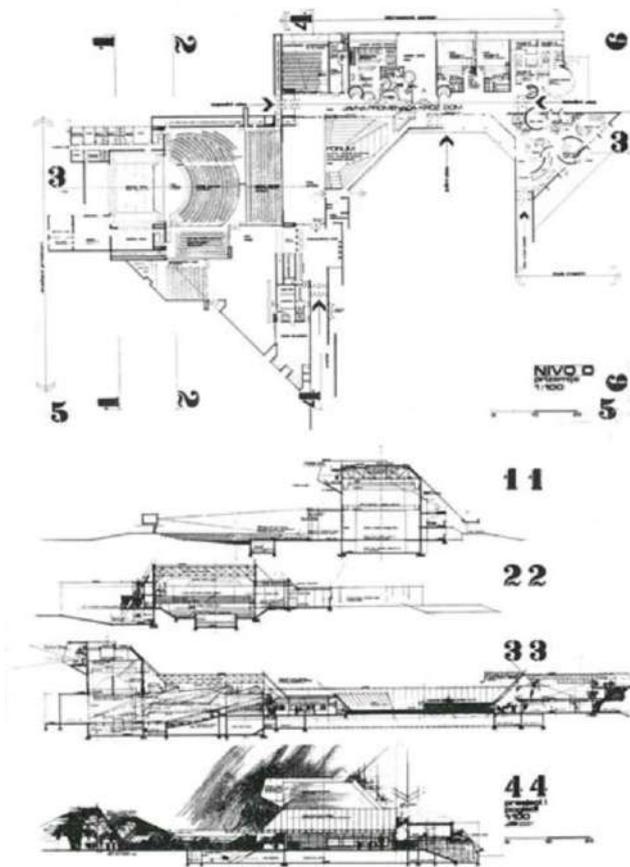

Fig. 14: Entrance, ground floor of the building with cross-sections

Instead risking that workrooms would be unused, placed somewhere on the side, or that work in them give institutional character of the school, everyday crossing through the Home cannot be without meeting the educational center at least passively. Going from the essence of creativity that has every man, and that can be slowly lost in the tempo of life and schematized routine, all the efforts of disposition and organization of this part of the Home, are in the creation of a creative environment and open contact with passers actions and activities.

The sequence and character of the rooms in the level of movement through the building provides contact with the contents of the most interesting groups:

- Universal lecture hall, complemented by an open public forum along the promenade (lectures, meetings, public forums, spontaneous discussions, etc.)

- Library with a niche for reading of periodicals, open to the promenade and the open reading rooms to the green atrium. All funds are available for the visitor.

- A group of artistic activities by location and the opening is the most intensely associated with youth club. Passers, of public promenade in the work of these activities, is informed by improvised exhibition in spatial niches that is supplemented with permanent exhibition gallery, creating a challenging direct involvement in the operation.

Fig. 15: Scatch of the glass promenade

Those contents are complemented with store items for participating in the studies like drawing supplies, paints, books, instruments etc. Loft Gallery, presented in the airspace of the promenade, includes the study room for historical and socio-political, literary and theoretical circles with club extensions, contact zones and a number of separate niches for individual and group work with the discussion.
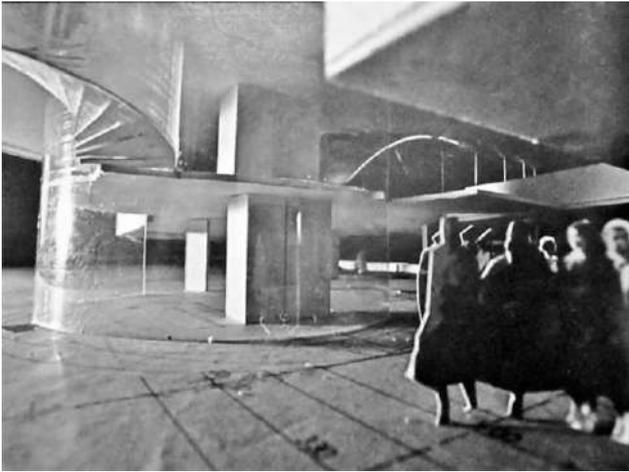
Fig. 16: Scale model of interior

Not long after Tito's death in 1980, started anti-bureaucratic revolution with a deep political and economic crisis that will lead to the gradual suspension of the construction of the Home of Revolution. (Milošević, 2013)

Over time, disappeared blue glass, which has coated the building, and then lower steel elements. There were water and groundwater that have flooded most of the basement rooms. Building has become a place for the homeless and drug addicts. From the moment of the construction of this building in an accident claimed the lives 15 people.

