

Horizon Europe - Marie Skłodowska-Curie
Actions (MSCA) Global Fellowship
Grant agreement ID: 101111404

DOMES

Architectural Technology Transfer on the Silk Road: Iranian
Double-Shell Domes and the West: 14th to 20th
2023-2026

Global Fellow:
Lorenzo Vigotti

**APPLICATION
for 2023 MSCA
Global Fellowship**



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA



**Funded by
the European Union**

**Grant agreement ID: 101111404
DOI 10.3030/101111404**





Dear Reader,

Securing a Marie Skłodowska-Curie Postdoctoral Fellowship represents a crucial step in the career development of early-stage researchers. After completing a PhD, scholars enter a highly competitive international environment where the transition toward an independent research position—whether in academia or industry—requires both scientific excellence and strategic planning.

The postdoctoral phase serves not only to strengthen technical and managerial competencies but also to build a coherent research profile, expand international collaborations, and define a long-term scientific vision. Within this context, the Marie Skłodowska-Curie Actions (MSCA) provide one of the most prestigious and competitive funding schemes in Europe, designed to support researchers in achieving independence, fostering mobility, and enhancing the exchange of knowledge across disciplines and borders.

Preparing a successful proposal, however, demands more than an excellent research idea. Applicants must be able to articulate the broader relevance of their project in alignment with the priorities of the European Commission—namely scientific excellence, societal impact, and implementation feasibility. Clarity, coherence, and policy awareness are as essential as the scientific content itself.

The subject of the project I presented was not part of my previous doctoral research, but rather a parallel academic endeavor that I had cultivated over several years. It involved establishing connections with scholars abroad—specifically in Iran—and presenting and publishing preliminary findings prior to the date of the application.

The following document presents a complete, successful MSCA application (2023-26), shared as an example to assist researchers in understanding the structure, tone, and level of detail expected in European research proposals. It is intended as a learning resource to support the preparation of high-quality applications that can contribute to Europe's scientific and societal goals.

Applicants are reminded that this example should be read alongside the official *Guide for Applicants* published by the European Commission, which provides authoritative and comprehensive instructions on eligibility, evaluation criteria, and submission procedures.

Lorenzo Vigotti

In this document you will find:

pp. 3-33 Selected Application Pages

pp. 34-38 Proposal Evaluation Form (98.80%)

You can follow my project on www.iraniandomes.eu

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Call: HORIZON-MSCA-2022-PF-01

(MSCA Postdoctoral Fellowships 2022)

Topic: HORIZON-MSCA-2022-PF-01-01

Type of Action: HORIZON-TMA-MSCA-PF-GF

(HORIZON TMA MSCA Postdoctoral Fellowships - Global Fellowships)

Proposal number: 101111404

Proposal acronym: DOMES

Type of Model Grant Agreement: HORIZON Unit Grant

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Acronym **DOMES**

1 - General information

Fields marked * are mandatory to fill.

Topic	HORIZON-MSCA-2022-PF-01-01	Type of Action	HORIZON-TMA-MSCA-PF-GF
Call	HORIZON-MSCA-2022-PF-01	Type of Model Grant Agreement	HORIZON-AG-UN

Acronym DOMES

Proposal title Architectural Technology Transfer on the Silk Road: Iranian Double-Shell Domes and the West: 14th to 20th Century

Note that for technical reasons, the following characters are not accepted in the Proposal Title and will be removed: < > " &

Scientific Area SOC - Social Sciences and Humanities (SOC)

Please select up to 5 descriptors (and at least 3) that best characterise the subject of your proposal, in descending order of relevance.

Descriptor 1 History of art and architecture

Descriptor 2 History of ideas, intellectual history, history of science, techniques and technologies

Descriptor 3 Cultural heritage, cultural memory

Descriptor 4 Colonial and post-colonial history, global and transnational history, entangled histories

Free keywords architecture domes Iran Italy Medieval Seljuk Ilkhanid Persia knowledge brick technology Silk Road

Please choose the scientific area and descriptors carefully, and in order of importance, since this will guide the REA in the selection of experts for proposal evaluation and the allocation of proposals to experts.

