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The Capital's Revolutions

Niccolò Cuppini
Mattia Frapporti

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Il Quaderno n° 16

The volume proposes adopting the perspective of the "revolutions of capital" as a lens through which to reinterpret, in historical and political-philosophical terms, the shaping of the current digital revolution. The entry point for addressing the theme is the urban, an analytical prism for observing how capitalist revolutions have historically taken shape through the upheaval of a constellation of factors. By tracing genealogically the historical sequences that lead us today to speak of an ongoing "Fourth Industrial Revolution," the volume shows, through seven urban case studies, that a revolution of capital—far from being exhausted in a mere technological transformation (be it the steam engine, the railway, the Fordist factory, or Artificial Intelligence)—rather entails the redefinition of social relations, of the state form, and of powers within the world market. Lisbon, London, Berlin, Paris, Bologna, Barcelona, and Tallinn are examined here in order to retrace, from the late eighteenth century to the present day, the changing assemblages just mentioned, through an approach defined as "trans-urban." This allows both for a longue durée perspective and for an appreciation of the discontinuities and ruptures that have marked this historical development.

KEYWORDS: Industrial Revolution; Urban; Technology; Genealogy; Capital.

Il volume propone di adottare la prospettiva delle "rivoluzioni del capitale" come lente attraverso la quale rileggere in termini storici e filosofico-politici il definirsi dell'attuale rivoluzione digitale. Il punto di ingresso per affrontare il tema è quello dell'urbano, prisma analitico per osservare come le rivoluzioni capitaliste si siano storicamente definite attraverso il sommovimento di una costellazione di fattori. Nel ripercorrere genealogicamente le scansioni storiche che conducono a parlare oggi di una "rivoluzione industriale 4.0" in corso, il volume mostra infatti tramite sette carotaggi urbani come una rivoluzione del capitale, lungi dall'esaurirsi in una trasformazione tecnologica (sia essa la macchina a vapore, la ferrovia, la fabbrica fordista, o l'Intelligenza Artificiale), implichi piuttosto il ridefinirsi dei rapporti sociali, della forma-Stato, dei poteri sul mercato mondiale. Lisbona, Londra, Berlino, Parigi, Bologna, Barcellona e Tallin sono qui trattate per ripercorrere dal tardo Settecento a oggi il mutare degli assemblaggi appena indicati, tramite un approccio che viene definito "trans-urbano", e che consente di valorizzare sia uno sguardo di *longue durée* che a mettere in risalto gli scarti e le rotture avvenute in tale sviluppo storico.

PAROLE CHIAVE: Rivoluzione industriale; Urbano; Tecnologia; Genealogia; Capitale.

Niccolò Cuppini

is a lecturer-researcher at SUPSI. His research began as a history of political thought on the city and urbanization and has gradually expanded to include logistics and digital platforms. He is involved in numerous international projects and is part of the research groups LUCI (Labour, Urbanscapes and Citizenship – SUPSI), *Scienza & Politica*, and *Into the Black Box*. His latest monograph is entitled *Planetary Metropolis 4.0. Beta Testing* (Meltemi, 2023).

Mattia Frapporti

is a Junior Researcher in the HorizonEurope INCA project at the Department of Computer Science and Engineering, University of Bologna. His main interests are the analysis of the political role of infrastructure and the relationship between logistics and politics. His research have also focused on the platform's world and their impact on political spaces. He is a founding member of the research group Into the Black Box, and he participates in the editorial board of *Zapruder* and in the board of the Foundation Jean Monnet pour l'Europe. His last book is titled *Governo materiale: Il potere politico delle infrastrutture* (2024).

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1. Introduction

The platform economy is a relatively recent phenomenon. However, in order to contextualize it within broader socio-economic developments, this book adopts a *longue durée* approach aimed at offering a new historical reconstruction of the past three centuries. We propose an alternative chronological framework that positions the urban dimension as a central point of analysis. To support this perspective, we critically reassess the concept of the Industrial Revolution, opting instead to speak of a *Capital's Revolution*. In doing so, we introduce and develop the concept of *trans-urbanism*. This long-term historical perspective enables us to situate the platform economy within the wider context of technologically driven transformations of labor. In other words, we examine Industry 4.0 in relation to broader dynamics linking innovation, production, and circulation as key drivers of social and economic change.

The previous industrial revolutions profoundly transformed the way work was organized – not only through technical innovations *stricto sensu*, but also by reshaping entire systems of production. From the century preceding the First Industrial Revolution to the current context of Industry 4.0, this document revisits the various "modes of production" in order to highlight their differences and to analyse their impact on urban environments. The result is a historical reconstruction that closely intertwines transformations in labour with changes occurring in several European cities.

As we will explore, much of the literature on the Industrial Revolutions tends to emphasise technological development. David Landes' seminal work, *The Unbound Prometheus*, offers a comprehensive account of the technological advances that defined the First and Second Industrial Revolutions and their consequences for labour markets. Some passages in the book are particularly striking, vividly illustrating the interplay between technological change and labour. Especially noteworthy is Landes' analysis of the innovations in the textile sector and the consequent *labour-saving* effects they generated.

> We have already noted the difficulty of supplying weavers with yam. Kay's fly-shuttle, which did not really catch on until the 1750's and 1760's, only aggravated an already serious disequilibrium. The problem was solved by a family of spinning devices: carding machines by Paul and others (in use from the 1750's); Hargreaves's jenny (c. 1765; patent 1770); Arkwright's water frame (1769); Crompton's mule (1779) – so called because it combined some of the features of the frame and the jenny[1].

In other parts of the book, he directly relates "labour saving" (thanks to technological innovation) to a "cost reduction" of the production process:

> The consequent saving in labour and materials (Bessemer entitled the paper in which he announced his discovery in I856, "The Manufacture of Iron without Fuel") made possible

[1] D. LANDES, *The Unbound Prometheus. Technological Change and Industrial Development in Western Europe from 1750 to the Present*, Cambridge, Cambridge University Press, 1988, pp. 84-85.

the first steel that could compete in price with wrought iron-£ 7 (including royalty of about £ 1) per ton as against about £ 4 per ton[2].

Likewise, innovations in the chemical sector have had similar effects, as Landes explains in other sections of the book:

> This growth evoked several improvements in technique, mostly of an instrumental character and more labour – than material – saving: larger decomposing pans; mechanical roasters; the revolving furnace (late 1860's); and the Shanks vat (1861), which made it possible to extract the black ash by means of hydrostatic pressure rather than by laborious shovelling from tank to tank[3].

Again, and similarly, Landes briefly accounts for the Third Industrial Revolution too, such as here:

> Seen from the hindsight of the mid-twentieth century, scientific management was the natural sequel to the process of mechanization that constituted the heart of the Industrial Revolution: first the substitution of machines and inanimate power for human skills and strength; then the conversion of the operative into an automaton to match and keep pace with his equipment. The third stage is now upon us: automation – the replacement of man by machines that think as well as do. How far and fast will the new technique go; whether, in combination with atomic power, it will mean a second (or third) Industrial Revolution, it is still too early to say. But it is some consolation to think that it is apparently easier to make machines like man than to turn man into a machine[4].

Such notable excerpts (among many others) illustrate how the relationship between technological change and the labour market has been thoroughly examined in classic works within the field of the History of Technology, with Landes being just one prominent example.

Another important reference concerning the relationship between technology and labour is Jeremy Rifkin's well-known book *The End of Work*, which «examines the technological innovations and market-directed forces that are moving us to the edge of a near workerless world»[5]. According to Rifkin, whose book was published in 1996, «[w]hile earlier industrial technologies replaced the physical power of human labor, substituting machines for body and brawn, the new computer-based technologies promise a replacement of the human mind itself, substituting thinking machines for human beings across the entire gamut of economic activity»[6]. As we know, this is only partially true. The «Requiem for the Working Class»[7], which traces the technological developments introduced in factories since the 1950s – from numerical control to

[2] *Ivi*, p. 265.
[3] *Ivi*, p. 270.
[4] *Ivi*, pp. 322-323.
[5] J. RIFKIN, *The End of Work. The Decline of the Global Labour Force and the Dawn of the Post Market Era*, New York, Putman's Sons 1995, p. XVI.
[6] *Ivi*, p. 5.
[7] *Ivi*, p. 181.

U.S. scientific management and Toyotism – or Japanese management[8]), emphasises how «many workers are no longer able to find full-time employment and long-term job security»[9], leading to what has been called their «Slow Death»[10]. While it is undeniable that computerisation has had a profound impact on the labour market[11], an exclusive focus on technology risks producing a reductive and potentially misleading interpretation. Such a view neglects other crucial dimensions of labour transformation, including the rise of the "cognitive proletariat" and the emergence of a "cyber-proletariat" driven by the logic of digital capitalism.[12].

The introduction of new technologies and their impact on the labour market is a topic that has also been addressed in relation to the so-called Fourth Industrial Revolution. Klaus Schwab dedicated an entire section of his influential book *The Fourth Industrial Revolution* to this issue, focusing on "labour substitution", the "impact on skills"[13], and "developing economies"[14]. According to Schwab, even though new technologies might provoke, has been broadly accepted in much of the literature on the subject, it arguably oversimplifies the analysis. If we consider the so-called Fourth Industrial Revolution in a broader sense – including the process of platformization – we could argue that, in terms of new forms of employment, this "revolution" has largely given rise to what are now everywhere referred to as "gig workers". This mass of "new workers" is engaged in a wide array of generally casual, low- to moderately-skilled jobs, which are typically governed by non-standard contractual arrangements. The gig economy is not merely the outcome of technological innovation; rather, it has been deeply intertwined with other structural factors, such as transformations in labour markets and legal frameworks. In fact, the spread of gig work is strongly correlated not so much with the emergence of new intermediation technologies, but with periods of economic recession and the resulting deregulation of employment forms. According to Jim Stanford, «a better understanding of the complete range of forces driving changes in work organisation, and a rejection of the assumption that they are technologically determined and hence inevitable, can inform regulatory and political responses to the rise of platform work»[15].

Technological evolution also impacts skills, work–life balance, and gender inequality (see Section 2.4). According to Schwab, the Fourth Industrial Revolution «may give

[8] *Ivi*, pp. 182-184.
[9] *Ivi*, p. 190.
[10] *Ivi*, p. 194.
[11] See on this: D.H. AUTOR – F. LEVY – R.J. MURNANE, *The Skill Content of Recent Technological Change: An Empirical Exploration*, «Quarterly Journal of Economics», 118, 4/2003, pp. 1279-1333.
[12] N. DYER-WHITEFORD, *Cyber-Proletariat: Global Labour in the Digital Vortex*, London, Pluto Press, 2015.
[13] K. SCHWAB, *The Fourth Industrial Revolution*, World Economic Forum, 2016, pp. 37-38.
[14] In particular, when Rifkin argues that «In the past, when new technologies have replaced workers in a given sector, new sectors have always emerged to absorb the displaced laborers» (*Ivi*, p. XVI).
[15] J. STANFORD, *The Resurgence of Gig Work: Historical and Theoretical Perspectives*, «The Economic and Labour Relations Review», 28, 3/2017, p. 382.

rise to a job market increasingly segregated into low-skill/low-pay and high-skill/high-pay segments [...] leading in turn to growing inequality and an increase in social tensions»[16]. The rapid pace of technological change continuously demands that workers acquire new skills, raising the risk of exclusion for those unable to keep up. This constant pressure to upskill can threaten work–life balance and exacerbate gender disparities. Citing the World Economic Forum's *Future of Jobs* report, Schwab also notes that «while wages and work-life balance are expected to improve slightly for most occupations, job security is expected to worsen in half of the industries surveyed. It is also clear that women and men will be affected differently, potentially exacerbating gender inequality»[17].

From a different but equally important perspective, the impact of new technologies on the labour market has also been examined quantitatively by several prominent and Nobel prize winners' economists. The European Union has dedicated attention to the issue as well, notably through the establishment of the High-Level Group on the Impact of the Digital Transformation on EU Labour Markets (HLG) in June 2018, chaired by Professor Maarten Goos. These perspectives are worth briefly exploring to provide a broader context for our analysis. However, it is important to emphasise that our own approach will be more qualitative and theoretical. As such, the following insights should be considered as contextual background rather than central arguments within our investigation.

Since 2003 scholars like David Autor, Franck Levy and Richard Murnane have discussed «how computerization alters job skill demands»[18]. Inspired by the works of scholars such as Herbert Simon, in their article titled *The Skill Content of Recent Technological Change: An Empirical Exploration*, Autor, Levy, and Murnane focus their analysis on the period from the 1960s to the 1990s. In their study of these four decades, they emphasize «the tasks performed in jobs rather than the educational credentials of workers performing those jobs»[19]. Looking at their "Task Model", Autor, Levy, and Murnane first highlight which tasks, previously performed by humans or machines, could be replaced by computers. Although the notion of "computer" is quite broad (they consider the Jaquard Loom of 1801 as the first digital computer), these scholars stress that «the capability of computers to substitute for workers in carrying out cognitive tasks is limited, however. Tasks demanding flexibility, creativity, generalized problem-solving, and complex communications – what we call nonroutine cognitive tasks – do not (yet) lend themselves to computerization»[20].

We know today that algorithms have partially challenged this assumption. Nonetheless, what Autor, Levy, and Murnane emphasize remains undeniably true when

[16] K. SCHWAB, *The Fourth Industrial Revolution*, p. 47.
[17] *Ivi*, p. 44.
[18] D.H. AUTOR – F. LEVY – R.J. MURNANE, *The Skill Content of Recent Technological Change*, p. 1279.
[19] *Ivi*, p. 1281.
[20] *Ivi*, p. 1284.

focusing on work that involves persuasion, intuition, common sense, creativity, interaction, flexibility, etc.: these are things we understand and do tacitly (in another article Autor refers to this as Polanyi's paradox — see below). After analyzing the «empirical implications for task demand at the industry and occupation level»[21], using data from the U. S. Department of Labor's Dictionary of Occupational Titles (DOT), and examining «changes in task content measures within occupations over the period 1977 to 1991»[22], Autor, Levy and Murnane highlight «Trends in Job Task Input» from 1960 to 1998. Their evidence shows shifts from the «demand for labour input of routine tasks and increased demand for labour input of nonroutine cognitive tasks»[23] (still focusing on US labour force). They note that «between 1970 and 1998 there were secular declines in labour input of routine cognitive and routine manual tasks and corresponding increases in labour input of nonroutine analytic and interactive tasks»[24]. Furthermore, they explain that «changes in the demand for workplace tasks, stemming from technological change, are an underlying cause – not merely a reflection – of relative demand shifts favouring educated labour»[25]. Overall, based on empirical and quantitative data presented in several tables and statistics, they conclude that «computer technology substitutes for workers in performing routine tasks that can be readily described with programmed rules, while complementing workers in executing nonroutine tasks demanding flexibility, creativity, generalized problem-solving capabilities, and complex communications»[26].

A more structured, organic, and compelling picture of the impact of technology on the labour market has been offered by MIT scholars David Autor and Daron Acemoglu in a chapter of the influential collective volume *Handbook of Labor Economics*. In their long and important contribution titled *Skills, Tasks and Technologies: Implications for Employment and Earnings*, Autor and Acemoglu analyse the demand for skilled and unskilled workers in the second half of the 20th century and its relationship with wage structures. Autor and Acemoglu: 1) Emphasize key points inspired by Jan Tinbergen's work from the 1970s on the relationship between skills and new technologies; 2) Analyse (and criticize) what they call the *canonical model*, namely the framework developed by Lawrence Katz and Kevin Murphy in their 1992 paper *Changes in Relative Wages, 1963–1987: Supply and Demand Factors*, which calculates the «relative demand for high- versus low-skilled workers»—a categorization they find overly simplistic due to its polarization into just two skill levels; 3) Offer a comparative perspective between the US and labour market developments in various EU economies; 4) Propose what they call a *Ricardian model* of the labour market, given «the central role that the comparative advantage differences across different types of

[21] *Ivi*, p. 1282.
[22] *Ivi*, p. 1292.
[23] *Ivi*, p. 1295.
[24] *Ivi*, p. 1299.
[25] *Ivi*, p. 1309.
[26] *Ivi*, p. 1322.

workers play in our model»[27]. All in all, they conclude that "enriching" the canonical model allows «to account for recent changes in the earnings and employment distribution in the United States and other advanced economies, and also to develop a better understanding of the impact of technology on labor market outcomes»[28].Despite their primary focus on the US labour market, there are at least two additional texts from David Autor's extensive body of work (he is Co-Director of the MIT Task Force on the Work of the Future) that merit discussion. The first was published in 2015 in the *Journal of Economic Perspectives*, titled *Why Are There Still So Many Jobs? The History and Future of Workplace Automation*. Adopting a broad historical perspective, Autor posits something unequivocal: «Clearly, the past two centuries of automation and technological progress have not made human labor obsolete: the employment-to-population ratio rose during the 20th century even as women moved from home to market; and although the unemployment rate fluctuates cyclically, there is no apparent long-run increase»[29]. Technology may eliminate *jobs*, but not *work*, and «the strong complementarities between automation and labor that increase productivity, raise earnings, and augment demand for labor» are often ignored[30]. Through several illustrative examples, Autor shows how, counter-intuitively, aggregate employment can benefit from certain forms of automation. He then identifies three key factors that can either mitigate or amplify the impact of automation:

First, workers are more likely to benefit directly from automation if they supply tasks that are complemented by automation, but not if they primarily (or exclusively) supply tasks that are substituted [...]; Second, the elasticity of labor supply can mitigate wage gains [...]; Third, the output elasticity of demand combined with income elasticity of demand can either dampen or amplify the gains from automation[31].

Building on his analysis of the US labour market, Autor turns to the phenomenon of «Job polarization»[32] noting the post-WWII decline in *middle-skill occupations* – a trend he compares with labour market dynamics in sixteen European countries. This shift, he argues, is closely related to the phenomenon of «wage polarization»[33]. However, contrary to what one might intuitively expect, Autor shows that wage polarization does not follow job polarization in a linear fashion. This is due to three mitigating

[27] D. ACEMOGLU – D.H. AUTOR, *Skills, Tasks and Technologies: Implications for Employment and Earnings*, in O. ASHENFELTER – D.E. CARD (eds), *Handbook of Labor Economics*, Vol. 4B, Amsterdam, Elsevier, 2011, p. 1120.
[28] *Ivi*, p. 1157.
[29] D.H. AUTOR, *Why are there still so Many Jobs? The History and Future of Workplace Automation*, «Journal of Economic Perspective», 29, 3/2015, p. 4.
[30] *Ivi*, p. 5.
[31] *Ivi*, p. 7.
[32] See M. GOOS – A. MANNING, *Lousy and Lovely Jobs: The Rising Polarization of Work in Britain*, «Review of Economics and Statistics», 89, 1/2007, pp. 118-133.
[33] D.H. AUTOR, *Why are there still so Many Jobs?*, p. 14.

forces: «complementarity, demand elasticity and labour supply»[34]. «These forces – Autor concludes – mean that information technology should raise earnings in occupations that make intensive use of abstract tasks and among workers who intensively supply them»[35]. Consequently, even though certain jobs have disappeared or changed significantly, this has not led to a proportionate polarization in wages.

In closing the article, Autor makes several important observations. First, he emphasizes that «understanding the interaction between technology and employment requires thinking about more than just substitution»[36]. Second, he revisits the enduring relevance of what he calls *Polanyi's Paradox*, a concept derived from Michael Polanyi's 1966 book *The Tacit Dimension*, famously encapsulated in the phrase: "We know more than we can tell." The paradox underscores the idea that much of human knowledge is tacit–things we do instinctively or intuitively, without being able to fully articulate the underlying rules. This has major implications for automation: if people cannot explicitly describe how they perform certain tasks, they «cannot "tell" a computer how to perform [all] the tasks, then seemingly programmers cannot automate the task»[37].

From this perspective, human labour often complements rather than competes with technology, even in areas like big data and algorithmic analysis. Autor highlights two examples to support this argument. First, he refers to «environmental control»[38] achieved by machines – such as the sensor systems in Amazon warehouses or the navigation systems of autonomous vehicles. While these technologies allow machines to interpret their environments to a certain extent, they do so only partially and remain heavily reliant on human oversight. As we will see below, logistic warehouses are far from being fully automated and continue to rely on forms of labour that are frequently precarious or exploitative[39].

Second, Autor considers the role of *machine learning*. While some human tasks remain difficult to automate due to Polanyi's Paradox, machine learning systems can operate using what is referred to as *ground truth* – data generated from real-world activity and labelled at scale. However, this framework often overlooks the social and labour realities that underpin the digital platforms on which these systems depend. As Antonio Casilli powerfully argues in his book platforms such as Amazon Mechanical Turk, Deliveroo, or Uber function precisely because of a global, fragmented, and

[34] *Ivi*, p. 15.
[35] *Ivi*, p. 17.
[36] *Ivi*, p. 22.
[37] *Ivi*, p. 24.
[38] *Ivi*, p. 23.
[39] J-B. MALET, *En Amazonie. Infiltré dans le "meilleur des mondes"*, Paris, Fayard, 2013; N. CUPPINI – M. FRAPPORTI – M. PIRONE, *Logistics Struggles in the Po Valley Region. Territorial Transformations and Processes of Antagonistic Subjectivation*, «The South Atlantic Quarterly» 114, 1/2015; TRANSNATIONAL SOCIAL STRIKE, *Strike the Giant! Transnational Organization against Amazon*, 2019, https://www.transnational-strike.info/2019/11/29/pdf-strike-the-giant-transnational-organization-against-amazon-tss-journal/, last access 13 May 2025.

largely invisible labour force – human workers performing tasks that remain, despite technological advancement, resistant to full automation.

The final key article by David Autor that we will consider is *Work of the Past, Work of the Future*. In this piece, Autor once again discusses employment in relation to skills, but he also introduces some particularly important insights regarding *job polarization* and the *urban dimension*. «Occupational polarization – Autor writes – has been disproportionately urban and reflects the undoing of a previously robust urban occupational skill gradient among non-college workers»[40]. As in his other works, the primary focus remains the US labour market. Autor notes that the urban workforce is now [41], and these workers earn significantly more [42]. However, this trend is not without contradiction: «the urban non-college wage premium has in fact declined steeply over the course of several decades, most dramatically after 2000[43]». In short, Autor concludes, «Labor markets in US cities today are vastly more educated and skill-intensive than they were five decades ago. Yet, urban non-college workers perform substantially less skilled work than decades earlier, and the once robust non-college urban wage premium has largely flat-lined[44]».

In the very places where "new jobs" are most concentrated – urban areas – labour market polarization is especially pronounced. Autor breaks this polarization into three broad occupational categories. First, he identifies a growing cluster of high-skill occupations, which [45]. Second, he describes a set of «labour-intensive, in-person services» that fall under what he calls "wealth work". These jobs are «neither technologically novel nor broadly demanding of technical skills» and are typically low-paid and disproportionately filled by women. Third, Autor points to a set of roles that involve «carrying out nearly-automated tasks that retain a residual set of human components, such as call-centre operators, order fulfilment workers, and data entry clerks»[46]. These are what he refers to as *'last-mile' jobs*. It is within this category that we can situate many platform workers – jobs that, as Autor notes, offer wages and require education levels that are «typically considerably below average»[47].

Based on Autor's extensive work, we can synthesise the following key assumptions. First, technological advancement eliminates specific jobs but does not eliminate the need for work *per se*. Second, technology is most effective in automating routine tasks, whereas non-routine tasks – particularly those requiring intuition, flexibility, and social interaction – remain primarily the domain of "living labour". Third, recent decades have seen increasing *job polarization*, with a decline in middle-skill occupations. Forth,

[40] D.H. AUTOR, *Work of the Past, Work of the Future*, «AEA Papers and Proceedings», 109/2019, p. 4.
[41] *Ivi,* p. 10.
[42] *Ivi,* p. 16.
[43] *Ibidem.*
[44] *Ivi,* p. 22.
[45] *Ivi,* p. 23.
[46] *Ibidem.*
[47] *Ibidem.*

however, job polarization does not necessarily lead to *wage polarization*, due to mitigating factors such as task complementarity, demand elasticity, and labour supply. Fifth, a comprehensive understanding of the relationship between technology and employment requires moving beyond the notion of *substitution* alone. Sixth, while machine learning and automation can partially replace human labour, this is often overstated and based on a superficial reading of current capabilities. Seventh, in urban areas, workers in high-skill, highly educated roles tend to earn more, whereas those in "last-mile" jobs typically experience lower wages and education levels. Future research will aim to test the applicability of these assumptions to the specific case of *platform workers*.

Another important perspective is provided by Daron Acemoglu and Pascual Restrepo in their article *The Race between Man and Machine: Implications of Technology for Growth, Factor Shares, and Employment*. In line with other contributions, they argue that it is particularly middle-skill workers who are most exposed to the disruptive effects of technological innovation. «Our model imposes that it is always the tasks at the bottom that are automated; in reality, it may be those in the middle»[48]. The main contribution made by Acemoglu and Restrepo – their main «conceptual innovation» – is the following:

> to propose a framework in which tasks previously performed by labor are automated, while at the same time other new technologies complement labor: specifically, in our model this takes the form of the introduction of new tasks in which labor has a comparative advantage [...]. If this comparative advantage is significant and the creation of new tasks continues, employment and the labour share can remain stable in the long run even in the face of rapid automation[49].

Although «automation contracts the set of tasks performed by labour»[50], Acemoglu and Restrepo demonstrate that we are simultaneously witnessing the emergence of multiple new tasks – offering a perspective far removed from the notion of a looming "end of work." Indeed, they argue that while in the short term «automation and the creation of new tasks increase inequality»[51], the long-term effects, according to their model, could be substantially different. Specifically, the rise of new tasks driven by automation and standardization may, in the long run, sustain a stable «factor distribution of income (between capital and labour)» as well as a constant level of «inequality between the two skill types»[52]. Indirectly, their model suggests that while automation does not necessarily reduce inequality, it may not exacerbate it indefinitely either. Nevertheless, their conclusions stress that – at least in the short run – automation contrib-

[48] D. ACEMOGLU – P. RESTREPO, *The Race between Man and Machine: Implications of Technology for Growth, Factor Shares, and Employment*, «American Economic Review», 108, 6/2018, p. 1527.
[49] *Ivi*, p. 1489.
[50] *Ivi*, p. 1503.
[51] *Ivi*, p. 1521.
[52] *Ivi*, p. 1526.

utes to job polarization and wage inequality. As they ultimately note, «our model highlights the need for additional empirical evidence on how automation impacts employment and wages»[53].

As previously mentioned, a detailed analysis of the EU context is offered by Maarten Goos and the High-Level Group (HLG). In an important article by Goos, Alan Manning, and Anna Salomons titled *Explaining Job Polarization: Routine-Biased Technological Change and Offshoring* (2014), the focus is on job polarization across sixteen EU countries. The authors document a «decrease [on] the demand for middling relative to high-skilled and low-skilled occupations»[54]. Based on a rigorous analysis of data from the period 1993–2010, they develop a model to quantify what they term «routine-biased technological change». Their findings confirm that «the employment structure in Western Europe has been polarizing with rising employment shares for high-paid professionals and managers as well as low-paid personal service workers and falling employment shares of manufacturing and routine office workers»[55]. The article's focus remains largely on industrial and routine office workers.

A more conceptually aligned and forward-looking analysis is provided by the HLG's report titled *The Impact of the Digital Transformation on EU Labour Markets*, published in April 2019. Drawing on many of the works discussed above, the report offers valuable insights into both the demand and supply sides of labour transformation in the EU. It recognises that digitalisation «cannot automate all tasks currently done by workers»[56], and it highlights how new technological intermediaries or "platforms" are lowering barriers to labour market entry, thereby including more individuals in the workforce[57]. However, the report also points out that these developments have significantly altered labour relations, resulting in the proliferation of «non-standard» forms of work with «profound consequences» for social protection. As the authors note, «today's social protection schemes continue to largely focus on standard, full-time work»[58] – an institutional lag that calls for urgent rethinking and reform.

In line with the observations made above, the HLG report underscores that «digitalisation is leading to job polarisation»[59], particularly threatening middle-skills workers. It also notes that «the increase in non-standard work has [...] apparently not been at the expense of standard work, but rather reduced unemployment and inactivity,

[53] *Ivi*, p. 1527.
[54] M. GOOS – A. MANNING – A. SALOMONS, *Explaining Job Polarization: Routine-Biased Technological Change and Offshoring,* «American Economic Review», 104, 8/2014, p. 2509.
[55] *Ivi*, p. 2524.
[56] REPORT OF THE HIGH-LEVEL EXPERT GROUP, *The Impact of the Digital Transformation on EU Labour Markets*, april 2019, p. 16, https://digital-strategy.ec.europa.eu/en/news/final-report-high-level-expert-group-impact-digital-transformation-eu-labour-markets, last access 13 May 2025.
[57] *Ibidem.*
[58] *Ivi*, p. 19.
[59] *Ivi,* p. 23.

though significant national differences exist»[60]. I According to EU statistics for the period 2002–2018, standard employment in the European Union has remained stable at approximately 40%[61]. However, the growth of non-standard forms of work – especially platform-mediated labour – has been particularly pronounced. Such work now constitutes the main source of income for 2% of the EU population, amounting globally to an estimated 70 million platform workers[62]. This is a significant figure that deserves close analytical attention.

The HLG report concludes with a set of policy recommendations structured around three main axes: first, skills – including the proposal for a «Digital Skills Personal Learning Account» and various strategies to reduce skills mismatches; second, new labour relations – aimed at addressing workplace discrimination, mitigating health risks, equalising the administrative treatment of standard and non-standard employment[63] and fostering new forms of social dialogue; third, a new social contract – proposing reforms to decouple social protection from traditional employment status[64], the creation of a «Digital Single Window for employment contributions and taxes»[65], and mechanisms to redistribute the value extracted from data[66].

As should now be evident, the HLG report aligns in several important ways with the broader aims of our research. While this brief literature review does not claim to provide an exhaustive account of the many quantitative, statistical, and economic analyses on the impact of digital technologies on labour markets, it serves to position our work within this multifaceted and evolving debate.

That said, the approach adopted in the present book diverges substantially in its orientation. Rather than focusing narrowly on specific technological innovations within the factory setting or on a purely data-driven analysis, our perspective is rooted in a broader historical and theoretical framework. We propose to examine the transformations brought about by digital platforms through the lens of **"**Modes of Production," "Processes of Circulation," and the "Subject at Work," integrating these with an in-depth exploration of seven selected cities as empirical case studies. Given the crucial importance of urban dynamics, we have opted to introduce the concepts of the "Capital's Revolutions" and a "Trans-Urban Approach" as foundational elements before delving into city-specific analyses.

Although our work builds upon canonical contributions to the study of the Industrial Revolutions – from Landes and Mantoux to Hobsbawm and Thompson – we begin by critically re-evaluating the very concept of the "Industrial Revolution." Our

[60] *Ivi*, p. 24.
[61] *Ibidem.*
[62] See A.J. WOOD ET AL., *Good Gig, Bad Gig: Autonomy and Algorithmic Control in the Global Gig Economy*, «Work, Employment and Society», 33, 1/2018, pp. 56-75.
[63] REPORT OF THE HIGH-LEVEL EXPERT GROUP, *The Impact of the Digital Transformation on EU Labour markets*, p. 39.
[64] *Ivi*, p. 42.
[65] *Ivi*, p. 43.
[66] *Ivi*, pp. 44-45.

aim is to produce original research that extends beyond the conventional figure of the factory worker to include the urban worker, whom we regard as increasingly central in contemporary economies. Moreover, we turn our attention to technologies often overlooked in standard accounts – such as the assembly line or the container – which, though rarely celebrated as breakthroughs, have nonetheless profoundly altered the organisation and multiplication of labour[67].

The different sections of this volume vary in depth and methodological focus. Some case studies are grounded in substantial archival research, while others lean more heavily on theoretical analysis. The purpose of this work is not to present a fully comprehensive or finalised research project. Rather, it aims to provide both a historical grounding for analysing the impact of platforms on European societies and a conceptual framework for further investigation. At its core, this book aspires to contribute to the development of a field of inquiry that connects a Eurocentric history of industrial transformations with the field of Global History, which we believe offers the most fertile ground for future research by both historians and social scientists. Lastly, the elaboration of "trans-urbanism" is intended to engage critically with the field of urban studies and to contribute to the renewal of some of its foundational premises.

1.1 Structure of the Text

This work is structured into three main sections, each contributing to a rethinking of the historical and contemporary relationship between industrialization, urbanization, and labour.

The first section, titled *Capital's Revolution*, pursues a dual objective. On one hand, it interrogates and problematizes the concept of the "Industrial Revolution," challenging its conventional and often Eurocentric interpretations. On the other hand, it seeks to apply a *global gaze* to this historical process. We argue that the Industrial Revolution cannot be fully understood without considering the wider structures of slavery, colonialism, and imperialism. These processes not only provided the material and human resources necessary for capitalist expansion but also shaped the spatial, racial, and economic geographies of industrial modernity. In this sense, the Industrial Revolution must be reconceived not as a self-contained European event, but as a global phenomenon embedded in asymmetric power relations.

The second section lays the theoretical and analytical foundations of what we term the *Trans-Urban Approach*. Historically, industrialization and urbanization have developed in tandem. Just as we cannot understand industrialization by focusing exclusively on factories, we cannot understand urban transformations if we treat cities as isolated, bounded entities. This section draws on a recent wave of scholarship inspired by Henri Lefebvre's work and, more recently, by theories of planetary urbanization.

[67] S. MEZZADRA – B. NEILSON, *Border as Method. Or, the Multiplication of Labour,* Durham, Duke University Press, 2013.

Building on these insights, we propose *ten theoretical coordinates* for a trans-urban conceptualization. This framework allows for a comparative and interconnected analysis of different urban spaces, overcoming the limitations of scalar thinking. We understand trans-urbanism not only as an infrastructural condition but also as a historical logic that organizes urban development. Urbanization, in this perspective, is a dynamic interplay of concentration (of people, capital, production, etc.) and extension (of supply chains, migrations, global linkages, etc.). Trans-urbanism is the dimension that synchronizes these processes and shapes the material and spatial forms they assume.

The third and final section presents seven case studies in which we interweave a reinterpretation of the so-called Four Industrial Revolutions with our trans-urban perspective. These studies offer a new genealogy of "Industrial Revolution 4.0" by exploring seven geo-historical configurations. Each city is analysed through three layers: a reconstruction of its historical context; a reading of its patterns of intensive and extensive urbanization; and an investigation into the "subjects at work", where we identify seven emblematic figures of labour. These figures serve as markers of the transformations in labour regimes, technologies, and urban logics characterizing each phase of industrial and post-industrial development.

1.2 Capital's Revolutions: Methodology and our perspective

We are currently living through an era of rapid and profound technological transformation. Inside factories, the means of production are now interconnected via digital networks, enabling levels of mechanical coordination that were previously unimaginable. Outside of these production sites, the so-called *gig economy* increasingly permeates everyday life. With just a smartphone, we can perform a wide array of actions – from communicating globally (via platforms such as Zoom, WhatsApp, or Telegram), to consuming music (via Spotify or YouTube), booking services (flights, taxis, accommodation, food delivery), and even working remotely. In doing so, we also generate enormous quantities of data – *Big Data* – which are collected and stored in servers across the globe via cloud infrastructures.

Over the past decade, these digital and logistical transformations have drastically reshaped our daily routines. This sweeping set of changes is commonly grouped under the umbrella term *Industrial Revolution 4.0*: the fourth major technological rupture that has sustained capitalist development since the mid-18th century. Although the term *Industrie 4.0* was originally coined in Germany to describe the hyper-connected factories of the future, it is now broadly accepted that what is often referred to as *platform capitalism*[68] must be considered an integral dimension of this new phase.

Since the 18th century, the factory system has been central to the capitalist mode of production and a potent symbol of modern progress. As one historian aptly noted: «The modern factory system originated in England in the last third of the eighteenth

[68] N. SRINCEK, *Platform Capitalism,* London, Polity Press, 2016.

century. From the beginning its effects were so quickly felt and gave rise to such important results that it has been aptly compared to a revolution, though it may be confidently asserted that few political revolutions have ever had such far-reaching consequences»[69]. Nevertheless, in order to analyse the effects of the previous industrial revolutions on European societies, this document proposes a shift in focus: from the production process alone to the processes of circulation and their multiple intersections. To capture and valorise this dimension, we adopt what we term a *logistical gaze*[70]. This approach allows us to observe the capitalist cycle in its entirety, tracing how production, distribution, and consumption are dynamically entangled.

In the last years, logistics emerged as a disruptive paradigm for interpreting the changes in contemporary capitalism. In what has been called the «supply chain capitalism»[71] characterized by a global «connectography»[72], logistics covers a special role in order to analyse and interpret our global present. It seems to have an intrinsic capacity to better portray many contemporary phenomena:

> What do we mean by a logistical gaze? In brief, it can be summarised as a picture of logistics as *ars combinatoria*, that is, first of all, a capacity for articulation and governance. A logistical gaze thus looks to flows, mobility regimes, points of condensation and different distributions of power and roles to analyse phenomena. At the same time, it focuses on knots, bottlenecks, resistances and the production of a counter-logistics. To achieve this, it has to integrate and modify the "traditional" categories of critical theory with new concepts such as assemblages, hubs, corridors, connections, infrastructures, interruptions, resilience and strategies that could be useful for breaking the opacity of black boxes and penetrating their logic. In other words, a logistical gaze considers logistics not only as a mere matter of circulation, a neutral technique of management or a simple device to organise mobility in the most efficient way but rather as a more all-encompassing bio-political apparatus that produces spaces as well as subjectivities, norms and relations[73].

Considering this assumption, adopting a *logistical gaze* enables us to analyse and interpret historical transformation – an aspect that is often overlooked in traditional historiography.

The most important feature of logistics as an analytical tool is that it allows us to observe simultaneously the nodes of production, the flows of commodities, the sites of distribution, the points of consumption, and the so-called «choke-points»[74], thereby

[69] P. MANTOUX, *The Industrial Revolution in the Eighteenth Century*, London, University Paperbacks, 1964, p. 25.
[70] C. BENVEGNÙ ET AL., *Logistical Gazes: Introduction to a Special Issue of Work Organisation, Labour and Globalisation*, in BENVEGNÙ ET AL (eds), «Work organisation, labour & globalisation», 13, 1/2019.
[71] A. TSING, *Supply Chains and the Human Condition*, «Rethinking Marxism», 21, 2/2009, pp. 148–76.
[72] P. KHANNA, *Connectography. Mapping the Future of Global Civilization*, New York, Random House Inc., 2016.
[73] C. BENVEGNÙ ET AL., *Logistical Gazes,* p. 12.
[74] I. NESS – J. WILSON, *Choke Points: Logistics Workers Disrupting the Global Supply Chain*, London, PlutoPress, 2018.

enabling a genuinely global perspective. When applied to the problematic of the Industrial Revolutions – both as a broad historical category and as a specific historical event often localized in 18th-century England – logistics offers a vantage point that extends beyond the immediate social impacts of technological transformations in the regions where they were first implemented. Instead, it generates an analytical framework that emphasizes: the *logistical shifts* within industrializing societies themselves, the impact these changes had on other parts of the world, and the ways in which developments in distant regions reciprocally shaped the trajectory of industrial societies. In doing so, logistics enables an analysis that complicates what is often presented as a positive, linear, and internally driven narrative of industrial progress. It invites us to privilege *mobility* over *fixity*, *circulation* over *containment*. Moreover, when intertwined with an urban lens, logistics becomes particularly fruitful in understanding the societal transformations that have defined the modern era.

For this reason, we propose to problematize the conventional fourfold division of Industrial Revolutions and instead adopt the term Capital's Revolutions, drawing inspiration from the *World-System Theory* by Immanuel Wallerstein[75], the analysis of *The Long Twentieth Century* by Giovanni Arrighi, and the works of Fernand Braudel – particularly *Civilization and Capitalism: 15th-18th Century*[76].

We prefer the term Capital's Revolutions for several interrelated reasons. First, it integrates production and circulation. The industrial revolutions have never been confined to revolutions in production alone. From the outset, industrialization was inextricably linked to revolutions in transport and commerce. As has been noted: «Industrialization means mass production, and mass production means access to mass markets. An industrial revolution, it has always been known, must be associated with a transport revolution to reach these markets»[77]. Secondly, it foregrounds social relations over technical devices. Shifting from a focus on discrete technological innovations to an emphasis on social transformations enables us to trace the emergence of new class formations – from the industrial proletariat (and logistics proletariat) of the first revolution to the emergence of a *cybertariat*[78] in the current one. Thirdly, it insists on a global perspective. The English Industrial Revolution cannot be understood without accounting for slavery, colonialism, and imperialism. As W.E.B. Du Bois might suggest, to understand Manchester one must look not just at its factories, but at the Atlantic Ocean. Similarly, to grasp the full implications of the so-called Industrial Revolution 4.0, we must look beyond smart factories to encompass the full spectrum of global

[75] I. WALLERSTEIN, *The Modern World-System*, 4 voll., voll. 1-3, New York-San Diego, Academic Press; vol. 4, Berkeley, University of California Press, 1974-2011; see also I. WALLERSTEIN, *World-System Analysis. An introduction*, Durham, Duke University Press, 2004.
[76] F. BRAUDEL, *Civilization and Capitalism: 15th-18th Century*, 3 voll., Berkley, University of California Press, 1992.
[77] S. POLLARD, *Peaceful Conquest. The industrialization of Europe 1760-1970*, Oxford University Press, 1981, p. 123.
[78] U. HUWS, *The Making of a Cybertariat: Virtual Work in a Real World*, London, Monthly Review Press, 2003.

capitalism, including finance, extraction and logistics[79]. Fourthly, it challenges the paradigm of historical discontinuity. The notion of *Capital's Revolutions* offers an alternative to the Eurocentric and exceptionalist logic of "The European Miracle"[80]. It allows for a more nuanced historical account that recognizes both continuities and key moments of acceleration, without reducing the complexity of global transformations to singular events.