Fig. 17: Interior spaces, today

It is interesting to note that during the construction, about 50 million DEM was spent, around 400 tons of steel and so much concrete that

it was possible to make 3000 comfortable apartments or 50 buildings of 14 floors.

Fig. 18: Home of revolution, today

In the former Yugoslavia, there used to be a great number of different nations and ethnic groups and yet this country was a unity of all the people. The Home of Revolution symbolically represented the spirit and unity of Yugoslavia. During construction, the building has become one of the main elements of urban identity and pride of all citizens.

However, when it came to ethnic conflict and civil war in Yugoslavia, it disappeared the political base and ideology of unity. At the same time disappeared the ideas on which it was conceived the Home of revolution.

Home of Revolution has become a negative element of urban identity in the Nikšić. The building is not finished and never used. Over time, the building became the antithesis of everything that is supposed to represent. In this way, become a negative element of urban identity. A large number of citizens think that this building should be demolished although in the construction of this building participated some same people who for decades have been giving the 1,5 per cent of their monthly salary as a contribution to construction.

However, many citizens are aware of the historical value that this project had and they agree that the building should be completed. The idea of the unity of diversity, on which the Home of revolution is based should be still guiding idea, especially for future generations.

5. Conclusion

In one of his last interviews architect Minjević spoke, among other things, about the relation to the architectural heritage and the urban and architectural identity that emerged from the base of the urban matrix of the Nikšić city. Minjević responds that he has always asked for special studies and analyzes that would evaluate the urban and architectural heritage of Nikšić, before building on a given location. Minjević, in fact, never built in the urban core of the city, which, according to his own admission, sought to preserve his authenticity in which objects of international style could not fully integrated. When we carefully analyze the positions of Minjević objects, we will see that they are always or in an urban ring that is concentrically spreading from the urban core to the north of the city or in the touching boundary lines between new and old urban blocks. Places of contact between the old and the new urban interpretation of the city were ideal for the setting up of Minjević's modernist objects, which could be logical in such sensitive transitions. In this way, the architectural and urban identity of Nikšić has gained new elements that have enriched it. The Union house in this context is the essence of Minjevic's architecture, which has made urban transformation of the city not only in terms of architecture and urbanism, but also in cultural terms.

None of the buildings marked the urban development of Nikšić, such as the Home of revolution. From the once favorite building that was supposed to show the economic power of the city and to bring new contemporary contents, today this building is abandoned and it causes mainly negative emotions among the citizens.

In November 2015, the Ministry of Sustainable Development and Tourism of Montenegro announced an International, public, conceptual, one-stage, anonymous competition for the Architectural solution of the adaptation and reconstruction of the Home of revolution building in Nikšić. Nine works were received for the competition and the expert jury, in March 2016, decided that the best solution was under the code 300666 by the authors SADAR + VUGA (Slovenia) and HHF Architekten (Switzerland).
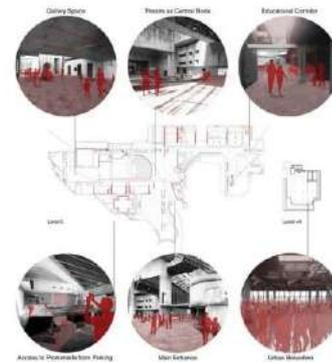

Fig. 19: Level-0_usage level-0_usage, Image Courtesy © SADAR+VUGA

This solution developed a 10/20/70 strategy. This means that 10% of the surface of the object will be used for different contents and activities, 20% of the surface will be public promenades and 70% of the surface will be closed to the public, adopted, and used in some better times.

The authors of the winning solutions notice that the specific location of Dom Revolucije makes it a unique node between the pedestrian city center and car-oriented residential neighborhood. The newly established promenades inside the structure assure continuity between the building and its surroundings. This newly gained access into the ruin is intended to alter the society's negative perception of the building while simultaneously transforming it into an open urban landscape. City life can now gradually occupy the previously forbidden area, creating a pulsing public space, while organically integrating it into the city's tissue. The intention is not to reincarnate what Dom Revolucije was supposed to be, originally, but redefine it as an important node within the city landscape.

Fig. 20: SE-view, Image Courtesy © SADAR+VUGA

Time will show what kind of urban transformation this building will bring to the city.

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