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Abstract *

DOMES is an exploration of the shared architectural legacy of Europe and the Middle East. Specifically, my project details the transmission of architectural knowledge across the Silk Road from Persia to medieval Italy during the fourteenth century. Utilizing an innovative research methodology, DOMES aims to overcome traditional classification of architectural history based on the linear evolution and comparison of styles and forms, to promote a more comprehensive account of the history of construction, nourished by the material understanding of site-specific traditions. Utilizing structural building techniques as the basis for the project, DOMES focuses on the transmission of two types of architectural knowledge: technical knowledge and preservationist knowledge. This project proposes that the technological knowledge of building double-shell brick domes was originally transferred from Iran to Italy. Furthermore, DOMES investigates the historical exchange of Italian architectural restorers and Iranian preservationists through the study of the restorations of the same double-shell brick dome monuments during the 1960-70s. Through the combination of the study of unpublished archival documents in Tehran and the on-site analysis of the restorations carried out on monuments, DOMES will provide an innovative example of medieval global architectural history and will narrate the transfer of preservation knowledge from Italy to Iran.

Remaining characters

553

Has this proposal (or a very similar one) been submitted in the past 2 years in response to a call for proposals under any EU programme, including the current call?

☒ Yes ☐ No

Please give the proposal reference or contract number.

101066859

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Declarations

Field(s) marked * are mandatory to fill.

1) We declare to have the explicit consent of all applicants on their participation and on the content of this proposal. * ☒

2) We confirm that the information contained in this proposal is correct and complete and that none of the project activities have started before the proposal was submitted (unless explicitly authorised in the call conditions). ☒

3) We declare:

- to be fully compliant with the eligibility criteria set out in the call
- not to be subject to any exclusion grounds under the [EU Financial Regulation 2018/1046](#)
- to have the financial and operational capacity to carry out the proposed project.

☒

4) We acknowledge that all communication will be made through the Funding & Tenders Portal electronic exchange system and that access and use of this system is subject to the [Funding & Tenders Portal Terms and Conditions](#). ☒

5) We have read, understood and accepted the [Funding & Tenders Portal Terms & Conditions](#) and [Privacy Statement](#) that set out the conditions of use of the Portal and the scope, purposes, retention periods, etc. for the processing of personal data of all data subjects whose data we communicate for the purpose of the application, evaluation, award and subsequent management of our grant, prizes and contracts (including financial transactions and audits). ☒

6) We declare that the proposal complies with ethical principles (including the highest standards of research integrity as set out in the [ALLEA European Code of Conduct for Research Integrity](#), as well as applicable international and national law, including the Charter of Fundamental Rights of the European Union and the European Convention on Human Rights and its Supplementary Protocols. [Appropriate procedures, policies and structures](#) are in place to foster responsible research practices, to prevent questionable research practices and research misconduct, and to handle allegations of breaches of the principles and standards in the Code of Conduct. ☒

7) We declare that the proposal has an exclusive focus on civil applications (activities intended to be used in military application or aiming to serve military purposes cannot be funded). If the project involves dual-use items in the sense of [Regulation 2021/821](#), or other items for which authorisation is required, we confirm that we will comply with the applicable regulatory framework (e.g. obtain export/import licences before these items are used). ☒

8) We confirm that the activities proposed do not

- aim at human cloning for reproductive purposes;
- intend to modify the genetic heritage of human beings which could make such changes heritable (with the exception of research relating to cancer treatment of the gonads, which may be financed), or
- intend to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer.
- lead to the destruction of human embryos (for example, for obtaining stem cells)

These activities are excluded from funding. ☒

9) We confirm that for activities carried out outside the Union, the same activities would have been allowed in at least one EU Member State. ☒

The coordinator is only responsible for the information relating to their own organisation. Each applicant remains responsible for the information declared for their organisation. If the proposal is retained for EU funding, they will all be required to sign a declaration of honour.

False statements or incorrect information may lead to administrative sanctions under the EU Financial Regulation.