This conceptual shift is crucial for developing a global and systemic perspective on technological innovation and its entanglements with labor, social organization, and urban transformation. In order to fully grasp the societal impact of new technologies, we must broaden our analytical scope to include elements often relegated to the margins of historical inquiry. This is why our genealogical reconstruction of *Capital's Revolutions* begins not with steam engines, but with slave ships. As Stefano Harney has argued, the Atlantic slave trade constitutes "the birth of modern logistics," not simply because it involved the large-scale movement of human beings as commodities, but because it revealed logistics as a regime of *social control* and *access:* «modern logistics is not just about how to transport large amounts of commodities or information or energy, or even how to move these efficiently, but also about the sociopathic demand for access: topographical, jurisdictional, but as importantly *bodily* and *social* access»[81]. The techniques used to load slaves, the architectural design of the ships to maximize capacity, the surveillance and control exercised during the voyage – these represent, both theoretically and empirically, the *infrastructural proto-logic* of the factory system[82]. The slave ship, in this sense, can be seen as the first logistical apparatus of capitalism, foreshadowing the spatial, racialized, and extractive logics that continue to define capitalist modernity.

Taking this perspective, it becomes clear that the First Industrial Revolution cannot be understood in a narrow, territorial sense – confined within the borders of Britain or, even worse, limited to the factory walls housing the Spinning Jenny, the Power Loom, and other iconic machines. To fully comprehend its significance, we must examine how a complex set of dynamics transformed – not only *in* England but *through* and *beyond* it – to accommodate an expanding influx of commodities, particularly raw materials, propelled by emerging global flows. The rise of what we might term a *circulation industry* generated vast numbers of new jobs. In this context, the emergence of the working class – as famously traced by Engels, Thompson, and Hobsbawm – can

[79] S. MEZZADRA – B. NEILSON (eds), *Extraction, Logistics, and Finance*, special issue of «The South Atlantic Quarterly», 114, 1/2015. See also S. MEZZADRA – B. NEILSON (eds), *The Politics of Operation: Excavating Contemporary Capitalism,* Durham, Duke University Press, 2019.
[80] E. JONAS, *The European Miracle: Environments, Economies and Geopolitics in the History of Europe and Asia*, Cambridge, Cambridge University Press, 1981.
[81] N. CUPPINI – M. FRAPPORTI, *Logistics Genealogies. A Dialogue with Stefano Harney*, «Social Text 136», 36, 3/2018, p. 96.
[82] M. REDIKER, *The Slave Ship. A Human History*, New York, Viking Group, 2007.

also be understood as the rise of a *logistics proletariat*, which, alongside the industrial proletariat, constituted the new collective subject of the Industrial Revolution.

The growth of factory size and the development of "scientific" methods to optimize production form the next link in the genealogy we aim to outline. This brings us to the Second Industrial Revolution, also referred to as the *Technological Revolution* (from the late 19th to early 20th century). This phase was marked by standardization, the advent of new materials, the manufacture of interchangeable parts, and innovations such as the Bessemer Process for steel production. These technological advances facilitated the expansion of infrastructures like the telegraph, railroad networks, gas and water supply systems, and sewage systems—technologies that had previously been restricted to a few select urban centers. Once again, we confront communication and logistical transformations as the material basis for a new wave of globalization. Electrical power, the telephone, and factory electrification became emblematic of this era. These developments enabled the production line and introduced a new regime of spatial and temporal coordination of labor, culminating in a historical moment of capitalist acceleration that lasted until the First World War.

Following the dramatic reconfigurations caused by the war, our genealogy identifies a pivotal transformation: the rise of Taylorism/Fordism. This stage had vast implications for society, urban space, and labor relations. The Fordist model coincided with the institutional consolidation of the working class as a legitimate social actor. It established a new capital-labor relation based on mass production, mass consumption, and a stabilized class compromise. However, this configuration was not to last. The dismantling of the Fordist assemblage marked the next genealogical break, which we again interpret through a logistical lens. Well before the information revolution, the so-called *logistics revolution* played a decisive role in overcoming the Fordist paradigm. This revolution entailed the territorial dispersal of the factory system, made possible by new forms of logistical interconnection; the global outsourcing of production; the rise of containerization (as famously explored in Marc Levinson's *The Box*, 2008); and innovations in transport technology, such as *intermodality*, which drastically increased the speed and flexibility of commodity flows. Logistics enabled work to be radically distributed beyond the perimeter of the factory. Feminist movements, among others, were instrumental in showing how many previously invisible or devalued forms of labor—such as domestic work—should be recognized as integral to the capitalist mode of production. This new *objective and subjective condition* can be described as the emergence of the "social worker", marking the generalization and socialization of labor across society.

The communication technologies and container ships that "made the world smaller and the world economy bigger»[83] paved the way for what has been described

[83] M. LEVINSON, *The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger*, London, Paperback, 2008.

as the Retail Revolution[84]. The manufacturing system was recalibrated: the consumer multitude began to dictate the global agenda of production. This transformation accompanied the rise of neoliberalism in the late 1970s and 1980s, which fragmented the previous class composition and gave rise to what some theorists have termed a "multitude"[85]. Eventually, the platform economy [86] spread globally following the 2007–2008 economic crisis. Built upon decades of neoliberal deregulation, which supplied the legal, political, social, and cultural infrastructure for its emergence, the platform economy intensified the pace and depth of societal transformation. It radically reshaped labor relations: «employment landscape was suddenly very different [...] and ICTs had [...] become part of the taken-for-granted environment of all work»[87]. Information and Communication Technologies (ICTs) fundamentally altered the terrain on which labor confronts capital in the 21st century. A paradigmatic expression of this shift is found in the rise of platform workers, whose labor conditions epitomize the fragmentation, precarity, and algorithmic control of the post-Fordist era.

1.3 Towards a trans-urban approach

The hypothesis underpinning our research is that it is not possible to separate the analysis of industrialization, technical innovation, and transformations in labor from the environments in which these processes unfold, nor from the spatial configurations they shape and are shaped by—in short: from the urban. Thus, we argue that industrialization and urbanization are two sides of the same coin.

Over the past decade, the emergence of platform urbanism has prompted a reimagining of the infrastructural geographies of the city and the forms of labor that underpin urban life. Digital platforms interact with existing infrastructures and environments, transforming how the urban is governed, experienced, and inhabited through technological mediation. Although these interfaces have become ubiquitous, we argue that understanding their implications requires a methodological and genealogical investigation – one capable of capturing the complexity of contemporary transformations.

In our study of Capital's Revolutions, one of our key objectives has been to decenter the analysis of industry. Rather than focusing on specific moments of innovation or isolated technological tools, we have sought to develop a holistic and global perspective. By analogy, we contend that any critical engagement with the urban must also

[84] N. LICHTENSTEIN, *The Retail Revolution: How Wal-Mart Created a Brave New World of Business*, New York, Metropolitan Book, 2009.
[85] M. HARDT – T. NEGRI, *Multitude: War and Democracy in the Age of Empire*, London, Penguin, 2005.
[86] N. SRNICEK, *Platform Capitalism*; T. SCHOLZ, *Digital Labour. The Internet as Playground and Factory*, New York and London, Routledge, 2013.
[87] U. HUWS, *Labor in the Global Digital Economy: The Cybertariat Comes of Age*, London, Monthly Review Press, 2014, p. 13.

move beyond what has been identified as an ideological *"cityism"*[88]: a tendency in urban studies to treat cities as bounded units of analysis, as if they could be fully understood in isolation. Recent work by critical urban scholars[89] has begun to dismantle this assumption, opening new theoretical and empirical terrains. Our contribution to this body of literature is what we term a trans-urban approach. This approach emerges from the recognition that the territorialization of digital platforms demands analytical tools capable of accounting for their interactions, the frictions they generate, and the adaptations they require across the urban fabric within a planetary perspective. In other words, instead of treating individual case studies as self-contained and meaningful on their own, we advocate for a research orientation that identifies the continuities, resonances, and commonalities that platform capitalism generates across diverse contexts. This does not imply disregarding local specificities. On the contrary, we believe that a trans-urban approach should highlight contextual dynamics by situating them within the broader global terrain in which they are produced. In terms of research design, this perspective implies a shift: not merely a comparison between the seven cities under analysis, nor simply a multisited study. Our ambition is to move toward what we propose as a trans-sited analysis, one that identifies structural patterns while remaining sensitive to spatial and historical variations.

To begin testing these theoretical tools – Capital's Revolutions and the trans-urban approach – we have undertaken an experimental application using seven cities as analytical lenses: Lisbon, London, Paris, Berlin, Bologna, Barcelona, and Tallinn. Each of these urban contexts is representative of specific genealogical shifts explored in our research. All were examined using a common analytical grid designed to make comparison and synthesis possible. This grid consists of five main components: Introduction – a discussion of why the city was selected, its significance for the analysis, and general contextual framing; Historical Context – a reconstruction of the specific historical moment in which the transformations of interest occurred; Intensive Urbanization – an analysis of changes occurring within the urban core: the traditional city with its dense concentration of people, buildings, and activities; Extensive Urbanization – a complementary perspective focusing on the infrastructural networks, flows, and connections that sustain urban life beyond the city core, expanding the analysis to broader geographies often excluded from the urban lens; Subjects at Work – a reflection on how new worker subjectivities emerged and acted within the context of the transformations under study.

Because the trans-urban approach has little direct precedent in the literature, we have adopted the intensive/extensive framework as a preliminary strategy to historicize and operationalize it. While we are aware that this is only an initial and partial implementation, we believe it offers a productive way to begin capturing the dynamic, multi-

[88] D. WACHSMOUTH, *City as Ideology: Reconciling the Explosion of the City Form with the Tenacity of the City Concept*, «Environment and Planning D: Society and Space», 32, 1/2015, pp. 75-90.
[89] A. MERRIFIELD, *The Politics of Encounter. Urban Theory and Protest under Planetary Urbanization*, Athens, University of Georgia Press, 2013.

scalar nature of platform capitalism's impact on urban space and labor. Together, these five analytical dimensions constitute the foundation of our comparative and trans-sited methodology. They enable us to begin developing a more nuanced, interconnected understanding of how cities are reshaped by the intersecting forces of capital, technology, labor, and infrastructure under the evolving conditions of global capitalism.

1.4 Summary Table

To briefly summarize the analytical framework developed in this document, we propose the following table. The first column presents the seven historical ruptures identified through our genealogical reconstruction. The second column outlines the technological innovations that characterize each period and help define the corresponding chronological partitions. In the third column, we identify the "subjects at work" that emerge as paradigmatic figures of each historical phase. Finally, the fourth column highlights the city that we consider most representative of each genealogical turning point and which has been selected as a case study for deeper investigation.

Historical Period	Technological Innovations	Subjects at work	City
XVII/XVIII	Slave Ships	Slaves	Lisbon
XVIII/first half of XIX	Factories	Industrial Proletariat	London
second half of XIX	Big Factories	Urban Proletariat	Paris
first half of the XX	Fordism/Taylorism	Working Class	Berlin
1950s/1970s	Logistics Revolution	Social Workers	Bologna
1980s/2000s	Retail Revolution	Multitude	Barcelona
2008 onwards	Industrial Revolution 4.0	Cyber-proletariat	Tallinn

2. Capital's Revolutions

2.1 The Industrial Revolutions

«Misunderstanding of the present is the inevitable consequence of ignorance of the past. But a man may wear himself out just as fruitlessly as he does when seeking to understand the past, if he is totally ignorant of the present»[1]. To understand the present, we must know the past, and vice versa. Furthermore, one might add that, when we look at the present, the unfolding panorama may inspire a new interpretation of the past. Of course, a new genealogy could also inspire a new interpretation of the present. To understand where we are and how the Capital production system developed, it is crucial to know the history of the so-called Industrial Revolutions. Nonetheless, an investigation into the Industrial Revolution 4.0 that we are experiencing at present might raise the necessity for rereading the history of the previous revolutions, in order to understand the particular features that characterized those events, and also to see if they sufficiently portray our past. Let us, then, start from a traditional, historical narrative.

Generally speaking, the last two-and-a-half centuries have been characterized by four different steps: four moments that have determined radical changes in the productive sectors and, consequently, in society as a whole. As it is well known, these four moments can be roughly located as follows:

- the First Industrial Revolution (or "the" Industrial Revolution), which occurred between the last third of the eighteenth and the first half of the nineteenth centuries;
- the Second Industrial Revolution, to be located between the last quarter of the eighteenth century and the outbreak of the First World War;
- the Third Industrial Revolution, which took place during the 1950s and the 1960s of the Twentieth Century;
- the ongoing Industrial Revolution 4.0.

All four steps have been characterized by enormous technological innovations. In reality, technological innovations are somehow the characteristic that determined the label: «The words "industrial revolution" – written in small letters – usually refer to that complex of technological innovations which, by substituting machines for human skills and inanimate power for human and animal force, brings about a shift from handicraft to manufacture and, in so doing, gives birth to a modern economy»[2]. We could summarize such technological changes as follows: 1) the appearance on the

[1] M. BLOCH, *The Historian's Craft. Reflection on the Nature and Uses of History and the Techniques and Methods of the Man who Write it*, New York, Alfred a Knopf, 1953, p. 43.
[2] D. LANDES, *The Unbound Prometheus*, p. 1.

scene of «the steam engine, mechanical spinning, and smelting iron with coke»[3]; 2) the rise of what David Landes called «the age of steel»[4], of the new chemical industry (which featured the "two most important" innovations, namely «the Solvay method of alkali manufacture and the synthesis of organic compounds»[5]), and of electricity; 3) the introduction of a new energy form, which appeared truly revolutionary, namely nuclear energy – other than that, the third revolution was also, and mostly, characterized by the introduction of transistors, microprocessors, and other information technologies; 4) finally, the automation of the machine interconnection, cloud, big data, and algorithms. Although such innovations probably represent the most substantial inventions to have been introduced in the above-mentioned moments, they are no more than the thin end of the wedge of a more general restoration of the productive system, and of society at large.

Parallel to these technical innovations, for example, it should be stressed that in each of the four steps different systems of production were introduced. During the First Industrial Revolution, the "modern factory system" made its first appearance. According to the historian Paul Mantoux:

> one word brings together and characterizes these facts, the word *manufacture.* We owe it to Karl Marx, whose great dogmatic treatise contains pages of historical value. According to Marx the evolution of modern capitalism began at the time of Renaissance [...]. This evolution may be divided into two periods. Until the middle of the eighteenth-century production was in the stage of "manufacture". About 1760 the *modern factory system* really set in. On what do we base this distinction [...]? "Manufacture" itself implies the separation of labour and capital [...]. The artisan who previously worked for himself in his own house and with his own tools had become nothing more than a tenant, paying rent for the use of tools which no longer belonged to him. The manufacturer then went still further. He kept the tools, and organized workshops under his direct supervision, whilst the artisan sold him only his labour[6].

During the Second Industrial Revolution, the modern factory grew dramatically in size, and the labourers that worked together in the same building (sometimes) ran into thousands. Most importantly, though, after Henry Ford introduced the assembly line in 1913, there was an astonishing increase in production: «The assembly line was thus far more than just a new technique, a means of obtaining greater output at less cost. In those branches where it took hold, it marked the passage from shop, however big and heavily equipped, to factory»[7]. The Third Industrial Revolution witnessed a gradual production growth. The (Western) large factory system gave way to a "global supply chain"; manufacturing spread worldwide (or, better said, the production process was

[3] R. ALLEN, *The British Industrial Revolution in Global Perspective*, Cambridge, Cambridge University Press, 2011, p. 150.
[4] D. LANDES, *The Unbound Prometheus*, p. 249.
[5] *Ivi*, p. 270.
[6] P. MANTOUX, *The Industrial Revolution in the Eighteenth Century*, pp. 35-36.
[7] D. LANDES, *The Unbound Prometheus*, p. 307.

extensively delocalized to poor countries), and advanced information technologies deeply transformed the factories' panorama. Finally, in the current Industrial Revolution 4.0, automation in factories is gaining a higher level than ever. The connection between Means of Production, Artificial Intelligence, Robotization and Algorithms is transforming the place of production into a heap of mechanical, electrical, chemical and computer science engineering, even though within this process the need for unskilled workers is by no means disappearing. On the contrary, we rather observe a polarization of skills, with a huge number of middle-skilled workers being substituted by managing algorithms. Furthermore, due to the spread of devices such as smartphones, and thanks to the impressive growth of online firms such as Google, Amazon, Facebook, Airbnb and Uber, the whole society is somehow becoming involved in a new paradigm labelled "platform capitalism", with a proliferation taking place of the so-called "gig economy", "sharing economy", and so on. It is interesting to note that, as in the pre-industrial revolution era, the material machines required in many platforms (thinks on smartphones, cars, houses, bikes for Helpling, Uber, Airbnb or Deliveroo) are now owned by the workers themselves: what Marx called "fixed capital" or "dead labour" is owned by the subcontractors, while the firms merely own the algorithms behind their apps.

It must be said that this is not the only possible classification present in existing literature; another significant perspective is presented, for instance, in the important book by Walt Whitman Rostow, *The Stages of Economic Growth*. Rather than focusing on the Industrial Revolutions, he identifies five stages of growth that can encompass «all societies, in their economic dimensions»[8]. Stage 1 represents «The Traditional Societies», where «structure is developed within limited production functions, based on pre-Newtonian science and technologies»[9]. Stage 2 defines «The preconditions of Take Off», when societies are «in the process of transition» and realise «not merely that economic progress is possible, but that economic progress is a necessary condition for some other purpose, judged to be good: be it national dignity, private profit, the general welfare, or a better life for the children»[10]. Stage 3 represents the proper «Take-Off», which is «the interval when the old blocks and resistances to steady growth are finally overcome»[11] and when «growth becomes [the] normal condition»[12]. Stage 4 reflects «The Drive to Maturity», which is described as «a long interval of sustained if fluctuating progress, as the now regularly growing economy drivers to extend modern technology over the whole front of its economic activities»[13]. Stage 5, finally,

[8] W.W. ROSTOW, *The Stages of Economic Growth. A Non-Communist Manifesto*, Cambridge, Cambridge University Press, 1960, p. 4.
[9] *Ibidem.*
[10] *Ivi,* p. 6.
[11] *Ivi,* p. 7.
[12] *Ivi,* p. 36.
[13] *Ivi,* p. 9.

represents «The Age of High Mass-Consumption, where, in time, the leading sectors shift towards durable consumers' goods and service»[14].

Two reflections on Rostow's partition are due. At first sight, it is interesting to note that there are some similarities in terms of periodisation, between this classification and the one we outline in this book. For example, Rostow «allocate[s] the take-off of Britain to the two decades after 1783; France [...] to the several decades preceding 1860; Germany, the third quarter of the nineteenth century»[15]. More precisely, the take-off, which is basically characterised by a huge step forward in terms of production, is

> Defined as requiring all the three of the following conditions:
>
> (I) a rise in the rate of productive investments from, say 5% or less to over 10% [...];
>
> (II) the development of one or more substantial manufacturing sectors, with a high rate of growth;
>
> (III) the existence of quick emergence of a political, social and institutional framework which exploits the impulses to expansion in the modern sector and the potential external economy effects of the take-off and gives to growth an on-going character[16].

Of these three conditions, the third one implies «a considerable capability to mobilize capital from domestic sources»[17], which undermines the difference between this categorization and ours. Indeed, the classification we are proposing here is centred on neither the "mobilization of domestic resources" nor the "rise of investments"; rather, our categorisation is built on the role of the cities analysed in our case studies in the global value chains. Even though endogenous characters are important, from our point of view these are only consubstantial and cannot be separated from the exogenous ones. Furthermore, Rostow strongly focuses on the "production process", whereas our perspective is far more concentrated on the "circulatory process". This allows us to maintain the "global history" perspective, on which we will return further ahead.

Our second reflection concerns Rostow's perspective, which is, once again, mainly technologically driven. Talking about Britain, Rostow explains, for instance, that «the proximate stimulus for take-off was mainly (but not wholly) technological»[18]. As the analysis of the case studies in the third part of this document will demonstrate, we believe that technological innovations cannot be considered in a narrow sense but should be considered together with the societal conditions that surround them. In this manner, the late eighteenth-century English factories of the so-called "Industrial Revolution" – and along with them, the technological innovations it produced – cannot be wholly understood without taking into consideration the slave exploitation on the

[14] *Ivi*, p. 10.
[15] *Ivi*, p. 9.
[16] *Ivi*, p. 39.
[17] *Ibidem.*
[18] *Ivi*, p. 8.

American cotton fields. Similarly, we cannot understand the so-called "Industrial Revolution 4.0" without focusing on platform labour, on the job precariousness of "gig economy", as well as on the highly exploited extraction process of lithium in Chilean mines, or on the extraction of Cobalt in the Congolese pits.

Although the interpretations of capitalist development outlined in the previous pages are among the most important ones to have been made in the last 250 years, other approaches are worthy of mention. First of all, Max Weber's famous interpretation of the relation between *The Protestant Ethic and the Spirit of Capitalism*. Another more "institutional" approach can be found in *The Rise of the Western World: A New Economic History*, written by Douglas North and Robert Paul Thomas in 1973. North and Thomas focus on the importance of "Propriety Rights", which they consider crucial elements for European economic development. According to the authors, "Propriety Rights" allowed to reduce economic uncertainty and instability, so that European economic expansion could bloom thanks to an efficient economic system. This book too, however, offers a Eurocentric and narrowly endogenous interpretation, which is distant from the approach we are advancing in this document.

Most of these interpretations, particularly that which proposes a division in four industrial revolutions, are often undergirded by a kind of deterministic allocation of the history of industrial development, which encountered a certain degree of problematization and complexification, at least from the last 30 to 40 years onwards. Obviously, the point is not to question the technological innovations (even if some historians have), or the changes in the productive system. Rather, what needs to be discussed is the contingent nature of the phenomena, the underestimation of the exogenous characters, and the hyperbole of the *discontinuities* characters put on them. A *logistics gaze,* as we have mentioned, allows us to analyse the phenomena as a whole, avoiding the sensationalist assumption that favours a more equilibrated and contextualized vision. In the next section we will focus on the First Industrial Revolution, which will serve as an example of this.

2.2 Problematizing the British Industrial Revolution

The British Industrial Revolution represents something that could be defined as a classic paradigm: «[T]he words, when capitalized, [...] denote the first historical instance of the breakthrough from an agrarian, handicraft economy to one dominated by industry and machine manufacture»[19]. Furthermore, it was particularly meaningful, as it saw the rise of the "working class". The number of historians that have debated this topic is astonishing; among the giants of this branch of knowledge we may list Friedrich Engels (*The Condition of the Working Class in England*, 1845), Edward P. Thompson (*The Making of the English Working Class*, 1963) and Eric Hobsbawm (*Labouring Men: Studies in the History of Labour*, 1964; *Worlds of Labour: Further*

[19] D. LANDES, *The Unbound Prometheus*, p. 1.

Studies in the History of Labour, 1984). All three have described the rise of the figure of the working class, which burst into the political life of many countries (Britain, in first place), permanently transforming the social and political scenario: to use Edward Thompson's words, «the outstanding fact of the period between 1790 and 1830 is the formation of "the working class"»[20].

In those years Britain gave birth to the first proper and structured "global market" too. This becomes particularly clear in Kenneth Pomeranz's book *The Great Divergence*, where he shows that, in the pre-modern age, there was no great distance – from an economic point of view – between China and European countries, especially about average wages, population growth and agricultural productivity. Indeed, for Pomeranz the Chinese communications system was more developed than the British one, and state intervention in the domestic market was more limited than elsewhere. Two factors made the difference, in the author's opinion: coal and cotton. According to Pomeranz, the former opened the possibility of an increase in labour productivity, while the latter gave access to an international market. China, on the other hand, did not set up any colonial system that procured raw materials and buyers. All of this is to say that the paradigm of the first Industrial Revolution could be problematized.

The concept "Industrial Revolution" as we know it today became popular in the wake of Arnold Toynbee's famous Lectures on the Industrial Revolution of the 18th century in England, published posthumously in 1884 (Toynbee died in 1883) thanks to two students – William Ashley and Bolton King – who attended his course[21]. The book was a collection of the lessons on political economy that Toynbee delivered in Oxford, between October 1881 and the summer of 1882[22]. In these lessons, he debated «the Industrial and Agrarian Revolution at the end of the eighteenth and beginning of the nineteenth centuries»[23]. After discussing the situation of Britain in 1760, speaking in terms of "population" and "agriculture", he moved to an analysis of "manufactures and trade", showing how «the mechanical arts were still in a very backward state»[24]. However, despite the slow development, it seemed that Britain «advanced nevertheless more rapidly in this respect than other nations. One great secret of her progress lay in the facilities for water-carriage afforded by her rivers»[25]. The "decay of the

[20] E.P. THOMPSON, *The Making of the English Working Class*, New York, Vintage Book, 1966, p. 194.
[21] See M. NOBILE, *Introduzione*, in A. TOYNBEE, *La rivoluzione industriale,* Roma, Odradek, 2004, p. XVII.
[22] Landes actually gives us another version, claiming that Toynbee's *Lectures* «were intended for night students in Manchester» in D. LANDES, *The Fable of the Dead Horse; or, The Industrial Revolution Revisited*, in J. MOKYR (ed), *The British Industrial Revolution. An economic perspective*, Oxford, Westview Press, 1999, p. 130.
[23] A. TOYNBEE, *Lectures on the Industrial Revolution in England*, in A. TOYNBEE, *Toynbee's Industrial Revolution*, Trowbridge, Redwood Press, 1969, p. 27.
[24] *Ivi,* p. 51.
[25] *Ivi,* p. 52.

Yeomanry" was quite rapid, and it was followed by «the gradual destruction of domestic industries»[26] and by a radical change in the distribution of wealth, which was «in all respect more equal»[27].

In his book, Toynbee focuses on what he calls «the facts of Industrial Revolution»:

- «The far greater rapidity which marks the growth of population»[28];
- the change in the agricultural system, caused by «the destruction of the common-field system of cultivation, the enclosure, on a large scale, of commons and waste lands; and the consolidation of small farms into large»[29];
- «the substitution of the factory for the domestic system, the consequence of the mechanical discoveries of the time»[30], among which he stresses the importance of those discoveries that were made in the cotton and iron industries;
- «the expansion of trade», thanks to «the great advance made [...] in the means of communication», such as «the canal system» (which was greatly expanded at the end of the eighteenth century), the improvement of the "turnpike road" between 1818 and 1829, and the opening of the first railroad in 1830.

Toynbee wrote his essay in 1883. Such a vision – adopted and improved by many historians after him – has the indubitable merit of isolating few crucial aspects that occurred in those years. Nonetheless, it seems to be a narrow vision, which extrapolates those phenomena from a broader and more intricate context. In the 1980s, for example, Sydney Pollard applied a regional – rather than a national – perspective to analyse the process of industrialization:

> from the early classic descriptions of Toynbee and Mantoux, to the recent standard works of Ashton, Deane, or Mathias, these accounts tend to have one thing in common: they treat the British industrial revolution as a single national phenomenon. Closer acquaintance reveals that industrialization in Britain was by no means a single, uninterrupted, and unitary, still less a nation-wide process[31].

Focusing on the «spatial differentiation» in Britain and other European states (e.g., France, Belgium or, nowadays, Germany), Pollard stresses the different levels of industrialization regarding diverse areas within the same countries, which he attributes to «agricultural advantages», «means of transportation» and other benefits «that might be called political»[32]. This approach led him to reconsider the sensationalistic reading

[26] *Ivi,* p. 65.
[27] *Ivi,* p. 71.
[28] *Ivi,* p. 87.
[29] *Ivi,* p. 88.
[30] *Ivi,* p. 90.
[31] S. POLLARD, *Peaceful Conquest,* p. 4.
[32] *Ivi,* p. 7.

of the "British Industrial Revolution", offering a more accurate and contextualized vision.

As we briefly sketched out before, other approaches have contested this kind of "exceptional vision" of the British and, more generally, European case. World-System Theory, Postcolonial Studies (featuring authors like Frantz Fanon and Edward Said, but also Gayatri Chakravorty Spivak or Dipesh Chakrabarty), and Manuel Castells' idea of a Network Society as theories that have somehow helped to problematize the historical analysis based on a kind of a narrow, interpretative paradigm. More specifically, these approaches aim to demonstrate that industrial capitalism and the Industrial Revolutions and the European Miracle didn't happen by chance, but rather through a tested system of colonialism, imperialism and slavery, which led to a European technological superiority. The subjugation of most of the world's territories, such as North and Latin America, Asia and Africa, the enormous amount of cheap and qualitative raw material, and the exploitation of manpower through slavery, gained the European states (Britain, in particular) a privileged position: a position that must be considered for the re-enactment of the events that led to the Industrial Revolution.

Drawing on such analytical angles (particularly that of the World-System Theory), we would like to close this section by referring to two books that significantly contributed to problematize the "British exceptionality".

The first text is Robert Allen's *The British Industrial Revolution in Global Perspective*. According to the Oxford professor, in England the Industrial Revolution was accomplished because it represented a «high-wage economy»[33]; because of the rise of an «agricultural revolution» that saw «the agricultural labour productivity»[34] grow; and because of the access to «cheap energy economy». «Coal was critical for British industrialization because it provided an inexhaustible supply of cheap energy. Coal was also important [...] for its technological spin-offs, the steam engine and railway»[35]. However, he additionally stresses the fact that «cities and commerce» were «the responsible agents»[36] of Britain's exceptionality. This commerce was guaranteed by «the imperial foreign policy that secured a rising volume of trade»[37]. This «foreign policy», promoted by actors such as the East Indian Company (a Company with a colonialist governance in India), was crucial to guarantee that England had a vantage point, allowing the motherland wide access to resources and cheap end products. Thus, colonialism was an essential factor in producing the great divergence.

Colonialism, imperialism and slavery are also discussed by Sven Beckert, in his *Empire of Cotton. A Global History*. According to the author, the Industrial Revolution cannot be understood without considering the cotton economy plantation of the

[33] R. ALLEN, *The British Industrial Revolution in Global Perspective,* p. 33.
[34] *Ivi,* p. 60.
[35] *Ivi,* p. 83.
[36] *Ivi,* p. 106.
[37] *Ivi,* p. 130.

American continent: «Slave traders, slave pens, slave auctions, and the attendant physical and psychological violence of holding millions in bondage were of central importance to the expansion of cotton production in the United States and of the Industrial Revolution in Great Britain»[38]. Thanks to «financial instruments – from marine insurance to bills of landing»[39], the «transfer of capital and goods over long distances» became possible, and «unbeknownst to contemporaries, these alterations were the first steps toward the Industrial Revolution»[40] during the seventeenth century. Since then, the European trade networks have grown exponentially through what Beckert calls "War Capitalism", but it must be noted that they

> did not rest primarily on offering superior goods at good price, but on military subjugation of competitors and a coercive European mercantile presence [...]. These three moves – imperial expansion, expropriation and slavery – became central to the forging of a new global economic order and eventually the emergence of capitalism[41].

Indeed, Beckert is clearly saying – quoting Edward Baptist – that the plantation was «a site of early development of industrial discipline»[42]. All in all, while acknowledging the importance of technological inventions that characterize the British case, his focus on exogenous factors such as slavery and imperialism helps to explain "The Great Transformation" (the reference is to Polany's book) in a more global perspective.

Having started with a common narration of the Industrial Revolution based on Toynbee, Landes and Mantoux (who mostly focus on technological changes), we can now move to a more complex reading, which allows us to radically reconsider Britain's supposed superiority. In other words, a different perspective may lead to a different evaluation of that occurrence, which is particularly significant in order to rethink the concept of the "Industrial Revolutions" as a whole.

2.3 Where does the Industrial Revolution 4.0 come from?

"Industrial Revolution 4.0" is certainly characterized by a high form of automation and a big impact of ICT on work. Furthermore – as several scholars highlight – there is a clear "platformization"[43] of businesses thanks to digital technologies. Platforms

[38] S. BECKERT, *Empire of Cotton. A Global History*, New York, Random House LLC, 2014, p. 59.
[39] We already discussed the contemporary intersection between logistics and finance, citing Mezzadra and Neilson.
[40] S. BECKERT, *Empire of Cotton*, p. 24.
[41] *Ivi*, p. 26.
[42] *Ivi*, p. 62.
[43] A. HELMOND, *The Platformization of the Web. Making Web Data Platform Ready*, «Social Media + Society», 2/2005, pp. 1-11; A. GURUMURTHY – D. BHARTHUR – N. CHAMI, *Platform Planet. Development in the Intelligence Economy*, 2019 Retrieved from https://itforchange.net/platformpolitics/wp-content/uploads/2019/06/Platform-Planet-Development-in-the-Intelligence-Economy_ITfC2019.pdf

manage the produced data flows matching between demand and offer in different sectors such as hosting, delivering, transport, multi-tasking. Once we assume this perspective, it is easy to note how the Information and Communication Technologies are – among other factors – not just transforming the data transmission as in the past, but they are rather reshaping industrial relations, production processes and manpower. Putting it differently, there is a wide consensus[44] regarding the idea that digital technologies are the key-factor of new economies. "Sharing economy", "economy on demand", "gig economy", "collaborative economy" are all different labels, with minor semantic differences, referring to new forms of labour, entrepreneurship and business that adopt machine learning, cloud computing, ICT, algorithmic management, and Internet of Things. That said, we want to highlight how actually there is no hegemonic paradigm regarding the technological and productive revolution we are going through, rather we could identify two main paths based on geographical genealogy and tech application.

On one hand, the paradigm of Industrial Revolution 4.0 has been developed primarily in Germany and focuses on processes of automation in large factories. Klaus Schwab, founder of the World Economic Forum, wrote a book in 2015 titled *The Fourth Industrial Revolution*, where it is quite clear about this aspect:

> In Germany, there are discussions about "Industry 4.0", a term coined at the Hannover Fair in 2011 to describe how this will revolutionize the organization of global value chains. By enabling "smart factories", the fourth industrial revolution creates a world in which virtual and physical systems of manufacturing globally cooperate with each other in a flexible way. This enables the absolute customization of products and the creation of new operating models[45].

However, the centrality of factory and the impact of digital technologies in terms of automation could be considered in parallel with another trajectory of Industrial Revolution 4.0 development. The so-called digital platforms (widely intended) are drastically changing our lifestyles while internet firms are constantly gaining power and economic weight[46]. Still Schwab:

> To give a sense of what this means at the aggregate level, compare Detroit in 1990 (then a major centre of traditional industries) with Silicon Valley in 2014. In 1990, the three biggest companies in Detroit had a combined market capitalization of $36 billion, revenues of $250 billion, and 1.2 million employees. In 2014, the three biggest companies in Silicon Valley

[44] G. VALENDUC – P. VENDRAMIN, *Digitalisation, between disruption and evolution*, 2017, Retrived from https://journals.sagepub.com/doi/full/10.1177/1024258917701379, last access 13 May 2025; P. GAHAN – J. HEALY – D. NICHOLSON, *Technology, the Digital Economy and the Challenge for Labour Market Regulation*, in J. HOWE – A. CHAPMAN – I. LANDAU (eds), *The Evolving Project of Labour Law: Foundations, Development and Future Research Directions*, Melbourne, Federation Press, 2017.

[45] K. SCHWAB, *The Fourth Industrial Revolution*, p. 12.

[46] About this could be seen the "Platform Strategy Report" of MIT. The last one released on November 7th, 2019, is available here: http://ide.mit.edu/news-blog/news/newly-released-2019-platform-strategy-report.

had a considerably higher market capitalization ($1.09 trillion), generated roughly the same revenues ($247 billion), but with about 10 times fewer employees (137,000)[47].

Silicon Valley is indeed the second geographical source of the genealogy of the Industrial Revolution 4.0 if we consider this place as the productive fulfilment of the so-called Californian ideology, in which an optimistic, technology-driven future was depicted as a combination between «the free-wheeling spirit of the hippies and the entrepreneurial zeal of the yuppies»[48]. The most used metaphor to describe the forms of enterprise at the base of the gig and of the sharing economy – as said – is that of the platform:

> a smooth and flat space in which flows, a continuous mobility, the meeting between customers and suppliers, but also sharing practices, forms of socialization and an ethics of participation are developed. This is precisely why many digital platforms categorically reject the term "enterprises" tout court[49].

Thus, the question is: where do platform economy and platforms more in general come from? According to Pirone, platforms «originate outside of market contexts (see, for example, the history of the internet and its subsequent marketing linked to the dotcom bubble) and require capital to adapt to new lifestyles»[50]. On the other hand, platforms do not embed a set of extra-economic factors and innovations, they «do not simply constitute a new business model, but "a powerful new type of society", where the relationships of production end up extending to all social relations up to becoming a "political form"»[51]. So, they live on the edge between internal and external innovation, economy and society.

Pushing forward the analysis, it is possible to trace another perspective following, for example, what has been pointed out by Professor Luca Paltrinieri in multiple occasions (one of them during a seminar in Bologna in June 2019[52]). Paltrinieri said that the progressive atomization of workforce fostered by platforms finds a sort of formal correspondence in pre-Fordism times, because before the birth of the "enterprise form" the relationship of the worker with the employer does not yet fall within the framework of a relationship of subordination. Furthermore, during Fordism and Taylorism the relation between Capital and Labour has been regulated by the employee contract and by a relationship of workers' knowledge dispossession and embedding into machines. Today, instead, the platforms' aim is that of the "empowerment" of the working subject in order to push the single worker to take responsibilities (no matter if reluctantly). In other words, the goal seems to be the development of the figure of

[47] K. SCHWAB, *The Fourth Industrial Revolution,* p. 14.
[48] R. BARBROOK – A. CAMERON, *The Californian Ideology*, «Mute Magazine» September 1995, Retrieved from http://www.metamute.org/editorial/articles/californian-ideology, last access 13 Mat 2025.
[49] M. PIRONE, *Piattaforme, scatole nere, tempeste. Passato e presente del capitalismo digitale,* «Zapruder», 46, 2018, p. 47.
[50] *Ibidem.*
[51] *Ibidem.*
[52] https://www.youtube.com/watch?v=f0mZU_2vTuM, last access 13 May 2025.

the self-entrepreneur who should apply the management system on his own life, in order to develop his set of skills.

Paltrinieri[53] insists that the economic model of digital platforms as a way of coordinating production, rather than a new type of enterprise, represents the crisis of the model of enterprise, at least as it has been described by the economic theory. In fact, within the enterprise theory, we can identify three trends. The first one rotates around Ronald Coase, who wrote *The Nature of the Firm* (1937) where he pointed out that basically the firm is alternative to the market. The second one is polarized around Armen Alchian and Harold Demsetz with their article titled *Production, Information Costs and Economic Organization* (published in 1972) with whom they reinforced the school of the propriety right defending it from the progress of management and the stockholders. The last trend is the one of the so-called "agency theory" inaugurated by an important article by Michael C. Jensen and William H. Meckling titled *Theory of the firm: Managerial behaviour, agency costs and ownership structure* (1976). The "agency theory" is important because it not only reflects a situation that is the emergence of the financialization of the companies in the 1980s and 1990s (with its increasing shareholders' power), but it is also the theory that will justify this power. The last metamorphosis of this model is the "venture capitalism" described by Gina Neff in her book *Venture Labor. Work and the Burden of Risk in Innovative Industries* (2013), where she points out how the search for credit becomes the one and only objective of the firms. It is the start-up model: platforms aim at this.

Another crucial perspective in order to retrace the genealogy of the Industrial Revolution 4.0 in its "platformized" character is offered by the astonishing list of publications of Ursula Huws. Since the beginning of the Eighties her focus has been the relationship between labour and technology, with a constant attention on women's work. Technology and its impact on common life, for example, have been the topics of many articles of the Eighties such as *Society at Work: The New Homeworkers* (1984) and *Terminal Isolation: The Atomization of Work and Leisure in the Wired Society* (1985). In both of them, ahead of time she faced the new «social isolation» intrinsic to tele-homework, reporting the risks of encroachment of work on family and social life. Due to its growing spread in society, teleworking has been the focus of other articles of the Nineties too. Among these texts, of particular importance is *Teleworking and Gender* (1996) which shows that women often were underpaid and undervalued and resent the way in which their work was trivialized by the men with whom they live. By the beginning of the new millennium Huws shifted her focus on eWork and digital labour. The book *The Making of a Cybertariat? Virtual Work in a Real World* was a

[53] L. PALTRINIERI, *L'impresa e la filosofia politica. Verso un approccio genealogico*, «Officine Filosofiche», 3/2016, p. 25-44; L. PALTRINIERI, *Managing Subjectivity: Neoliberalism, Human Capital and Empowerment*, «Fudan Journal of the Humanities and Social Sciences», 10, 2017, pp. 459-471; M. NICOLI - L. PALTRINIERI, *Platform cooperativism et dépassement de l'entreprise capitaliste. Une stratégie pour le commun?*, in C. LAVAL – P. SAUVETRE – F. TAYLAN (eds), *L'alternative du commun*, Paris, Hermann, 2019, p. 241-254.

collection of essays she wrote since 1982 until the early 2000, and *Labour in the Global Digital Economy. The Cybertariat Comes to Age*, is somehow the continuation of the same topics, with a collection of texts between 2006 and 2013, which was of course «a tumultuous period in the history of capitalism and the organization of labour»[54]. The new proletariat arisen from new technologies (so-called "Cybertariat") has been one of her themes of enquiry, and it is quite meaningful that today we are still talking about it when we consider what we could call the "platform proletariat" or "platfortariat" which is precisely the social figure at the center of our work.

2.4 Women, digitalisation and platform economy[55]

Analysing the evolution of the labour market and of production processes, the role of technologies and new technologies in shaping the identity of the economics and of the workers, and the impact of these transformations on the urban space, cannot by any means reach an overarching perspective if the gender dimension of such changes is neglected. The role of women in labour has gained a specific and dedicated focus in many research disciplines. Female workers have been studied in theory and have led to an actual transformation of the way work is structured and managed both at the macro- and the micro-level. The need to respond to the challenges emerging from the integration of women in the labour market and, more recently, the commitment of policy makers and governments to international binding conventions to contrast gender-based discriminations and gender stereotyping, fostered the introduction of crucial transformations of the labour discipline, such as an increasing flexibilization of working arrangements in order to allow women in the first place – but also their male colleagues as time went by – to efficaciously combine their work load with care responsibilities. Work-life balance and flexibility policies made their official debut in labour studies and policies.

Technologies were glaringly crucial actors in the implementation of these transformations. However, technologies are not gender-neutral; and neither are flexibility policies. In other words, it cannot be concluded without a further in-depth investigation that technological revolutions in the labour market had a positive impact on social and economic conditions of female workers. Moreover, it is worth investigating if such transformations of working arrangements are actually leading to the overcoming of gender stereotyping and of the so-called male breadwinner model.