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2 - Participants

List of participating organisations

#	Participating Organisation Legal Name	Country	Role	Action
1	ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA	Italy	Coordinator	
2	UNIVERSITY OF TEHRAN	IR	Associated	

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Acronym **DOMES**

Short name **UNIBO**

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	<i>"The Ilkhanid-Italian Relationship during the Trecento: Medieval Persian Prototypes for Brunelleschi's Dome in Florence," in New Horizons in Trecento Italian Art, edited by Karl Whittington and Bryan Keene (Brepols, 2020), 157-70.</i>
Other achievement	<i>Presentation "Migrating Inventions. The Double-Shell Domes of Soltaniyeh and Santa Maria del Fiore," Comité International d'Histoire de l'Art, San Paolo, Brazil, 17-21 January 2022</i>
Other achievement	<i>Presentation "Diplomatic Exchanges and Architectural Inventions along the Silk Road between Soltaniyeh and Italy during the Fourteenth Century," From Sultanyya to Florence: Architectural Design and Craftmanship Traditions in the Fourteenth-and-Fifteenth-Century Architecture, Shahid Beheshti University, Tehran, 23-24 February 2019</i>
Other achievement	<i>Presentation "Ilkhanid-Italian Relationship during the Trecento: Persian Medieval Prototypes for Brunelleschi's Dome in Florence," Andrew Ladis Memorial Trecento Conference, University of Houston, 8-10 November 2018</i>

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
<i>The Ilkhanid Architecture of Medieval Persia</i>	<i>Sponsored photographic expedition to Iran by the Society of Architectural Historians to take pictures of medieval structures built by the Ilkhanid rulers in northern Iran.</i>
<i>Italian Renaissance Influences in Persian Art</i>	<i>Sponsored seminar organized by the Kunsthistorisches Institut in Florence and led by me to visit relevant early modern art and architecture in Persia influenced by Italian Renaissance art.</i>

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
<i>Laser scanner</i>	<i>Through application of laser scanner, the building dimensions, the location, as well as the geometry of the architectural and structural elements will be accurately surveyed and represented in a DWG-based three-dimensional model.</i>
<i>RTK equipped drone</i>	<i>Multiple overlapping photographs of the external and internal surfaces of the building will be snapped by using aerial (a RTK equipped drone) and terrestrial (a full-frame digital single-lens reflex camera (DSLR)) close-range photogrammetry tools.</i>
<i>Computer with Autocad software</i>	<i>Photos taken with drone and by camera will be then incorporated with the 3D-model of the building and will produce an accurate and realistically photo textured model of it, representing the structural and constructional features of both the exterior and interior surfaces of the monument.</i>
<i>Ground Penetrating Radar</i>	<i>With a technique specifically dedicated to study of detached double-shell domes, the space between the two shells will be surveyed through application of non-destructive methodologies, by using Ground-Penetrating Radar (GPR), a high-resolution technique that obtains an image of subsurface structures</i>

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Short name **UNIBO**

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below?

☒ Yes ☐ No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
 - o work-life balance and organisational culture;
 - o gender balance in leadership and decision-making;
 - o gender equality in recruitment and career progression;
 - o integration of the gender dimension into research and teaching content;
 - o measures against gender-based violence including sexual harassment.

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Acronym **DOMES**

Short name **UT**

PIC	Legal name
975464496	UNIVERSITY OF TEHRAN

Short name: UT

Address

Street	ENGHELAB ISLAMI AVENUE, CENTRAL ADMINIST
Town	TEHRAN
Postcode	14174
Country	Iran (Islamic Republic of)
Webpage	http://www.ut.ac.ir

Specific Legal Statuses

Legal person	yes	Academic Sector	yes
Public body	yes		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	yes		
Research organisation	no		

SME Data

Based on the below details from the Participant Registry the organisation is **not an SME (small- and medium-sized enterprise) for the call.**

SME self-declared status	24/07/1934 - no
SME self-assessment	unknown
SME validation	unknown

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Short name **UT**

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☒
Provision of research and technology infrastructure	☐
Co-definition of research and market needs	☒
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☒
Technology developer	☐
Testing/validation of approaches and ideas	☐
Prototyping and demonstration	☐
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☒
Other	☐
If yes, please specify: (Maximum number of characters allowed: 50)	

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4 - Ethics & security

Ethics Issues Table

1. Human Embryonic Stem Cells and Human Embryos		Page
Does this activity involve Human Embryonic Stem Cells (hESCs)?	☐ Yes ☒ No	
Does this activity involve the use of human embryos?	☐ Yes ☒ No	
2. Humans		Page
Does this activity involve human participants?	☐ Yes ☒ No	
Does this activity involve interventions (physical also including imaging technology, behavioural treatments, etc.) on the study participants?	☐ Yes ☒ No	
Does this activity involve conducting a clinical study as defined by the Clinical Trial Regulation (EU 536/2014) ? (using pharmaceuticals, biologicals, radiopharmaceuticals, or advanced therapy medicinal products)	☐ Yes ☒ No	
3. Human Cells / Tissues (not covered by section 1)		Page
Does this activity involve the use of human cells or tissues?	☐ Yes ☒ No	
4. Personal Data		Page
Does this activity involve processing of personal data?	☐ Yes ☒ No	
Does this activity involve further processing of previously collected personal data (including use of preexisting data sets or sources, merging existing data sets)?	☐ Yes ☒ No	
Is it planned to export personal data from the EU to non-EU countries? Specify the type of personal data and countries involved	☐ Yes ☒ No	
Is it planned to import personal data from non-EU countries into the EU or from a non-EU country to another non-EU country? Specify the type of personal data and countries involved	☐ Yes ☒ No	
Does this activity involve the processing of personal data related to criminal convictions or offences?	☐ Yes ☒ No	
5. Animals		Page
Does this activity involve animals?	☐ Yes ☒ No	
6. Non-EU Countries		Page
Will some of the activities be carried out in non-EU countries?	☒ Yes ☐ No	3
Iran		
In case non-EU countries are involved, do the activities undertaken in these countries raise potential ethics issues?	☐ Yes ☒ No	
It is planned to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)?	☐ Yes ☒ No	
Is it planned to import any material (other than data) from non-EU countries into the EU or from a non-EU country to another non-EU country? For data imports, see section 4.	☐ Yes ☒ No	

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Is it planned to export any material (other than data) from the EU to non-EU countries? For data exports, see section 4.	☐ Yes ☒ No	
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Does this activity involve low and/or lower middle income countries , (if yes, detail the benefit-sharing actions planned in the self-assessment)	☒ Yes ☐ No	3
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Could the situation in the country put the individuals taking part in the activity at risk?	☐ Yes ☒ No	
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7. Environment, Health and Safety	Page
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Does this activity involve the use of substances or processes that may cause harm to the environment, to animals or plants.(during the implementation of the activity or further to the use of the results, as a possible impact) ?	☐ Yes ☒ No	
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Does this activity deal with endangered fauna and/or flora / protected areas?	☐ Yes ☒ No	
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Does this activity involve the use of substances or processes that may cause harm to humans, including those performing the activity.(during the implementation of the activity or further to the use of the results, as a possible impact) ?	☐ Yes ☒ No	
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8. Artificial Intelligence	Page
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Does this activity involve the development, deployment and/or use of Artificial Intelligence? (if yes, detail in the self-assessment whether that could raise ethical concerns related to human rights and values and detail how this will be addressed).	☐ Yes ☒ No	
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9. Other Ethics Issues	Page
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Are there any other ethics issues that should be taken into consideration?	☐ Yes ☒ No	
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I confirm that I have taken into account all ethics issues above and that, if any ethics issues apply, I will complete the ethics self-assessment as described in the guidelines [How to Complete your Ethics Self-Assessment](#)



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Ethics Self-Assessment

Ethical dimension of the objectives, methodology and likely impact

1. Objectives of the activities: activities conducted in a non-EU country

DOMES focuses on archival research and on-site architectural analysis of historical buildings carried out in a non-EU country, the Islamic Republic of Iran. All activities will be executed on public-owned and publicly accessible material. Documents held at the Iranian Center for Architectural Studies and Documentation at Shahid Beheshti University are publicly accessible and do not contain personal or sensitive data. Buildings that will be visited for architectural analysis are also public property (owned by the state) and open to the general public.

All planned activities are legally allowed in Italy (a EU country).

2. Methodology: non-EU countries

Large part of the activities planned for this project involved materials with historical value in a lower-middle income country. All research activities and human interactions will be in accordance with the principles of fairness, respect, care, and honesty as stated in the Declaration of Helsinki and Global code of conduct for research in resource-poor settings, and in particular:

1. All activities in Iran will be determined, approved, and supervised in collaboration with Iranian officers: during the research in Iranian Center for Architectural Studies and Documentation at Shahid Beheshti University, the activities will be supervised by the director of the centre itself, Prof. Hadi Safaeipour; Prof. Khaghani, together with local officials from the Ministry of Cultural Heritage and Iran's UNESCO office will be included in all on-site activities at historical monuments (articles 1-3, 20-22).
2. Local graduate students and scholars will be included in the research process during all steps of the project. They will share ownership of study designs, databases, and final data. The book I plan to write will be co-authored with Prof. Safaeipour (articles 4-6).
3. The graduate students that will be hired to assist with translations of documents written in Farsi will be fairly compensated (article 7).
4. Visits to historical and religious monuments will be carefully planned together with local communities, government officials, and Ministry of Cultural Heritage/UNESCO representatives (articles 8-9).
5. Activities related to the project will not reduce or stop access to resources (archives and libraries) and sites (monuments) by local scholars and public. In fact, the aim of the project is to widely circulate among an international audience these primary sources, both archival and architectonic (article 16).

3. The potential impact of the activities: political or financial adverse consequences

I do not foresee negative political or financial consequences derived by my planned activity in Iran. The topic of my research is not political sensitive and the welfare of Iranians will not be impacted.

Remaining characters

2148

Compliance with ethical principles and relevant legislations

The research activity envisaged in the project will be conducted applying fundamental ethical principles and relevant national, EU and international legislation, including the Charter of Fundamental Rights of the European Union, the European Convention on Human Rights, and the General Data Protection Regulation (GDPR - Regulation EU 2016/679).

Fundamental principles underpinning the whole research activity are: the respect for the welfare (health and safety) of the participants to the research; participation only after informed consent; personal data protection, anonymity and confidentiality; fairness; equity; justice; social responsibility.

DOMES does not include research or activities with humans, animals, or living beings of any sort; it does not involve the transportation of any item (documents or architectural fragments) in or out Iran and Italy, nor the transfer of personal data between an EU and a non-EU country.

Remaining characters

4066

1. Excellence

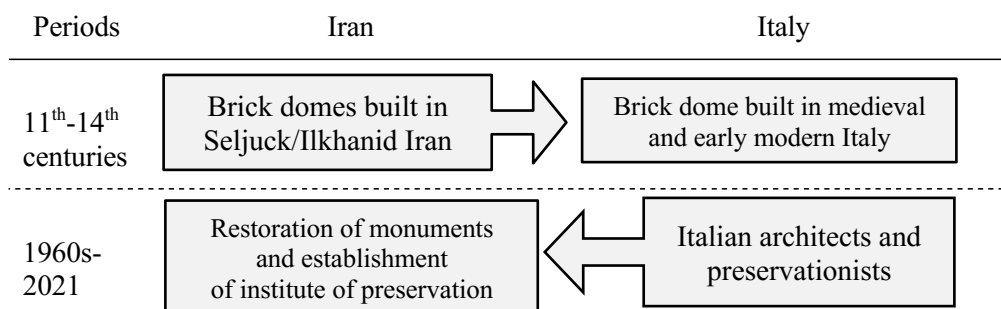
1.1 Quality and pertinence of the project's research and innovation objectives (and the extent to which they are ambitious, and go beyond the state of the art)

1.1.1 Introduction

Was Filippo Brunelleschi's unprecedented Florentine dome a new architectural invention of the European Renaissance or the continuation of a long (but distant) tradition? During a time when diplomatic and literal walls are being built between cultures, **DOMES is an exploration of the shared architectural legacy of Europe and the Middle East.** Specifically, my project details the transmission of architectural knowledge across the Silk Road from Persia to medieval Italy during the fourteenth century. Utilizing an innovative research methodology, DOMES uncovers the specific **construction techniques employed in large-scale brick domes.** To date, nearly all comparative architectural history projects utilize style choices rather than building structure to analyse the dissemination of architectural knowledge. Stylistic approaches, while helpful in their own right, are extremely limited in their comparative depth because decorative motifs differ so dramatically from culture to culture. As such, this project not only uncovers a critical link between historically disparate regions but originates a **new method of architectural history.**