Researchers have so far tried to analyse such issues and responded to two key questions[56]. On the one hand, to what extent the new forms of work are reorganizing

[54] U. HUWS, *Labour in the Global Digital Economy*, p. 1.
[55] We want to thank Fondazione Brodolini for the crucial help in proposing the first version of this section.
[56] A. RENAN BARZILAY, *Platform Inequality: Gender in the Gig Economy*, «Seton Hall law review», 2017, pp. 393-431.

around the same gender lines. In this respect, gender inequalities need to be considered at the structural societal level: the barriers women face in accessing the labour market, the persistence of male-dominated fields of knowledge (i.e. STEM disciplines) and economic sectors, the uneven sharing of care responsibilities between men and women, the higher incidence of women in part-time and unqualified jobs. Moreover, digitalisation and flexibility of work require workers to constantly invest in further training, in order to increase their qualifications and skills and keep up with digital innovations. In this respect, neglecting the structural imbalances of opportunities of women and men would lead to the unrealistic conclusion that women benefit from the same training opportunities of their male counterparts: it is actually much more likely that women won't have enough financial resources to afford training or they won't be able to combine family duties with training[57]. If these structural gender inequalities are omitted, the most relevant factors preventing women from benefiting from opportunities offered by digitalization go unperceived. The vicious circle women end up trapped in – caused by current gender gaps and inequalities hindering the chances offered by the digital revolution – must be disentangled for new technologies to have a positive spill-over effect for every member of the population[58].

On the other hand, if the development of platform-facilitated labour and, more generally, flexible (and precarious) working arrangements, are actually enhancing women's opportunities or if, on the opposite, they are merely replicating old economic inequalities. In other words, it is pivotal to figure out whether we are currently coping with the third generation of gender-discrimination claims, that is the further marginalisation and exclusion of women as a consequence of the introduction of new technologies and the upsurge of the gig economy, after that formal barriers to womar's inclusion in the labour market (first generation) and underlying gender biases and stereotypes (second generation) had been addressed. In this respect, researchers have already stressed that flexibility policies are meant to allow individuals the freedom to decide and shape their own schedules and places of work; however, the actual impact of such policies cannot be properly assessed if a gender-neutral perspective is adopted. On the one hand, introducing flexible working arrangements – making the most of the possibilities offered by technologies in this respect – won't necessarily deconstruct gender roles: on the opposite, women might be exposed to precarious jobs, without having their routine partially relieved from family care responsibilities. In fact, digitalization and flexible work arrangements did not lead to the overcoming of the idea of the "ideal worker", that is the employee working full-time, who has no other duties outside the workplace and is therefore available 24-hours a day. Digitalisation poten-

[57] UNI GLOBAL UNION, *Digitalization from a Gender Perspective*, 27 June 2017, available at: https://uniglobalunion.org/sites/default/files/files/news/digitalization_-_en.pdf last access 13 May 2025.
[58] A. SORGNER – C. KRIEGER-BODEN, *Empowering Women in the Digital Age*, 5 July 2017, available at: https://www.g20-insights.org/wp-content/uploads/2017/07/Empowering-Women-in-the-Digital-Age.pdf last access 13 May 2025.

tially makes workers always on-call, blurring the division between life at work and outside work. Women – who still are the primary care-givers – find it therefore more difficult to comply with the "ideal worker" image[59]. On the other hand, the introduction of precarious types of employment has been gradually extended to other subgroups of the working population, men included, thus potentially leading to a general deterioration of labour conditions of disadvantaged social groups. If a thorough perspective is adopted, flexibility programs and the increasing use of technologies dematerializing the workplace might not lead to a higher level of independence of workers, but to erratic and unpredictable work-schedules that make planning family life even more complex. This situation represents a critical risk for female workers, especially if their role as primary family care givers is not challenged[60].

Another issue of investigation concerns technological changes at the organizational level, in close connection with tokenism. Tokenism can be defined as the theoretical construction focusing on the ways unequal gender positions are created and reinforced in organisations[61]. Women – as minority group in many fields of activity, especially in male-dominated fields of production and knowledge – are considered as "token" and, as such, subject to many diverse barriers, ranging from invisibility, glass ceiling, exclusion from decision making, under-evaluation of competences and skills and so on. Tokenism relates to the ways organisations organise their activities and workforce, but it is deeply rooted in societal power imbalances among groups, such as stereotyping and discriminations affecting women as a group. Tokenism has been investigated for decades now, mostly in the perspective of the above-mentioned first and second generations of gender-based discriminations. However, much room is still available for a comprehensive reflection on if and how technological changes and the new forms of labour emerging in recent years are reinforcing the marginal role of women in the workplace and the barriers preventing their participation to specific fields of production and knowledge.

Eventually, another line of investigation worth investing in, concerns how the digital revolution is changing female work in different parts of the world, thus considering the digital, societal and cultural divide that might differentiate the impact of new technologies, their potential positive and negative outcomes. This approach would entail, for instance, avoiding considering the Western approach and use of technologies as universally applicable; this would also allow to consider the level of access to technologies in different parts of the world as a crucial index of the impact of digitalization on

[59] See UNI GLOBAL UNION, *Digitalization from a Gender Perspective*.

[60] Y. LOTT, *The Need for a Gender Perspective on Digitalization*, 5 August 2015, available at: https://www.socialeurope.eu/need-gender-perspective-digitalization last access 13 May 2025.

[61] S. POUTANEN – A. KOVALAINEN, *Gendering Innovation Process in an Industrial Plant – Revisiting Tokenism, Gender and Innovation*, «International Journal of Gender and Entrepreneurship», 5/3, 2017, pp. 257–274.

societal wellbeing and working conditions[62]. Intersecting gender with other oppression drivers, such as nationality, race and ethnic origins, is key to attain a more comprehensive understanding of the policies that would be needed to empower women – not perceived as a universally homogenous sub-group of the global population – in the Digital Age.

This section represents a mere attempt to sketch possible future lines of investigation without suggesting a solution to the issues mentioned above. The core element of this reasoning is the idea that digitalisation of working processes and of labour organization cannot be considered from a gender-neutral perspective, as a process that will have an equal impact on all employees. Awareness of the potential risks and different impact of such transformations on women is useful to successfully manage this process in a way that contributes to the contrast and elimination of gender inequalities. Furthermore, this approach offers an investigation method that can be applied to other sub-groups of the working population – such as immigrant workers – that might be exposed to specific risks and positive outcomes of the digitalization process of the labour market.

[62] R. ADAMS, *The Fourth Industrial Revolution Risks Leaving Women Behind*, World Economic Forum, 7 August 2019, available at: www.weforum.org/agenda/2019/08/the-fourth-industrial-revolution-risks-leaving-women-behind/ last access 13 May 2025.

3. Towards a trans-urban approach

3.1 Framing the context of urban analysis

At the core of our work is the objective to develop a ground-breaking investigation able to intimately interlace the triangle between technological innovation, labour transformation and the environment *through which* (Isin, 2009) they develop. It is within this perspective that our research started with the necessity to elaborate a new epistemological and methodological approach to the urban, considering it as the quintessential matrix of contemporary and future social, economic and environmental challenges[1]. In the research project we announced the necessity to develop a new concept, that of a "trans-urban" approach, as a fine-tuned lens able to interpret the ways in which the action of digital platforms takes place in many different contexts at the same time, producing multifaceted effects on the localities and the forms of labour in which they operate. Therefore, this research document is intended as an attempt to elaborate the "trans-urban" approach starting from a theoretical, a genealogical, and a methodological study.

The ways in which digital platforms are territorializing requires an inquiry's approach able to comprehend how they interact, the frictions that they produce, the adaptation they require in the urban texture in a planetary vision. In other words, rather than considering specific case studies as meaningful in themselves, we push towards a research attitude able to focus on the continuities, resonances and commonalities that platform capitalism is producing on a large scale. This does not mean that specificities, differences and contextual and situated factors do not matter. On the contrary, we think that a trans-urban approach should be able to emphasize the contextual dynamics by enlightening the common ground in which they are produced. We consider cities first of all as *meta-networks*, variegated nodes of the global economy that can be understood only if we consider their degree of integration (both in terms of adaptation, resistance and self-production) to trans-local and trans-national flows. The cities we are researching were selected using the criteria proposed by the Globalization and World Cities (GaWC) Research Network. GaWC periodically produces an Index measuring the level of cities' integration into global economy, and the seven cities were chosen for their good level of integration and in order to guarantee different levels of city's connectivity. Moreover, these case studies are representative of contexts between more-than-1-million people cities and less-then-1-millon-people-cities because – without clear and trustable official data on platform economy workers population – we indicatively assumed city population as indicator of platforms possibility of development. In the "World According to GaWC 2016" classification, we

[1] UN-HABITAT, *The State of the World's Cities Report 2006/2007*, 2007.

selected four alpha-cities (London, Paris, Barcelona, Lisbon), two beta-cities (Berlin and Tallinn), one gamma city (Bologna).

Moreover, we assume the hypothesis that cities are a leading stage for economic and social innovation, representing crucial stages for the implementation of platform economy – considered as one of the main recent frontiers of innovation. The platform business is affecting first and foremost urban areas. One Earth highlights «how the dense concentration of people in an increasingly urban society enables sharing with less friction while a desire or necessity for more independent lifestyles with part-time work attract people to the Sharing Economy».

It is demonstrated how crucial is the link between urban environments and platform economy, especially discussing how online platforms facilitate new businesses like sharing and gig economy, where «physical exchange is concerned, the population density of cities has created especially fertile ground»[2]. Moreover,

> the popularity of smartphones, lower data costs and high population density in cities facilitate the use of sharing platforms, which can scale quickly with the right business model. The multitude of resources concentrated in urban areas also create ideal conditions for monetizing idle or excess capacity, skills contracting and optimizing the match of supply and demand[3].

Cities foster practices of sharing together with digital life-styles, necessity of supplement jobs and consumer new orientations. In this document we elaborated further this assumption in a genealogical perspective, showing how through different historical steps urban spaces have progressively become the forefront of economic production, distribution and consumption for capitalistic economy.

Furthermore, our perspective considers how local governments are both under increasing pressure for managing platform economy impact and are more and more appointed as key actors that could facilitate their growth and take advantage from it. Local governments play a spectrum of roles in platform economy, and their actions could contribute to a fair economic growth, to define taxes and fees for collective benefits, to protect data. Municipalities, therefore, are asked not simply to regulate such growing phenomena but to co-operate with other different stakeholders (trade associations, unions, workers, citizens' committees) to plan sustainability in economic, social, environmental terms of such transformations. Put differently, cities could be seen as networked stage of multi-actors' processes and we aim to analyse platform economy as a field of confrontation among their agencies. More generally, cities could contribute to face the main challenges of the future of work[4]. So we assume urban spaces as

[2] K. SCHWAB, *The Fourth Industrial Revolution*, World Economic Forum, 2016.
[3] *Ibidem*.
[4] See L. PARISI, *Contagious Architecture. Computation, Aesthetics, and Space*, Boston, MIT Press, 2022.

a stimulating and promising field of inquiry into the promising business model of platforms and the promotion of social inclusion, economic development, fairness and well-being.

Finally, the emergence of platform urbanism prompts a reimagining of existing infrastructural geographies of the city and the labour that underpins the operation of urban life. Platforms interact with existing infrastructures and environments transforming the way the urban is governed and experienced through technology. These interfaces have become ubiquitous nowadays, but we think that it is necessary endowing the analysis of such phenomena with a methodological and genealogical investigation, to grasp in a more complex and accurate way the current transformations. In this direction, the next part of the document presents some premises and hypothesis, discussion theoretical coordinates for the trans-urban conceptualization. We aim at working with these different research pathways that should be make converging and working together. This brunch, this cluster of different proveniences indicates a sprawling and generative thinking necessary to articulate a trans-urban approach. The bundle of trajectories we consider: Critical Logistics[5]; Planetary Urbanization[6]; Citycism and Global Value Chains[7]; Circulation and urbanization[8]; Finance and Migration[9]; Critique

[5] B. ASHTON, *The Factory without Walls*, «Mute», 2, 4/2006; D. COWEN, *The Deadly Life of Logistics: Mapping Violence in Global Trade*, Minneapolis, University of Minnesota Press, 2014; K. EASTERLING, *Extrastatecraft. The Power of Infrastructure Space*, London-New York, Verso, 2014; S. MEZZADRA – B. NEILSON, *Extraction, Logistics, Finance. Global Crisis and the Politics Of Operations*, «Radical Philosophy», 178/2013, pp. 8-18.

[6] N. BRENNER (ed), *Implosion/Explosion. Towards a Study of Planetary Urbanization*, Berlin, Jovis, 2013.

[7] H. ANGELO – D. WACHSMUTH, *Urbanizing Urban Political Ecology: A Critique of Methodological Cityism*, «International Journal of Urban and Regional Research», 39, 1/2015, pp. 16-27; E.F. ISIN, *Cities Without Citizens: Modernity of the City as a Corporation*, Montreal, Black Rose Books, 1992.; W. MAGNUSSON, *The Symbiosis of the Urban and the Political*, «International Journal of Urban and Regional Research», 38, 5/2014, pp. 1561-1575; D. WACHSMUTH, *City as Ideology: Reconciling the Explosion of the City Form with the Tenacity of the City Concept*, «Environment and Planning D: Society and Space», 32, 1/2014, pp. 75-90.

[8] R.E. ADAMS, *Circulation and Urbanization*, New York, Sage, 2018.

[9] T. ENRIGHT – U. ROSSI, *The Urban Political. Ambivalent Spaces of Late Neoliberalism*, Berlin, Springer, 2018; S. SASSEN, *Le città globali* (1991), Torino, UTET, 1997.

of Methodological nationalism[10]; De-scaling[11]; Transgender studies; Black Urbanism; The "Space" of Quantum Physics.

3.2 Mixing up heterogeneous perspectives – A theoretical panorama

Developing a trans-urban perspective means going beyond the hierarchical vision prompted by modern geography. The world is not any more organized through a defined scalar disposition[12]. The local, the regional, the State, the continent and the global used to function as analytical and political steps for encapsulate social phenomena. However, one of the main changes that globalization processes have prompted has been a complex re-scaling[13] that implies an effort to search for new concepts. Thinking through a trans-urban paradigm points to tackle this challenge. Moreover, our research has tried to confront with some emerging epistemological paradigm. On one hand, we stressed the necessity of conceiving the urban as a relation rather than as a stable matter of fact[14]. On the other hand, we tried to enrich this perspective by the adoption of heterogeneous theoretical sources.

First of all, we tried to work on an urban interpretation of the so called "world-ecology" field. World-ecology draws on a diversity of transdisciplinary, critical traditions across the human and physical sciences. The hyphenated term world-ecology derives from a reinterpretation of the historians Fernand Braudel and Immanuel Wallerstein. The history of capitalism marks the geographical expansion of a world-economy that becomes global in the twentieth century. In Moore's early formulation, the capitalist world-economy could not be separated from its environmental history: capitalism is a "world-ecology" whose geopolitics and economic life was rooted in a particularly dynamic - and violent - relationship towards webs of life. Capitalism as a system of endless capital accumulation required a constant search for new, lost-cost natures - including enslaved humans and the destruction and depletion effected by capitalist monocultures and extractive systems exhausted cheap natures discovered in a previous era, setting in motion new frontiers of violent accumulation. Moreover, world-ecology radically challenges the binaries through which the hegemonic thought of modernity has constituted itself, first of all the division between nature and culture.

[10] D. CHERNILO, *The Critique Oof Methodological Nationalism*, «Thesis Eleven», 106, 1/2011, pp. 98-117; M. CERVANTES-RODRÍGUEZ, *Caribbean Migration to Western Europe and the United States Essays On Incorporation, Identity, And Citizenship*, Philadelphia, Temple University Press, 1971.

[11] N. BRENNER – C. SCHMID, *The Limits to Scale? Methodological Reflections on Scalar Structuration*, «Progress in Human Geography», 25, 4/2015, pp. 591-614; N. BRENNER, *Beyond State-centrism? Space, Territoriality, and Geographical Scale in Globalization Studies*, «Theory and Society», 28, 1999, pp. 39-78; F. FARINELLI, *Il mondo non è più fatto a scale*, «Dialoghi internazionali», 2, 2010, pp. 156-167.

[12] F. FARINELLI, *La crisi della ragione cartografica*, Torino, Einaudi, 2009.

[13] N. BRENNER, *Globalisation as Reterritorialisation: The Re-scaling of Urban Governance in the European Union*, «Urban Studies», 36, 3/1999, pp. 431-451.

[14] N. BRENNER, *The Urban Question as a Scale Question: Reflections on Henri Lefebvre, Urban Theory and the Politics of Scale*, «International Journal of Urban and Regional Research», 24, 2/2010, pp. 361-378.

An urban interpretation of this reflection points to dismantle the binary between urban and rural, the city and countryside divide, and again to go beyond a vision of cities as bounded territorial unities by focusing on their constitutive interconnections, and the continuous mobility (of people, capital, cultures, goods etc.) through which they are produced and reproduced.

This elaboration dialogues with the theory of "planetary urbanization"[15], that we have tried to enrich with a second source of inspiration for the developing of a trans-urban perspective. The reference is to the work of Donna Haraway, mobilizing her concern with deflating the uncritical acceptance of key oppositions (and their political implications) related to the domain of science. Haraway conceptualization on "cyborg"[16] as an entity combining cybernetic, organic as well non-organic qualities is a quite intriguing approach that can be tested on the analysis on platform capitalism from both the labour and urban perspective. Moreover, her recent work *Staying with the Trouble: Making Kin in the Chthulucene* confronts with the emerging planetary paradigms usually labelled as "Anthropocene" providing a critical and alternative perspective. In this regard, we think that the trans-urban conceptualization should be nurtured by the possible entanglement between the Chthulucene perspective, the "Anthropocene or Capitalocene" developed by Moore and the "Planetary urbanization" perspective above mentioned. Moreover, we should add the "critical logistics" field of studies. These four theoretical fields converge in radical re-orientation of concepts, in a dynamic, relational, interconnected and trans-scalar way, and in a shift from the "global" to the "planetary". All these characters are crucial for a definition of a trans-urban approach. Let us briefly concentrate on the last point of the previous catalogue to ground it more in an urban perspective.

The above-mentioned reference to the so-called world-system theory, points to cycles of accumulation leading to the world-system. There is a specific urban perspective within it. Each subsequent cycle of accumulation will always have a city as its centre of gravity. From Venice to Amsterdam, from London to New York, cities used to represent the logistical and financial heart of the world-systems, brain trusts where commodities, people and capitals were managed and amassed. These cities were laboratories of forms of coexistence and conflicts, miniaturized worlds. City-worlds, precisely, as again Braudel defines them[17]. In a recent work by Antoniol and Cuppini[18], is demonstrated that, if the fracture at the origin of the modern was brought about as a

[15] A. MERRIFIELD, *The Urban Question Under Planetary Urbanization*, «International Journal of Urban and Regional Research», 37, 2013, pp. 909-922; N. BRENNER, *Global Cities, Glocal States: Global City Formation and State Territorial Restructuring in Contemporary Europe*, «Review of International Political Economy», *5*, 1/1998, 1-37.

[16] D. HARAWAY, *A Cyborg Manifesto. Science, Technology, and Socialist-Feminism in the late Twentieth Century*, 1985.

[17] F. BRAUDEL, *I tempi del mondo* (1979), Einaudi, Torino, 1982.

[18] V. ANTONIOL – N. CUPPINI, *Stasis in the Planetary-City: Conflict and Spatiality within the Fading of Western Modernity*, «META: Research In Hermeneutics, Phenomenology, And Practical Philosophy», XIII, 2/2021, pp. 623-656.

result of the new dimension of the Earth (Terra), it is the figure of the world that needs to be philosophically considered to seize the Zeitgeist from the Glorious Revolution to the beginning of the XIX Century. The Earth is flattened into a map, to make possible the tracing of the boundaries of states and to define the new oceanic routes. If the Earth was the physical entity to be appropriated, the world indicates instead its shape within what started to be defined as a "civility". However, at the end of the XIX century there was a huge increase of exchange and trade on the global scale, led by the deepening of the interconnection between metropolitan fabrics, stretching from Paris to Berlin, from London to New York, from Chicago to Calcutta.

> This was a break with the precedent set by world-cities, who were (or at least pretended to be) the unique centre of a world-system with a clear core-periphery geography. Moreover, the becoming-metropolitan of what were formerly world-cities triggered a new cycle, the so-called "first Globalization". Therefore, if the transition from the city to the state, with the opening of new spatial dimensions, was given in the name of the Earth, and if the first cycles of capitalist accumulation established themselves with the idea of the world, then the bursting of conflict within the historical city, and its subsequent destruction in favour of the metropolis, lead towards a new figure: the globe[19].

The figure of the Globe (globalization) was definitely affirmed during the Nineties of the 20th century, with discussions of the end of the state within a borderless world, a new era structured around a global space of flows with social relationship organized around the new net technologies in a global village. The "triumph" of the concept of global city marked that historical passage. However, in the last decade we are living in a transitional phase. The outlined summary sequence that, through a-linear and complex integrations and assemblages, articulated the pathway from Earth to world to the globe, has to be now reconsidered in the light of the Planetary dimension. This involves a trend towards technological, communicative, and productive "unification", going hand in hand with a continuous multi-polarization. We are faced with the progressive extension of an urban infrastructure on the whole planetary surface, that requires a trans-urban perspective to be grasped.

It is in this direction that we have depicted a theoretical panorama that converge, even if with specificities, differences and some internal contradictions, towards a new epistemology of the urban. More widely, we are trying to propose an ontological wrinkle of the urban that should be taken as a background methodology and perspective for our research.

3.3 Ten Trajectories for a trans-urban conceptualization

Given the above-mentioned premises and hypothesis, we can now try to systematize some theoretical coordinates for the trans-urban conceptualization. To forge a

[19] M. VEGETTI, *L'invenzione del globo. Spazio, potere, comunicazione nell'epoca dell'aria*, Torino, Einaudi, 2017, p. 138.

new concept and methodology requires a genealogical perspective, meaning that our aim is to trace the multiplicity of trajectories that have to be taken into account for its elaboration. In this sense, we propose ten different research pathways that should be make converging and working together.

1.Critical Logistics

We elaborated quite extensively on logistics in the Capital's revolutions part of this document. And we will say something more on that in the next paragraph. What can be added here are just some further notes on the specific urban dimension of logistics. Moreover, it has to be added that, as we previously stated, there is a need to recall and stress the fact that logistics is a crucial lens for the understanding of contemporary times because it makes possible the enlightening of some systemic characters that are quintessential also for the developing of a trans-urban approach:

- the planetary dimension of nowadays economic and social processes;
- the multiplication of flows and borders as the way in which logistics concretely works on the ground for making circulation possible[20];
- the necessity to point to mobility in a wider sense to grasp the paradigmatic essence of today's economies;
- the heterogeneous spatial assemblage that logistics connects and shapes and the new political forms that these operations are profiling[21];
- the various, intertwined and complex technological apparatus mobilized for guaranteeing logistical interconnections.

All these aspects have to be taken into consideration for a sort of "translation" in an urban perspective. That means first of all deepening the hypothesis that logistics is a vector of urbanization and pointing to the intimate relation between logistics and urbanization processes. Secondly, the central theme of "infrastructures" within logistics studies[22] is another decisive element for defining the trans-urban analytical angle. In fact, infrastructures are the concrete elements that make trans-urbanism possible, being them highways, railways, airports, digital networks, Internet cables etc. Thirdly, an emerging stream of literature is defining "platforms as infrastructures", and this definition exactly points to the ways in which the last frontier of the logistics of urbanization works.

More generally, a trans-urban analytical angle is nurtured by the logistics literature that discusses the production, distribution and consumption economic cycle of capitalism as "supply chain capitalism"[23] and proposes the metaphor of an actually existing

[20] S. MEZZADRA – B. NEILSON, *Extraction, Logistics, Finance*.
[21] K. EASTERLING, *Enduring Innocence: Global Architecture and its Political Masquerades*, Boston, MIT Press, 2005.
[22] D. COWEN, *The Deadly Life of Logistics: Mapping Violence in Global Trade*.
[23] A. TSING, *On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales*, «Common Knowledge», 18, 3/2012, pp. 505-524.

"global factory without walls"[24]. The integration of these perspectives in the trans-urban approach are quintessential for grasping the crucial juxtaposition between the urban and the industrial revolutions, and how today this nexus is even more effective and inextricable then in the past.

2.Planetary Urbanization

During the last thirty years, the form of urbanisation has been radically reconfigured, a process that calls into question the inherited ways in which we have long underpinned urban theory and research. Aside from the dramatic spatial and demographic expansion of major mega-city regions, the last thirty years have also witnessed several far-reaching worldwide socio-spatial transformations. These include: The creation of new scales of urbanisation; The blurring and rearticulation of urban territories; The disintegration of the "hinterland"; The end of the "wilderness"[25].

This situation of planetary urbanisation means that even spaces that lie well beyond the traditional city cores and suburban peripheries – from transoceanic shipping lanes, transcontinental highway and railway networks, and worldwide communications infrastructures to alpine and coastal tourist enclaves, "nature" parks, offshore financial centres, agro-industrial catchment zones and erstwhile "natural" spaces such as the world's oceans, deserts, jungles, mountain ranges, tundra, and atmosphere - have become integral parts of the worldwide urban fabric. From this perspective, it is possible to capture how the planetary urbanization conceptualization is widely entangled with a "capitalocene" and world-ecology perspective, and how the political-economic spaces can no longer be treated as if they were composed of discrete, distinct, and universal "types" of settlement.

The logistical interconnections, the movements and the flows are constitutive dynamics of the urban, and so the epistemological shift towards the analysis of planetary urbanisation requires new strategies of concrete research and comparative analysis that transcend the assumptions regarding the appropriate object and parameters for "urban" research that have long been entrenched and presupposed within the mainstream social sciences and planning/design disciplines[26]. In close conjunction with such new research strategies, the investigation of planetary urbanisation requires major theoretical and conceptual innovations, and the idea of trans-urbanism can contribute to fruitfully work as a lens for interpreting this emerging cartography.

Moreover, from the planetary urbanization lens there is a strong emphasis on the analytical tools of intensive urbanization, extensive urbanization and extreme urbani-

[24] B. ASHTON, *The Factory without Walls*.
[25] N. BRENNER, *Theses on Urbanization*, «Public Culture», 25, 1/2013, pp. 85-114.
[26] N. BRENNER – C. SCHMID, *The 'Urban Age' in Question*, «International Journal of Urban and Regional Research», 38, 3/2014, pp. 731-755.

zation that we will use for the discussion of our case studies. The circulation and interconnection between these three spheres of contemporary urbanization processes is exactly what a trans-urban perspective wants to emphasize.

3. Citycism and Global Value Chains

Related to the previous assumptions, there is than a need to go "beyond the city", to challenge the idea of cities as containers of social relationships[27], to criticize what has been labelled as "methodological citycism". Affirming that the city is not a bounded unity means furthermore separating the city's analysis from the lenses of the State[28], and pointing to what Henri Lefebvre used to call the "explosion of the city". In fact, the very idea of "the city" persist with tenacity in usual analysis, but merely as an ideology. Trans-urbanism points to a theoretical re-examination of the traditional concept of the city in the context of urbanization processes that exceed it. Recent scholar debate has seen a proliferation of new variations on the city concept, as well as calls to discard it altogether. Both options are probably inadequate. The city has generally been understood as a category, as a moment in urbanization processes, but might now be better understood as an ideological representation of urbanization processes, as a category of practice. Trans-urbanism needs to exceed three tropes of the traditional city: the opposition between city and country, the city as a self-contained system, and the city as an ideal type. These framings have been superseded in material terms in recent decades but retain their force as ideological representations of contemporary urban spatial practice.

Additionally, urban political ecology (an offshoot of political ecology that emerged in the late 1990s) has introduced critical political ecology to urban settings, and it has provided a framework for retheorizing the city as a product of metabolic processes of socionatural transformation[29]. However, these branches have quite underestimated the necessity to trouble traditional distinctions between urban/rural and society/nature by exploring urbanization as a global process. A research program that could work across traditional disciplinary divisions and provide insights into a new era of planetary urbanization, has remained unfulfilled. Our aim in this research has been to confront with this need through the juxtaposition between this theoretical stream and the "global value chains" approach. In fact, the global value chains where firstly conceived as networks of production and trade across countries. But it is possible to consider them in their urban impact, showing how the global value chain are one of the main vectors that made the historical city's boundaries exploding. The study of global value chains

[27] E.F. ISIN, *City. State: Critique of the Scalar Thought*, «Citizenship Studies», 11, 2/2007, pp. 211-228.
[28] W. MAGNUSSON, *Seeing Like a State, Seeing Like a City*, «Annual Meeting of the Canadian Political Science Association», Vancouver, University of British Columbia, 2008.
[29] H. ANGELO – D. WACHSMUTH, *Urbanizing Urban Political Ecology: A Critique of Methodological Cityism*.

requires inevitably a trade theory that can treat input trade. However, mainstream trade theories are only concerned with final goods. It needs a New trade theory.

4. Circulation and urbanization

In addition to the previous analytical layers to conceptualize trans-urbanism, it is necessary to add a further perspective: the nexus between urbanization and circulation. The history of the urban has been usually investigated through an architectural and morphological point of view, which inevitably lead to a quite fixed and stable interpretation of it. However, moving beyond both canonical and empirical portrayals, it is fruitful approaching the urban through a genealogy of circulation – a concept central to Western political thought and its modes of spatial planning[30]. Locating architectural knowledge in a wider network of political history, legal theory, geography, sociology and critical theory, and drawing on maritime, territorial and colonial histories, Adams contends that the urban arose in the Nineteenth century as an anonymous, parallel project of the emergent liberal nation state. In this light, the urban results as a primary instrument, a means and an end, of state form and of the capitalist relations.

In other words, the notion of circulation in its changing relation to early modern and modern forms of power, locates the urban as a unique spatio-political order that first became legible in the nineteenth century as a project to restructure the space of the emergent liberal Nation-State. «If there is a history of the urban, it is a history of what circulates. It is a history of infrastructure» states Adams[31], meaning that every new innovation and every new urbanism is undoubtedly infrastructural, as it materializes social value in infinite networks and corridors of human connectivity.

More broadly, the circulation-urbanization link can be also framed in philosophical terms as the progressive shifting in the relationship between power and space towards techniques of circulation. Foucault mentioned this question, and we could frame urbanization as a particular expression of power within a larger genealogical relationship of circulation, power and spatial order. It is precisely through this epistemological angle that trans-urbanism emerges as a powerful tool: it points to the necessary circulatory logic of the urban constitution as it bases.

5. Finance and Migration

Trans-urbanity is constituted by many different vectors and it took shape also thanks to dynamics apparently far from what it is usually framed as "urban". Here we want to give just a couple of exemplary cases to explain this point. Planetary space is constituted by elements that are transnational in nature and scope. The planetary scale, the actual space of urbanization, has been constituted, on one hand, by capital historical expansion, and, on the other hand, by the continuous individual and collective

[30] R.E. ADAMS, *Circulation and Urbanization*, New York, Sage, 2018.
[31] *Ivi*, p. 3.

practices of subtraction and escape[32]. This double movement, this contradiction, is today iconically represented by finance and migration. Finance and migration are particularly interesting from a trans-urban perspective because they consent to enlighten trans-urbanism "from above and from below".

The crucial role of finance in shaping urban configuration has been firstly demonstrated by the famous Saskia Sassen's book on *The Global City*[33]. Published in 1991, that book and the myriad of successive elaboration of that concept precisely describes how financial flows (and the extremely sophisticated and dense apparatus of machines, people, organization, software etc. necessary to make them work) used to be concretely "placed" in urban sites. At that time, the "global city" was mainly designed by the New York, London, and Tokyo's financial centres. However, in the last three decades that dynamic has incredibly proliferated worldwide. The work of the Globalization and World Cities Research Network[34] has demonstrated the huge web of permanent financial interconnection between core zone distributed along the global surface. In this sense, finance should be conceived (along many other aspects, of course) as one of the most relevant urbanization shaper, considering also the role it plays in other urban dynamics like rent, extraction, renewals etc. In this sense, and again, the very nature of this financial/urban nexus requires a theorization that is immediately trans-urban, i.e. the only way to conceptualize it starts from the planetary and interconnected network it defines.

Migration processes as a second example for forging a trans-urban lens point again to the trans-national nature of them, to the multifaceted ways in which they trace formal and informal infrastructures of mobility and connection, and to the anomalous cartographies they produce as a global space of human circulation. Migration processes constitute the urban, are "the urban in formation", but this link has usually been framed in literature quite exclusively in terms of countryside-city mobility. In contrast, emphasising the planetary dimension of the phenomena and the urban texture they foreshadow, the simultaneous and interlaced form in which they express, is another lens for developing a trans-urban definition. Let's see something more on this in the next point.

6. Critique of Methodological nationalism

Methodological Nationalism, as a practice within social sciences, has been critiqued by many scholars, who contends that the nation-state and its borders are an insufficient unit of analysis and that the national is at times the "terrains of the global"[35].

The historical prevalence of methodological nationalism within social science should be linked firstly to the constitution of social science itself, as a fundamental part

[32] S. MEZZADRA, *Diritto di fuga. Migrazioni, cittadinanza, globalizzazione*, Verona, Ombrecorte, 2006.
[33] S. SASSEN, *The Global City*.
[34] See: https://www.lboro.ac.uk/gawc last access 13 May 2025.
[35] S. SASSEN (ed*), Deciphering the Global. Its Scales, Spaces and Subjects*, New York, Routledge, 2007.

of the governmental tolls developed by the modern state during the Nineteenth century. More recently, this problem has been explored by scholarship which argues that many writings on globalization have «conflated the necessary conceptual critique of methodological nationalism with the empirical claim of the nation-state's diminishing relevance». Moreover, methodological nationalism and its conception of nation-states has been a component of both contemporary and historical methodologies in migration studies, insofar as certain studies have adhered to it or diverged from its theoretical foundations.

Refusing the idea of nation-states as privileged units of analysis has led many researchers towards what has been called "transnationalism": contemporary examples of divergence and criticism of methodological nationalism as an enduring practice in scholarship. Recent studies in transnationalism have conceived of the nation-state as just one agent in a complex relationship with many global actors[36]. Critical migration studies tend to propose a conception of society as extending well beyond national boundaries, deploying a research program that proposes and adopts alternative analytical angles and perspectives to understand and frame social phenomena. Recent research on transnational Latina motherhood has negotiated issues of the nation-state as well as transnationalism. The conceptual frameworks of power geometries, social location, and geographic scales is positioned to counteract the analytical tendency to fall back on methodological nationalism[37]. Other works have combined transnational migration studies and conceptual frameworks such as coloniality of power to avoid methodological nationalism and better account for the intersecting transnational phenomena that constitutes the experiences of transmigrants and better explains the processes of transnational migration.

The conceptualization of trans-nationalism as a specific spatial and social dimension is a crucial insight on what a trans-urban approach should indicate. Our proposal is to stress the research results emerging from the critique of the methodological nationalism, trying to test them on the planetary urbanization paradigm. This means that we point to go beyond the "national imagination" to describe the globe, adopting the urban as a matrix for describing it and adopting a trans-urban gaze to describe the dynamics currently at play.

7. De-scaling

Conceptualizing trans-urbanism implies a reflection on what geography labels as "the scale question". First of all, we follow the thesis sustaining that the scale is a social product. More recently, Neil Brenner has showed how the outpouring of research on

[36] A. QUAYSON – G. DASWANI (eds), *A Companion to Diaspora and Transnationalism*, London, Wiley-Blackwell, 2013.
[37] P. PESSAR, *Transnational Migration: Bringing Gender*, Centre for Migration Studies of New York, 1971.

scale production and on rescaling processes has been accompanied by a notable analytical blunting of the concept of geographical scale as it has been blended unreflexively into other core geographical concepts such as place, locality, territory and space.

The theoretical grasp of geographical scale could be significantly advanced if scaling processes are distinguished more precisely from other major dimensions of sociospatial structuration under capitalism. Processes of scalar structuration are in fact constituted and continually reworked through everyday social routines and struggles[38], the forms and patterns of scalar structuration are multiple and evolve relationally within tangled hierarchies and dispersed interscalar networks[39]. Moreover, there are multiple spatialities of scale and their scalar hierarchies constitute mosaics, not pyramids[40], even if processes of scalar structuration may crystallize into scalar fixes[41]. These critical reflections on the concept of scale have been enriched by Anna Tsing's idea of "non-scalability", which challenges the conception that both knowledge and things exist by nature in precision-nested scales. For Tsing the technical term that should be adopt is "scalable", meaning the ability to expand without distorting the framework. However, she demonstrates that it takes hard work to make knowledge and things scalable, and that ignoring nonsalable effects is a bad idea. In European New World plantations, the natives were wiped out; coerced and alienated plants and workers came to substitute for them. "Profits were made because extermination and slavery could be discounted from the books. Such historically indeterminate encounters formed models for later projects of scalability"[42]. Tsing articulates the perspective of an emergent "nonscalability theory", paying attention to the mounting pile of ruins that scalability leaves behind, and sustains that if the world is still diverse and dynamic, it is because scalability never fulfils its own promises.

Another critical investigation on this topic has been presented by Engin F. Isin[43], who introduced the intimate link between scale and the State in terms of a specific "scalar thought". Isin sustains that the metaphors of verticality and encompassment "work together to produce a taken-for-granted spatial and scalar image of a state that both sits above and contains its localities, regions and communities"[44]. Scalar thought is a way of representing and instituting relations between the city and the state (at least in modern politics and law) as if these relations were exclusive (i.e. contiguous and

[38] H. LEFEBVRE, *De l'Etat (volume 2)*, Paris, Union Générale d'Editions, 1976.
[39] D. HARVEY, *The Limits to Capital*, Chicago, University of Chicago Press, 1982.
[40] N. BRENNER, *Theses on Urbanization*.
[41] E. SWYNGEDOUW, *The Mammon Quest: 'Glocalisation', Interspatial Competition and the Monetary Order: The Construction of New Scales*, in M. DUNFORD – K. KAFKALAS (eds), *Cities and Regions in the new Europe*, London, Belhaven Press, pp. 39-68.
[42] N. BRENNER, *Theses on Urbanization*, p. 58.
[43] E.F. ISIN, *Being Political. Genealogies of citizenship*, Minneapolis, University of Minnesota Press, 2002.
[44] *Ivi*, p. 106.

non-overlapping), hierarchical (i.e. nested and tiered), and ahistorical. Isin suggests that only the city exists as both actual and virtual spaces:

> The city is actual in the sense that once it comes into being it is permanent (until it is destroyed completely it maintains its capacity to exist), solid and enduring, even when it is transformed. The actual city embodies things (buildings, roads, infrastructure, uses) as well as bodies within intrinsically related and proximate arrangements that constitute its physicality and materiality. The actual city is *urbs*. The city is also virtual in the sense that it is an association that exists beyond the actual bodies and things that constitute it. The virtual city is civitas. The relationship between *urbs* and *civitas* is complex as they are neither reducible to each other nor fully overlapping. *Civitas* can often extend beyond *urbs* and *urbs* can take different forms. When we use the term the city, we imply, wittingly or unwittingly, both spaces of the city[45].

This approach maintains that distinction and considers all other bodies such as states, nations, empires, leagues and federations not as actual but only as virtual spaces that exist in ephemeral, fluid, impermanent and transient states. Through this way it is possible to consider these virtual bodies as assemblages that are kept together by practices organized around and grounded in the city. This implies that such virtual political spaces can collapse and disappear over a relatively short or long period of time - but the city as an actual space cannot, even when it is totally destroyed and even when its virtual space collapses.

All the above-mentioned reflections on the "scale question" are necessary to endow the trans-urban approach with a deep understanding of what it means today to reflect with concepts that go beyond the local/global or other binary hierarchical oppositions. Echoing the so called decolonial approach - consisting of analytic and practical "options confronting and delinking from [...] the colonial matrix of power"[46] or from a "matrix of modernity" in which coloniality and colonialism constitute the "generative order" of a four-fold matrix of forces comprising colonialism/imperialism, capitalism, nationalism and modernity as a set of processes and discourses[47] – we could state that thinking through "trans-urban thought" implies a process of descaling which, starting from what we have pointed here, should aim to go beyond scales as to understand what digital processes are producing in the everyday life.

8. Transgender studies

The theories within transgender studies focus on cultural presentations, political movements, social organizations and the lived experience of various forms of gender

[45] *Ivi*, p. 215.

[46] W. MIGNOLO, *The Darker Side of Western Modernity: Global Futures, Decolonial Options*, Durham, Duke University Press, 2011, p. xxvii.

[47] M. LEVINE, *Overthrowing Geography: Jaffa, Tel Aviv and the Struggle for Palestine*, Berkeley, University of California Press, 2005; M. LEVINE, *Why They Don't Hate Us: Lifting the Veil on the Axis of Evil*, Oxford, Oneworld Publications, 2005.

nonconformity[48]. If gender was a natural characteristic dependent on anatomy, talking about cities in terms of gender would make no sense. «It would be absurd to say, for example, that Stuttgart is energetically male and heterosexual or that Athens overflows with femininity. But if, on the contrary, gender was a set of cultural codes»[49] that have changed throughout history, responding not so much to anatomical characteristics but to a physical aesthetic collectively accepted as normal or sanctioned as pathological, then this characterization of cities would not only be relevant but fundamental in political terms. This provocative formulation has been recently launched by Paul B. Preciado, who talked about Venice as the "trans" city par excellence:

> The whole city stands, like a drag queen, on the fragile heels of the foundations. The whole city is a prosthesis that desire raises over the lagoon. Venice emerges, like the trans body, from the desire to live and exist despite the architectural, medical and religious diagnosis that "this place is not appropriate for the construction of a city. No city should be built on marshy lagoons, nor on quicksand, it should not be built on this set of sea and river water. One should not live in an atmosphere conducive to fever, epidemics and contagion". Let us remember the origin of the archipelago-city: fleeing the barbarian invasions from the fifth century to the eighth century, the people who lived on the mainland of Veneto took refuge on the islands of the lagoon. [...] In Venice the strategic differences between transvestism and transsexualism dissolve - and in this case the verb dissolve is not a metaphor. Like a corset or false eyelashes for a drag queen, there isn't a single nail or beam in Venice that isn't both absolutely necessary and terribly beautiful. Venice is, like the trans body, the place where the struggle and transformation of the elements (water, air, light) acquire an aesthetic coherence. Venice is the mask that has become skin. It is the theatre transformed into the city[50].

Queerness is essentially about the rejection of a here and now and an insistence on potentiality or concrete possibility for another world[51], and a "Queer Phenomenology" enlighten how «disciplines [...] have lines in the sense that they have a specific "take" on the world, a way of ordering time and space through the very decisions about what counts as within the discipline. Such lines mark out the edges of disciplinary homes, which also mark out those who are "out of line"»[52].

Adopting these two perspectives on trans-cities and queerness, our attempt is to destabilize further the stable conception of urban studies and to enrich the trans-urban approach with these unorthodox gazes. It is a work that necessitates more time and

[48] S. STONE, *The Empire Strikes Back: A Posttranssexual Manifesto*, «Camera Obscura», 10, 2/1992, pp. 150-176.
[49] P.B. PRECIADO, *Promenade à Venise*, «Libération», 3 May 2019.
[50] *Ivi.*
[51] J.E. MUÑOZ, *Cruising Utopia: The Then and There of Queer Futurity*, New York, NYU Press, 2009.
[52] *Ivi*, p. 184.

research than what we could do, but fixing it is quite crucial for the future development of our reflection.

9. Black Urbanism

Urban studies are taking a "southern turn". An increasing number of mainstream urban studies focuses on cities of the global South, and one of the most striking evidence from this stream of works is the critical contrast between built form and living space. An analysis about the different physical sites and urbanscapes through which the city exists and invents itself is of course a help in understanding the particular ways through which the materiality of the infrastructures generates specific sets of relations in the city. However, it is also necessary to take into consideration that in the end, in most of the African cities, it is not, or not primarily, the material infrastructure or the built form that makes the city a city. The city, in a way, exists beyond its architecture, and the infrastructure and architecture that function best are almost totally invisible on a material level. A radical re-orientation towards a conception of cities based on its citizens (civitas) rather than on its built environment (*urbs*) is then needed.

Africa it the epicentre of global urbanization. African urbanization process is the fastest that humanity have ever experienced. Urbanization rate soared from 15 percent in 1960 to 40 percent in 2010, and the projection is to reach 60 percent in 2050. Urban population is expected to triple in the next 50 years, generating a complex vortex of transformation involving social, cultural, political and economic dimensions at large. Urbanization is a mega-trend with profound implications for Africa's growth and transformation. The rate and scale of urbanization is reshaping not only the demographic profile of the continent but also economic, environmental and social outcomes.

By 2035 about half of Africa's population will be living in urban areas, presenting considerable demands for employment, services and infrastructure. The urban transition is also taking place as the continent faces a demographic shift and a burgeoning youth population becoming located in urban areas. «Urbanization is not a subplot, but rather the main policy narrative for Africa»[53], and these involves future perspectives on economic growth and prosperity, needing the development of urban centres able to produce goods and services, along with transportation networks connecting regional, national and global markets.

African cities are work in progress, but far from being marginal to contemporary processes of scalar re-composition and the re-imagination of political communities, African cities can be seen as a frontier for a wide range of diffuse experimentation with the reconfiguration of bodies, territories, and social arrangements. Therefore, there is a need for new research tools, frameworks and perspectives to study and operate within African cities with a global perspective. For too long the so called "global North" has seen African cities only in terms of their colonial and postcolonial relationships.

[53] M. E. Freire – S. Lall – D. Leipziger, *Africa's Urbanization: Challenges and Opportunities. The Growth Dialogue*, Working Paper No. 7, 2014, p. 10.

This often makes difficult to see how "modern", "innovative", and "resourceful" they may actually be. It may also preclude a fuller "understanding of the multifaceted ways in which they are engaged with the larger world"[54].

Starting from these premises, we state that a trans-urban approach should be based on a complex and dynamic imagination which have to include heterogeneous urban setting from worldwide, and the black urbanism is probably the most understudied and the most important asset for the future of the urban at the same time. A new way of conceptualizing and understanding urban social dynamics and for concretely interacting with them should therefore keep in mind this crucial aspect.

The new domains of African urbanization should be seen as a process rather than as stable patterns and models. Processes that are intrinsically connected and related to global dynamics, where there is a specific agency of the people that is concretely making urbanization, something often called "informality"[55] that is also producing a "worlding from below" - African urban residents are attempting to elaborate a trans-urban, "worlded" domain of operations.

10. The "Space" of Quantum Physics

For the elaboration of a trans-urban approach we think it is necessary trying to explore how contemporary physics is radically re-defining what the "space" basically is. To introduce the topic, we can start from the quite famous foreword that Albert Einstein did for the book *Concepts of Space: The History of Theories of Space in Physics*[56]. There, Einstein explains: in the case of words such as "place" or "space" whose relation with psycho-logical experience is less direct, there exists a far-reaching uncertainty of interpretation. The historian attempts to overcome such uncertainty by comparison of the texts, and by taking into account the picture, constructed from literature, of the cultural stock of the epoch in question. The scientist of the present, however, is not primarily trained or oriented as a historian; he is not capable of forming nor willing to form his views on the origin of the fundamental concepts in this manner. He is more inclined to allow his views on the manner in which the relevant concepts might have been formed, to arise intuitively from his rudimentary knowledge of the achievements of science in the different epochs of history. He will, however, be grateful to the historian if the latter can convincingly correct such views of purely intuitive origin.

Now as to the concept of space, it seems that this was preceded by the psychologically simpler concept of place. Place is first of all a (small) portion of the earth's surface identified by a name. The thing whose "place" is being specified is a "material object" or body. Simple analysis shows "place" also to be a group of material objects. Does the word "place" have a meaning independent of this one, or can one assign such a

[54] *Ivi*, pp. 18-19.
[55] A. ROY, *The 21st-Century Metropolis: New Geographies of Theory*, «Regional Studies», 43, 6/2009, pp. 819-830.
[56] M. JAMMER, *Concepts of Space*, Cambridge, Harvard University Press, 1954.

meaning to it? If one has to give a negative answer to this question, then one is led to the view that space (or place) is a sort of order of material objects and nothing else. If the concept of space is formed and limited in this fashion, then to speak of empty space has no meaning. And because the formation of concepts has always been ruled by instinctive striving for economy, one is led quite naturally to reject the concept of empty space.

It is also possible, however, to think in a different way. Into a certain box we can place a definite number of grains of rice or of cherries, etc. It is here a question of a property of the material object "box," which property must be considered "real" in the same sense as the box itself. One can call this property the "space" of the box. There may be other boxes which in this sense have an equally large "space." This concept "space" thus achieves a meaning which is freed from any connection with a particular material object. In this way by a natural extension of "box space" one can arrive at the concept of an independent (absolute) space, unlimited in extent, in which all material objects are contained. Then a material object not situated in space is simply inconceivable; on the other hand, in the framework of this concept formation it is quite conceivable that an empty space may exist.

These two concepts of space may be contrasted as follows: (a) space as positional quality of the world of material objects; (&) space as container of all material objects. In case (a), space without a material object is inconceivable. In case (b), a material object can only be conceived as existing in space; space then appears as a reality which in a certain sense is superior to the material world. Both space concepts are free creations of the human imagination, means devised for easier comprehension of our sense experience".

The distinction between place and space is for us compelling and useful for articulating trans-urbanism, assuming that, basically, space loses its ontological possibilities, first of all that of continuity. What quantum physics calls "physical space" is a field composed of quanta – grains in their teeming, kinetic and probabilistic relationalism. «Physical space is the fabric resulting from the ceaseless swarming of this web of relations»[57], and «space is the gravitational field, and the quanta of gravitational field are quanta of space: the granular constituents of space»[58]. If this is really the case, space, whatever it is traditionally understood to be, literally no longer exist: it is the temporary, indeterminable and unstable interaction of quanta. «It is no longer possible to set up rafts of humanism which ignore the insights of contemporary sciences, above all those relative to the insolubility of space and time as coordinates which are considered

[57] C. ROVELLI, *Sette brevi lezioni di fisica*, Milano, Adelphi, 2014, p. 152.
[58] C. ROVELLI, *L'ordine del tempo*, Milano, Adelphi, 2017, pp. 142-144.

exclusive because universal in terms of man's attempts to re-identify himself and reality»[59].

To conclude, we think there is a set of conceptual tools and properties from quantum physics that should be tested for developing a trans urban approach: relationality, granularity, probabilistic, time/space, and the question of places - things being at the same time in different places (like platforms...) – above all. Moreover, trans-urbanism as we conceive it is trans-disciplinary in nature and scope. Trans-disciplinary does not only point to the necessity to cross and pass through many different disciplines, but also assuming that their singular epistemological statutes are not necessarily reconcilable - because they talk about "different levels" that don't have necessarily to meet. In this sense, physics help us again to understand this element: just think about the status of mechanical and quantum physics, the former works up only to a certain point, but it is still valid.

[59] *Ivi*, p. 81.

4. Seven urban/industrial lenses

4.1 Introduction

In this section our aim is to test the hypothesis and interpretations developed in the previous section to seven case studies. We decided to intertwine the capital's revolutions and the trans-urban approach using Lisbon, London, Paris, Berlin, Bologna, Barcelona and Tallinn as lenses through which starting to elaborate the ground-breaking approach that sustains the theoretical and methodological architecture of our work. We opted for organizing the genealogical investigation as follows, considering the examined cities as exemplary geo-historical panoramas.

The first step is represented by the changes occurred in Lisbon along the XVIII century. Described as «the urban phenomenon of the eighteenth century» by José-Augusto França, following 1755 (and the devastating earthquake and seaquake) the Lusitanian Capital was involved in a deep reconstruction that transformed it in one of the first witness of a global (logistics) city .Indeed, Marquis of Pombal redrawn Lisbon in order to be ideally and empirically overlooking its commercial empire, and instead of an exclusive attention of the Baixa (the downtown) the new urban structure was extending itself with an attention on the global control of the territory. Moreover, from Lisbon docks departed many slaves-ships were thousands and thousands of slaves were carried on and led to the other side of the Atlantic Ocean. Focusing on how the slave trade and the technical innovation of "salve-ships" have transformed labour market and the technical apparatus of the economies in that cycle of accumulation, we will consider slave-ships as the first factories, and logistics operations (to be intended as a mechanization of the operation of slaves' cargo and deliver) became crucial to overlook the possible insubordination made by slaves themselves[1].

The second step concern London. As it is well known, and as we largely pointed out above, between the last quart of the XVIII century and the first half of the XIX century in England was the period when fully unfolded the (First) Industrial Revolution which started in the northern part of the Country. Manchester is the paradigmatic city of this event, but the new factories appeared in many other England cities such as Birmingham, Sheffield, Leeds and so on and so forth. All of these urban areas were deeply transformed due both to the installation of the new factories and to the big migration of people moving from the countryside to the cities: it was due to this unprecedented internal migration that in many cities arose the slums, the densely populated area where most of the poor and the new industrial proletariat were living. Despite even in London factories spread throughout the city, what really mark a change

[1] Cfr. S. HARNEY – F. MOTEN, *The Undercommons: Fugitive Planning and Black Study*, Wivenhoe, Minor Compositions, 2013; N. CUPPINI – M. FRAPPORTI, *Logistics Genealogies.*

in the town was the incursion of an astonishing number of new commodities to be sold and consumed. To facilitate this "invasion" London changed above all in logistical terms. Technologies such as the railways flooded into the urban areas, allowing an expansion of its external urban perimeter. Commercial streets and other strategic knots were enlarged, and sometimes happened that the poor houses were demolished so to allow the build of new spaces of flows and to turn off possible hotbed of insubordination (a classic example is Shaftesbury Avenue built to divide a slum). Furthermore, London became a city where warehouses multiplied and, side by side, the professional figure relating to them such as the small (street) sellers, docks workers and the porters. Rather than the classic industrial workers (which however appeared but less predominantly compared with other England cities), in that period in London such a "logistics workers" saw a drastic increase in terms of people involved: it will be on these occupations that we will concentrate our attention.

In the third step we move to Paris in the second half of the Nineteenth Century, enlightening the emersion of the urban proletariat, the new transport innovation (railways) and the big industry (chemicals, electricity etc.). Paris is quite emblematic of the "urban revolution" that took shape in that period, and the work of Baron von Haussmann that radically re-built the city are well known. However, even if we try to give a synthetic overview of such project, are aim is at the same time to "enlarge the picture". We try to demonstrate that the profound transformation of Paris was made possible because the French capital city was the core of a massive project of infrastructuring the whole state territory and well beyond. The urbanization process was expanding with an impressive acceleration, according to the rhythms of the new industries characterizing the so called second industrial revolution. It is in this vortex that a new social subjectivity was forged. While at that time the Paris Commune of 1871 was mainly interpreted as the expression of the working class, today we can propose different hermeneutics pointing to the profound urban roots of these subjects.

The fourth step in this kind of different historical genealogy of the Industrial Revolution 4.0 is well represented by the changes occurred in Berlin between the end of the XIX and the first half of the XX centuries. As it is well known, Berlin (as well as Paris) lived an expansive phase during the so-called Second Industrial Revolution, when it took a leading position in most of the new branches of manufacture. Electrical engineering, chemistry, machinery production, trains building and weapons, became the fields where many people found a job. But above all, it was in that period when the "large factory system" imposed itself as a new way of production. Factories move from the city centre to periphery or nearby canals, and there are some cases such as the Siemens one, that built up a kind of "city within the city" in order to provide a single place with thousands of job opportunities. However, particularly during the 1920s, more than which kind of new technologies were produced, most important is to focus on how changed the way of production with the European advent of Fordism. The assembly line flood into the structures of the factories and the mass production

were prompted by tens of thousands of industrial workers which saw a dramatic intensification of their pace of work. Nonetheless, the gathering of many workers in the same place brought to the birth of collective organs and a rise of social conflict (even though during the Nazi-Regime the trade union freedom was annihilated). From 1888 onwards, the number of strikes and strikers impressively arose with a peak with the so-called Spartacus League. The structural changes within the city due to the new "large factories", and the multiplication of strikes and strikers thanks to the birth of new important trade unions will be the focus of our research in this section.

The fifth passage is represented by the city of Bologna during the so-called "logistics revolution" in "Les Trente Glorieuses" (From the Marshall Plan to the Oil Crisis), when – thanks to the large-scale introduction of containers – logistics became a benchmark of capitalist production and reproduction (Allen 1997; Cowen 2014). Those years are usually labelled as the Third Industrial Revolution age, when the growth of automation and the increasing application of information technologies in the productive process occurred. All of these changes had of course a deep impact on European society. Nonetheless, in this genealogical reconstruction we chose to focus on another kind of changes that are concerning once again more the circulatory dimension rather than the productive one. Indeed, it was in that period when in many cities' peripheries, just few kilometres away from the city-centres, rose the so-called "interporti", the new areas for the logistical operations where the commodities addressed to the city were firstly storage in the multiple warehouses. Since then on, the commodities circulation and the global range of the production process became the characteristic feature of the capitalism system, which gradually saw the dismantling of the "Fordist Factory" in favour of a global scale production. The acceleration in the circulation procedures (with new infrastructures, new systems of transports, intermodal trans-shipment method, new modes of storage and so on and so forth) gained more and more importance, and all the urban areas gradually changed in order to facilitate the needs of became hub towards which the flux of commodities were passing through. In such sense, the case of Bologna offers a paradigmatic example, so much that it was in those years that it became known as the "Packaging valley". In this section, the "subjects at work" we will focus on will be the so-called "social worker", the new figure appeared after the decade of the Sixties and the social protests that characterize those years. Out of the strict dimension of the factory, the "social worker" became the characteristic social figure of the post-Fordist era, with a high degree of education and as a result of the massification of the tertiary sector and the intellectual works.

The sixth step is represented by the city of Barcelona during the Eighties and Nineties of the XX centuries – how the becoming hegemonic of neoliberalism and the globalization processes re-shaped the urban fabric and the workers composition. However, we decided to use Barcelona as a lens for the introduction of a new genealogical investigation more historically profound. Therefore, we focused on the origins of the 'modern Barcelona', concentrating in particular on the work made by Idelfons Cerdà who, in the second half of the XIX century, completely re-wrote the texture of the city.

This operation had a long historical influence on the city development and on its subjects, and it is a useful comparative angle for the Paris-model, which is too often assumed as the prevalent and unique model for the metropolis-construction.

Finally, we have identified the seventh step in the city of Tallinn, an exemplary case of the Industrial Revolution 4.0 and of the "digital workers". Said better, Tallinn is actually an interesting case as digital society as a whole, the perfect Capital-city of Estonia, «the state where everything happens online. Internet access is enshrined as a basic human right. Seven-year-olds are taught to code. Citizens can vote, secure mortgages and open bank accounts via the second-fastest public Wi-Fi in the world. You can open a business in 10 minutes without leaving your cafe table». Furthermore, even though «with regard to Estonia, there is no reliable data about the number of people involved in crowd work», however can be estimate that «the average turnover of sharing platforms in Estonia grew 80% per year between 2011 and 2015, and the platform economy is expected to grow further at a similar rate»[2]. Tallinn seems the right place to focus on and analyse the effect of so-called Industrial Revolution 4.0 on society.

Each of these urban/industrial lenses is organized in the same way, with an 1) Introduction, where we discuss why the city is significant and meaningful for the analysis and where we give some general insights to frame that urban scenario; 2) then, we have elaborated an Historical Context to locate the transformations we focus on in the specific historical moment of the case study; the further step of the cities' analysis is an examination of them through two crucial perspectives, that of 3) Intensive Urbanization and of 4) Extensive Urbanization. Given that the trans-urban approach is something still absent in literature, it was not possible to immediately apply it to our case studies. However, we thought it was possible to start working historically on it by adopting this intensive/extensive paradigm, that means that on one hand we focus on the specific changes that invested the core urban areas, what usually has been labelled as "The City" with its concentration of people, buildings, activities and so on. On the other hand, the concept of extensive urbanization looks at all the ways in which this urban core is intrinsically and inevitably related to networks, roads, movements, infrastructures, linkages that make the urban metabolism possible and that stretches it far beyond what has usually been considered as the urban boundaries. This intensive/extensive approach is therefore our attempt to start testing a trans-urban perspective, even if we are perfectly aware that this is only a preliminary and partial work. Finally, for each of the seven cities there is a reflection on the 5) Subjects at Work, meaning that we tried to show how in the historical moment analysed new workers subjectivities emerged and acted. These five points (1. Introduction; 2. Historical Context; 3. Intensive Urbanization; 4. Extensive Urbanization; 5. Subjects at Work) represent the grid

[2] K. HOLTS, *Understanding virtual work. Prospects for Estonia in the Digital Economy,* Foresight Centre at the Riigikogu, 2018.

of investigation though which it is also possible to compare the seven historical case studies.

4.2 Lisbon

4.2.1 Introduction

Far from the contemporary narrative interested in depicting Lisbon as the first Global City in the world with the aim to project an epic and edulcorated colonial past, the global nature of Lisbon is bound to the birth of the slave trade between the two sides of the Atlantic See. The economic interest of this trade encompasses not merely the modern age unterritorialized financial capital, but also the urbanisation plans and the redefinition of the Lisbon urban landscape. One century before Baron Haussmann, the Marquis of Pombal realized an urban operation that was directly linked with his political project to realize a new town, ready to answer to new interests and new forms of power. Global trade and trans-oceanic routes became the polar star for the urban restoration, and it is not by chance that the name assigned to the new big square dominating Tagus River has been *Praca do Comércio* (Trade Square).

Moreover, Lisbon become a centrepiece for the slave trade, and for the connection between the African continent and the new world. Worth to say is that, despite its harbour have never reached the importance and the dimension of the harbours of London, Amsterdam or Antwerp, Lisbon administrative role went beyond its territory, and the Portuguese strategy laid on ruling position of the main nodes of a large trade network, which encompassed four continents. In fact, Portuguese have never been strong enough to rule administrative and military a big portion of a colonial territory, thus Lisbon opted to affirm its empire through an extended network of few commercial outposts spread along the African, Asian and South American coasts. This is why we do not talk properly about a Portuguese cycle of accumulation, even though we recognize Portuguese relevance within the accumulation process which, from a Braudelian point of view, represented the main economic transformation from feudalism to capitalist modernity.

4.2.2 Historical context

«The dominion of the Portuguese on the coasts and seas of Africa and Asia, is in one sense more interesting than any of its successors. For it was, as he stated, essentially and peculiarly connected with the beginnings of that maritime expansion of Europe and Christendom which, above all else, marks off the modern from the medieval

world»[3]. Charles Boxer, a former spy of the British Army, was a renowned and conservative historian who «devoted two decades to the study of the Portuguese and Dutch empires»[4] and who firstly «systemically treating the racial question in the Portuguese Empire». Despite his conservative political orientation, in Race Relations in Portuguese Empire 1415 – 1825, Boxer recognizes the practices of racial discrimination which characterize Portuguese colonialism. It is worthily to pointing out that Boxer's position contrasts starkly those expressed by the Brazilian sociologist Gilberto Freyre, whose ideas have been exploited by Portuguese regime of the 1960s, with the aim of projecting into the past the ancestral justification for the continuation of its colonial project. Indeed, Boxer's study strongly contrast the Portuguese colonialist narrative laid on Portuguese exceptionalism, on its integration capacity and on miscegenation attitude toward the tropics[5]. Not differently from the ideologies baked within the European colonial Power to legitimate their colonial exploration, the Portuguese claimed exceptionalism to integrate colonized people, lay on the mythology of its pionerism in make the world global, resulted in a diaspora.

«The global Portuguese diaspora» as it is defined by Francisco Bethencourt and Diogo Ramada Curto, had its foundation moment in «the conquest of Ceuta in 1415»[6]. During the 16th century, Portuguese expansionism had the East as its main interest. Goa, Malacca, Gujatra, along India's coast, but also Cylon, Ethiopia and other part of Africa were taking under control. This expansionism highlights significative characters of the colonial "logistics" strategy developed by Lisbon:

> In Asia, the Estado de India was based on a system of key ports through which the Estado sought to control intercontinental, and to some degree interregional, commerce. From the east coast of Africa to Macao, and stretching as far as Nagasaki and Ambonia, Portuguese empire functioned as an interconnected network of port cities[7].

From the Seventeenth century Portuguese faced the powerfulness of English and Dutch empires, which «inevitably reduced its influence in Southeast Asia», and Portugal gradually declined to a «peripheral place [...] compared with other European powers»[8].

Even though between 1663 and 1750 Portuguese empire lived a «Stagnation and contraction in the East» – as defined by Boxer – in the same period it lived a «Revival and Expansion in the West»[9]. The re-established control over commercial outposts in

[3] C. BOXER, *The Portuguese Seaborn Empire*, London, Hutchinson & Co, 1977, p. XII.
[4] D. RAMADA CURTO, *The Debate on Race Relations in the Portuguese Empire and Charles R. Boxer's Position*, «E-Journal of Portuguese History», 11, 1/2013, p. 17.
[5] D. RAMADA CURTO, *Uma historia conservadora do imperio maritimo portugues?*, in C. BOXER, *O império marítimo português 1415-1825*, Lisboa, Edições 70, 2011.
[6] F. BETHENCOURT – D. RAMADA CURTO (eds), *Portuguese Oceanic Expansion 1400-1800*, Cambridge, Cambridge University Press, 2007, p. 1.
[7] *Ivi*, p. 3.
[8] *Ivi*, p. 4.
[9] C. BOXER, *The Portuguese Seaborn Empire*, pp. 128-176.

Angola and the expulsion of the Dutch from Brazil made «possible to consolidate their power in South Atlantic»[10]. The commerce between the two side of Atlantic Ocean of sugar, cotton and tobacco grow rapidly. But most of all, the driving force of the Portuguese commerce in South Atlantic after the 1690s «was mainly due to the belated discovery of alluvial gold [...] in the remote and forbidding region some 200 miles inland from Rio de Janeiro, which was henceforward known as Minas Gerais, the "General Mines"»[11]. A deep extraction policy from Brazilian underground started, carried out principally by slaves: «if the gold-rush in Minas Gerais was mainly responsible for the marked increase in white immigration into Brazil it was also the cause of an even greater intensification of the West African slave trade with the ports of Bahia, Rio de Janeiro, and (to a lesser extent) Pernambuco»[12].

In those years Lisbon saw an astonishing amount of gold passing through its warehouses, thanks to which it increased its richness and prosperity. The monastery of Mafra or the Aqueduct of Free Waters in Lisbon were built in that period: just before the famous earthquake and seaquake of the 1st of November 1755 that destroyed most of the town, the Lusitan Capital «was again one of the wealthiest cities in Europe»[13]. Reconstruction kept into account the role of Lisbon in the global value chain of the time. A new town rose thanks to «the twenty-two years of the virtual dictatorship of Portugal by Sebastiao Jose de Carvalho e Mello, widely known by his title (conferred in 1770) of Marquis of Pombal»[14].

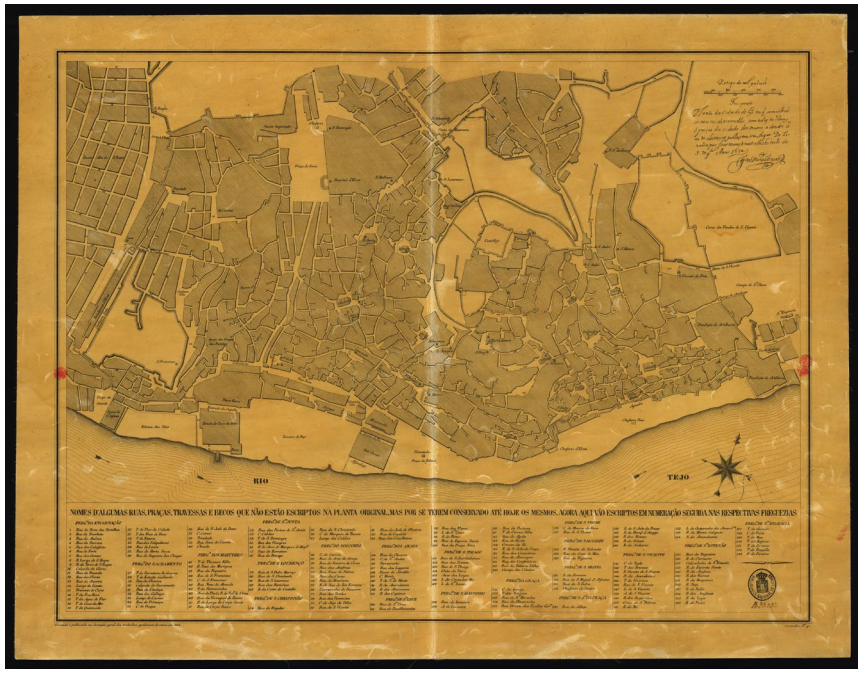
4.2.3 Intensive urbanization

> ...e encontrando de passagem D. Maria Castre, nossa visinha, pouco mais ou menos da minha idade, que tambem fugia, a tomei pelo braco, e seguimos a rua dos Remulares por cima de entulhos, e muitos corpos mortos, até à beira-mar, aonde nos julgavamos mais seguros. Mas pouco depois de ali ter-mos chegado, assim como muita gente, si gritou que o mar vinha sahindo furiosament dos seus limites: facto que presenciamos, e que redobrou o nosso pavor, obrigando-nos a retroceder pelo mesmo caminho [...]. O descampado daquelle alto dava lugar a descubrir-se a cidade por todos os lados, a qual logo que fui note, apresentou à vista o mais horrivel espectaculo das chamas que a devoravao cujo clarao allumeava, como se fosse dia, nao sò a mesma cidade, mas todos os seus contornos, nao se ouvindo senao choros, lamentacoens, e chòros entoando o Bemdito, Landainhas e Miserere[15].

Jacome Ratton was just out of the of the traditional Mass of the All Saints' Day while the earthquake surprised Lisbon. He was a shopkeeper born in France in 1736

[10] F. BETHENCOURT – D. RAMADA CURTO (eds), *Portuguese Oceanic Expansion,* p. 5.
[11] C. BOXER, *The Portuguese Seaborn Empire*, pp. 155.
[12] *Ivi*, p. 169.
[13] *Ivi*, p. 160.
[14] *Ivi*, p. 177.
[15] J. RATTON, *Recordacoens de Jacome Ratton*, London, H. Bryer, 1813, pp. 24-25.

and moved to Lisbon when he was still a baby. In the book Recordacoens de Jacome



Img 1 - Lisbon Map, 1647. Biblioteca Nacional. Cod. CC-1647-A

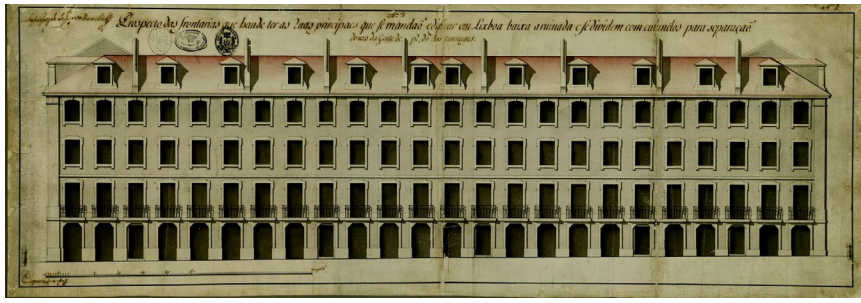
Ratton published in London in 1813 he describes his seventy-five years of life, most of which spent in the Portuguese Capital. He lived through a period of great change for Lisbon, due to the earthquake and of the reconstruction of the city promoted by Marquis do Pombal in the 1750s and 60s. After all, damages were enormous:

> Dois terços das ruas ficaram inabitáveis, ou só três mil casas das vinte mil existentes, após o incêndio. Das quarenta igrejas paroquiais, trinta e cinco desmoronaram-se, arderam, ou ficaram em ruínas, só onze conventos dos sessenta e cinco existentes ficaram habitáveis, embora com danos, nenhum dos seis hospitais se salvaram do fogo e trinta e três residências das principais famílias da corte ficaram destruídas[16].

Before 1755, the Baixa of Lisbon was built as a multitude of tight and confused alleyways also in the back of the dock and of Torreiro do Paco. The reconstruction was entrusted to Manuel de Maio, a military engineer, who was almost eighty years old

[16] J-A. FRANÇA, *A Reconstrução de Lisboa e a Arquitectura Pombalina*, Lisbon, Instituto de Cultura e Língua Portuguesa Divisão de Publicações, 1986, p. 10.

at that time. De Maio proposed five different «Dissertacao sobre a renovacao de Cidade de Lisboa»[17] to Marquis do Pombal with five different urban perspectives. Pombal chose to shape the city with specific features: «Manuel da Maia soubera já que fora escolhido o programa de re-edificação integral da parte baixa da antiga cidade, e age em consequência – ou força a nota, para arredar qualquer hipótese de meias-medidas: é, sem dúvida, melhor arrasar e renovar toda a cidade baixa do que conservar as ruas largas e alargar as estreitas[18]. Street's enlargement and «Baixa regular», with all the same type of building:



Img 2 – Typical Pombal's building

«A área a tratar correspondia à parte central da cidade, a sua parte baixa, entre o Terreiro do Paço e o Rossio, e ainda a uma zona urbana compreendida, a poente, pela colina de S. Francisco, até às portas de Sta. Catarina (Largo das Duas Igrejas actual) – num total de cerca de 63 hectares»[19]. Further research should be considered to deepen this important phase of Lisbon renovation. Many books have already been found during the brief research period in some Lisbon archives such as the Arquivo Municipal de Lisboa, or the Arquivo Nacional da Torre do Tombo. Other documents would require further specific research. All in all, however, we can easily claim that behind the project of the new Lisbon of the second half of the XVIII century there was all but not just a mere and inert architectural project.

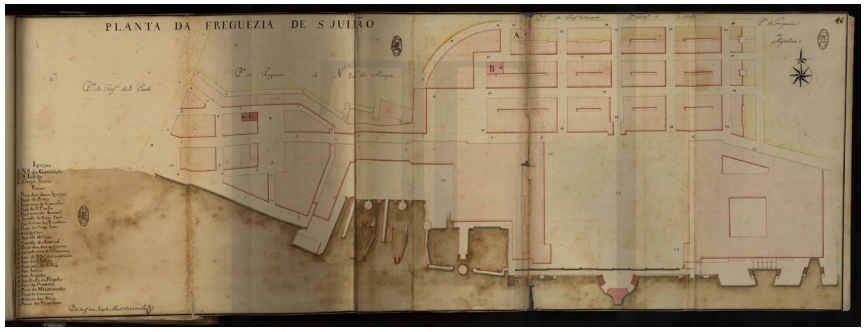
In other words, the reconstruction of the city was far to be neutral: it endorsed a specific political idea and design. Reconstruction «ha colto l'occasione per innervare nella "nuova" città i nuovi interessi, le nuove elaborazioni culturali, le nuove forme di potere [...]. Le trasformazioni economico-sociali si fanno pietra, si fanno strada, si fanno monumenti, si fanno città. Emblematico da questo punto di vista appare il nome

[17] C. AYRES, *Manuel de Maya e os engenheiros militares portugueses no Terremoto de 1755*, Lisboa, Impresa Nacional, 1910, pp. 25-59.
[18] J-A. FRANÇA, *A Reconstrução de Lisboa e a Arquitectura Pombalina,* p. 17.
[19] *Ivi,* p. 22.

assegnato alla nuova piazza sul Tago [...] [dedicata] alla nuova attività sempre più [...] dominante: quella mercantile, Praca do Comércio»[20]. One century before Baron von Haussmann, Pombel «realizza un'operazione urbanistica che traduce un disegno politico»[21]. A political idea which endorsed an idea of power turned to the inland control and toward the empire overseas: «La forma e l'organizzazione della città non è casuale, ma detta, intenzionalmente, un "nuovo" ordine, va letta con l'occhio rivolto all'evoluzione dei rapporti economici e di potere»[22].

Img 3 - Lisbon Map, 1833. Biblioteca Nacional. Cod. CC-594-V

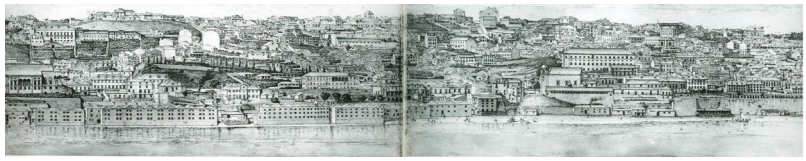
[20] F. INDOVINA, *Ordine e disordine nella città contemporanea*, «Studi urbani e regionali», Milano, FrancoAngeli, 2017, p. 31.
[21] *Ibidem.*
[22] *Ibidem.*



Img 4 – Lisbon, Behind Praca do Comércio 1756-1768.

4.2.4 Extensive urbanization

In the middle of the XVIII century Lisbon was still at the core of a worldwide developed network of commerce. From its docks tens of ships were weigh anchor directed to the four angles of the globe: «an Italian traveller in Portugal observed with only mild exaggeration that it was easier to find at Lisbon a ship bound for Goa or for Brazil than a carriage for Oporto or for Braga»[23]. After Pombal reconstruction Lisbon gained a modern urban structure in order to implement its role to be the pivotal point of a worldwide flux of commodities. Warehouses rose all along the Tago river.



Img 5 – Warehouses along the Tago River, Desenho Aguarelado, 1797

In the Baixa all the streets became areas of a specific commercial activities such as the Rua dos Fanqueiros (textile merchants), Rua dos Sapateiros (shoemaker), Rua dos Correiros (saddler), Rua dos Douradores (jewellers) etc. Lisbon renewed its role of gravitational knots for global trade and, above all, it became the equilibrium and governmental point of an empire structured with many other knots which could be de-

[23] C. BOXER, *The Portuguese Seaborn Empire*, p. 174.

scribed as an extension of the capital city. In terms of extensive (or logistics) urbanization more than London or any other city, Lisbon could be considered a very significant and exemplary case.

Even though during the research we had not the chance to properly delve into this field, at least it is important to sketch few possible sparks for future research lines. Quoting Francisco Bethencourt, for example, it is important to stress that «from 1415 to 1822, the Portuguese empire had a variable geometry that was based on distant, discontinuous, and fragmented territories»[24]. Rejecting the «nationalistic perspective of a highly centralized empire»[25] as well as «the postmodern perspective of a weak and headless empire»[26], Bethencourt prefers to talk about a «"nebula of power" that maintained Portuguese empire in a permanent yet unstable balance among local, regional and central crown agencies, competing with each other but allowing royal tutelage of the system»[27]. A complex system «quite decentralized» with a «strong base», that in the Atlantic «was never under the control of a single governmental structure»[28]. Indeed, the governmental system applied by the Portuguese Crown was that of «the establishment of trading posts» that «granted the right to explore» and a «temporary charter for commerce»[29]. This allowed the centralized control by Lisbon with the collaboration of a number of merchants and logistics companies (as we will next). This «political model» was implemented by the Portugal Crown since the Fifteenth century, when the first started the Atlantic slave trade. Right on this we will focus the next paragraph.

4.2.5 Subjects at work

From where the word factory come? Marcus Rediker briefly answered to this question in his important book titled The Slave Ships: «The word "factory" came into usage in the late sixteenth century as global trade expanded. Its root word was "factor," a synonym at the time for "merchant." A factory was therefore "an establishment for traders carrying on business in a foreign country." It was a merchant's trading station»[30]. In our genealogy of the impact of technologies on European society, and in our rereading of the concept of Industrial Revolution (which – as said above – we prefer to define Capital's Revolution), one of the most crucial things is to understand where factories come from. A possible path to recall a genealogy of factories is consider the slave ships and the trade implemented since XVI century. Described by Rediker as a «world-changing machine», he roots slave ships origins in the late Fifteenth century

[24] F. BETHENCOURT, *Political Configurations and Local Powers*, in F. BETHENCOURT – D. RAMADA CURTO (eds), *Portuguese Oceanic Expansion*, p. 197.
[25] *Ibidem*.
[26] *Ivi*, p. 198.
[27] *Ivi*, p. 199.
[28] *Ivi*, p. 229.
[29] *Ivi*, p. 232.
[30] M. REDIKER, *The Slave Ship. A Human History*, p. 72.

«when the Portuguese made their historic voyages to the west coast of Africa, where they bought gold, ivory, and human beings. These early "explorations" marked the beginning of the Atlantic slave trade»[31].

Portuguese slave trade lived different phases and was turn to different trajectories. As far as to what concerns our inquiring period, we can summarize as follows: «In the seventeenth century, this trade was directed toward Spanish America and the Atlantic offshore islands; by the second half of the eighteenth century, it was reoriented toward the northern part of Portuguese America»[32]. Portuguese slave trade was led by the gold extraction. Most of Africans slaves from Angola or Upper Guinea as well as from other parts of the Western territories were sold to Brazil mines. Yet, it is the "logistics" rationality beyond the Marquis de Pombal administration that displays the importance of the slave trade within imperial construction process. For example, on 7th of June 1755, Marques de Pombal established the Companhia Geral do Grao-Parà a do Maranhao (CGGPM[33]). Considered by Pombal himself a «traço notavel da administração»[34], this mercantile ship company "traded" «from 1756 to 1801 approximately 38.000 Africans». This responded to a precise strategy of Pombal: «to link the Amazonian economy with Portugal, the authorities first had to connect it with the African slave trade, a decisive factor for integration into the Atlantic market»[35].

Even in this case, the Portuguese colonialism, more than exceptional, appear as a product of a global circulation of colonial and trade models. Of course, Portuguese case has its own peculiarity, but it belongs more to the realm of «friction»[36] between a colonial model and the concrete situation, than to a supposed Portuguese exceptionalism. Indeed, Marques de Pombal, before become Secretary of State of Internal Affairs of the Kingdom – the same of nowadays Prime Minister – was Portuguese diplomat in London. The model for the CGGPM was the English management model of the Majestatic Stocks Companies. Particularly inspiring was the EIC. Like this later in

[31] *Ivi*, p. 69.

[32] L.F. DE ALENCASTRO, *The Economic Network of Portugal's Atlantic World*, in F. BETHENCOURT – D. RAMADA CURTO (eds), *Portuguese Oceanic Expansion*, p. 110.

[33] A. CARREIRA, *A companhia geral do grão-pará e maranhao*, Sao Paulo, Companhia Editora Nacional, 1988; R.M. MARCOS DE FIGUEIREDO MARCOS, *As Companhias Pombalinas - Contributo para a História das Sociedades por Acções em Portugal*, Lisbon, Almedina, 1997.

[34] J. SMITH, *Memorias do Marquez de Pombal, Lisbon*, Livraria de Antonio Maria Pereira Editor, 1872, p. 137.

[35] L.F. DE ALENCASTRO, *The Economic Network of Portugal's Atlantic World*, p. 116.

[36] We talk about friction recalling the famous book of Anna Tsing, *Friction: An Ethnography of Global Connection*, Princeton, Princeton University Press, 2005, where she defines as friction «the awkward, unequal, unstable, and creative qualities of interconnection across difference» (p. 4). According to Tsing, «Speaking of friction is a reminder of the importance of interaction in defining movement, cultural form, and agency. Friction is not just about slowing things down. Friction is required to keep global power in motion. It shows us (as one advertising jingle put it) where the rubber meets the road. Roads are a good image for conceptualizing how friction works: Roads create pathways that make motion easier and more efficient, but in doing so they limit where we go. The ease of travel they facilitate is also a structure of confinement. Friction inflects historical trajectories, enabling, excluding, and particularizing» (p. 6).

India the CGGPM owned the monopoly trade on certain parts of Brazilian territory. If the difference between the Portuguese company and the EIC is that the former owned just the trade monopoly, while the later owned also the monopoly in the territorial administration, we can say that for a certain period the relation which encompass the economic actor and the political imperial authority, was similar. The CGGPM was responsible for the integration of Amazonia within the imperial administration based in Lisbon.

Furthermore, in line with this strategy, Pombal «abolished slavery in Portugal in 1761-73, although not so much from humanitarian motives as to prevent Negroes from being employed as household servants in Portugal instead of as field-hands and gold-miners in Brazil»[37]. As well as many others, Pombal too promoted what has been called «racial capitalism»[38], in as much as that he conceived his action through racism and nationalism, two features that has influenced «in a most fundamental way» the «historical development of world capitalism»[39]. Indeed, the abolition of slavery in Portugal made by Pombal, for example, did not means the abolition of slavery by Portuguese. On the contrary, to sustain Lisbon economy[40] slave trade was implemented with the work of seamen, the «workers of world»[41] who were creating "commodities" like "slaves" and improved the global trade and the city income. The means of production adopted to this aim was the slave ship, which deserve more attention in order to rewrite the history of modern capitalism. Closing with Rediker we can sustain that

> The ship was a factory in the original meaning of the term, but it was also a factory in the modern sense. The eighteenth-century deep-sea sailing ship was a historic workplace, where merchant capitalists assembled and enclosed large numbers of propertyless workers and used foremen (captains and mates) to organize, indeed synchronize, their cooperation. The sailors employed mechanical equipment in concert, under harsh discipline and close supervision, all in exchange for a money wage earned in an international labour market. As Emma Christopher has shown, sailors not only worked in a global market, they produced for it, helping to create the commodity called "slave" to be sold in American plantation societies[42].

With ships, slaves were "produced" and transported in an incredible amount, to New World. Although «[t]he significance of African labour for the development and formation of the commercial and industrial capitalist systems can be only partially

[37] C. BOXER, *The Portuguese Seaborn Empire*, pp. 1919-1920.
[38] CJ. ROBINSON, *Black Marxism: The Maxing of the Black Racial Tradition*, Chapell Hill and London, University of North Carolina Press, 2000.
[39] *Ivi*, p. 42.
[40] According to Boxer «The vast amounts of foreign (mainly English) manufactured goods, corn, butter, meat and other provisions which were imported, and which were largely paid for with Brazilian gold, were intended almost exclusively for the thriving cities of Lisbon and Oporto and their immediate vicinities» (p. 174).
[41] M. REDIKER, *Between the Devil and the Deep Blue Sea,* Cambridge, Cambridge University Press, 2010, pp. 288-297.
[42] M. REDIKER, *The Slave Ship. A Human History*, p. 73.

measured by numbers»[43], we know that to ship forcefully millions and millions of men and women thousands of miles away from their home requires a high logistics ability. Actually, right there and right in that moment we situate the birth of logistics: according to Harney and Moten, logistics was «founded with the first great movement of commodities, the ones that could speak. It was founded in the Atlantic slave trade, founded against the Atlantic slave»[44]. More specifically, and again with the words of Stefano Harney:

> The Atlantic slave trade was the birth of modern logistics, as it was also the birth of a new kind of war on our species being, and the birth of racial capitalism, which amounts to saying the same thing [...]. But the Atlantic slave trade was also the birth of modern logistics because modern logistics is not just about how to transport large amounts of commodities or information or energy, or even how to move these efficiently, but also about the sociopathic demand for access: topographical, jurisdictional, but as importantly bodily and social access[45].

To conclude, what is important to stress is that logistics was never a linear and smooth operation. On board those vessels and ships, on board those kinds of "factories", can be found the first "factory uprisings, riots and protests". Logistics bore together with counter-logistics. Pombal, the Portuguese empire and the Lisbon case were an important tile of this puzzle.

[43] C.J. ROBINSON, *Black Marxism*, p. 147.
[44] S. HARNEY – F. MOTEN, *The Undercommons*, p. 92.
[45] N. CUPPINI – M. FRAPPORTI, *Logistics Genealogies*, p. 96.

4.3 London

> The capital cities would be present at the forthcoming industrial revolution, but in the role of spectators. Not London but Manchester, Birmingham, Leeds, Glasgow and innumerable small proletarian towns launched the new era[46].

4.3.1 Introduction

Just before the beginning of the XIX century, the process of industrialization impacted mostly in the cities of the northern part of England, highly affecting the structure of their urban areas. Factories and foundries – for instance – flourished in Birmingham – where «some of the most remarkable and most decisive technical changes in industry took place»[47] – producing toys, «ornamental bronzes, vase, chandeliers, tripods, silver and plated wares, and imitation gold and tortoiseshell work»[48], as well as «buttons, gewgaws, buckles, and similar object»[49]. In Sheffield (with a cutlery tradition since the Middle Age), blast furnaces quickly spread, and the steel production of «knives, scissors [...], axes, hammers, files and tools of various description»[50] was growing rapidly. Leeds was the core of the woollen factories where the jenny (introduced in 1780) brought not just an increasing productivity, but also the firsts «riots against machinery»[51]. Then, finally, must be recalled the case of Manchester, with the famous cotton-mill («the pacemaking of the industrial revolution» – as cotton is defined by Thompson[52]), for the most the very city-symbol of the industrial revolution as a whole. All of these cities saw their urban panorama deeply changed after the installation of the new factories. Thus, this "new technology" of production had certainly a great impact on England society, transforming most of the towns into intensive knots of manufacture and exchanges.

In London industrialization impacted quite differently. As Lindsey German and John Rees have written in a recent book – echoing what claimed by Braudel –, «The Industrial Revolution and the subsequent development of an industrial working class took place for the most part away from London. But while the workshop of the world

[46] F. BRAUDEL, *Capitalism and Material life, 1400-1800*, p. 440.
[47] P. MANTOUX, *The Industrial Revolution in the Eighteenth Century*, p. 164.
[48] *Ivi*, p. 326.
[49] D. LANDES, *The Unbound Prometheus*, p. 107.
[50] P. MANTOUX, *The Industrial Revolution in the Eighteenth Century*, p. 274.
[51] *Ivi*, p. 264.
[52] E.P. THOMPSON, *The Making of the English Working Class*, p. 192.

developed outside the capital, its goods had to be traded on an unprecedented scale»[53]. In a nutshell this is the main impact of the industrial revolution to the capital-city: the incursion of an astonishing number of new commodities to be consumed. To facilitate this "invasion" London changed above all in logistical terms. The building of new infrastructures deeply transformed the urban geography as well as the social map of the city. New largest road, railways paths, docks, warehouses and so on and so forth drastically modified the layout of the town, as its clearly appears comparing maps by the end of XVIII century and of 1851[54]. Furthermore, traditional high-class neighbourhoods of the city centre became districts of dock workers or peddlers. Thanks to the new means of transport like the railways or the underground, bourgeois move out of the city centre and slums such as the famous Old Nichol in the Eastern part risen massively. Although produced by the end of XIX century, the classical Charles Booth "Poverty Maps", printed firstly in the book *Life and Labour of the People in London*[55], iconically show the social map of the city at the end of the Victorian Era[56].

The socio-historical impact of technology on labour market in London was deeply affected by the "logistification" of the city. In the next few pages we will try to depict the preliminary characters of a research that would definitely deserve more thoroughness and detailed study.

4.3.2 Historical context

Briefly before delving into the London case let's keep the focus on Manchester. As it is pointed out by Paul Mantoux in his book about the British Industrial Revolution, Manchester was «surrounded by a belt of growing towns all with the same functions and the same needs, and forming together as it were but one factory and one

[53] L. GERMAN – J. REES, *A People's History of London,* London-New York, Verso, 2012, p. 13.

[54] A website such as https://www.layersoflondon.org/map (last access 13 May 2025) is extremely useful because it allows to compare historical maps of the city.

[55] C. BOOTH, *Life and Labour of the People in London*, London, Macmillan, 1902-1903.

[56] All the Both's maps are available to free download here: https://booth.lse.ac.uk/learn-more/download-maps last access 13 May 2025. As it is pointed out by the website of the London School of Economics: «Charles Booth was one of those remarkable English Victorians who can justly be described as one of the great and the good. Profoundly concerned by contemporary social problems, and not a pious nor even a religious man, he recognised the limitations of philanthropy and conditional charity in addressing the poverty which scarred British society. Without any commission other than his own he devised, organised, and funded one of the most comprehensive and scientific social surveys of London life that had then been undertaken».

market» (1964: p. 50). Clearer is Friedrich Engels who properly describes the city as a kind of logistics knot:

> The towns surrounding Manchester [...] are purely industrial and conduct all their business through Manchester upon which they are in every respect dependent, whence they are inhabited only by working-men and petty tradesmen, while Manchester has a very considerable commercial population, especially of commission and "respectable" retail dealers[57].

Nonetheless, the working-men population led to the birth of many working-class areas in the city, «sharply separated from the sections of the city reserved for the middleclass». Basically, with the exception of the commercial districts, «all Manchester proper, all Salford and Hulme, a great part of Pendleton and Chorlton, two-thirds of Ardwick, and single stretches of Cheetham Hill and Broughton are all unmixed working-people's quarters»[58]. The impact of industrialization in Manchester led to a deep change in the urban area, with the rise of many slums «filled with pallid mill hands crowding into a smokestack jungle»[59]. High-density housing, dirt and a smokestack jungle: this is the picture of Manchester on the eve of the Industrial Revolution.

What about London? In the next few pages we will investigate the impact of new technologies on Londoners and, more in general, the changes occurred in the period between the 1780s and 1851. Like the other case studies, we will consider London not just within its urban perimeter, but as a knot in a global net of fluxes of raw materials, people and commodities.

4.3.3 Intensive urbanization

At the eve of the XIX century London saw a general increase of industries within its vague urban perimeter. Factories built with the traditional red-brickwork shored up in many parts of the city. As it is pointed out by Leonard Schwarz, in the mid-nineteenth century «London remained by far the largest manufacturing city in the country», employing «a third of the [male] labour force»[60]. In the southern part of the Thames River, where the land tended to be cheaper than the north, the main activities were large-scale factories of «tanning, hat-making, woodcutting, brewing or vinegar-making»[61]. On the contrary, the northern part saw the blooming of small-scale factories («the clock makers of Clerkenwell, the silk weavers of Spitalfields and a myriad of others»[62]) installed particularly in the East-End. Districts such as Central Hackney,

[57] F. ENGELS, *The Condition of the Working-class in England*, Oxford, Basil Blackwell, 1971, pp. 32-33.
[58] *Ivi*, p. 34.
[59] D. LANDES, *The Unbound Prometheus*, p. 188.
[60] L.D. SCHWARZ, *London in the Age of Industrialization. Entrepreneurs, Labour Force and Living Conditions, 1700-1850*, Cambridge University Press, 1992, pp. 1-23.
[61] *Ivi*, p. 32.
[62] *Ivi*, p. 23.

Hackney Wich, Hamerton, Dalston (in addition to Spitalfields and Clerkenwell) drastically changes both architecturally and in terms of social composition[63].

Nonetheless, «considering the unsuitability of London for factories»[64], more than the industrial workers were the dockers and the administrative workers who represented the lion's share of the employs of the city: «Port, taken literally, and the Court, taken in the sense of London Society, were the two largest centres of employment in the capital for both skilled and unskilled labour»[65]. As it is pointed out by Schwarz taking account on the 1962 book of Ralph Davis *The rise of the English Shipping Industry in the Seventeenth and Eighteenth Century*, London docks – logistical places *par excellance* – employed about a fourth of the London labour power. More precise was Peter Colquhoun, a Glasgow merchant and a magistrate of London who founded the Thames River Police: «The Commerce of the River Thames employs and gives Employment to at least 120.000 Individuals of different ages»[66]. According to Colquhoun, who achieved «remarkable degree of credence both at the time and subsequently»[67], what we could identify as the "logistics workers" of the Thames River

[63] For an overview of the male occupation in London in 1851 see *ivi*, p. 42.
[64] *Ivi*, p. 37.
[65] *Ivi*, p. 8.
[66] P. COLQUHOUN, *A Treatise on the Commerce and Police of the River Thames*, London, Palalapress, 1800, p. XXX.
[67] L.D. SCHWARZ, *London in the Age of Industrialization,* p. 9.

were accountable of the production of «more than one-fourth of the public revenues»[68]. Which is something that clearly shows the importance of this kind of workers in London's economy.

Img 6 - General Map of London, 1801, Catalogue Number k1236242

[68] P. COLQUHOUN, *A Treatise on the Commerce and Police of the River Thames*, p. XXXII.

Img 7 - General Map of London, 1851. Artist Mogg Edward. Catalogue Number k1237313.

Thus, despite between the end of the XVIII and the beginning of the XIX centuries, London witnessed a multiplication of industrial facilities within its urban area, it seems that the rise of factories *strictu sensu* is not the main character that impacted the city in that period.

Indeed, differently from Manchester and other cities from the England northern belt that lived an «implosive» shift of the urban space, London lived a kind of «explosive» change, which means – recalling Neil Brenner – «the production and continual transformation of an industrialized urban fabric in which centres of agglomeration and their operational landscapes are woven together in mutually transformative ways while being co-articulated into a worldwide capitalist system»[69]. Put it differently, in those years London lives a real logistics renovation due to a double push. On the one hand, it was a period when London endows its power of attraction strengthening its role of pole of mass migration: «By the start of the nineteenth century – Schwarz notes – it was well into its second heroic age of expansion and well over four-fifths of those who

[69] N. BRENNER (ed), *Implosion/Explosion,* pp. 17-18.

lived in towns with 10,000 or more inhabitants were living there»[70]. Troops of people was moving there since that «the population of London was increasing at the rate of 20 per cent a decade»[71]. Even though must be noted that «between 1500 and 1700, the population of London increased ten-fold»[72], in quantitative terms the rise of the first part of the XIX century was impressive. More specifically, in the first decades of the century «the population of the Greater London area rose from 865,000 to 1,500,000; and in the next twenty years another million inhabitants were somehow piled in»[73]. This brought London to became «the commercial capital of the world, created the giant docks and assembled the thousand vessels that continually cover the Thames»[74].

The second push came exactly from the necessity to absorb an amount of goods drastically increased compared with the previous period. London became a magnetic pole both for the commodities coming from the north of the country, and for the raw material (and other commodities) coming from the British Empire overseas: «London was a huge importer city, gathering in from the empire an increasing array of goods»[75]. It seems important to focus on the impact of this double confluence in order to stress the new position of the city in the global value chain.

4.3.4 Extensive urbanization

In terms of national trade, one of the main vectors which brought to the high implementation of the fluxes of commodities to London was the railways installation within the urban perimeter. Must be said that until the dawn of XIX century the transportation of "heavy" goods toward London occurred through the canals system, that was both linking it with other parts of the country (particularly to Birmingham, Liverpool and Manchester through the "Oxford Canal") and passing across the city (the most important was the "Regent's canal"). As it is pointed out by Sydney Pollard, «canals had been a part of the industrial revolution [...]. [Nonetheless], as soon as the railways were established, most of the canal system became redundant and fell into disuse»[76]. Indeed, by the 1830s the railway impact had a massive effect. In 1835 the opening of the London-Birmingham Railway allowed the rise of the commodities flowed from the northern industrial cities to the capital. Then on, new railroads bloomed, invading the urban area and dictating the frenetic rhythms of the "logistifi-

[70] L.D. SCHWARZ, *London in the Age of Industrialization,* p. 3.
[71] *Ivi*, p. 8.
[72] R. ALLEN, *The British Industrial Revolution in Global Perspective,* p. 19.
[73] P. QUENNELL, *Introduction*, in H. MAYHEW, *Mayhew's London*, ed. by P. QUENNELL, London, Pilot Press, 1949, p. 18.
[74] F. ENGELS, *The Condition of the Working-class in England,* p. 22.
[75] L. GERMAN – J. REES, *A People's History of London,* p. 13.
[76] S. POLLARD, *Peaceful Conquest. The Industrialization of Europe 1760-1970*, Oxford, Oxford University Press, 1981, p. 128.

cation" of London. In few years after 1837 bore the railways stations of Euston, Victoria, Waterloo and Paddington, in addition to that of London Bridge and Greenwich opened in 1824. Furthermore, must be remembered the London-Blackwall Railway inaugurated in 1840 (called "Commercial Railway") that linked the London city centre to the East Docks. Finally, it is worthwhile to note the birth of the Underground system, planned in the 1840s and 50s and opened in 1863.

The Underground allowed the extensive spread out of urban, which brought to a big double-face reconfiguration of the social landscape. On one hand, the wealthy class gradually moved toward the external ring of the City: «Previously, the rich and poor had lived in the same districts: the rich in the main streets; the poor in the service streets behind. Now, the prosperous moved out of town centres to the new suburbs»[77]. On the other hand, the "migration" of the richest class form the central part of the city accelerated the logistics renovation of the downtown, since the needs to install or enlarge the "space of flows" and circulation within the city mostly fell on the poor class accommodation: «much of the housing for the poor was demolished for commercial spaces, or to make way for the railway stations and lines that appeared from the 1840s [...]. Thus, the homes of the poor were always the first to be destroyed»[78].

Img 8 – New streets planification (in pink). London Metropolitan Archive. Reference Number COL/PL/02/H/001g.

[77] J. FLANDERS, *Slums,* https://www.bl.uk/romantics-and-victorians/articles/slums# last access 13 May 2025.
[78] *Ibidem.*

Img 9 – New streets planification (in pink). London Metropolitan Archive. Reference Number COL/PL/02/H/001g

Such a reconfiguration of the urban space aimed to realize what we would call a World-City, whose development planning regarded first and foremost its position in the global value chain. We can distinguish four meaningful characters that confirm this interpretation.

First of all, we must note the renovation of the commercial docks. Despite it is well known that «for most of its history London has been pre-eminently an international port»[79], during the Industrial Revolution new infrastructures appeared. At the very beginning of the XIX century opened the West and the East India Docks (1803 and 1806) at the East End. Both of them were of crucial importance not just because they represented critical logistical knots, but also because they were the Head Quarters of companies such the East India Company, which was governing India as a Company-

[79] L. GERMAN – J. REES, *A People's History of London,* p. 13.

State. As it is pointed out by Colquhoun, «without meditating project of domain, a Company of Commercial Traders have adventitiously become the Sovereigns of many rich and powerful Kingdoms»[80]. Consequently, the East India Docks in London was not just an amorphous infrastructure, but it rather realized a logistics pole that fully integrated the city into the space of "global flows", conveying its reorganization.

Secondly, in order to link the *city of London* with the logistics pole located East, the ways of communication improved. A meaningful example is the realization of the "Commercial Road" (which took place between 1803 and 1806) that connected the city centre to the eastern area. More generally, the access' routes from the North were enlarged, and some of them imposed themselves on slums, literally dividing them in two to facilitate the increased intensity of the flows.

Img 10 - Commercial Road project, 1801. "Plan of a road to be made from the West India Docks in the Isle of Dogs to communicate with Aldgate High Street... to be called Commercial Road". Artist Wickings William. Catalogue Number q9518477.

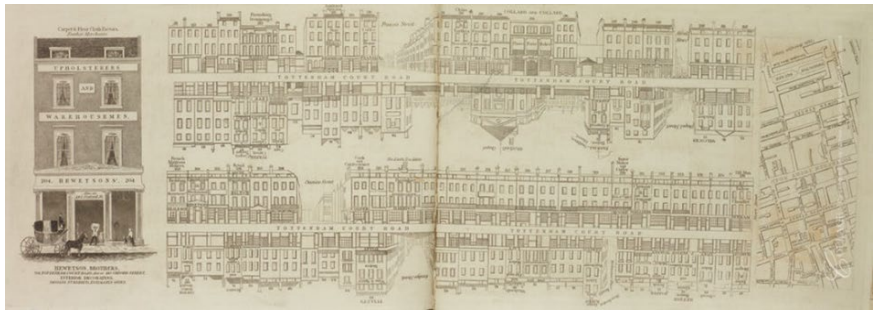
Thirdly must be pointed out the particular type of factories arisen in London. Indeed – as mentioned –, if it would be a mistake to underestimate the impact of industrialization in London, at the same time should be highlighted that a lot of the new factories were of the type of refineries for the raw materials coming from overseas. A typical example in such sense is the birth of a multiplicity of sugar-refineries (many of which then merged into the famous Tate & Lyle refinery in the second half of the century) and of tobacco storage and processing industries, located just behind the ports to the East. Tobacco and sugar were mostly coming from the United States whose trade with was employing «about 140 ships» in 1797[81]. Their importation quantity rose

[80] P. COLQUHOUN, *A Treatise on the Commerce and Police of the River Thames*, p. 6.
[81] *Ivi*, p. 119.

constantly throughout the XVIII century, since that «in the year 1700, the Sugars imported into the River Thames amounted to about one-fifth part of the present medium quantity»[82].

Finally, the last element to stress is the birth of dozens of warehouses. Even though they are not often considered in the major analysis of pre-Victorian London, the increase in number of warehouses was truly astounding and gives the idea about the amount of the quantity of goods that invaded the city. As it is reported by Henry Mayhew:

> The swag-shops (of which I state the numbers in a parenthesis) are in Houndsditch (their principal locality) (23), Minories (4), Whitechapel (2), Ratcliffe-highway (20), Shoreditch (1), Long-lane, Smithfield (4), Fleet-lane (2), Holywell-street, Strand (1), Tothill-street (4), Compton-street, Soho (1), Hatton-garden (2), Clerkenwell (10), Kent-street, Borough (8), New-cut (6), Blackman-street (2), Tooley-street (3), London-road (3), Borough-road (1), Waterloo-road (4)—in all 101; but a person who had been upwards of twenty years a frequenter of these places counted up fifty others, many of them in obscure courts and alleys near Houndsditch, Ratcliffe Highway, &c.[83].



Img 11 – London Street View 1838-40. Tottenham Court Road. A view of Heweston's upholstery warehouse. Artist Tallis John. Catalogue Number v8489495.

Closing its inquiry, Mayhew («incomparably the greatest social investigator in the mid-century» according to E.P. Thompson[84]) talks about more than two hundred warehouses opened in the first part of the XIX century, where the thousands of the street

[82] *Ibidem.*
[83] H. MAYHEW, *London Labour and the London Poor. Vol II: The London Street Folk*, London, Griffin Bhon and Company, 1861, p. 335.
[84] E.P. THOMPSON, *The Making of the English Working Class*, p. 250.

vendors or peddlers were getting the commodities to sell: the last mile of distribution of the global value chain. Focusing on them we will close this section.

4.3.5 Subjects at work

«On the fringes of society there would be a minority of occupations not recorded in the census at all: Mayhew's entertainers, scavengers, mudlarks and prostitutes, for instance. More numerous would be street traders and market workers – virtually none of them recorded – and, more numerous still, part-time service and laundry workers»[85]. It is precisely on these people that we will focus on in this section, as far as we are convinced that they represent an important underestimated consequence of the Industrial Revolution.

Generally speaking, the industrialization of the XVIII and XIX centuries in England gave the birth to the working class. Texts by Engels, Hobsbawm or Thompson are masterfully describing this event. Recalling Thompson – for instance – we know that «in the years between 1780 and 1832 most English working people came to feel an identity of interests as between themselves, and as against their rulers and employers»[86]. It was the period of «the formation of "the working class"»[87], but as written above, in London the situation was a bit different.

Indeed, in addition to Thompson's analysis, in London we could focus on the formation of a "logistics proletariat" that, together with the factories labours, formed the largest part of the urban proletariat as a whole. "Logistics proletariat" was the answer of a double need: the growth of trade and the city's "commodities invasion". Consequently, in the next pages we are going to talk about two important categories of unskilled workers, usually out of the official statistics, such as the street-sellers (masterfully represented by the inquiry of Henry Mayhew) and the porters, «who might easily be supposed to be casual labourers but who in fact came under the particular surveillance of the City authorities, and who maintained a privileged position within the ocean of unskilled labour until the middle of the 19th century»[88].

In the early XIX century street-sellers represented the "last mile" of distribution (somehow, as today's Deliveroo riders, who work for matching supply and demand). In other words, hawkers and pedlars were the "middlemen" «introduced for the convenience of bringing together the producer and consumer – the seller and the buyer of commodities»[89]. There are dozens of categories described by Mayhew's inquiry, from those who sold «fish, fruit and vegetables», to the one of cheese, butter and eggs;

[85] L.D. SCHWARZ, *London in the Age of Industrialization,* p. 17.
[86] E.P. THOMPSON, *The Making of the English Working Class*, p. 12.
[87] *Ivi*, p. 194.
[88] *Ivi*, p. 240.
[89] H. MAYHEW, *London Labour and the London Poor*, p. 374.

from the one who sold «flowers, roots, seeds and branches» to them who sold «stationery, literature and fine arts». About the sellers of other artefacts coming from Manchester and other cities of the England northern belt, Mayhew spend many pages, focusing on «(1) The vendors of metal articles; (2) Of chemical articles; (3) Of China, glass, and stone articles; (4) Of linen, cotton, and other textile fabrics; and (5) Of miscellaneous articles», all of which «obtain their supplies at "the swag-shops"»[90]. About the "vendors of metal articles" (sellers of jewellers, metal-spoon, cutlery, tin ware, the famous dog-collars etc.) it is interesting to note that most of the staff were coming from Birmingham and Sheffield, two cities about which we talked in the introduction of this section. Following Mayhew:

> An experienced tradesman said to me: "All these low-priced metal things, fancy goods and all, which you see about, are made in Birmingham; in nineteen cases out of twenty at the least. They may be marked London, or Sheffield, or Paris, or any place – you can have them marked North Pole if you will – but they're genuine Birmingham[91].

The chemical articles sold in the streets of London were blacking, black lead, cornsalves, rat-poison, lucifer-matches and other « articles which are to cure, to repair, to renovate, or to kill». Most of them were supplied «by oilmen, chandlers, and other shopkeepers, who buy largely of the manufacturers, and can consequently supply the purchasers by the dozen, for street sale or hawking, as cheaply as they would be supplied by the manufacturer himself». Then, supplied in the «Haberdashery Swag-shop», the street-sellers of textile fabrics were of various type and «miscellaneous character» (like the ones who sold «miscellaneous articles») and an important part of the whole street-sellers, as well as who sold China ornaments, glass, and stone articles who were basically artisans or, in Mayhew's terms, "menders": «those who mend things in the streets»[92].

According to our perspective, more then what was sold it is important to point out how commodities reached London streets. «The pedlar was the original distributor of the produce of the country – the primitive middleman, as well as the prime mover in extending the markets of particular localities, or for particular commodities»[93], as it is pointed out by Mayhew, «the primitive carrier». But «as the practice increased, and increased quantities of goods had to be conveyed from one part of the country to another, that increased facilities of transit should be effected»[94]. Originally, after packman rose the pack-horse. Then transportation from North England (as said) was carried by canals or railways, while from the commodities gaining London trough boats the figure who were supplying the warehouses or the swag-shops were the "porters" about which we are going to talk in a while. To conclude what it is interesting to stress

[90] *Ivi*, pp. 325, 374.
[91] *Ivi*, p. 333.
[92] *Ivi*, pp. 425,426, 373, 436.
[93] *Ivi*, p. 375.
[94] *Ibidem*.

is that street-sellers had also a kind of common association called «The Friendly Association of London Costermongers» about which Mayhew reported of a «public meeting» of «at least 1,000 persons»[95]. The congregation of these sellers (precarious, without employee status) on the streets of London could inspire a close parallel to the present-day congregations of delivery workers.

The last working figure we would like to briefly analyse are the porters. Recalling Schwarz, we know that compared with other national cities, in London «what was different was the importance of transport on the one hand, and service sector [...] on the other»[96]. More specifically: «The extensive transport sector, at 11.6 per cent of the labour force, or nearly a quarter of all those in England and Wales who claimed on the census form that they were involved with transport, might be expected in view of the importance of the Port as well as the sheer size of London»[97].

Porters of the town were of different types and categories (Stern identifies «four classes of London Porters»[98]) but for all of them «the seventeenth and the eighteenth century represented the heyday»[99]. This was due mostly to «the greater volume of goods entering and leaving the Port of London, and the range of new articles» risen between the «middle sixteenth and the early nineteenth century»[100], which brought the City Porters to became an important fellowship in town. Their fortune and power, however, changed once the new docks of West and East India were opened. Indeed, even though they remained a profession defended by «the City of London» they suffered that «the City had itself become the butt of constant criticism»[101]. A more precarious life and a less bargaining power came over the category:

> Time and economic thought had overtaken the porters. For public authority to provide essential services under strict regulation had been a method appropriate to the sixteenth century. Three hundred years later, the most advanced opinion wanted services, essential or otherwise, to be regulated by the interplay of supply and demand, free from official interference; if merchants required commodities carried, landed, or loaded in the Port of London, their need would attract to the Port sufficient supplies of labour competing for the work. Traders were entitled to obtain the lowest rates at which men offered to do the job; to force merchants to pay a higher price to particular Porters meant curtailing their bargaining power, interfering with their rights[102].

To conclude, within London town, even though porters were «double the national proportion»[103], with the establishment of the new docks of the big logistics companies such as the EIC and the West India Company, porters faced a way of precarization:

[95] *Ivi*, pp. 101-102.
[96] L.D. SCHWARZ, *London in the Age of Industrialization*, p. 23.
[97] *Ibidem*.
[98] W. STERN, *The Porters of London*, London, Longmans, 1960, p. 13.
[99] *Ivi*, p. 10.
[100] *Ivi*, p. 119.
[101] *Ivi*, p. 122.
[102] *Ivi*, p. 120.
[103] L.D. SCHWARZ, *London in the Age of Industrialization*, p. 25.

«within their own walls, Dock Companies exercised sovereign rule. They assumed liability for losses caused to the Customs revenue through smuggling or damage: hence they claimed absolute control over the men they employed. The West India Company refused from the outset to employ City Porters or any men on other than its own terms». The private companies' portieres became the main carriers in town, and «the authorized City Porters were doomed to slip in the course of the nineteenth century ever further down the slope of extinction»[104].

4.4 Paris

> Among the fanatics of the revolution there were those who once proposed to transform Paris into a globe, changing the names of all the streets and squares and renaming them with the names of places and remarkable objects taken here and there in the world[105].

4.4.1 Introduction

Paris represents a decisive juncture for the mutation of the city, in which a political threshold is crossed leading to the modernity of the city. Paris, the capital of the 19th century as Walter Benjamin called it, is widely assumed as *topos* of the new urban revolution.

During the nineteenth century, numerous processes were added and superimposed leading to the definition of Metropolis as a new figure of the city, a dialectical overcoming in Hegelian terms of the previous urban configuration. Usually we tend to define the metropolis as the result of phenomena such as the Industrial Revolution and the enormous political transformations of the period, while what we will later try to point out is how the interweaving between these dimensions are not clearly untangled through logical (and historical) priorities. Put more simply: urbanization and industrialization, transformations of the city and political revolutions, can be read by not looking for cause-and-effect mechanisms to establish a hierarchy, but highlighting their intertwining, intersections and reciprocal influences. Investigating therefore a plan of co-extensiveness.

It is also in this case to recall the exhortation of Edward Soja "putting cities first!", i.e. to use the city as a lens and point of view to capture the historical metamorphosis, not relegating it to a mere scenario or to the background of the production of the social

[104] W. STERN, *The Porters of London*, pp. 120-122.
[105] W. BENJAMIN, *Paris, Capital of the 19th Century,* «Perspecta», 12, 1969, pp. 163-172.

phenomena[106]. The metropolis is not the result of the industrial revolution, is rather the root of it within a process of co-implication and specific feedback between the two paths. The industrial revolution was born right inside the city, and it could also be therefore reinterpreted as an epiphenomenon of the new urbanization process. The Nineteenth century is also the time of a decisive historical acceleration, in which the deep chaotic waves generated by the hegemony of the capitalist system show the inadequacy of sovereignty imagined in previous centuries to contain the disordered and disruptive forces generated by the first. In this picture Paris, "as capital, organizes the dominations as well as brooding revolutions: the revolutionary days from the 18th to the 20th century in Europe have as a frame the urban landscape"[107], and therefore the problematic nature that Hobbes identified in London continues to act in the French context. The state alone is not able to govern the historical novum, and in this sense an original urban figure emerges, the Metropolis, as the governmental plan of command and resistance of the nascent Society - a concept deeply involved, as will be discussed later, in the idea of metropolis. If previously there has been discussion of how the state constitution can be seen as an urbanization of the territory, applying the devices of police elaborated in the cities to the entire space they intend to govern[108], it's as if now this process "comes back". There is, for the State, the need to bring back to the city that sovereign order which, by making the territory a sort of large city, had previously established itself on a spatiality of dimensions earlier unimaginable.

In this sense the city becomes a logistic space, a field of experimentation and implementation of military, social, commercial and infrastructure elaborated in the previous centuries on very different scenarios. The city must be brought back and developed as a territory. Density, rigidity, disorder, unpredictability... are all problematic characteristics of the city that the administrations try to smooth out using tools beforehand elaborated and applied in other contexts.

4.4.2 Historical context

The Great Exhibition was held in London in 1851, and many of the commentators of the time were extremely impressed by this new urban scenario of unprecedented

[106] E.W. SOJA, *Putting Cities First: Remapping the Origins of Urbanism*, in G. BRIDGE – S. WATSON (eds), *A Companion to the City*, Oxford, Blackwell, 2000.
[107] F. GOVERNA – M. MEMOLI (eds), *Geografie dell'urbano. Spazi, politiche, pratiche della città*, Carocci, Roma, 2001, p. 92.
[108] M. FOUCAULT, *Microfisica del potere. Interventi politici*, Torino, Einaudi, 1977.

dimensions (just think of the two and a half million of inhabitants), also pointing out that in England and Wales the urban inhabitants have surpassed the rural[109].

On the other hand, the demographic explosion is one of the most evident factors that contribute to define the *nouvelle ville*, the metropolis. From the Nineteenth onward the process of urbanization and population growth are manifesting themselves at a pace accelerated and unstoppable. But it is particularly in the large nuclei that this growth becomes surprising. Suffice it to say that in about a century London goes from 1.1 to 7.3 million inhabitants, Manchester from 75,000 to 714,000, Paris from 547,000 to 2.9. million, Berlin from 172 thousand to over 2 million, New York from 700 thousand to 7 million.

It is therefore understandable how progressively a new discipline such as statistics emerges as the main tool to order the city, as much that at the end of the century a decisive study came out that still today determines the bases and the criteria for urban statistics. This *is The Growth or Cities in the Nineteenth Century. A Study in Statistics* (1899), elaborated by Adna Ferrin Weber starting from her doctoral dissertation. Statisticians therefore begin to classify the cities according to their demographic weight, tending to divide them into ordinary, medium, or large cities (*grand ville, Großstadt...*) for cities with more than 100 thousand inhabitants[110]. However, although peremptory, the demographic figure does not measure in sufficiently significant way the transformations of the phenomenon subject to investigation.

The city is in fact profoundly changing nature, intertwining several factors. In addition to the already mentioned expansion of industrial settlements and the connected development of an urban proletariat, it is also necessary to consider the growth of a tertiary sector, the impressive proliferation of new technologies, the fact that they are almost always cultural centres and intellectual places, places where there are concrete new possibilities of life.

Moreover, Paris is the Capital of one of the first historical examples of modern state building. However, the city was not the only urban centre in that country. Fernand Braudel argues, for example, in this regard that "historians are not sufficiently sensitive to the phenomenon of Lyon-Paris bipolarism, which constitutes a persistent structure of French development"[111]. While in fact it is seen as London has been a world city in the sense of a city since the 16th and 17th centuries - which, closely entwined with State building processes, directly develops an (inter)national market - Paris still in 1598, "does not have the infrastructure necessary for international trade"[112]. Up to the whole 18th century Paris basically works as a "vortex in which all the State's wealth [...]

[109] R. DENNIS, *Cities in Modernity. Representations and Productions of Metropolitan Space 1840-1930*, New York, Cambridge University Press, 2008, pp. 20-21.
[110] A. LEES, *Cities Perceived. Urban Society in European and American Thought 1820-1940*, Great Britain, Columbia University Press, 1985, p. 12.
[111] F. BRAUDEL, *I tempi del mondo*, p. 224.
[112] D. RICHET, *Une société commerciale Paris-Lyon dans la deuxième moitié du XVI siècle*, in D. RICHET, *De la Réforme à la Révolution, études sur la France moderne*, Paris, Aubier, 1991, p. 18.

the majority of the income generated by the taxes" goes[113]. It is therefore a strong imbalance of political power between the two cities. what allows Paris, in the long run, to establish itself on the rival city – this allows also the emergence of a form of "financial capitalism" as decisive leverage for economic supremacy[114]. Paris therefore as a substantially parasitic city, a rentier city, that qualifies a dividing line in state territory.

> French state designated its own Capital as the seat of the government body making it the "centre of gravity of a national state"[115], and at the same time "in the formulation of national citizenship, the city does not delegate its territorial coordination qualities to the State as much. Instead, it demands for itself a larger space of government and domination "[116]. The relationship between the State and the city, in particular with the Capital, is therefore complex and alternates phases that indicate who between the two subjects "suffers, receives and uses the force[117].

The relationship between Paris and the kingdom is composed of moments in which the complicated relationship becomes evident, as in the case of Charles VI - who returned to Paris in 1415, frightened by the revolutionary power expressed by the municipality, and declared its national primacy ("notre dite ville est la souveraine et la capital de notre royaume") – or of Louis XVI, who in 1678 used the same words as his predecessor to get the Parisians to accept the court's transfer to Versailles. So, you can see again how the city-state interweaving is a constant in the unravelling of the Modernity, within a political tension oscillating and open between urban push to self-government and the centralization of power on a larger scale.

During the Eighteenth century a series of factors disrupted the previous arrangement. «Regulations, customs and all other intermediate mechanisms between the individual sphere and that of the State" on which the traditional management of the urban was based were dismantled, "in one fell swoop as in France, or by degrees as in England"[118]. The intervention of the public administration in the management of the city is seen, as emblematic in Adam Smith, as a survival of the past to eliminate. A trend that influences both the revolutionary measures and the reformist ones - at the very moment when they are graft the new industrial functions and the cities become larger[119]. From this combination born the liberal city, a chaotic landscape that designates at the same time the conquered hegemony of the bourgeois class. That of the liberal city is, however, a phase of passage: the old balances are skipping but it is still

[113] *Ivi*, p. 437.
[114] F. BRAUDEL, *I tempi del mondo*, p. 261
[115] M. BERENGO, *L'Europa delle città. Il volto della società urbana europea tra Medioevo ed Età Moderna*, Torino, Einaudi, 1999, p. 11.
[116] *Ivi*, p. 15.
[117] *Ivi*, p. 21.
[118] L. BENEVOLO, *Le città nella storia d'Europa*, Roma-Bari, Laterza, 1993, p. 167.
[119] M. AGULHON (ed), *Histoire de la France urbaine, vol. IV, La ville de l'age industriel*, Paris, Le Seuil, 1983; J.M. MERRIMAN (ed), *French Cities in the Nineteenth Century*, New York, Holmes & Meier, 1981.

not possible to fully talk about the metropolis as overcoming the city. In historiographical terms this difference must be post-dated in a process that is soaring around the middle of the 19th century. It is the element of the revolutionary threat, the defence in its comparisons by the classes that are directing the social processes, to determine the passage by pushing for state intervention in the city. This is made possible by the structuring of forms of compromise between the conservative regimes and the bourgeoisie, an alliance that will bring a lasting change to the city. The 1848 is evidently, for the city as for the whole epoch, a threshold date.

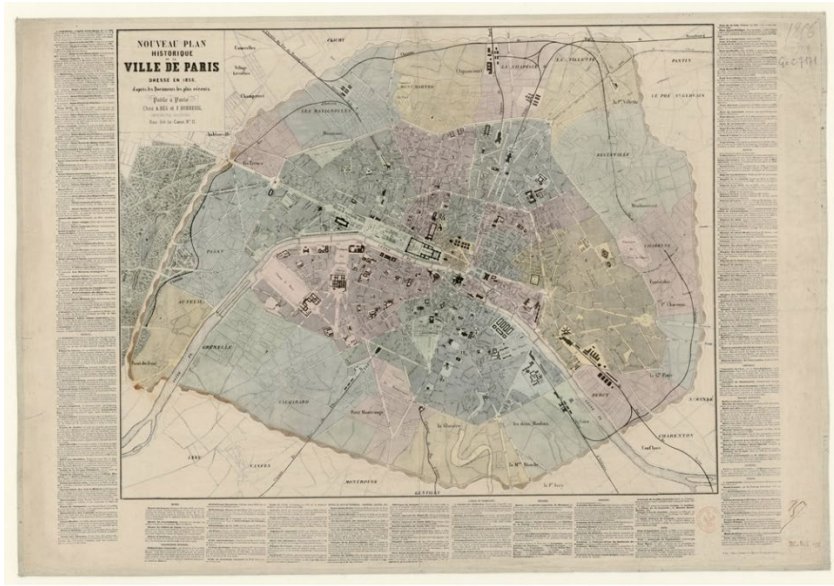
All the reflections of the period converge on the insurrections that upset Europe in those months as an event indicating a radical transition. The shock also leads to an awareness that if on the one hand introduces the period of "triumph of the bourgeoisie"[120], on the other hand it triggers a powerful acceleration of the urbanization processes. These will be irreversible to the present day, summarizing and overcoming the previous conditions, to open the field of the possible at unprecedented scenarios. The phenomenology of this mass access of the city, which basically involves two generations of men and women, produces often disastrous living conditions in terms of mortality, spread of epidemics, extreme poverty, overpopulation, and it also upsets the rural fabric.

Population growth, new social and productive hegemonies, revolutions and political reforms, laissez faire of development, configure this transition to which follows the

[120] E. HOBSBAWM, *Il trionfo della borghesia, 1858-1875* (1987), Roma-Bari, Laterza, 2006.

intervention of the State only in the second half of the century, defining the Metropolis itself.

4.4.3 Intensive urbanization



Img 12 - Nouveau plan historique de la ville de Paris. 1859. Source gallica.bnf.fr / Bibliothèque nationale de France

Building the centre

In Paris the tension for which "all that is solid fades into the air" is sensible – and 1848 is a watershed date for radical changes in political economy, so as on a cultural and lifestyle level. It is therefore precisely the character temporalizing this city what is of interest, since here is determined a before and an after. Paris is, in short, the Capital of Modernity because in it one can fully realize the myth of modernity, that is to say, the establishment of a radical fracture with the past[121]. This presents itself only through

[121] D. HARVEY, *The Urban Experience*, Baltimore, Johns Hopkins University Press, 1989.

its obliteration, and the almost ten centuries of previous urban history seem to have dissolved definitively.

The medieval layout that still describes Paris until the middle of the 19th century is completely destroyed within a few years, as well as throughout Europe it initiates a process of demolition of the historic urban infrastructure[122]. The new urbanization leads to the tendency to overcome the city-campaign dichotomy, leading rather towards a specific production/invention of nature as a counterweight to urbanization. As new cities are founded around the planet, a dualism nature/city is also established as an expression of the dualism nature/society. It is in the period in question that two directions divide: that of the city-polis and the urban-metropolis.

The city is now conceivable as a grouping of buildings and streets with no more place for citizens, and "the conceptual framework within which urban planners operate is designed to circumvent the problem of establishing in the city any order of extra-economic type"[123]. But the rejection of the modern city tends to «build with care and control spaces of production, reproduction of the workforce and the interaction between individuals, groups, classes, cultures»[124], which will lead to the "compact city" of the beginning of the Nineteenth century and the subsequent developments of the Fordist/Keynesian city. These are the results made possible by the formation of the metropolis in the Nineteenth century, which indicates a process made up of metamorphosis and disembowelment, revolutions, reconstructions and lacerations of the urban fabric within a coexistence between contradictory characters.

Ultimately the metropolis is a difficult figure to define because constitutionally indefinite and oscillating, open and dialectical. A double movement characterizes it, a coexistence of intensiveness and extensiveness: they are concentrated and are thickening the central areas of the cities while at the same time expands into the territory - not surprisingly Arthur Rimbaud writes that "the city, with its smoke and the noises of its looms, was following us far away along the paths", poetically capturing in an image the expansion and change of the city in industrialization. The city thus becomes an unknown, so much that a utopian thought of the city resurfaces right in correspondence of the proclaimed inability to produce design constants of order. For Manfredo Tafuri, this is the symptom of a warning of imminent danger: the definitive loss of the organicity of the form, which leads to the anti-organicity of the structure. In this way the typically Enlightenment ideal of the totality and universality enters into crisis, and rational and irrational not can no longer be thought of as mutually exclusive:

> in the plan of the city [...] order must reign, but between two species of confusion [...] and as a multiplier of regular parts must result in a certain idea of irregularity and chaos, which is so convenient for the Big Cities. Order and chaos, regularity and irregularity, organicity

[122] G. CLARK – J. OWENS – G. T. SMITH, *City Limits. Perspectives on th Historical European City,* Montreal & Kingston, McGill-Queens University Press, 2010.
[123] J. RYKWART, *L'idea di città. Antropologia della forma urbana nel mondo antico* (1963), Milano, Adelphi, 2002, p. 6.
[124] A. LAZZARINI, *Polis in fabula. Metamorfosi della città contemporanea*, Palermo, Sellerio, 2011, p. 58.

and disorganicity. We're a long way from that precept here [...] The control of a disorganic reality, to be implemented acting on that disorganicity not to change its structure, but to bring out from it a complex array of meanings[125].

It is this whole series of characteristics that insists on the metropolis, that becomes progressively also a field of valorisation, production and exchange of goods, itself good as far as, in Marxian terms, packed and swollen with metaphysical subtleties and theological whims. A money-city[126] in which, like the value in use is subordinate to the barter value, the generalized commodification of the urban soil definitively dissolves the form of the city hitherto known. It is therefore a radical disunity to characterize the gestation of this new urban life by preventing, in the face of an increasingly marked inhomogeneity, the progressive formation of a shared image of the hegemonic becoming of the metropolitan form.

It should be noted that we are not faced with any linear evolution of the city. The metropolis crosses and destroys the city, leading it towards and defining itself with the industrial city. In this sense, Metropolis is not to be found in different and distinct placements - albeit through them investigable (and the Paris of the second half of the nineteenth century is an outrageous *topos* in this regard), but depicts more properly a historical trend that is expressed rather synchronously on continental scales, mixing colonial-ethnocentric models with imperial-normative images, rootedness and dislocation, introduces between the historical lines of tension of the city a revolt that still returns in the contemporary globalized city.

To close the reflection, the Paris Capital of the 19th century told by Benjamin is fitting because it embodies: the enormous socialization of the new production ratios; extended forms on the globe of colonization that make it a World city "lagging behind" London also by virtue of its being a capital city of an unprecedented State building by extension; Paris is the seat of the Revolution and the insurrectional uprisings that unrevealed for the following decades up to the Commune of 1871; but it is also the site of Baron Haussmann's urban planning action which makes the urban morphology direct terrain of the city's contention, on which the position of command of big business and the nascent working class forms and urban proletariat fight.

Haussmann and the debris of history

Georges Eugène Haussmann, better known as Baron von Haussmann, implements an extensive restructuring plan for Paris between 1852 and 1869 on a direct basis mandate and following many suggestions of Napoleon III. It's a trip to London that instils in him the will to transform even his city in an imperial city[127]. The British capital, rebuilt after the great fire of 1666, presents in fact a point of reference in terms

[125] M. TAFURI, *Per una critica dell'ideologia architettonica*, «Contropiano», 1, 1969, pp. 31-79, pp. 40-41.
[126] N. CUPPINI, *La città-denaro. Utopie e distopie urbane*, in AA.VV., *La città*, Roma, Universitalia, 2015, pp. 533-542.
[127] H. SAALMAN, *Haussmann: Paris Transformed*, New York, Braziller, 1971.

of hygiene and urban experimentation, as well as being now the nerve centre of world politics and the world economy. London is also the city that establishes in the 1829 the Metropolitan Police and that in 1851 organized the first Great Exhibition of the Works of Industry of all Nations. It is here that Haussmann consolidates his own convictions of a hygienic (of Enlightenment matrix) and political order.

The Baron went down in history as the one who radically upset Paris, de facto creating urban planning and thus changing urban history: «with the Haussmanization of Paris, it is the western city that is being redefined, becoming a yardstick for comparison»[128]. In reality, many of the initiatives fielded by Haussmann had been tested before, both in Paris and in other cities. His ability lies rather in having succeeded in creating the myth of a radical break with the past, in tune with the needs of legitimisation of the new post-1848 political regime.

If therefore "the break that Haussmann supposedly made was nowhere as radical as he claimed"[129], this does not detract from the fact that his work is decisive. The processes of transformation of the city projecting it into the vortex of modernity. He and his colleagues are in fact organizing a work of "creative destruction" applied on an unprecedented scale, so much so that until the mid-twentieth century is difficult to find attempts to systematically discuss the change in Paris. It is emblematic that one of the most relevant texts on the subject are Das Passagen-Werk by Walter Benjamin, a work that collects precisely a myriad of fragments, of "debris of history" as parts of a giant kaleidoscope to describe the life in Paris and its becoming the birthplace of modernity (on a technical and "cultural" level).

Haussmann is however a symbolic interpreter who captures and anticipates the sign of the new age. In experimenting with a first form of master plan promotes a global project of cities operating under the banner of speed. Its capacity for programmatic implementation on a large scale is articulated through urban management strategies that involve both public and private actors, thus merging techniques and knowledge of different derivation into one homogeneous perspective of change in the city. In fact, changes to financial, legal and political level, starts with the attribution of a priority to the possibility of movement in the city and the need to tighten the social control shirts.

It is this last aspect that can be considered as decisive, despite the fact that in recent years there has been a tendency to put it on the back burner[130]. The objective and the mandate of Haussmann's policy is in fact basically to cancel the medieval Paris that survives in the Cité, in the heart of the metropolis. Filled with popular masses in the last century, this area has been the hotbed of the uprisings of 1830 and 1848, and while Louis XIV had opted for the relocation of the court to Versailles in the face of the dangers of the city, the new imperial course is oriented in the opposite direction. The

[128] G. SEMI, *Gentrification. Tutte le città come Disneyland?*, Bologna, Il Mulino, 2015, p. 21.
[129] D. HARVEY, *The Urban Experience* (1982), Baltimore, Johns Hopkins University Press, 1989, p. 4.
[130] E. HAZAN, *L'invenzione di Parigi*, Paris, Gallimard, 2008, p. 322.

great arteries, the new boulevards - children of his "cult of the axis", of his "straight obsession" and often inaugurated as if they were real monuments - are in the first instance devices with which, thanks to Article 13 of the 1850 health law authorising expropriation by resolution of the executive, Haussmann starts a season of publics work that will set an example for the whole of Europe.

When the Baron see disappearing rue Transnpnain, one of the old streets of the Cité, rejoices: «It's the collapse of old Paris, of the riot district, of the barricades». The new Paris is the one that must rise up against the organization medieval that still characterizes it. It proposes a strategic triumph of the order which also feeds on the construction of the myth of the ancient city versus the city medieval.

Fustel de Coulanges and Haussmann will never meet, yet the work of the former is valuable in establishing a cultural background that legitimizes and delivers tools of symbolic manipulation to the second[131]. The Parisian prefect did not leave texts with a complete reflection on his own work, but in 1880 he publishes – as in vogue at the time – his memoirs, from which emerges with clarity his vision of the city:

> I came initially, and after several detours, to rue Montmartre and Saint-Eustache [...]. I'd cross the old Pont-au-Change, which I'd later rebuild, lower, widen; I then skirted the old palace of justice, having to my left the repugnant concentration of the infamous hovels that still dishonored the Cité and which I later had the joy of razing to the ground - meeting place of thieves and murderers who seemed to be standing there specifically to challenge the police and the Court of Assizes. Continuing on pont Saint-Michel, you had to cross a poor and small square where, like a sewer, the waters poured out[132].

From this quotation you can see how in the categorical apparatus that guides the work of Haussmann two orders juxtapose and mix. The political requirement is to military eradicate the hotbed of struggle from the city, and is achieved in "healing" some parts of the Cité, resorting to a hygienic vision of Enlightenment derivation. The violent cholera epidemic of 1832 marked the climax of this reflection, opening up a season of urban works that will first of all better air circulation -allowed by the disembowelment of the ancient urban fabric thanks to new roads. It has as its function to depopulate the old historical centre, which under Haussmann goes from fifteen thousand to five thousand inhabitants.

It's still a mixture of capital and private initiative with the state powers that makes Paris becoming a metropolis, through an extensive political operation. This is the substratum on which Haussmann moves, whose work excludes programmatically the nascent social issue, or rather tackles it exclusively in terms of its adjustment and compression. The classes dangerousness must be expelled from the heart of the metropolis where they are installed following the very rapid urbanisation, spontaneous aggregations must be dissolved and the new urban masses shifted to what will become the

[131] P. LOMBARDO, *Cities, Words and Images. From Poe to Scorsese*, Hampshire, Palgrave McMillan, 2003.
[132] V. HAUSSMANN, 1880, p. 75.

peripheral areas, the banlieue that will progressively therefore enter the "whole" of the city.

The basic limit of the Haussmannian model lies in the inseparable constraint which links the method of urban organization and production with the centrality of the Land income. Not guaranteeing the return on public expenditure, the latter relegates the possibility of successful urban intervention to economic phases ancestors. This unbalanced slope of the Haussmann system leads to a heavy public debt that will lead to the Baron's ousting and whose legacy will weigh on the city until the debts are removed only after the First World War.

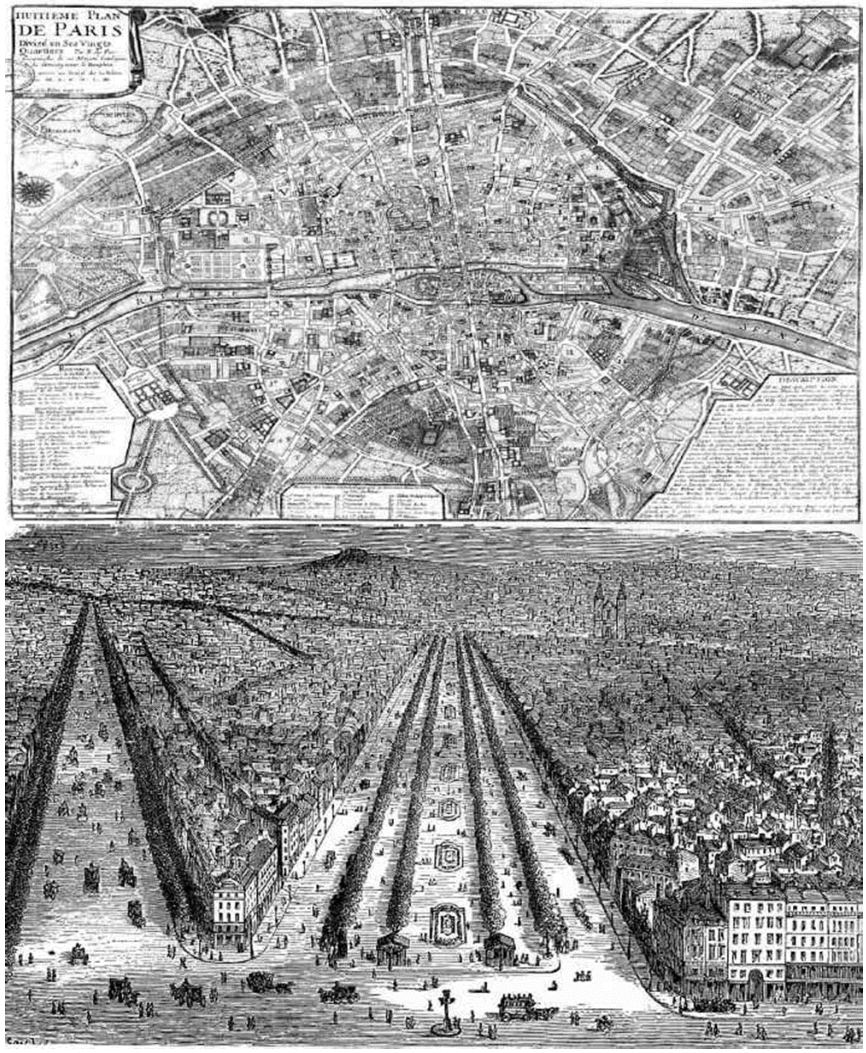
The new urban space is in any case affirmed in symbiosis with the rise of the industrial bourgeoisie, commercial and liberal professions, the definition of the framework of a system of nation states and the consolidation of their synergy in the intervention on the city. Its "unity" is definitively broken and a substantial change in the imposition of a social, synchronic and basantesian time on the new production model, which multiplies internal boundaries. «Chaos is a given, and the Order is a target. But the Form from now on is not to be sought beyond the Chaos, but within it: it is the Order that offers meaning to Chaos and translates it into value, in "freedom"»[133]. In this motion also the ideology of the city shatters, and the metropolis is exactly the product of this split. The aura of the city falls as a place of free coexistence and peaceful exchange:

> Haussmann expresses the will of power of the Metropolis: he realizes the Metropolis destroying the dialectical ideal of the Gesellschaft as Gemeinschaft. He uses the city directly as a commodity, opens it up to the great speculation of financial capital, completely "alien" its ancient "subjects", rejecting them from its centre. Haussmann conceives the Metropolis, unlike the city, as the terrain of class struggle[134].

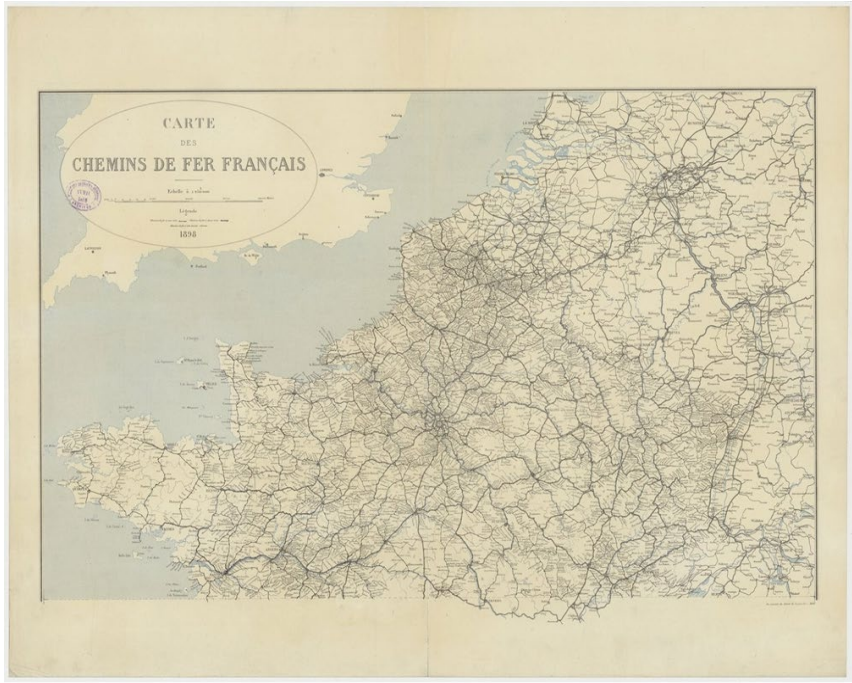
[133] M. TAFURI, *Per una critica dell'ideologia architettonica*, p. 56.
[134] M. CACCIARI, *Metropolis. Saggi sulla grande città di Sombart, Endell, Scheffler e Simmel*, Roma, Officina Edizioni, 1973, p. 27.

If this comment by Massimo Cacciari can be taken as a closing of this brief excursus on the Haussmannian work, it is necessary, however, to underline an another determining factor in overcoming the city.

Img 13 - Paris, Rue 1863. Paris, Marville – Menilmontant, 1856



Img 14 – Paris, Boulevard Richard Lenoir, 1863. Map of Haussmann, Paris 1859



Img 15 - Carte des chemins de fer français. Service géographique de l'armée. 1858. Source gallica.bnf.fr / Bibliothèque nationale de France

4.4.4 Extensive urbanization

The city as a bulky residue

The metropolis as a logistics city. It is this land that is now intended to fire, with the intention of demonstrating that one of the historical criteria for understanding of the globalized city, residing precisely in its logistical watermark, develop in terms of knowledge, skills and first experiments from the second half of the 19th century onwards.

Although with a series of variations over time, logistics is about the capacity of organization of a complexity of elements (morphological-infrastructural variables or environmental, physical, directly related to the society) and their activity, interaction and process. In these terms the science of logistics is a typology of knowledge, mental schemes and symbolic manipulation skills prosthesis to the predisposition and the control of transversal processes, which cross on different scales and contexts. Born in

the military field and as a set of practices for ocean trade management (starting from the slave trade), modern logistics finds its full application right in the Paris of the period that we are considering.

It has been said before how for the construction of the modern statehood of the territory the police practices developed in the cities have been taken over and adopted and how it is now possible to argue that that expansive movement from the city is articulated along the wide territorial spatiality of the State – and now "comes back." With the definitive affirmation of the modern state, with its becoming national and with the oceanic expansion of the European Empires, the city of the first Nineteenth century presents itself in front of the emerging governmental rationality as a residual problem.

Its structure of medieval derivation, its being essentially unintelligible, intricate patchwork of buildings, streets and dangerous classes, makes it problematic from a government point of view. That is, this structure that weaves an urban and social morphology imbricated in previous centuries is not functional to the new principles of organisation of the economy and to the needs of land use.

The political instability of the French capital is emblematic. Insubordinations between the late eighteenth and mid-nineteenth centuries require adoption – by part of the new dominant classes - of a new practical and conceptual instrumentation to remove this problem. Paris is in fact considered sick, and is essentially a logistical mentality that is thought of as the "cure". In this sense about Paris, to turn it into a modern city, conflagrate a series of techniques and knowledge developed elsewhere. Urban logistics is in fact nourished by notions military, mercantile, movement patterns, technologies and space concepts organized to bring in a police logic, an orderly durability within the chaotic urban process.

Just as it had previously been a matter of making the territory one big city, it is now about making the big city a territory. To do this the radical reduction of the city to mere *urbs* practiced by Enlightenment thought is a strategic element, to which, however, are also added multiple criteria of abstraction processed by Hobbes. In order to retrace this logistical development of Paris, one has to discuss some profiles (space, urbanization/industrialization, circulation, military element, infrastructure, migration) relevant to the implementation of this process, ending up with to discussed town-planning work that Baron von Haussmann puts in place in the city, as a true emblem of the new conception of the city. Haussmann's intervention is relevant because he intervenes at the height of a process that appears uncontrollable, when in 1848 all the trends of decades Previous seem to explode: The indefinite expansion of the city, its opening

up to the world through trade and colonial procedures, industrialization, the new social subjects... These are all the preconditions from which it moves Haussmann, trying to exaggerate and favour some at the expense of others.

This passage therefore takes on a more general meaning than the specific urban interventions historically produced by him, forming an episode through which you can investigate some dynamics in motion.

Shaking the coordinates

Paris, the epicentre of the revolutionary cycles, is globalised in terms that its internal dynamics can only be grasped by considering them in this broad setting: You can't understand the evolution of the Revolution in Paris without linking it to what is happening simultaneously in Haiti[135], just as we do not understand the motions of the 1848 if we do not consider the colonial expeditions to Algeria. But it is already in the middle of the 18th century that you begin to sense that something new is going on in the city.

Louis-Sébastien Mercier published the Tableau de Paris between 1781 and 1788, and the images that report already seem to indicate the impossibility to determine the contours of the city. Mercier writes:

> one is on the tenth floor of Paris, but the city always goes beyond its boundaries. A precise limit is not fixed yet, nor could it be. In this immense city we are upset and lost; I myself am unable to recognize the new neighbourhoods. [...] There's Chaillot, Passy, Auteuil tight to the capital; a little more and Sêve will be on the sidelines. If in the century future Paris widens from Saint-Denis to Versailles on the one hand and from Picplus in Vincennes, no doubt it will be an even bigger city than those Chinese[136].

For this unpublished condition the author makes use of the comparison with Chinese cities, but his gaze is extremely lucid in grasping differences and doing the math with a novelty that will last. With a sentence reminiscent of the Hobbesian description of London, Mercier states that "considered from the political point of view, Paris is too big: it's a boundless head for the body of the State" but, unlike most of his contemporaries – who in the face of this problem tend to propose unrealistic solutions of return to the past or of new utopias – Mercier says that "today, however, it would be more dangerous to kill the She-wolf that let her survive: There are evils that once rooted are indestructible".

The city incorporates the entire surrounding area faster and faster, so much that already by the middle of the century the idea that a great city can, at least from a metaphorical point of view, embracing the entire planet, is not peregrine at all. "Paris will rise up to the clouds, she will climb from sky to sky, transform his faubourgs into

[135] C.L.R. JAMES, *I giacobini neri* (1938), Roma, Derive Approdi, 2015.
[136] L.-S. MERCIER, *Tableau de Paris*, Amsterdam, Mercier, 1782, p. 456.

planets and stars"[137]. These fantasies will be taken up by Benjamin to compare them with the satires against Haussmann for the next ten years, but for what it's worth here they can be taken as an example for what in comparison to London has been defined as cultural self-perception of a scale of action that has become global.

Logistics as metropolitan logic

The logistic city that is built in Paris is structured on the need of the circulation (of military troops, of goods), "the modern city has in the circulation his first reason for being. It is no longer a place where a stable community have established a ritual of repeated actions"[138]. Where the liberal city takes shape with the construction of the political economy, the metropolis is the city of the criticism of political economy.

Not only is there a need for recourse to State intervention in order to ensure that the city can function as a marketplace, but it becomes evident that the city is also a place of consumption and production. It is evidently around this last knot, to the impossibility of containing the centripetal thrusts that emanate from the new classes "produced by the city", which strongly determines the change of paradigm. There is also a problem that tends to present itself today as characteristic of the contemporary city, but that in fact already in the nineteenth-century metropolis finds its own terrain for implementation. It is in fact defining the need for a management of power, a type of government, who can't act without negotiation, multiple management and agreement between different operators, whose specific responsibilities had remained hitherto opaque and indefinite. It is what today would be defined as governance, which within the semantic field composed between it and the notions of government and governance outlines a rationale already in place in Paris.

The different interests at stake are inscribed and expressed through the metropolis, a real battleground of the time, and Haussmann's work is considered decisive because, even if for a short period, it shows and organizes a balance and the state role of urban transformation (expropriation and planning) as a guarantor of private investment. It is therefore the convergence of these two rationalities the figure of the moment. From there, later it will be the balance between these two levers one of the discriminating elements to capture urban mutations. This action is possible above all by using a technique of functional subdivision of the city. A form of zoning that establishes a functionalist idea of the city. To do this you need to go from a description of the city through the metaphor of nature towards the use of machinic or technological

[137] A. BERTAUD – P. DUFAY, *Dictionnaire historique de Paris*, Paris, La Librairie Nationale et Étrangère, 1832, p. 128.
[138] I. DE SOLÀ MORALES, *Mnemosi o retorica: la crisi della rappresentazione nella città e nell'architettura moderne*, in *Oltre la città la metropoli*, 2015, p. 174.

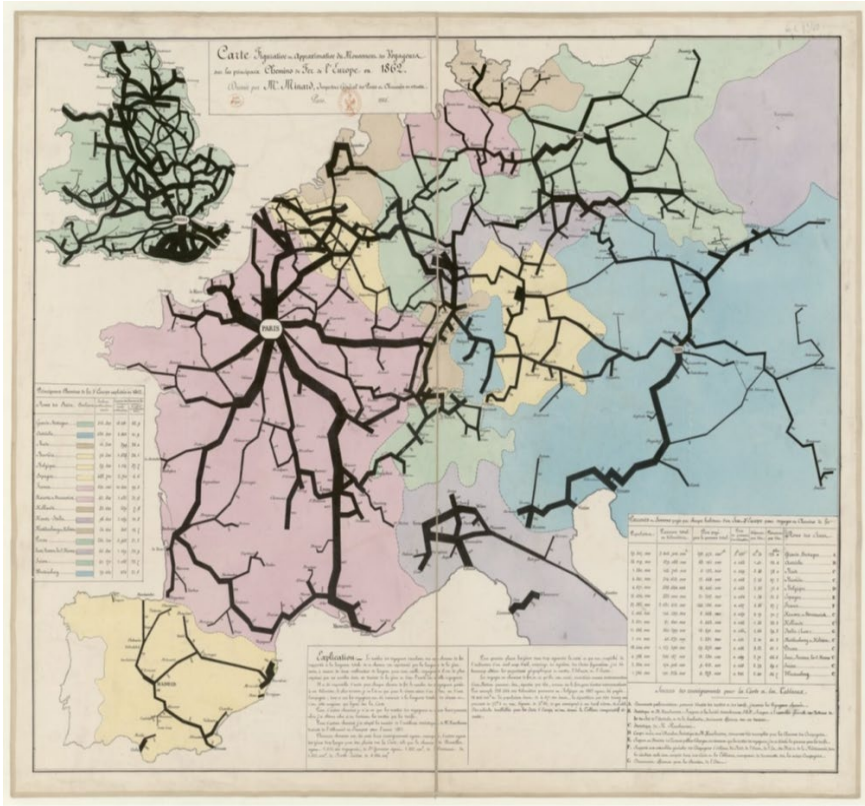
imagery (see today's fortune of the idea of smart city), and today this concept of space is also in operation on a national or continental scale

Rather than a single urban polarity, the logistic city is a logic on which one can define the metropolis, applying logistical schemes to the entire city. The ability to compose independent space cells that allows a continued assembly of public and private interest ratio, is a consequence and not a premise of such procedures.

The metropolitan border

The shock produced by Haussmann's work overwhelms "confidence" in the city, making melancholy echoes of an idealized urban past, not only because it makes the urban scenario irreparably unstable and temporary, but also because at the same time there is an extraordinary introduction of technology in the city. Over the course of the century, with an acceleration in the Second French Empire, the new roads, squares and tunnels and warehouses, hospitals, theatres, barracks and gardens sprouting up in the cities, are associated (in addition, of course, to the factories) to the definitive establishment of water and sewerage system, as well as gas lighting (Paris is called Ville Lumiere because, in 1825, it was the first to create a system of centralized lighting) that makes the night a new dimension of the city and inaugurating street cafes. But if Paris is a logistical city because it introduces the military logics of space organization, the commercial techniques that have been established on the great ocean transports, the logic of circulation and movement such as new urban matrix realized in the infrastructure, it is also in respect of this infrastructural level, which comes to apotheosis in the realization of the subway - which seals this process indelibly.

Where does it come from? On May the 10th, 1869, the two sections of the transcontinental railways were welded in the Summit promontory, in Utah, connecting the East of the Founding Fathers with the last West border, and a few weeks later Haussmann is deposed. His attempt, and with it the years of Napoleon III's Second Empire, highlight their failure with the Paris Commune, which will be dealt with shortly. But within a few decades the interweaving of new technologies, state intervention and private capital symbolically lead to the completion of Metropolis, Paris logistics. In the process of mutual globalization of state and city after the nineteenth century, the "century of the railway" (through which the State and large private capitals build and organize a new spatiality), at the end of the century the logistic apparatus and infrastructures are also implemented within the metropolis. In this sense you see what has previously been described as a "comeback" in the city of urbanization. The metropolis introduces an organizational logic born on continental geographical extensions and is enriched with a space intended for the flows, which become constitutive of the new metropolitan temporality. In this sense while in the United States the era of territorial expansion is coming to an end, is the metropolis that metaphorically becomes a new frontier space, in constant redefined and conflicted over its appropriation.



Source gallica.bnf.fr / Bibliothèque nationale de France

Img 16 - Carte figurative et approximative du mouvement des voyageurs sur les principaux chemins de fer de l'Europe en 1862 / dressée par M. Minard.... 1865. Source gallica.bnf.fr / Bibliothèque nationale de France

4.4.5 Subjects at work

Social residues

The theme in the nineteenth century, as has already been argued, becomes that of how to territorialize/urbanize/apply the police to the capital and the cities in general. It is what the Foucault frames as the succession of the "disciplinary city" to the "capital

city", where "the discipline gives architectural form to one space and poses as an essential problem a hierarchical and functional distribution of the elements"[139]. The loss of the form and identity of the city as a result of the free use of the rules of capital is still a threat to its stability. The city's disorderly growth goes hand in hand with its population of new social subjects, coming to the city as "hyperbolic expression of social injustice, it becomes, as never before, an object misunderstanding [...] plays here the theoretical confusion between the city and society that derives from the natural inclination to finalize one to the other or to identify them, without realizing that between the interrelationships established between the two terms always passes an empty space, which denies the overlap, relating to the specificity of the two disciplines"[140].

But if it is in the break with the previous form that the new is realized, if Haussmann has as its goal the destruction of medieval Paris, you can identify in terms of social subjects a sort of connecting link around the profile of the sans-culottes: artisans, small masters and traders, skilled workers, apprentices, shopkeepers, labourers, labourers and farmers for the more propertyless - that on the eve of the Revolution are organized in a still "medieval" form - in forty-four guilds, which in the course of the century promoted numerous forms of strike[141].

«The sanculottes made up perhaps half to two-thirds of Paris in 1793-94»[142], but they are «immanent strangers in the bourgeois metropolis»[143], and if in 1792 they organized mainly against the aristocracy, the following years they flaunt a clear hostility against the bourgeoisie[144]. Their defeat leaves its mark anyway about the city. But one aspect that is rarely investigated is that "sanculoptism" is not a uniquely Parisian phenomenon, but a trait common to many French, English, German and Italian cities. The sanculottes «drew from their artisanal roots and the guild tradition, organized in political clubs and societies, and "illegitimately" usurped power, though they did not explicitly appeal to the images of the people as their historical ancestor»[145]. This sort of medieval residue, however, does not find an explicit post-revolutionary continuity, and in the early decades of the 19th century the strong image of the sanculottes disappears, and the working classes become the already mentioned "dangerous classes".

Without their specific organised form, they must therefore be civilised as essentially will. A discourse that spans all around Europe and even in the United States, with a growing in studies that exploded after 1848. The savages in the metropolis live at the margins of the law, and civilizing them means subjecting them to it and regulating them. Between the uprisings of 1830 and those of 1848 there was a slippage semantics:

[139] M. FOUCAULT, *Microfisica del potere. Interventi politici*, p. 48.
[140] *Ivi*, p. 98.
[141] E.F. ISIN, *Democracy, Citizenship and the Global City*, London, Routledge, 2000, p. 194.
[142] R.B. ROSE, *The Making of the Sans-Culotte: Democratic Ideas and Institutions in Paris, 1789-92*, Manchester, Manchester University Press, 1983, p. 7.
[143] E.F. ISIN, *Democracy, Citizenship and the Global City*, p. 197.
[144] R.P. LEVY, *Babouvism and the Parisian Sans-Culottes*, «Journal of European Studies», 11, 3/1981, pp. 169-183.
[145] E.F. ISIN, *Democracy, Citizenship and the Global City*, p. 201.

the savages now become barbarians, and we move from the paradigm of the barbarity to that of war. Significant in this regard is the fact that Alexis de Tocqueville during the days of insurrection wanders around Paris, encountering at the head of the army many of the generals he had known during the fights for the colonization of Algeria: the barbarians imagined as confined outside the metropolis actually populate the metropolis[146].

The barbarians are the mob, the crowd, the horde, which after 1848 is distinguished from the classes laborious, inaugurating a tradition of labelling and a popular class distinction that leads the French history to the statements about the inhabitants of the banlieue as *racaille* made in 2005 by the Prime Minister Nicolas Sarkozy.

The "good" and the "bad" manners distinguish the two classes, created by the bourgeoisie within a competitive strategy. The dangerous classes are such as they reject discipline, and their dangerousness also lies in the fact that they are "not only" intransigent, but transient". It is precisely this mobile character, the absence of a solid grounding, making them out of control. It's no coincidence that Haussmann strongly emphasizes this characteristic:

> Paris belongs to France, not to the Parisians who by birth or by choice live in the city, and above all does not belong to the mobile population camped in temporary housing [...]; this "nomadic crowd", to use an expression for which I have been reprimanded, but which I believe to be correct, whose best part moves towards the big city in search of a fair and regular job, but still intends to return to their place of origin where they maintain links[147].

The barbarian is basically described like a nomad, and it is precisely against this characteristic that on the threshold of the Second Empire, the criterion of fixed dwelling is established as an attribute necessary for suffrage. While overseas tensions can be vented in mobility over an oceanic space, in France the city is the battlefield. It's no coincidence that Haussmann says that Paris belongs to the French state: the city must remain as a municipality, as mere *urbs* to organize and rule. The civitas, in the Hobbesian wake, with a nuance that now refers to the concept of society, is embodied in the state, and that's why it's highly problematic that the city is starting to become a representation of society. In this sense during the 19th century thinking the city is to think of a process in which social partners have been formed in conflict, as each of them claims a "right to the city".

«The barbarians who threaten society are not in the Caucasus or in the steppes of Tartaria; they are in the suburbs of our cities manufacturing»: this is the widespread concern in the bourgeoisie of the century, and the recognize that a part of the city and

[146] N. CUPPINI, *La città dopo la città?*.
[147] *Ivi*, p. 91.

the population that composes it is not reducible to a certain order inexorably disrupts the idea of a city.

The counter-logistics of invisible hands

The Commune of Paris, 1871, highlights and allows us to discuss a number of issues so far faced it. First, the seventy-two days of this experience revolutionary were repeatedly read as the nemesis of Haussmann's work. The disowned population of the metropolis, so repudiated by him, has been progressively moved away from the "centre" of the city, but has continued (also thanks to the work guaranteed by the works of the Prefect) to grow numerically up to create in the suburbs what will be called the Paris rouge, and with the Commune also shows how one of Haussmann's main objectives ("make impossible forever the erection of barricades in Paris") is substantially failed.

The great boulevards erected against «la tactique habituelle des insurrections locales», these "great deserts" in the centre of Paris, are populated again by the "abject", the "beasts", the "atrocious bandits" and of the "enemies of society and of his order" against which they were built: «the barricade rises again in the Municipality [...] crosses the great boulevards [...]. As the Communist Manifesto closes the age of professional conspirators, so the City puts an end to the phantasmagoria which dominates the freedom of the proletariat», Benjamin writes about it.

At the time the Commune was mainly framed as the first form of (self-)government of the working class, whereas in the last few decades it has tended to be defined more as an urban proletariat uprising, an uprising of the excluded whose support comes mainly from the (social and spatial) margins built up over the precedents decades. Roger V. Gould discusses how in 1848 there was an identification in terms of class, whereas in 1871 the identity would have been structured properly about the city: the insurgents are fighting more as inhabitants of Paris than as workers.

The Commune is also an occupation of the city after the bourgeoisie for the previous decades has inscribed itself in urban space, and the workers afterwards Haussmann return to downtown "to reoccupy streets that once were theirs". Besieged by foreign troops and under the leadership of the government of Versailles, the insurrection of Paris is thus capable of defending, conquering and transforming the cities, in which the emergent identities mix multiple trades, belongings of neighbourhood and work, along with a kind of remnant of sanculoptism has shown itself in the incisive participation of the craftsmanship that has maintained its own organized form.

In Paris, as progressively throughout Europe, the medieval streets are replaced in function of a functional enlargement to transport the goods, the "old town centres" are transformed and the ancient walls are torn down. In addition to no longer serve for military defence in the face of new war technologies, for this last operation takes over the reasons related to the needs and mobility, but also a strong symbolic revival: the

modern city gets rid of the closed perimeters and opens up new and wider perspectives. This takes on multiple meanings, both concrete and symbolic: the fact that the barricade is one of the symbols of the municipality. Historically rooted in the city's imagination, the "professional conspirators" are probably the first to build them, but soon the "magical cubes of porphyry that rose up he fortresses " are erected by thousands of invisible hands in the swarming city.

Alexis de Tocqueville is in Paris during the outbreak of 1848, however, during the night before the explosion, he doesn't notice anything. But when he wakes up:

> I still hadn't had time to put out the nose that first made me I realized I was breathing the revolutionary atmosphere. The boulevards then showed a strange spectacle: you could hardly see anyone around, no matter how much they were already nine in the morning, and you couldn't hear the slightest sound of a human voice. But all the little garrets set up along the vast avenue seemed to be wavering, wavering on their bases...and sometimes some of them would fall down making a lot of noise, while big trees they'd collapse on the pavement. These were individual destructive acts, carried out by isolated men, who performed them quietly and diligently, albeit at full speed. They came like this prepare the materials for the creation of barricades which others would then build [...]. Not I know if any of the acts I witnessed during the course of this day surprised me as much as that loneliness that was the setting for the unraveling of so many bad passions, without any good ones appearing[148].

Once again that «travail non salarie mais passione» of which Fourier speaks fills the city with a counter-logistic network of which Victor Hugo had already give years before, in *Les Misérables*, a vivid description. In this emblem of the revolt, therefore, numerous plans are mixed together. The walls medieval city that previously defended from the outside rise now inside, temporary structures built with the materials with which the neighbourhoods were gutted... workers of the ancient Cité. These "critical infrastructures" thus mix metaphorically past and future, and are the result of the constitutive contradiction which puts the municipality in shape: between defending the city from the enemy invasion and the (re)conquest of the city stolen during the Second Empire.

The barricades move simultaneously with the long tradition that aspired to municipal self-government, which leads to the creation of the Central Committee of the twenty arrondissements, with the task of supervising the appointed municipal officials... by the new executive and on defence operations. *Paris entre les murs*, which several decades before the decoding of the division between centre and suburbia has already become a mirage for many Parisians expelled from its perimeter, it is then defended and regained by masses of people who also come from outside the walls, thanks to the fact that the Parisian citizenship of those months is a concept deployed universally.

To conclude, it is necessary to consider that the modern city formed during the course of the nineteenth century fluctuates continuously around what Egin F. Isin calls

[148] A. DE TOCQUEVILLE, 1864, p. 219.

as "municipalization of government": a strategy of government of the metropolis that "embodied simultaneously nationalization and localization of disciplines, loyalty, virtue, and subsidiarity"[149]. The metropolis therefore emerges progressively with a peculiar status: neither autonomous nor subordinate, its government is a technology defined by a tension between the state and local authorities. Within this conception, the municipal government constitutes the city as a space of discipline and freedom.

4.5 Berlin

4.5.1 Introduction

The fourth step in this geo-historical path bring us to Berlin where occurred great changes between the end of the XIX century and the eve of World War II. In 1920 the Greater Berlin Act (*Groß-Berlin-Gesetz*) was approved, which brought to an enormous size-improving of the urban area and to population boom, reaching around four million inhabitants. Secondly, in that years Berlin became one exemplary city of the so-called second industrial revolution. New brands in the field of new electric technology and other factories linked with the production of trains, railways, steal and new chemical compost extraordinarily growth (both in factories dimensions, number of employees and production capacity). Thirdly, it was a period when the figure of the working class was crucial: thanks to the factories grow and the new technology (e.g. the assembly line) as many blue-collar as never before were working together in the same place at the same time, which brought to many uprisings promoted by the new socialist parties and unions.

Among the reasons which concurred to the impressive growth of British Industries, David Landes is keen to stress the morphological aspects: «nature – Landes writes – had not been so kind to the lands across the Channel as to Britain»[150]. From an inland point of view sea, channels and shorter (however bad) roads allowed an economic expansion and integration which could not be achieved in other European States such as France or Germany due to their bigger dimension and to the scarcity of natural "highways" such was the channels in England. Railways changes drastically this situation: «It seems fair to say – Landes claim – that by the 1840s railroad construction was the most important single stimulus to industrial growth in western Europe»[151]. Indeed, railways had a triple-push crucial effect. Firstly it allowed faster, efficient and safer linkage inside the State (and outside too); secondly, it «called forth a large number of machine shops, encouraged [...] the diffusion of major innovations in the working and handling of heavy forms [...] and provided for the first time so large a demand

[149] *Ivi*, p. 228.
[150] D. LANDES, *The Unbound Prometheus*, p. 126.
[151] *Ivi*, p. 153.

for machine tools that specialization in their manufacture became feasible»[152]; thirdly, it dramatically stimulate heavy industry, which was something crucial in continental Europe: «In Britain, the Industrial Revolution had been built on the cotton manufacture, which grew more rapidly than other branches of industry before 1800 and drew them with it. On the Continent, it was heavy industry – coal and iron – that was the leading sector»[153].

This was particularly true in Germany. Rhineland (Ruhr and Sauerland) and Silesia had important iron industries and were in the vanguard in the steel sector where factories upsizing was impressive: "The most rapid increase in scale came, as would be expected, in heavy industry" which contributed to «the spectacular rise of the Reich to a position of economic pre-eminence in Europe»[154].

Thus, the rise of Germany was both economic and structural:

> Britain had relatively small plants; Germany large. Around the turn of the century, the biggest British mills were turning out only as much as the average Westphalian works [...]. The disparity extended backward to the smelting stage: the median member of the German steel cartel (1903) was four times as big as its British analogue (1900)[155].

In the electricity production too Germans took the lead with enormous industrial complexes such as the *Rheinisch-Westfalische Elektrizitats-A.-G.,* founded in 1900, which «from 2.7 million kWh in 1900/1, its output leaped to 121.7 million in 1910/1 and 388 million in 1915/16»[156]. As a direct consequence of these enlargements the number of workers per factory growth exponentially:

> Over the period from 1882 to 1907 the proportion of workers in enterprises employing over fifty persons increased from 26,3 to 45,5 per cent; the number of people in works of over one thousand employees more than quadrupled, from 205,000 to 879,000[157].

It is in this period where we witness the birth of the so called "mass-worker". And, as we said, the case of Berlin is particular important.

4.5.2 Historical context

Compared with England, by the end of the XIX century «there was the marked superiority of Germany in the newer branches of manufacture»[158]. Berlin was not an exception: in addition to early dominance in the textile and clothing industry, and the brewery industry, [it] around 1900 accommodated many companies in the new growth

[152] *Ivi*, p. 184.
[153] *Ivi*, p. 174.
[154] *Ivi*, p. 222. See also p. 258.
[155] *Ivi*, p. 263.
[156] *Ivi*, p. 286.
[157] *Ivi*, p. 300.
[158] *Ivi*, p. 328.

sectors, such as electrical engineering, chemistry and machinery production»[159]. In some respects, it would seem astonishing such an "industrial vanguard" for a city like the former Prussia capital. At the end of the XVIII century it was «basically a garrison town. Of its 141.000 inhabitants in 1780 [...] a total of 56.000 [were] state employees»[160]. By the last quart on the XIX, however, it became «the most important industrial town» in Germany, with more than 2 million inhabitants (almost 4 million in the Greater Berlin Area[161]). The rapid growth of population was due to industrialization: «Men and women from the surrounding provinces and beyond poured into the city in search of work»[162].

At the beginning of the industrialization (1850s) the factories grew nearby the city centre, in the *Oranienburger Vorstadt* (called *Feuerland* – Fire Land – due to the high presence of blast furnaces especially from Borsig factories, the famous builder of railroad locomotive), in today's Mitte District, not far from Alexanderplatz and main station. But in the fifty years before World War First, the city utterly transformed. House architecture completely repaint the face of the city since that «old houses were replaced one by one with new and larger buildings»[163]. Furthermore, from 1870 onwards most of the enterprises migrated to periphery, especially in the northwest part, close to Tegel, in order to prevent conflicts with neighbouring citizens and the authorities, to comfortably discharge their wastes and to profit from the large availability of rural land»[164]. Most of the factories were built along the Spree River in order to be close to the main "raw-material highways" of that period (however, rapidly substituted by railways), and around them «clustered the city's teeming working-class districts such as Wedding in the north, Neukölln in the south»[165]. Thanks to the large availability of land, and due to the highly intensive productivity, many factories grew rapidly. The cases of the AEG (Allgemeine Elektricitäts-Gesellschaft) and Siemens are particularly meaningful be-

[159] H. FORSELL, *Propriety, Tenancy and Urban Growth in Stockholm and Berlin, 1860 – 1920*, Farnham, Ashgate, 2006, p. 9.
[160] S. POLLARD, *Peaceful Conquest,* p. 210.
[161] H. FORSELL, *Propriety, Tenancy and Urban Growth,* p. 9. The Great Berlin Act came into force on October 1, 1920 and highly expanded the size and – consequently – the population of the city, incorporating 7 towns, 59 rural communities and 27 estate districts becoming the third largest city in the world after London and New York. See B. LADD, *The Ghost of Berlin*, Chicago, University of Chicago Press., 1998, pp. 96 and following.
[162] B. LADD, *The Ghost of Berlin*, p. 96.
[163] *Ivi*, p. 97.
[164] C. ZIMMERMANN, *Industrial Cities. History and Future*, Frankfurt am Main, Campus Verlag, 2013, p. 61.
[165] B. LADD, *The Ghost of Berlin*, p. 97.

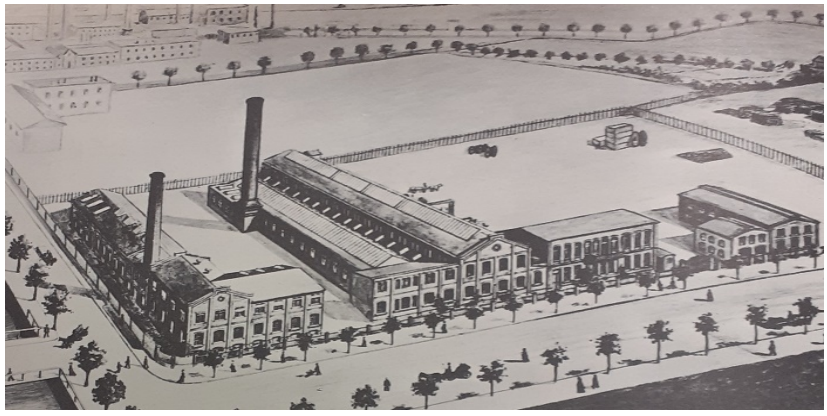
cause they became «two of the world's leading manufacturers of electrical machinery»[166]. And two of the world's largest manufactures too, where worked a huge number of workers. In the next sections the focus will be particularly on these two cases.

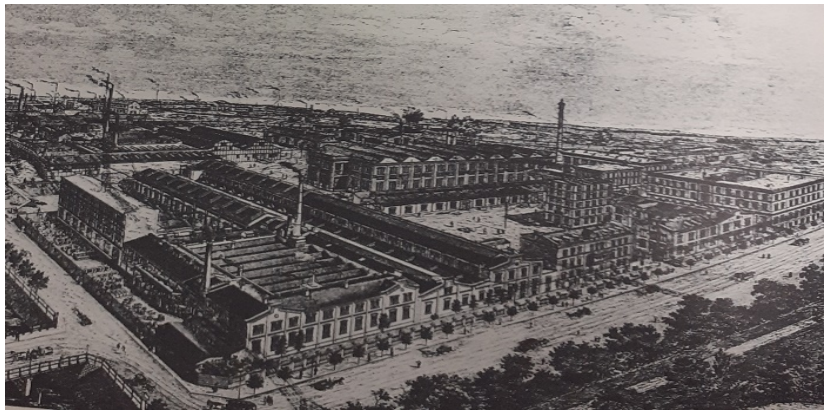
4.5.3 Intensive urbanization

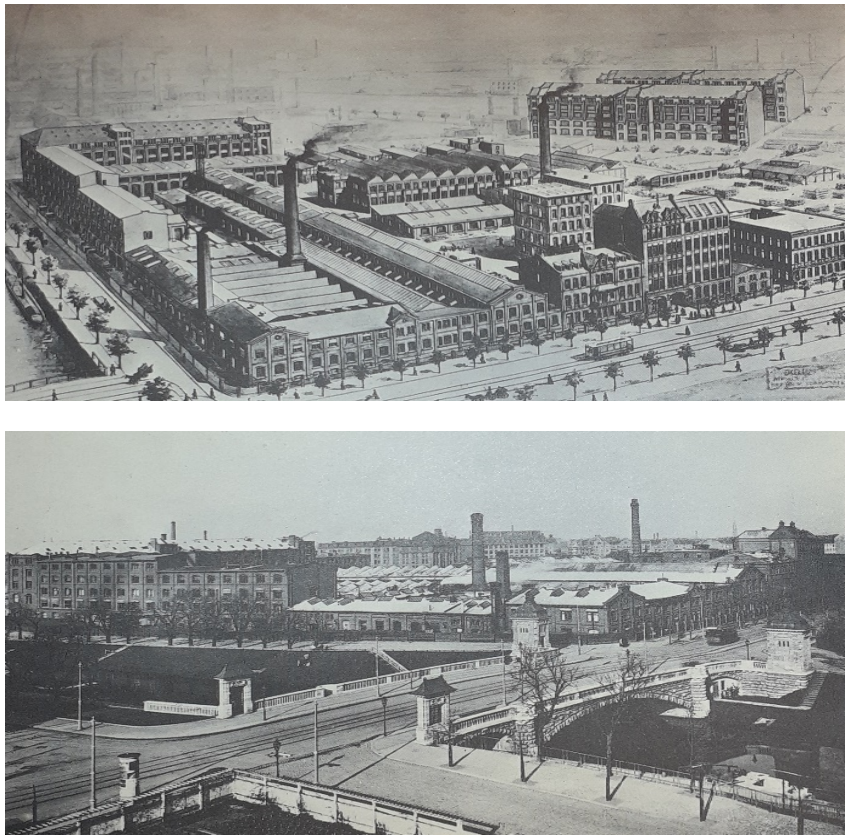
The Siemens & Halske Telegraph Construction Company is perhaps the most paradigmatic case of a huge factory in Berlin. It was founded by Werner von Siemens and Johann Georg Halske in 1847 and its growth «accelerated substantially after 1875»[167]. At the Berlin Industrial Exhibition in 1879 Siemens and Halske became quite famous worldwide when they installed «a small, narrow-gage electric train that carried visitors in a circle around the exhibition grounds»[168]. Nonetheless, in the following years telegraph line and electrical equipment became their specializations[169]. People employed in their factories grew from 192 in 1867 to «2.125 employees in 1889»[170] when they set up the plan for a "Siemens city" on the outskirts of the city. «In 1897, Siemens & Halske purchased a largely undeveloped tract of land northwest of Berlin»[171], between Charlottensburg and Spandau: 200.000 square meters, officially named *Siemensstadt* just before the First World War[172]. The *Siemensstadt* became a place of «thousands of jobs, residences, cultural and social institutions»[173], it was served by new streets and railways connected with city centre and in 1914 it had around 7.000 inhabitants. In the same year «Siemens employed a total of 39.179 persons in more than ten factories in Berlin: 29.160 blue-collar and 10.019 white-collar workers. About 27% of these employees were women»[174]. This amazing increase of employees in

[166] T. HUGHES, *Networks of Power. Electrification in Western Society 1880-1930*, Baltimore and London, Johns Hopkins University, 1993, p. 177.
[167] W. FELDENKIRCHER, *Wener von Siemens: Inventor and International Entrepreneur*, Columbus, Ohio State University Press, 1994, p. 85.
[168] W.J. HAUSMAN - P. HERTNER - M. WILKINS, *Global Electrification. Multinational Enterprise and International Finance in the History of Light and Power, 1878–2007*, Cambridge, Cambridge University Press, 2008, p. 15.
[169] T. HUGHES, *Networks of power* p. 178; W. FELDENKIRCHER, *Wener von Siemens: Inventor and International Entrepreneur*, p. 91.
[170] W. FELDENKIRCHER, *Wener von Siemens: Inventor and International Entrepreneur*, p. 89.
[171] https://new.siemens.com/global/en/company/about/history/company/1897-1918.html last access 13 May 2025.
[172] https://new.siemens.com/global/en/company/about/history/news/siemensstadt.html last access 13 May 2025.
[173] https://new.siemens.com/global/en/company/about/history/news/siemensstadt.html last access 13 May 2025.
[174] I. COSTAS, *Management and Labor in the Siemens Plant in Berlin (1906-1920),* in L. HAIMSON – G. SAPELLI (eds), *Strikes, Social Conflict and the First World War*, Milano, Feltrinelli, 1992, p. 269.

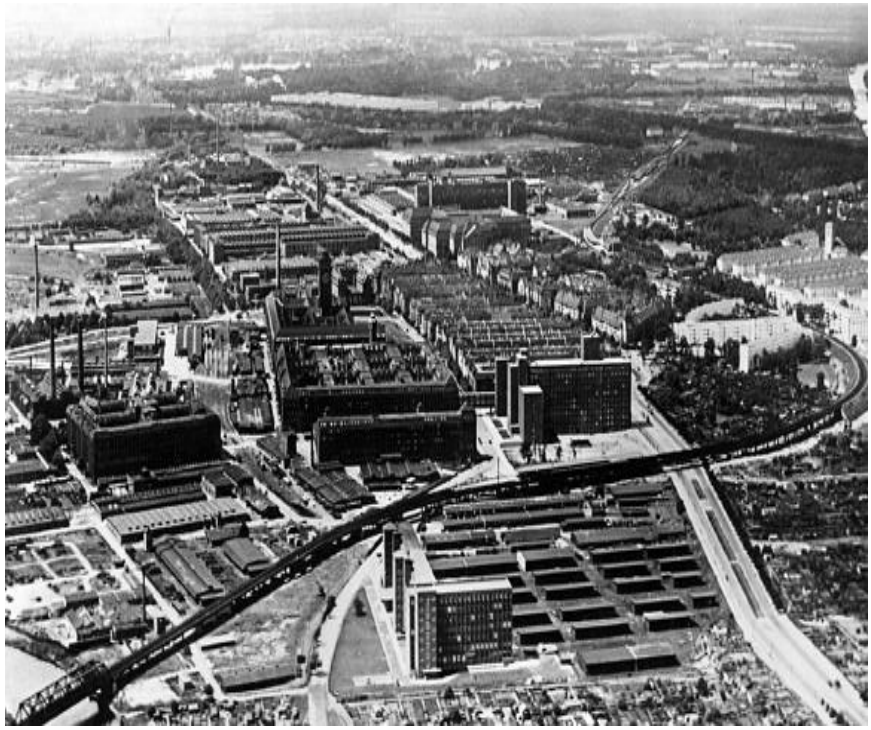
around forty years on the Siemens factories is exemplary of what happened in many Berlin enterprises in those years.







Img 17 – The enlargement of Siemens Factories from the end of the XIX century until the middle of the XX century. Source: Ribbe W., Schache W., (1985), Die Siemensstadt, Berlin, Ernst&Sohn, pp. 40-41



Img 18 – Siemensstadt, 1932

Another important example is given by the history of AEG. Founded in 1887 by Emil Rathenau (father of Walther, the famous German politician) as a part of the *Deutsche Edison Gesellschaft* (which was the result of U.S. Multinational enterprise expansion – that held Edison patents[175]), «not until 1889 could Emil Rathenau, head of AEG, declare his firm's "independence"»[176]. AEG was the «first to bring in assembly line production to Germany»[177], and its growth was as faster as the Siemens' one:

> By 1900 Berlin Allgemeine Elektricitäts-Gesellschaft was a larger manufacturer of electrical machinery and apparatus then Siemens and Halske. It had 17.300 employees while Siemens had 13.600; it had 60 million marks in shared capital while Siemens (including its foreign subsidiaries) had 54.5 million. When founded in 1887, AEG was primarily a financier and operator of electrical utilities and a maker of incandescent lamps. In contrast Siemens was a manufacture of equipment. Within a decade, however, AEG had expanded

[175] T. HUGHES, *Networks of Power* p. 183.
[176] W.J. HAUSMAN - P. HERTNER - M. WILKINS, *Global Electrification,* p. 79.
[177] https://www.aeg-powertools.eu/fr-be/onas/historie, last access 13 May 2025.

edits manufacturing to include power equipment and had introduced a line of polyphase machinery[178].

Simultaneously occurred the structural growth of the factories. Alongside the river, the Kabelwerker Oberspree opened in 1897 with almost two thousand workers; at the eve of the WWI the workers were already eight thousand.

Img 19 – Excerpt of a Berlin Map with a focus on the AEG area. Landsarchiv Berlin

[178] T. HUGHES, *Networks of power* p. 179.

Img 20 – AEG Kabelwerk Obrspree Berlin, Landasrchiv Berlin, File Number A. 7861 (years 1905-1907)

Cases such as that of Siemens or AEG are important due to the branch of industry they represent which was quite characteristic of the innovation of that period when «electrification affected the way in which workers laboured, management organized and Berliners lived»[179]. By the way, many other examples could be made. Brand such as Borsig (the biggest worldwide producer of trains whose factory moved to Tegel area), or DWM (*Deutsche Waffen-und Munitionsfabriken* – again with a big manufactory in northwest area), were plants with thousands of workers established in that years.

4.5.4 Extensive urbanization

The topic of Extensive urbanization in Berlin between the XIX and the XX centuries has been just partially studied. Consequently, what we are going to point out in this section are the firsts results of a research that would deserve more effort. The focus includes: a brief description of the German railway system and a brief mention of the role of a "railway governance agency" headquartered in Berlin. We think that is of crucial importance to study these two characters in order to fully understand the

[179] *Ivi*, p. 182.

growth of Berlin and the gradual process of European integration and "materialization" through the built of international infrastructures[180].

In the first half of XIX century must be noted that Berlin «had excellent water-way communications, and had access to cheaper coal (from Britain) than many other parts of Germany[181]. However, from 1850s railways growth rapidly, stimulating and being stimulated by the spread of the factories: «Borsig built his first locomotive in Berlin in 1841; by 1858, he had built his thousandth»[182]. Generally speaking, the whole Germany «played a prominent role in international railway traffic in Europe throughout the 19th century and until the outbreak of the war»[183], and in terms of rail kilometres just before the outbreak of World War First it was exceeded that of France and Britain. Berlin, as capital city and industrial core of the State, «was a railway nodal point; twelve main lines converged on it»[184] and many train-stations were built within the city. The *Stadtbhan* opened in 1882 when «Berlin developed an exemplary transportation system»[185].

The gigantic process of industrialization in Berlin was not just a matter of national railways. Rather, it was due to its centrality in a railways system which was involving many other European railway lines. In the first half of the nineteenth century, the European territory was characterized by a great technical and structural diversity of railways[186]. However, thanks to the birth of what we would nowadays call "railway governance agencies" (notably the *Verein Deutscher Eisenbahn-Verwaltungen*), the variegated railways of the European panorama gradually became more and more compatible. *Verein* bore in Berlin in 1846 thanks to the input of many Prussian railways company to answer on local needs. Nonetheless, it quickly spread throughout Germany and Europe so much that on the eve of WWI it gathers together 92 railways company from Germany (more than fifty), Austro-Hungarian Empire (around thirty), the Netherlands, Belgium and Russia. To conclude, it is important to stress that the

[180] A. BADENOCH – A. FICKERS (eds), *Materializing Europe. Transnational Infrastructures and the Project of Europe*, London, Palgrave Macmillan, 2010; M. FRAPPORTI, *Verso l'integrazione europea. Jean Monnet tra infrastrutture e governance logística*, «Scienza & Politica. Per Una Storia Delle Dottrine», 31/60, 2019; M. FRAPPORTI, *Governo materiale. Il potere politico delle infrastrutture*, Milano, Meltemi, 2024.
[181] S. POLLARD, *Peaceful Conquest,* p. 128.
[182] *Ibidem.*
[183] I. ANASTASIADOU, *Constructing Iron Europe. Transnationalism and Railways in the Interbellum*, Amsterdam, Amsterdam University Press, 2008, p. 33.
[184] T. HUGHES, *Networks of Power* p. 181.
[185] *Ibidem.*
[186] J. SCHOT - H. BUITER - I. ANASTASIADOU, *The Dynamics of Transnational Railway Governance in Europe during the Long Nineteenth Century*, «History and Technology», 27, 3/2011, pp. 265-289.

standardized railways network who surrounded Berlin was essential for his industrial development.

4.5.5 Subjects at work

Once again we should start from a country overview. According to the book *The German Working Class 1888-1933* edited by Richard Evans, in the 1880s «the influence of Marxist ideology on the labour movement became paramount»[187] with an enormous growing of the Social Democratic Party:

> by the end of the century it was well on the way to becoming a mass party; by 1914 it membership had topped the million mark; by 1912 it had gained more seat in the Reichstag than any other party despite a gerrymandered electoral system which left urban areas seriously under-represented[188].

Confirming this tendency, Friedhelm Boll pointed out that during the Weimar Period there had been «the highest strike frequency in German labour history»[189] and it is quite well known that even Marx foresaw that the proletarian revolution would happened there, since Germany was «the most advanced industrial society in Europe and had the largest and most organized Socialist movement in the world»[190].

In Berlin, from 1888 onwards the number of strikes and strikers impressively arose consequently to the labour new organization in the big factories: as noted by Boll, «the changes in production techniques and organization that took place in the course of the industrial revolution created an entirely new framework for labour relations»[191]. Workers' Unions increased rapidly both in terms of importance and members: e.g. the DMV (Deutsche Metallveredlung) reached half-million members in 1911 increasing ten times the amount of 1896, as it is reported by Elisabeth Domansky in *The rationalization of class struggle: strikes and strike strategy of the German Metalworkers' Union, 1891-1922*[192]. More and more workers were keen to participate to the actions. As shown by Ilse Costas, «workers of [...] large firms in the electrical industry, such as AEG, and in the machinery and metal industries, such as Borsig, L. Schwarzkopff, L. Loewe and the German Weapon and Ammunition Works (Deutsche

[187] R. EVANS, *The German Working Class 1888-1933*, London, Routledge, 1982, p. 8.
[188] *Ivi*, p. 9.
[189] F. BOLL, *Changing Forms of Labor Conflict: Secular Development or Strike Waves?*, in L. HAIMSON – G. TILLY (eds), *Strikes, Wars, and Revolution in an International Perspective*, Cambridge, Cambridge University Press, 2002, p. 51; see also the table at p. 61.
[190] G.D. FELDMAN, *Introduction*, in L. HAIMSON – G. SAPELLI (eds), *Strikes, Social Conflict and the First World War*, p. 247.
[191] F. BOLL, *Changing Forms of Labor Conflict*, p. 48.
[192] E. DOMANSKY, *The Rationalization of Class Struggle: Strikes and Strike Strategy of the German Metalworkers' Union, 1891-1922*, in L. HAIMSON – G. TILLY (eds), *Strikes, Wars, and Revolution*, pp. 321-356.

Waffen- und Munitionsfabriken), participated in a decisive way in strike actions and in establishing oppositional workers' councils [193].

To conclude, even though with some exceptions[194], we can sustain that in a period when the massification of workers were taking place together with the growing role of the skilled worker (who was able to use the new technologies for the mass production), Berlin lived a series of important strikes supported by new labour unions. The working-class was more and more part of the public life. In Berlin and elsewhere.

4.6 Bologna

4.6.1 Introduction

Bologna's economy is characterized by a flourishing industrial sector, traditionally centered on the transformation of agricultural and zootechnical products (Granarolo, Segafredo Zanetti, Conserve Italia), machinery (Coesia, IMA), energy (Hera Group), automotive (Ducati, Lamborghini), footwear, textile, engineering, chemical, printing and publishing (il Mulino, Monrif Group, Zanichelli). For our research, however, a crucial factor is that Bologna is the centre of the so-called "packaging valley", a well known area for its high concentration of firms specialised in the manufacturing of automatic packaging machines. Moreover, Bologna has a dense network of cooperatives, a feature that dates back to the movements of farmers and workers in the 1800s and that today produces a third of its GDP occupying thousand people in the Emilia-Romagna region. In terms of transportation system, Bologna is one of Italy's most important train hubs due to its strategic location as a crossroad between north-south and east-west routes.

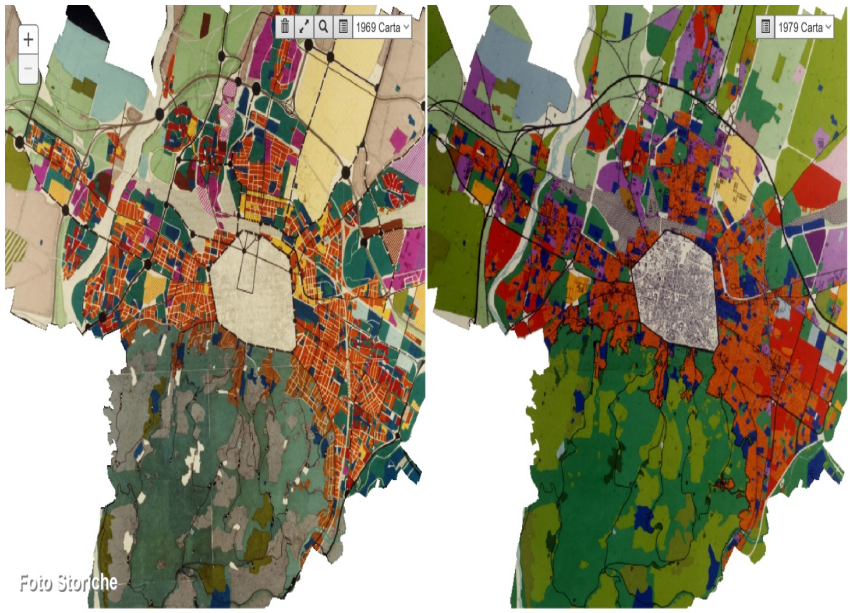
We decided to concentrate mostly on the "Extensive Urbanization" part for this city, and to frame it within a more theoretical dissertation.

4.6.2 Historical context

Bologna suffered huge damages during World War II. The strategic importance of the city as an industrial and railway hub made it a target. The railway station and adjoining areas were severely hit. After the armistice of 1943, the city became a key centre of the Italian resistance movement. Two elements are central to Italy's development in the post-war years: 1. the transformation of the economy from one based mainly on agriculture to one predominantly industrial; 2. state domination of the in-

[193] See chapter titled *Management and Labour in the Siemens Plant in Berlin*, in L. HAIMSON – G. SAPELLI (eds), *Strikes, Social Conflict and the First World War*, pp. 269-286.
[194] *Ivi.*

dustrial and financial sectors, through nationalization or through participation in private companies in a complex system of partial state ownership. At that time, Bologna became a thriving industrial centre as well as a political stronghold of the Italian Communist Party. At the end of the 1960s the city authorities asked Japanese archistar Kenzo Tange to sketch a master plan for a new town north of Bologna. Eventually the city council at the end of 1978 decided to construct a tower block and several diverse buildings and structures started. In 1985 the headquarters of the regional government of Emilia-Romagna moved in the new district.



Img 21 - Map of Bologna: 1969 (left) and 1979 (right). Source: Iperbole (http://dru.iperbole.bologna.it/cartografia)

4.6.3 Intensive urbanization

«Efficient, democratic and relatively uncorrupt», read a headline in the *New York Times* in September 1974. It was referring to the city of Bologna. A month later, *Newsweek* enlarged on the theme: «Bologna is by far the best governed state in Europ». The German *Spiegel* joined in the praise. «Bologna-reformers' dream come

true». While the French *Vie Publique* marvelled, «Bologna just goes on making itself a talking-point».

In 1971, the urban planning activity is transferred to the Regions, which become a laboratory able to provide indications of extraordinary importance for national laws. In Emilia-Romagna, a so-called reformer urbanism is established. A crucial theme is the containment of urban revenue by reducing private forecasts of municipal zoning. From generational reading criteria of the plans as an instrument of knowledge and periodization of urban and territorial phenomena from the Eighties to the approval of a new regional planning law (LR 20/2000), a new period starts able to innovate the urban planning and territorial cohesion system. The structural crisis of the economy since 2009 has called into question the structure of plans that have been designed for the growth of settlements. The new paradigm, with which we are required to compare, is no longer the urban expansion but the urban regeneration. Then a new season of plans, to rethink the very idea of expansion, has just begun.

Another crucial passage is the "decentramento", Bologna's politicians stress, a process whose most important stages so far are as follows:

• In September 1960, the City Council divided Bologna into fifteen neighbourhoods (fourteen outlying ones plus the Old Town).

At the same time, the Council set up an all-party Decentralisation Committee.

• In April 1962, the Council finalised the boundaries of the fifteen neighbourhoods and gave them their names: Borgo Panigale, Santa Viola, Saffi, Lame, Bolognina, Corticella, San Donato, San Vitale, Mazzini, Murri, San Ruffillo, Colli, A.Costa Saragozza, Barca and Centro.

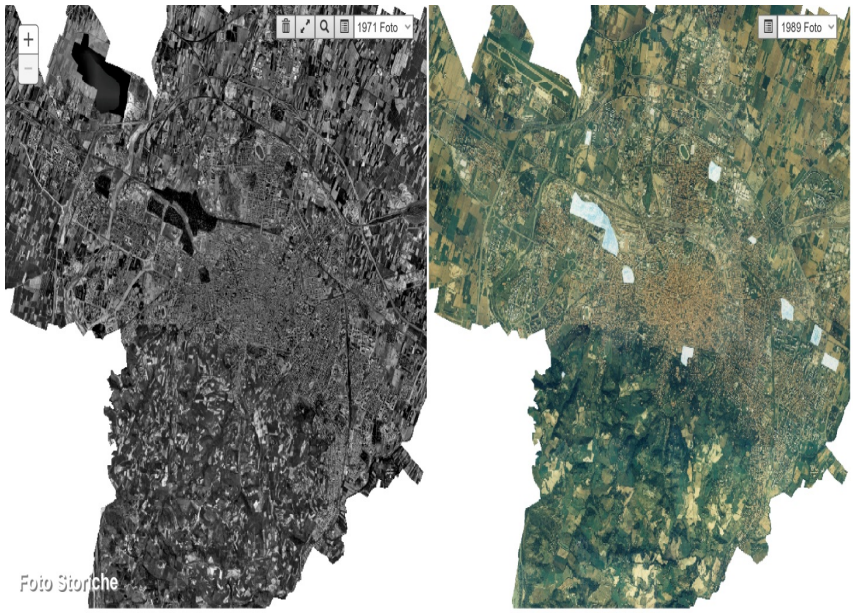
• In March 1963, the Council passed a regulation requiring the setting up of two democratic bodies in every neighbourhood: A twenty- person Neighbourhood Council, whose members are resident in the area and are elected by second-degree votes by the City Council (that is, on the recommendation of the Parties and in proportion to their representation on the City Council); a Neighbourhood Council President, an assistant to the mayor ("Aggiunto del Sindaco") nominated by the mayor on the recommendation of the Decentralisation Committee.

• In April 1966, the City Council nominated the 280 neighbourhood councillors of the fourteen outlying neighbourhoods and the fourteen "Assistants to the Mayor". In the same sitting it arranged for the establishment of offices which would serve as headquarters for population control, social services, police, the secretariat of the neighbourhood office, itself, and the mayor's assistants.

• In June 1964, the 280 councillors and their presidents assembled in the great hall of the Palazzo del Podesta for their official appointment. To the sound of the "campanazzo", Bologna's bells for historic moments, Mayor Dozza read out greetings from dignitaries of church and state. Dozza stated: «We have come a long way. We

have talked of decentralisation since 1956; and we still have a long way to go before establishing local democracy with constantly increasing powers for residents».

• In December 1966, the City Council divided the centre of the city into four neighbourhoods. They were named Galvani, Irnerio, Malpighi and Marconi. This raised the number of neighbourhoods to eighteen.



Img 22 - Satellite images of Bologna: 1971 (left) and 1989 (right). Source: Iperbole (http://dru.iperbole.bologna.it/cartografia)

4.6.4 Extensive urbanization

"Implosive and explosive" reconfiguration of the urban[195], new spatial revolution[196], redefinition of sovereignty following needs that overwhelm modern territoriality[197],

[195] N. BRENNER (ed), *Implosions/Explosions: Towards a Study of Planetary Urbanization*, Berlin, Jovis, 2014.
[196] H. LEFEBVRE, *La produzione dello spazio*, Milano, Moizzi, 1976.
[197] S. SASSEN, *When Territory Deborders Territoriality*, «Territory, Politics, Governance», 1, 1/2013, pp. 21-45.

global flows[198] and new borders[199]: around this constellation of dynamics logistics works like a litmus paper of contemporary mutations.

Logistics, in the first place to be understood as logic and as a set of techniques, knowledge and disciplines, is in fact one of the vectors that has most contributed to shape the contemporary world[200]. The interconnection that accompanies globalization and the identification of the current economic system in the form of "supply chain capitalism"[201] show the importance of managing mobility through space. In the wake of this, the attention of scholars and scholars in the most diverse disciplinary fields has been directed in recent years towards expanding the concept of logistics, taking it out of the "technical" areas in which it had previously been confined. In other words, it is not a question of evaluating logistics exclusively within its "natural" field, i.e. what Karl Marx would have called the "circulation time" of goods[202]. Since the so-called "logistics revolution"[203] of the 1960s, logistics has become rather an organizational paradigm, a pervasive logic to shape the global present. In this sense we believe that adopting logistics as a lens through which to investigate the tensional currents that redefine our time is a useful critical exercise, in particular by observing where friction, friction and deviations from the normal procedures through which it is usually defined.

If it is in fact known that between the 1960s and 1970s the so-called Fordist model went into crisis, most research on the subject focuses on explanatory variables such as rising wage dynamics and factory insubordination, geopolitical and energy nodes, production jams and more. All decisive elements. What is often underestimated, however, is how the transition to a different production model could be produced. And logistics is crucial in this regard. In order to dismantle the great poles of concentration of workers and technology that characterized the great Fordist industry, a series of techniques, knowledge and logistic technologies have in fact been decisive, in order to extend production chains on previously unimaginable geographical scales. If Fiat of Turin organized the entire production on a geographical area of about 50 kilometres (from the extraction of raw materials to the finished product)[204], in the space of a few years this system extended on a global scale, along dimensions of thousands of kilometres. In order to be able to manage these new dimensions, production networks are increasingly organized, spreading along infrastructures, routes and a dissemination of structures that come to define a worldwide logistic production system. In some issues

[198] M. CASTELLS, *Grassrooting the Space of Flows*, «Urban Geography», 20, 4/1999, pp. 294-302.
[199] S. MEZZADRA – B. NEILSON, *Confini e frontiere. La moltiplicazione del lavoro nel mondo globalizzato*, Bologna, il Mulino, 2014.
[200] G. GRAPPI, *Logistica*, Roma, Ediesse, 2016.
[201] A. TSING, *Supply Chains and the Human Condition*, «Rethinking Marxism», 21, 2, 2009, pp. 148-176.
[202] K. MARX, Grundrisse, *Foundations of the Critique of Political Economy*, Harmondsworth, U.K., Penguin Books, 1973.
[203] E. BONACICH – J.B. WILSON, *Getting the Goods. Ports, Labor, and the Logistics Revolution*, Ithaca, Cornell University Press, 2008.
[204] A. MAGNAGHI – A. PERELLI – R. SARFATTI – C. STEVAN, *La città fabbrica*, Milano, Clup, 1970.

of the magazine Primo Maggio between the 1970s and 1980s Sergio Bologna and others[205] grasped this shift by focusing on transport as a crucial variable in the ongoing restructuring. If in the 1930s American workers had coined the term hub during a strike in Minneapolis, identified as a productive centre of gravity where interrupting work caused significant knock-on effects, now the hub becomes a new decisive productive hub of the logistics system. In other words, production expands over the entire territory[206] and progressively becomes more and more integrated with the needs of circulation, until then two distinctly separate moments. It is therefore the entire territory that becomes a large factory without walls[207].

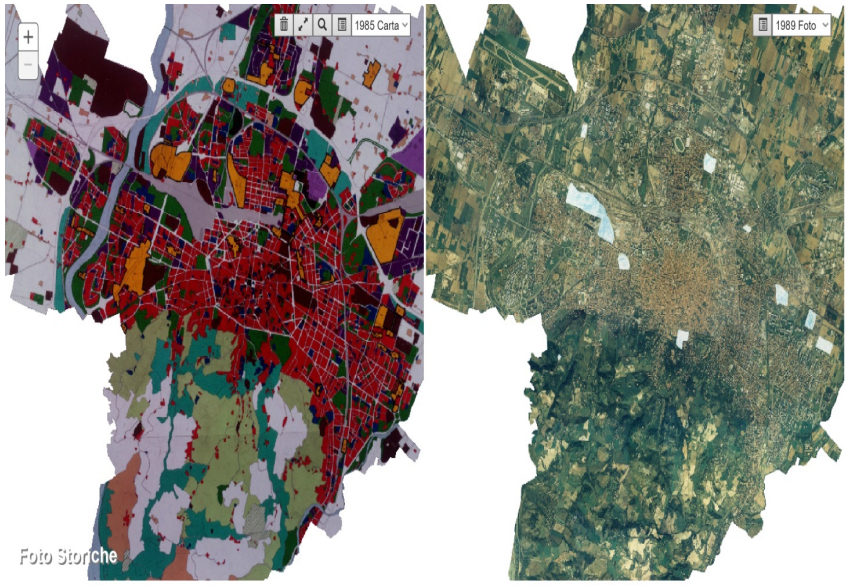
Img 23 - Interporto of Bologna, satellite image, 2016. Source: Logistica Management

[205] S. BOLOGNA ET AL., *Speciale trasporti*, «Primo Maggio», 19-20, 1983-4.
[206] N. CUPPINI – M. FRAPPORTI, *La logistica come lente sul presente globale*, 2016: http://www.rivistailmulino.it/item/3294 last access 13 May 2025.
[207] B. ASHTON, *The Factory without Walls*, «Mute», 2, 4/2006.

Today, many theories reason about the urbanization of the planet[208], i.e. the progressive covering of the earth's surface of a network of infrastructures (railways, highways, cables, buildings, etc...) that undermines the historical dichotomy between town and country, making the whole territory an urbanized continuum. This dynamic finds its roots in the logistic revolution of the Sixties, in the dismemberment of the Fordist system and in its widespread relocation. In order to produce the logistics revolution, the intervention of the State in the construction of the structures that would allow the relocation of production, the investment of considerable capital in technological innovation and the production of a new workforce were decisive. However, it is significant that one of the main innovations to enable the new large-scale production once again comes from the military environment. In fact, the container has been the decisive technical tool for the new production system, and has been particularly used to meet the military needs of the war in Vietnam, in order to meet the needs of troops at such a long distance from the United States[209]. We are therefore witnessing a continuous reappearance of some historical characteristics of logistics, i.e. its establishment and evolution in the face of the problem of expanding geographical spaces, military needs and to respond to problems for the systemic stability posed by the insubordination of the workforce (for the management of slaves once, to disarticulate the power achieved by the Fordist working class until the sixties, in the twentieth century). It is therefore

[208] E. BIRCH – S. WACHTER (eds), *Global Urbanization*, Philadelphia, University of Pennsylvania Press, 2011.
[209] M. LEVINSON, *The box. La scatola che ha cambiato il mondo*, Milano, Egea, 2013.

clear how to analyse the theme of logistics, referring to multiple facets, complex systems and the intertwining and overlapping of numerous levels. We will analyze some of them in the following paragraphs.



Img 24 - Map and Satellite image of Bologna: 1985 (left) and 1989 (right). Source: Iperbole (http://dru.iperbole.bologna.it/cartografia)

Logistics as a creator of new spaces (or the geographical complexity of the present)

Among the most evident mutations, the spatial reconceptualization and the increasing geographical complexity are eminent and peculiar features of the contemporary world[210]. The administrative categories of modernity are no longer sufficient to describe the different current political geometries[211]. Financial intertwining, common political interests, infrastructural plots for the transport of natural resources and flows of goods have created new areas such as macro-regions, trade corridors, special economic zones, or supranational formations such as the European Union itself. These "zones" are now viscerally intertwined components of traditional political entities, so

[210] F. FARINELLI, *Geografia. Un'introduzione ai modelli del mondo*, Torino, Einaudi, 2003.
[211] C. GALLI, *Spazi politici. L'età moderna e l'età globale*, Bologna, Il Mulino, 2001.

much so that the same language used in common geography now appears completely anachronistic.

An analysis of these "new spaces" through the lens of logistics, therefore, becomes opportune also to make a semantic update useful to decipher the unpublished areas of today. From this point of view, it is not only a question of looking at Asia, where new "special economic zones" are constantly emerging[212], or at Dubai and Abu Dhabi, real "infrastructural spaces"[213] where it is the urban nucleus itself that is built to support commercial flows. There are also many other cases, from Southeast Asia to Latin America, passing through the very heart of the European Union, which reveal the same characteristics. In Kuala Lumpur, for example, the "pervasive" presence of the large American corporations makes the city fabric "an economic and cultural extension of California"[214]; equally paradigmatic is the example of the Greek port of Piraeus, a "territory within the territory" where commercial strategies manoeuvred by Cosco (a Chinese state-owned company) have acted as a bridgehead for real political "intrusions"[215]; and the same, finally, can be said for the "Po plain", a territorial strip of Northern Italy that has become a "valley of logistics" where "big international acronyms, hundreds of spurious cooperatives and thousands of North African and Pakistani porters operate"[216]. These are also the "new logistic spaces", widespread in the four corners of the globe, within which formal or informal interruptions of the political and territorial linearity of the Nation-States themselves occur.

These spaces punctuate the global diorama, compose its framework and are the contingent outcome of a plot of processes. The constitution of the global logistic spaces is a path that does not, however, take place without friction. Following the trajectories of insubordination in logistics in recent years we find ourselves crossing a multitude of areas of the planet, demonstrating the global dimension of this phenomenon.

The logistic plain

The dense number of strikes that took place in the Po Valley, mentioned earlier, in the decade 2008-2017, is in our opinion a useful case study to understand the development of issues that we have raised so far. Let us start with a quick examination of its territorial configuration. Historically, this area of northern Italy was made up of a large number of cities with a long history and an urban structure that at the beginning of the twentieth century still clearly showed a substantially unchanged medieval layout.

[212] C. CARTER – A. HARDING (eds), *Special Economic Zones in Asian market Economies*, New York, Routledge, 2010.
[213] K. EASTERLING, *Extrastatecraft. The Power of Infrastructure Space*, London-New York, Verso, 2014.
[214] A. ONG, *Neoliberalism as Exception: Mutations in Citizenship and Sovereignty*, Durham, Duke University Press, 2006, p. 62.
[215] LOGISTICAL WORLDS, 2014: www.logisticalworlds.org last access 13 May 2025.
[216] D. DI VICO, *Facchini senza legge, autononi, Cobas. Una guerra nella valle della logistica*, «Corriere della sera», 27/01/2014.

Progressively the ancient walls were replaced by new "flat walls", those that especially from the Second after the war became the bypasses surrounding the cities. New factory structures were also installed inside or near the main urban centres, which came to compose what in Romano Alquati's first studies on Fiat[217] began to be defined as a factory town. The entire urban environment is redefined starting from the logic and functions of the Fordist plants, poles attracting new masses of immigrants from Southern Italy. The roads of Roman derivation are still the main axes of transport, and a substantial clarity is maintained in the city/country division. This territorial structure, however, began to change in the 1970s with a decisive acceleration in the second half of the 1980s. From then on, new motorways, railway routes, airports multiplied. The distribution of production chains increasingly spread the territory, invading the countryside. Many cities equip themselves with the Freight Village, that is to say, the centres of logistic organization that also function in orienting the whole of the flows. Today it is enough to look at a night photo taken by a satellite to realize how much the landscape has been totally changed in a few decades. The entire Po valley is in fact a single beam of light. An urban plot that covers the territory making the perimeters of historic cities indistinguishable. The circulation paradigm adopted as an organizational logic of the cities has led to a complete restructuring of the area, more and more logistic space.

However, it is possible to adopt another perspective of investigation to capture the changes that have taken place. In recent years, in fact, the sequence of mobilizations in the logistics sector has revealed a subjective cartography of the Po Valley that can say much more about how this territory works today than the simple zenith image. In fact, if we reconstruct a map of the places where the strikes took place inside the logistics warehouses, traces and grids that highlight the mutations that took place in the northern Italian scenario come to light. They range from the warehouses of Esselunga in Cinisello Balsamo in Milan to the Interporti in Bologna and Padua, from the markets of the Caat in Turin to the warehouses of Ikea in Piacenza. We pass through a dense punctuation of small and medium-sized warehouses that dot the Romagna and the entire Lombardy territory and many areas of Veneto and Piedmont. We arrive inside the metropolitan perimeters of many cities, in which a myriad of small companies, junctions, traffic authorities, etc. have been affected by strikes and disputes. Here then is a peculiar and unexpected map that tells a new story of the territory, the dense urban sprawl that characterizes it today and the networks that cross it.

Adopting the capital/labour ratio as an analytical perspective, we start from the first one and try to go deeper into the corporate form of the cooperative - through which the majority of the workforce in the logistics sector is employed. In fact, the Po Valley represents an enclave for this type of business form, which is largely majority in the area. Since the 1960s, agricultural and, subsequently, construction cooperatives have been developed, some of which have also reached large dimensions. After the Second

[217] R. ALQUATI, *Sulla Fiat e altri scritti*, Milano, Feltrinelli, 1975.

World War, in fact, there was a need to restart the economy and to recreate an industrial fabric in areas strongly impoverished and devastated by the World War. In these regions, however, there was also a strong presence of the Communist Party and the trade union linked to it, the CGIL. Imprinted on a working culture that sees work as an instrument of emancipation and the construction of a new society, the PCI promoted industrial development based precisely on the cooperative form as a basic production cell[218]. Trade unions, parties and cooperatives thus intertwined in a network of economic and political relations based on the idea that all together could work for the common good[219]. This social/political/economic power block has had a specific reproduction until today, ending up being the axis against which the struggles of the porters have clashed.

In recent years, in fact, the cooperative form has also established itself in the logistics sector in the Po Valley. In this way a pyramidal system has been created at the top of which are positioned the client companies, at the centre a chain of cooperatives and at the base the workers, mostly migrants, employed as social workers[220]. This is what has been called the system of cooperatives, a network of power within which the chain of command of capital at work is dispersed and the costs of production and circulation are reduced to the detriment of wages.

In fact, the pyramidal architecture foresees such a multiplicity of levels of responsibility and contracts that the worker loses sight of a single reference point and cannot immediately identify the causes of his condition of subjection. Very often the contracting companies put the responsibility for the management of the warehouses on the contracting cooperatives, while the latter refer to the former with regard to the conditions of economic relations. In this way there is no clear relationship between roles and competences. Cooperatives also present themselves as a highly democratic form of production within which no distinction is made between those who command and those who perform. This type of "ideology" serves to sustain that within companies there is no opposition of interests between employer and employee, but only different roles between equal members just as it was in the original logic of the cooperative system[221].

In fact, the logistic plain of the Po makes it possible to grasp what Henri Lefebvre already framed in 1989 as the "planetarization of the urban", in which «the urban and the global overlap and upset each other»[222]: an uncontrolled expansion through the paradoxical motion of "homogenization [that] is accompanied by fragmentation" and

[218] S. GIORDANI, *Tessere in rosso. Il PCI emiliano-romagnolo negli anni Settanta*, «Storia e futuro», 34, 2014.
[219] T. MENZANI, *La cooperazione in Emilia romagna. Dalla resistenza alla svolta degli anni Settanta*, Bologna, Il Mulino, 2007.
[220] N. CUPPINI – M. FRAPPORTI – M. PIRONE, *Logistics struggles in the Po Valley Region.*
[221] N. CUPPINI – C. PALLAVICINI, *Le lotte nella logistica nella valle del Po*, «Sociologia del lavoro», 138, 2015, pp. 210-224.
[222] H. LEFEBVRE, *De l'Etat (volume 2)*, Paris, Union Générale d'Editions, 1976, p. 16.

through "social relations [that] tend to become international"[223] with migrations and the diffusion of communication technologies. In fact, it is precisely the scalar interweaving that can be observed starting from the struggles in logistics that is one of its most significant features. This does not mean that here it is possible to trace a general trend of the becoming of contemporary work, but it is undoubtedly possible to identify widespread elements that seem to express themselves with unprecedented intensity.

4.6.5 Subjects at work

Italy 1977 saw the emersion of a racial social movement. That year, the city of Bologna was the scene of violent street clashes. In particular, on March 11 a militant of Lotta Continua - Francesco Lorusso - was killed by a gunshot. This event served as a detonator for a long series of clashes with security forces for two days, that affected the entire city of Bologna. The interior Minister Francesco Cossiga sent armored vehicles into the university area and other hot spots of the city to quell what he perceived as guerrilla warfare. Clashes with the police caused numerous casualties among people who got caught up in the riots, including uninvolved locals.

This event, among many others during those years, condensed the elaboration of the so called "social worker". Antonio Negri, among others, talked about it as a subject from which surplus value is extracted, he speaks of a productive subject, «a "productive" subject of ... value added, on average and immediately». It takes an important place in the class composition after the coming "crisis" determined by the extension of factory relationships in the field of sociality. Having said that, the nature of work should no longer be considered as a function closely linked to production processes in which the relationship between work and value is immediate, but the relationship between work mode and value must be highlighted – value is produced as a socially mediated process. After all, Negri says, the recognition of the productive nature of social work is the fundamental thesis of operaism, even that of the 1960s. It is based on the theory of the subsequent abstraction of work that runs parallel to its socialization: «the abstraction subsequent work, the construction of abstract work as the subject of exploitation capitalist is the only basis from which the capital categories can be constituted and understood».

The 1977 Bologna's movement soon developed into larger public manifestations, culminating in the physical capture of Bologna for three days in March, following the shooting of the demonstrator. The movement arose in conjunction with the crisis of the extra-parliamentary organizations that led to social struggles in the years after the 1968, together with the so-called mass university: after the 1969 school reform, also young people from proletarian families could attend a university, which, until then, had been a privilege held almost exclusively by students from more affluent classes. After a decade of disputes in schools and in society, the rigor of the old revolutionary

[223] *Ivi*, p. 17.

groups appeared inadequate and outdated[224]. Indeed, the protests were also addressed at the political practice of those organizations from which the participants in the movement of 1977 originated. Moreover, the feminist movement, which since the early 1970s had had a very strong growth, was present in the movement with its instances of sexual liberation. The culture also passed through the so-called free radios, born after the liberalization of broadcasting in 1976. Internationally, in 1977 there came the "first wave" of punk subculture called "Punk 77", particularly relating to British scene (British Punk) and American (American punk). In this context a complex movement, libertarian and creative, was born where there were no leaders and where involvement and responsibility were closely personal. All these elements were signalling the closing of an historical class composition shape and the opening of a new one.

4.7 Barcelona

One of the hypotheses of our research is that urban platforms are nowadays emerging as a sort of new "urban planners": they often have more data than the municipal administration; they can interact and intervene in urban policy-making; they generate a vision of urban future that is tendentially absent in contemporary public administrations. Therefore, we decided to use the case study of Barcelona in a quite heterodox way. The idea has been to use Barcelona as a genealogical case study to investigate its "foundation" as a modern metropolis because we think that studying that historical moment can give us many useful insights about what does planning means and how we can today consider platforms as part of a new emerging assemblage of urban planning actors.

The planned city, as a specific "understanding" between State, market and city through the Plan, has highlighted its limits during the second half of the 20th century. It is, after all, a "discovery" of considerable scope. Before 1848 town planning policy and politics in the broadest sense basically get confused, and only after the first major conflict between the bourgeoisie and proletariat is looming in the technical planning of the city (industrial) as a specific need that takes on its own independent status as a science[225].

The non-full capacity of the urban planning discipline to produce an efficient model therefore has clear political implications. It should be emphasized also that this experiment in the production of cities, which is usual today for many parts of the world, China first and foremost, to be experienced in South America. While in fact North American cities like Chicago are the result of laissez faire capitalist, it is in a

[224] P. GINSBORG, *A History of Contemporary Italy: Society and Politics, 1943-1988*, London, Palgrave Macmillan, 2003.
[225] A. AYMONINO, *Origini e sviluppo della città moderna*, Padova, Marsilio, 1971; L. BENEVOLO, *Le origini dell'urbanistica moderna*, Roma-Bari, Laterza, 1963.

country that was considered to be “backward” that the “maximum” of urban modernity. And this also has some historical links. Urban planning is in fact elaborated as specific knowledge, as a discipline, in Barcelona, one of the last major European historic cities to develop the process of industrialization.

Img 25 - 15th-century Barcelona walls, with the original medieval walls in the center and the current city in the background. Source: Servei d’Arqueologia de Barcelona

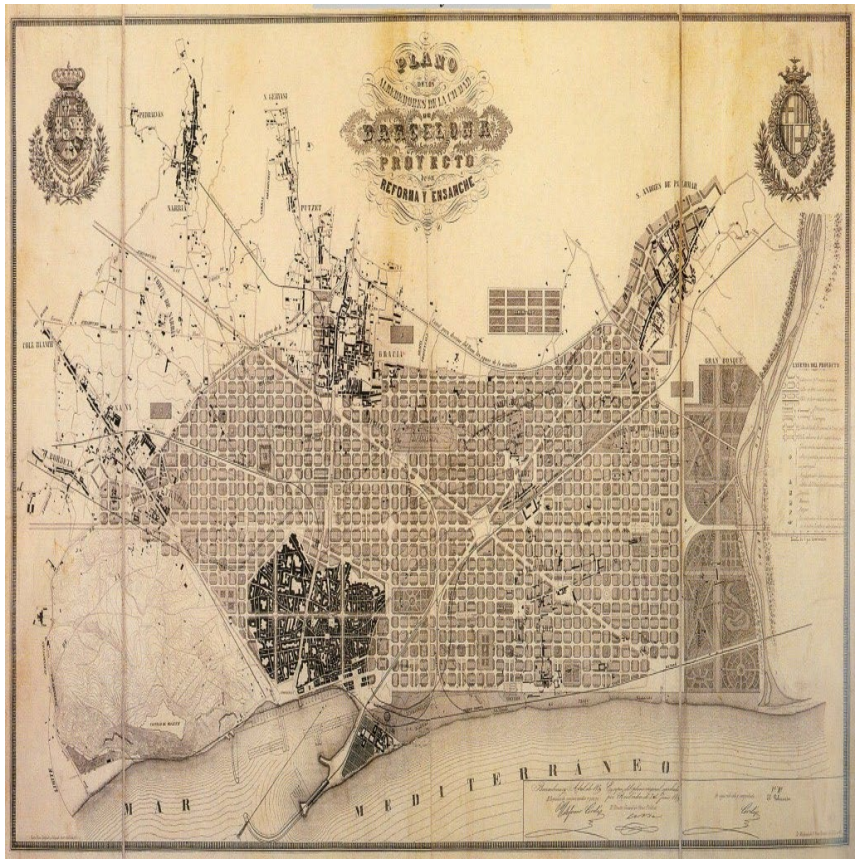
Img 26 - Barcelona near the turn of the 19th century, hemmed in by a wall and watched over by a citadel. Source: Barcelona Architecture Walks

It is Ildefonso Cerdà who codifies this operation, with his *Teoría General de la Urbanización* of 1867. The text is written after the revolution of 1854[226] that brings the Liberals to power, a few years "behind" the European 1848. As in Paris, revolts are made possible by the medieval urban morphology, which make Barcelona the "world capital of the barricades"[227]. In the following years this structure is subverted starting from the competition for the redefinition of the city in 1858. Already in the years before the need to renovate the city, especially since the demolition of the walls, is advanced both by architects and military and by popular sentiment, which is not by

[226] K. MARX, *Revolution en España*, Barcellona, Ariel, 1960.
[227] *Ivi*, p. 200.

chance accompanies this event in the post-Revolution period by comparing it to the taking of the Bastille and producing a long celebration.

Img 27 - Cerdà's modified plan (I), in 1859. Source: Museu d'Historia de la Ciutat, Barcelona



Img 28 - Cerdà's modified plan (II), in 1859. Source: Museu d'Historia de la Ciutat, Barcelona

However, in 1858 the vision of a new city opened up to strong contrasts, which was polarize between Cerdà and Antonio Rovira y Trias, for whom «the outline of a city is the work of time more than an architect». This is due to the fact that Rovira does not provide for the role of the State in urban planning. The city as a product of history can in fact be redefined in a short time thanks to this intervention. Cerdà instead conceives it, coming to such reflection from an idea of matrix egalitarian. The new city must in fact be the homogeneous spatial projection of an ideal city, and it is by looking at the American urbanization that Cerdà resumes the checkerboard model. The affirmation of this idea then reminds us that it is a purely political decision to define the Barcelona route, also emblemising liberalism's victory over absolutism as a victory of

the city over the countryside (liberal reforms tend to favour the classes of the urban). See then quickly with which conceptual operations Cerdà builds the urbanism, which contain the power and limits of an idea that in bottom reproduces to this day.

«We live in an era of transition and struggle between two civilizations [...] in which the city is at the same time the scenery and the stakes of the battle»[228]. It is inside this emphatic phrase that Cerdà places his own reflection, that to be fully understood must be linked to a conceptual split that, as one is seen, is produced theoretically from the Enlightenment, and finds here plastic systematization. The city is in fact designed as a "container" and as a "content." The latter is the population. Although within that culture that will lead to sociology, sharing an image of the city that sends back often to biology, for the study of urban content is essentially the statistics the decisive method identified by Cerdà[229]. But it is on the other side that expresses the strongest innovation.

The author in fact lucidly captures the expansive power of the new society in development, which remains trapped in the city morphology[230] inherited, indicating a daily struggle that is captured in its scope basically global[231]. It is on this amplitude that Cerdà realizes that that "mare magnum made up of people, things, interests of all kinds, a thousand different elements that seem to work, each in their own way, independently", which together "is called a city," needs "a completely new matter"[232] to be, more than understood, properly governed. Cerdà in fact, in rebuilding the path that leads him to fish out from the Latin urbs the idea of urban planning, exhibition how this is an analogy with what the Romans imagined for the foundation of a new city[233], as has already been discussed with respect to the myth of the foundation of Rome.

The new urban planning discipline was therefore born precisely from the idea of the "colonization" of a territorially vast space, incomparable to that defined by the walls of the medieval city. It is «the region [the] field of action of the urbe», indicating how it is at such a scale that urban planning is placed, thus enclosing "the suburbs" and the historical city in a new matrix space[234]. In this transformation between the psychological space defined by the previous city-image to the new social space depicted by the city-object yes opens up the road of the modern city, which at the bottom downwardly projects itself on the entire territory[235]. In other words, the urban emerges as a

[228] I. CERDÀ, *Teoria generale dell'urbanizzazione* (1867), Milano, Jaka Book, 2004, p. 87.
[229] *Ivi*, p. 175.
[230] *Ivi*, p. 72.
[231] *Ivi*, p. 76.
[232] *Ivi*, p. 81.
[233] *Ivi*, p. 82.
[234] *Ivi*, pp. 100-101.
[235] *Ivi*, p. 177.

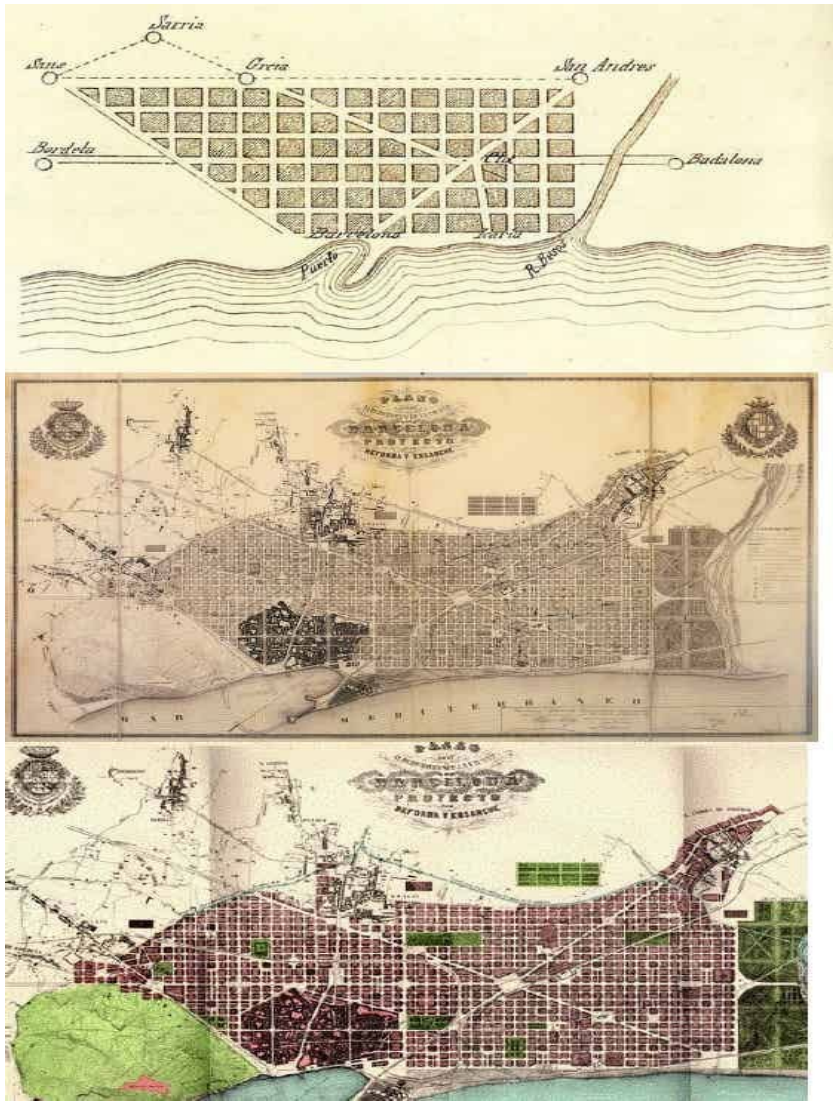
sort of intersection between cities and territory, like a line of tension that, crossing them, breaks them both down within a new paradigm.

So this is where one of the vectors that most powerfully disrupt previous structures, leading to today's planetary urbanization for abrupt passages that from Cerdà's theories apply concretely as to Brasilia, feeding also on the deep transformations of the urban fabric introduced by the Fordist[236] factory and the experiments that after destruction of the cities produced by the Second World War allow to test freely the urban planning model throughout Europe.

There is one final remark that needs to be underlined before considering a second level of the city-plan (the architecture), i.e. the fact that the idea of Cerdà is that of an urbanization that, precisely because it is planned, can define relationships of social equality dictated by the model itself. However, since the very beginning urban planning builds the suburbs, where the forms of exclusion of poverty are they show. Even within the Plan, and tend against the intentions of most of its actuators, emerges therefore the historical one[237] characteristic of the city in defining itself as a space of the political, division and of the dispute that since ancient Greece unravels a conflictual dynamic between the "city of the rich" and "city of the poor." The urban utopia of urbanism is

[236] A. LAZZARINI, *Polis in fabula*, p. 72.
[237] J.L. NANCY, *La città lontana*, Verona, Ombre corte, 2002, p. 77.

being exhausted in front of the persistence of the "content" of Cerdà, i.e. to that population which, in terms of and despite everything, builds its own territory outside (and at the (b) limit against) the meshes of the planning.



Img 29 - Projects for Barcelona, Cerdà, 1863

Urban planning is defined as a reflection on urban order, and its peculiarity with respect to architecture should be seen first and foremost in the way it presents itself as specific discipline of the State, such as administrative knowledge through which a central power thinks and organizes a territory. If architecture, «as function and technique of the governance of societies»[238] in the course of modernity, has designed the city starting from the need to maintain different types of order, with urban planning adds a new element. Foucault, already mentioned in precedence, states that «sovereignty "capitalizes" a territory [...] discipline gives architectural form to a space [...] security seeks instead to structure an environment as a function of a series of possible events or elements that need to be regular in a polyvalent and transformable framework»[239].

Of the three models identified, among which there is a co-implication and not a succession, it is precisely the urban planning concept that allows the development of power as security[240]. And the three figures/extensions on which the forms Foucaultian power insist are emblematic: sovereignty uses the city (the (police ordinances) as a model to expand and conquer the territory, urbanizing it, making it a big city. In doing so, it dissolves the medieval spatiality, made up of localizations, i.e. hierarchical sets of places. The disciplinary power relationship shapes the space, i.e. architecturally applies abstract patterns to organize the social thought as a "closed" dimension, clearly perimeter[241]. With urban planning there is instead places on an extended space, considered open and infinite. You are in front of the willingness to directly organize an environment, an overall habitat for the individuals who just exceed the confined dimensions of the previous city. But the three models do not indicate a linear succession, they overlap. In this sense the urban planning spatially thinks the construction of an environment on the whole (as a trend or possibility) territory of a State. This is the city-plan, outcome a long process that acts as a support to which it grafts itself into the early 20th century the great factory. Still today there are the models and drawings of subway planning, as will be discussed later. But it must be indicated immediately how they are absolutely different from the ideology of the Plan as it imposes itself between 19th and 20th century[242]. Here, in fact, planning experiences build a centralized and rigid territory, having as a model of expansion the railway. But it is precisely this rigidity of the urban territory that becomes a block for capitalist accumulation between the

[238] V. CREMONESINI, *Città e potere. Lo spazio urbano come organizzazione biopolitica*, «Materiali foucaultiani», I, 1/2012, pp. 91-110, p. 100.
[239] M. FOUCAULT, *Sicurezza, Territorio, popolazione. Corso al Collège de France (1977-1978)*, Milano, Feltrinelli, 2005, p. 29.
[240] A. CAVALLETTI, *La città biopolitica. Mitologie della sicurezza*, Milano, Mondadori, 2005, pp. 31-32.
[241] F. MOMETTI, *Ideologia come architettura. Manfredo Tafuri e la storia critica*, «Scienza & Politica», XV, 47/2012, pp. 107-133, p. 115.
[242] *Ivi*, p. 118.

1960s and 1970s, inducing the crisis of the model and introducing a new space as a network of displacement reports"[243].

Both architecture and town-planning, as rationality of governance, are therefore in the impasse of a realization that shows its cracks. If the city is also served as a rational model of government to be applied to the territory, which does that happen when the

[243] M. COMETA – S. VACCARO (eds), *Lo sguardo di Foucault*, Roma, Meltemi, 2007, p. 20.

city tends to become the whole territory? That the two disciplines should be re-launched or abandoned in the study and urban intervention contemporaries does not, however, concern the present writing[244].

Img 30 - The Eixample, from the air, in 2007. Source: Wikipedia Commons

[244] V. GREGOTTI, *Contro la fine dell'architettura*, Torino, Einaudi, 2008.; F. LA CECLA, *Contro l'architettura*, Torino, Bollati Boringhieri, 2008; F. LA CECLA, *Contro l'urbanistica*, Torino, Einaudi, 2015; M. RUSSO (ed), *Urbanistica per una diversa crescita. Una discussione della Società italiana degli urbanisti*, Roma, Donzelli, 2014.

4.8 Tallinn

4.8.1 Introduction

The last step of our path brings to Tallinn, the Estonian Capital where lives around one third of the whole country population[245]. In the last years Tallinn has set itself as a very dynamic city in terms of the intertwining between material life and the digital world: since the birth of Skype, developed by an Estonian team in Tallinn, the Baltic Capital has become «a city of the future»[246], with a high degree of digitalization and with a pervasive dimension of the ICT in the social life. The most paradigmatic figure of "subjects at work" are so far the digital and the platform workers. Since the new millennium the percentage of people working from home or in co-working places in Tallinn is growing rapidly and the economic crisis of 2007/2008 has further accelerated the digitalization of society. Research on how the urban area is changing and on the city transformation after the "Singing Revolution"is rising since the new millennium, facing a multiple range of topics[247]. A particular precious initiative has been prompted by Mari Laanemets and Andres Kurg who edited in 2002 A *User's Guide to Tallinn*, a portray of the city a decade after the Estonia independence of 1991. According to Martinez, «This book serves as a précis of its time, digging into the social transformation, the historical layers, and the expectations of its dwellers»[248].

Besides the focus on the urban transformation few research has been implemented on the impact of digital economy on the Estonian society. The most accurate seems that led by Ursula Huws started in 2016 called *Dynamics of Virtual Work* with founding from *European Science Foundation's COST programme*[249]. Among the thirteen European Countries inquired there is Estonia where the field research was developed with 2000 people. Furthermore, another important paper released in 2018 was that of Kaire Holts, who focus specifically on a *Prospects for Estonia in the Digital Economy*. The data of these reports will be used in order to furnish some empirical data on the impact of digitalization in Tallinn, which seems a quite good field to deepen the impact of a segment of the Industrial Revolution 4.0. Indeed, beyond the spread of internet

[245] Around 430.000 people live in Tallin out of 1.300.000 people living in the whole country.

[246] https://www.digitallytransformyourregion.eu/sites/default/files/2017-11/Case-Study-Deep-Dive-Tallinn-v1.pdf last access 13 May 2025.

[247] See T. TAMMARU – K. LEETMAA – S. SILM – R. AHAS, *Temporal and Spatial Dynamics of the New Residential Areas around Tallinn*, «European Planning Studies», 17, 3/2009, pp. 423-439; A. SAMARÜTEL – S. STEEN SELVIG – A. HOLT-JENSEN, *Urban Sprawl and Suburban Development around Pärnu and Tallinn, Estonia*, «Norwegian Journal of Geography», 64/ 3, 2010, pp. 152-161; F. MARTINEZ, *Tallinn as a City of Thresholds*, «Journal of Baltic Studies», 2014, pp. 1-29; F. MARTINEZ, *"This Place Has Potential": Trash, Culture, and Urban Regeneration in Tallinn, Estonia*, «Suomen Antropologi», 42/3, 2017, pp. 4-22; F. MARTINEZ, *Remains of the Soviet Past. An Anthropology of Forgetting, Repair and Urban Traces*, London, UCL, 2018.

[248] F. MARTINEZ, *Tallinn as a City of Thresholds,* p. 8.

[249] http://dynamicsofvirtualwork.com/ last access 13 May 2025.

platforms, and the pervasive use of the web within the social and democratic life[250], this small Baltic State has become also a kind of "start-up country": «Start-up Estonia – we can read on a dedicated website – is a governmental initiative aimed to supercharge the local start-up ecosystem in order to see many more start-up success stories to come from Estonia»[251]. This country – where the percentage of individuals with at least basic digital skills is extremely high[252] – has been recognized as a "digital frontrunner": it seems the right place to conclude our path.

We decided to concentrate mostly on the "Extensive Urbanization" part for this city, and to frame it within a more historical dissertation.

4.8.2 Historical context

Tallinn is the only city of the book which has a communist past: the historical trajectory it lived in the last thirty years is of particular importance because it encloses numerous changes that lead the city to be an outpost of the digital revolution. The transformations occurred are both part of the urban context and on the social life. «In Tallinn, for instance, the quick secession from the socialist past was a driving force for urban changes that have occurred during the last 20 years», wrote the sociologist Francisco Martinez in 2014[253]. With no intention to offer a full and deepened analysis, in the next pages we rather going to sketch few snapshots which could in broad outline illustrate the background of a situation defined as «the most advanced digital society in the world»[254].

As pointed out by Tammaru *et al.*, in Tallinn we have seen a «"fast-track" transition from state socialism to neo-liberal capitalism»[255]. Such a transition could be represented through different focus. In order to grasp something particularly inherent to our project it seems interesting to briefly sketch out the path toward the precarization of job, which is something that appear quite linked with the rise of platform capitalism. First of all, must be noted that «the emergence of these kinds of job was in all probability "delayed" in central and eastern European (CEE) countries, where standard full-

[250] In 2014 Estonia launched a e-residency program (https://e-estonia.com/about-us/) which, among the other things, allow the citizens also to vote at the political election: https://www.forbes.com/sites/delltechnologies/2016/06/14/the-tiny-european-country-that-became-a-global-leader-in-digital-government/#58b290c3e13a last access 13 May 2025.

[251] https://startupestonia.ee/ last access 13 May 2025.

[252] https://www.nesta.org.uk/blog/digital-frontrunners-spotlight-estonia/ last access 13 May 2025.

[253] F. MARTINEZ, *Tallinn as a City of Thresholds*, p. 4

[254] https://www.wired.co.uk/article/estonia-e-resident.

[255] T. TAMMARU – M. VAN HAM – S. MARCINCZAK – S. MUSTERD, *Socio-Economic Segregation in European Capital Cities: Increasing separation between Poor and Rich*, Discussion Paper n. 9603, IZA, 2015.

time employment was more often the norm as a result of their socialist legacy»[256]. The growth of more flexible employment, part-time job, and other form of contracts happened in the mid-2000s, while a new labour law occurred in 2009: «the dismissal of workers hired in the context of the pre-crisis labour shortages, many of whom were Russian-speaking, was facilitated by the new Employment Contracts Act implemented in June 2009 despite trade union opposition. The act simplified dismissal procedures and made it easier to conclude fixed-term contracts»[257]. The Act had a big impact on many sectors such as the retail one where the percentage of the job losses in the years 2008-2010 was around 11.75 per cent. Furthermore, job insecurity «was accelerated by economic crisis» after which «one could even go as far as to claim that the emergence of precarious work meant that CEE companies had finally overcome their "post-communist" status»[258]. In few lines and referring to some essays by Tiit Tammaru (professor of Urban and Population Geography at the University of Tartu and Editor in Chief of the Estonian Human Development Report «known as the yearbook of Estonian social sciences»[259]) and others, we have seen how much quickly the passage from state socialism to neo-liberal capitalism in terms of labour law has been.

In multiple perspective we could affirm that Tallinn seems «a city of thresholds»[260] where East and West, Post-socialism and Neo-liberalism funnel in an urban landscape in continuous transformation. «Local history, post-socialist transformation, and globalization all come into play in the current changes of the city, which are always sensitive to the initial condition»[261]. The cityscape offers several snapshots that represent these situation where e.g. new and modern malls are rising in some historical building. As described by Martinez, «a good example is the former Sakala Keskus [Center for political indoctrination], nowadays replaced by the Solaris shopping mall. The adaptation of this site (from the Soviet to the capitalist era) was the subject of an architectural competition in 2003, intending to build up a new cultural centre. Plans were changed, however, in 2006, when the demolition of the interior began. Against public protests, the building was pulled down in March 2007, with the exception of a tower, which was integrated into the new shopping mall»[262].

All in all, the «quick secession» of Tallinn from the socialist past has been a big impact on the city dwellers. If, on one hand, we must consider many processes of urban regeneration throughout the city, on the other hand we must stress the turistification, gentrification and commodification of public spaces especially in Tallinn's

[256] A. MROZOWICKI – T. ROOSALU – T. BAJUK SENCAR, *Precarious Work in the Retail Sector in Estonia, Poland and Slovenia: Trade Union Responses in a Time of Economic Crisis"*, «Transfer», 19/2, 2013, p. 268.
[257] *Ivi*, p. 273.
[258] *Ivi*, p. 268.
[259] https://www.kogu.ee/en/activity/ last access 13 May 2025.
[260] As Martinez defined it, F. MARTINEZ, *Tallinn as a City of Thresholds*.
[261] *Ivi*, p. 3.
[262] *Ivi*, p. 4-5.

shoreline and in the old town, «which fulfils a "representative" role and hosts establishments for visitors rather than utilities for those living in the Estonian capital»[263]. Other example in the latter sense could be found in other sectors of the waterfront of Tallinn, where «discourses of "potential" and "trash" have created the conditions for a speculative regeneration of an industrial area of the Estonian capital»[264]. Urban changes in the last thirty years drastically impacted on the inhabitants of the city. What we have briefly shown here are few transformations in terms of labour law and urban gentrification of the Tallinn's last thirty years.

4.8.3 Intensive urbanization

«Important changes to East European cities after the fall of the Iron Curtain [...] are related to the economising of space, increased social inequality and increased urban diversity»[265]. Tallinn seems not an exception. The "economicization" have permeated parts of the town and social inequalities brought segregation since «the divisions between higher-class natives and lower-class minority groups are higher than in any other European city where ethnic divisions are present»[266]. Further research would be needed to delve into this topic. Francisco Martinez wrote an interesting book facing this kind of transformations in Tallinn titled *Remains of the soviet past. An anthropology of forgetting, repair and urban traces* (2018) where many examples are describing the changes of the city in the last years in terms of urban assemblage and «radical social transformations»[267].

The point to stress is that the economist transformation of the city in the last years has brought radical changes since that restructuration and district innovation are going together with gentrification and turistification. The «high participation by Estonians in the growing online economy»[268] seems a consequence of these kind of processes.

4.8.4 Extensive urbanization

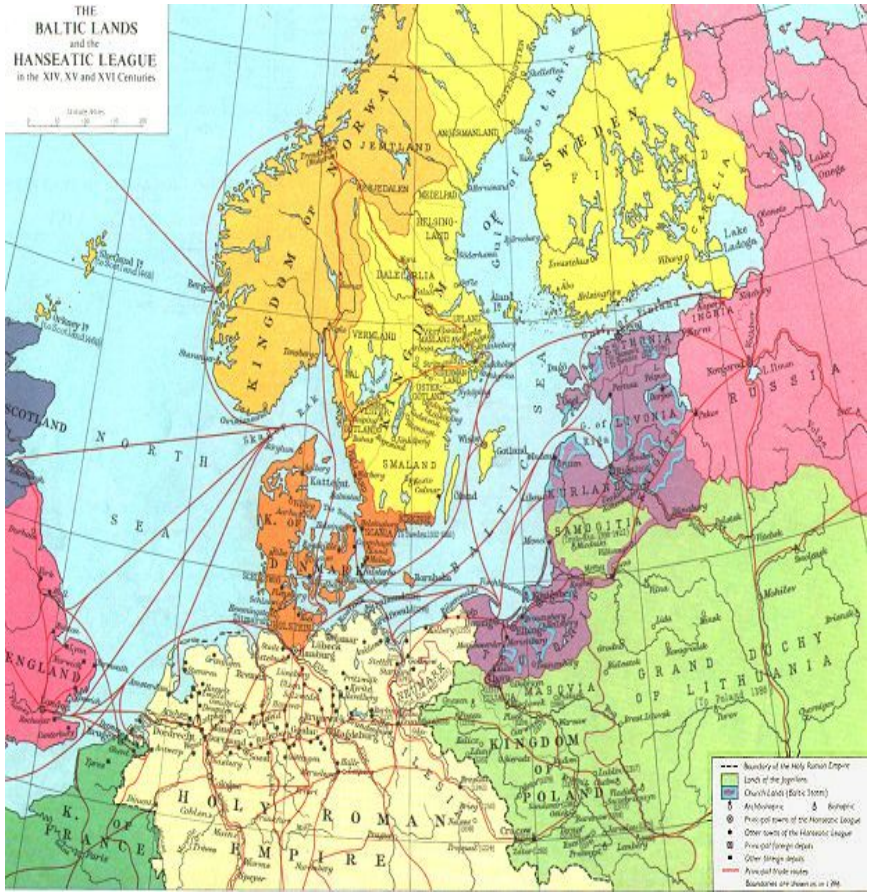
Talking about extensive urbanization in Tallinn we should start basically eight centuries ago, when the name of the city was Reval, and when it was one of the three

[263] *Ivi*, p. 13.
[264] *Ivi*, p. 4.
[265] T. TAMMARU – M. VAN HAM – S. MARCINCZAK – S. MUSTERD, *Socio-Economic Segregation in European Capital Cities: East Meets West*, London, Routledge, 2016, p. 8.
[266] *Ivi*, p. 365.
[267] F. MARTINEZ, *Remains of the Soviet Past. An Anthropology of Forgetting, Repair and Urban Traces*, London, UCL, 2018, pp. 135-154.
[268] See on this STATISTICAL SERVICES AND CONSULTANCY UNIT (SSCU), *Digital Footprint: The Platformisation of Work in Europe Factsheet for Estonia*, 2019. Free download here: https://www.riigikogu.ee/wpcms/wp-content/uploads/2017/09/EstonianFactsheet_2019-07-05.pdf. Last access 13 May 2025.

biggest town of Livonia, a territory which corresponded to the today Estonia and Latvia. Since 1285 it became part of the Hanseatic League a network which «made it possible to play a pivotal role in the exchange between western and eastern goods»[269]. Thanks to its geographical position it became the door toward the West for goods coming from Russia (and *vice versa*): «The majority of the goods that Reval exported to the West came from Russia – mainly furs and wax [...]. In return, the majority of goods from the West were sent east from Reval – salt, fabric, herring, malt, spices, luxury goods, silver bullion and coins, and other metals»[270]. Reval owed the enlargement, the growing of the population and «its development during the Middle Ages largely to the maritime trade»[271] and thanks to the transnational and interurban network it was part of. However, it is also important to point out that since the sixteenth century it became a good exporter of grain, wood and fibres coming from the rural area of the countryside which started to grow the plantation so to sell agricultural products to the merchants of Reval which, in turn, were going to sell them abroad. Thus, since the Middle Ages Tallinn was deeply characterized by its nature of port-city. Its role as a link between the north and west Europe and the Russian world and its membership

[269] I. LEIMUS – A. MAND, *Reval (Tallinn). A City Emerging from Maritime Trade*, in W. BLOCKMANS – M. KROM – J. WUBS-MROZEWICZ (eds), *The Routledge Handbook of Maritime Trade around Europe 1300-1600. Commercial Networks and Urban Autonomy*, London, Routledge, 2017, p. 280.
[270] *Ibidem.*
[271] *Ivi,* p. 288.

to the Hanseatic League enlarged the tentacles of the city far beyond its urban perimeter. Reval (Tallinn) growth within a network, taking advantage of it.



Img 31 – The Baltic Lands and the Hanseatic League in the XIV, XV and XVI centuries. Source: https://sourcebooks.fordham.edu/maps/hanse.jpg

The importance of its port went far beyond the Middle Ages, keeping its privileged connection with Russia and St. Petersburg in particular, to which was linked by a railroad since 1870[272]. Its role of "doorstep town"– or as defined above – as a "threshold city" seems an historical feature of Tallinn. What about contemporary times? Keep talking about the port it must be pointed out that it will have an important role in the

[272] https://www.tallinn.ee/eng/History-of-Tallinn last access 13 May 2025.

new Polar Silk Road initiative (which is part of the Belt-and-Road Initiative implemented by China government), where it will represent a gateway for the transhipment from the container ship coming from the Artic to the railway toward Warsaw and the central Europe[273].

Img 32 – The Helsinki - Tallinn tunnel in the context of the larger Rail Baltica project

Furthermore, we can consider the extensive character of the Tallinn urban area from another perspective which is right the digital (immaterial) one and which see the most important empirical example in the relationship between Tallinn and Helsinki: the two city – defined Talsinki not by chance – «are building a model of smart and sustainable twin cities to establish a paradigm for development also at a European level». Within the project called Finest Twins the two cities aim to «close gaps in regional cohesion and economic development through digitalisation, spill-over effects, and social entrepreneurship» realizing a «cross-border smart city» where citizen could participate in the political and social life through ICT, apps, and – more specifically –

[273] https://www.ajot.com/premium/ajot-baltic-ports-see-business-opportunities-inherent-in-polar-silk-road-to-china last access 13 May 2025.

through a «platform for cross-border smart city solutions»[274]. Kind of paradigmatic outcome of the Industrial Revolution 4.0 on the urban areas.

4.8.5 Subjects at work

As far as we could reach through the analysis, there are not so many scientific articles about gig worker or the impact of digital economy in Tallinn, with the considerable exception represented by the paper written by Kaire Holts titled *Understanding virtual work. Prospects for Estonia in the Digital Economy*. On the contrary, there are many interesting journal or web articles that face the topic, and the theme is quite debated also within the Estonian representative institutions. The Estonian Parliament – for instance – has created a think tank called Foresight Council who faced the subject matter. Johanna Vallistu, who is part of the Foresight Council, reported that «Online platforms for work mediation have spread quickly in Estonia – ride sharing and delivery services have firmly planted themselves here; however, work is also mediated via platforms in translation and design services, childcare and housework»[275].

According to some results coming from a research made on the whole country (but we should keep in mind that half of the Estonian population live in Tallinn) we know that around 8.1% of the people aged 18-65 «claimed to be doing work (via so-called "gig economy" platforms such as Upwork, Uber or Handy) at least once a week», «10.2% found such work at least once a month» and almost one out of two (more precisely the 39.9%) «had tried to find work in this way»[276]. Still from the same research we know that for more than one-quarter of the platform workers this kind of job represents the only or at least half of their income[277], which is a quite high percentage. The job they do are of the most different type: design, editing, software development, translation, plumbing, household repairs, cleaning, gardening, babysitting, taxi work or various form of delivering by car, van, scooter, moped or bicycle. All in all, it is undeniably a sector in rapid expansion. As it is pointed out by Holts, «With regard to Estonia, there is no reliable data about the number of people involved in crowd work. However, the average turnover of sharing platforms in Estonia grew 80% per year between 2011 and 2015, and the platform economy is expected to grow further at a similar rate»[278]. New platforms bore there like Bolt (a ride-share platform expanded in many other countries) Taxigo (a taxi service provide in Estonia) or GoWorkaBit (a

[274] R.-M.SOE, *FINEST Twins: Platform for Cross-Border Smart City Solutions*, in C. HINNANT – A. OJO, *Dg.o '17: Proceedings of the 18th Annual International Conference on Digital Government Research*, ACM, 2017, pp. 352–357.
https://dl.acm.org/doi/10.1145/3085228.3085287.
[275] http://www.baltic-course.com/eng2/analytics/?doc=150242&output=d&output=m&output=d&output=m last access 13 May 2025.
[276] SSCU, *Digital Footprint: The Platformisation of Work in Europe Factsheet for Estonia*, p. 1.
[277] *Ivi*, p. 2.
[278] K. HOLTS, *Understanding Virtual Work*, p. 15.

platform where anyone can offer and require many different kind of job), and other are spreading in the country from abroad like Wolt (a Finnish food delivery platform spread in North and Eastern Europe): totally there are thirteen active platforms in Tallinn which are generating a considerable online income for many citizen of the country.

The "Cybertariat in the making" – as was foresight by Ursula Huws almost twenty years ago – it seems disclosed also in Tallinn in the contemporary years. Better, as we have defined above, it seems even more a "platformtariat", in so much as most of the people which are working with so-called new Information and Communication Technologies– not only in Tallinn – they are doing so through Platforms. Such a general growth of platforms brought few consequences that can be summarized still using Huws' words: «On the one hand, it has opened up opportunities for people without prior contacts to enter new fields; on the other, for those who were previously able to make a living as independent service providers, it has devalued previously accumulated social capital and brought deskilling and a loss of autonomy»[279]. Even though, as said, there are not so many data and research on this about Tallinn, as far as we know in Estonia there is the highest levels of online income generation. The Baltic Capital city represents a very interesting case to inspect the consequence of Industrial Revolution 4.0 on contemporary society. Further research is needed but the expansive growth that platforms are having in that city makes it a crucial field of inquiry.

[279] U. HUWS, *Where did Online Platforms Come from? The Virtualization of Work Organization and the New Policy Challenges it Raises*, in P. MEIL – V. KIROV (eds), *Policy Implications of Virtual Work*, London, Palgrave Macmillan, 2017, pp. 37-38. U. HUWS – N. SPENCER – M. COATES, *The Platformisation of Work in Europe. Highlights from Research in 13 European Countries*, Brussels, Report published by: FEPS – FOUNDATION FOR EUROPEAN PROGRESSIVE STUDIES, 2019.

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