Utilizing structural building techniques as the basis for the project, DOMES focuses on the transmission of two types of architectural knowledge: **technical knowledge and preservationist knowledge.** This project first proposes to **investigate the transmission of the technological knowledge of building double-shell brick domes from Iran to Italy.** The double-shell method was uniquely employed in Iran starting from the 11th century (5th AH), progressing from simple tomb towers to large mausoleums in the 14th century (8th AH). The largest among those domes, the Mausoleum of Oljaitü in Soltaniyeh (1302 CE/701 AH) was the object of an initial (and incomplete) study by Italian restorationist and conservator Piero Sanpaolesi during the 1960s-70s. Sanpaolesi compared the materials and the structural solutions to the dome of the Florentine cathedral built by Brunelleschi in the early 15th century (9th AH). Sanpaolesi realized that techniques employed by Brunelleschi (load-bearing double-shells built in bricks, herringbone brick patterns, construction without centring, wooden and metal chains, among others) were unprecedented in European architecture but widely used in medieval Iran. While Sanpaolesi originally noted this similarity, his original work was cut short by the Islamic revolution and there has been no additional research which systematically compares the structural components of double shell brick domes in Iran and Italy. DOMES aims to verify Sanpaolesi's early work and expand its structural investigation to five selected domed monuments (see 1.2.1) built during the period abovementioned (11th-14th centuries / 5th—9th AH).

Furthermore, DOMES investigates the historical exchange of Italian architectural restorers and Iranian preservationists through the study of the restorations of double shell brick-dome monuments. In fact, Sanpaolesi was not only in charge of the restorations of many medieval buildings in Italy, but he also established the first institute for architectural preservation in Iran in 1972. Through the combination of the study of unpublished archival documents left in Tehran and the analysis of the restorations carried out on monuments, DOMES will also narrate the **history of the transfer of preservation knowledge from Italy to Iran** and the long-standing effects of these theoretical and practical activities on contemporary restoration practices.



These two components of DOMES build upon my unique background as **both an architect and academic researcher.** While practicing as an architect in Italy, I developed a specific knowledge of architectural techniques and preservation practices. Additionally, I developed a cross-disciplinary approach to art historical problems during my doctoral research at Columbia University. In my dissertation, I successfully merged the archival research of medieval documents with on-site architectural analyses (comprehensive of analogic and digital surveys, material and structural investigations). Having also participated with Iranian and Italian universities on a project specifically focused on Iranian monuments (with visits to local buildings and archives), this project builds on my first-hand experience in a cross-cultural research context. I plan to utilize my professional research experience to overcome a narrative of separation and instead restore a rich cross-cultural dialogue initiated long ago along the Silk Road.

1.1.2 State-of-the-art: DOMES does not have specific precedents or an established framework in its redefinition of architectural history, but it responds to the need for a new global approach to the field. This new methodology, based on the investigation of modes of transmission of knowledge and especially the techniques of architectural production, has

only scarcely investigated in recent studies that tried to connect different regions of the world, such as Debora Howard's *Venice & the East: the Impact of the Islamic World on Venetian Architecture 1100-1500* (2000), Finbarr Flood and Gülru Necipoğlu's *Global Empires and the World-System (1250-1450)* (2017), or Outi's *Transmission of Knowledge in the Late Middle Ages and Renaissance* (2019).¹ Even in recent studies of in the field of comparative architecture, scholars confined their research on the study of forms and not of structures (Giron 2009, Westbrook 2014, Carannante 2017).² Studies in other fields of art history have been more successful: recently scholars studied the cross-pollination of travelling art objects between Persia and Italy, especially the representation of Mongol visitors and Persian tapestries in fourteenth-century paintings (Mack 2002, Bernardini 2003, Lurati 2005, Bruggemann 2007, Spiess 2010, Prazniak 2013)³ and the exchange of illuminated manuscripts (Dunlop 2016).⁴

1.1.3 Beyond the state of the art

DOMES aims to overcome traditional classification of architectural history based on an evolution and comparison of styles and forms, to promote a **more comprehensive account of the history of construction**, nourished by the material understanding of site-specific traditions and the results of craftsmanship in historic buildings. This new system of classification will set the scene for revisiting and decentralizing the more conservative narratives of respective national historiographies, by finally **proposing an architectural history of exchanges, instead of oppositions, and continuities, instead of distinctions**.

The use of the double-shell brick dome technique in Iran and Italy is specific enough to be easily recognized and analysed in monuments built far away and thus it provides an ideal example to theorise a new approach to global history of architecture in which, no matter the local differences, a continuous progress in building technology can be taken in account across different regions and culture. This new approach will be verified with Iranian and Italian scholars during a number of meetings and conferences (see 3.1), presented to students and faculty with workshops, and disseminated as the object of the second peer-reviewed article (see 2.2).

1.2 Soundness of the proposed methodology (including interdisciplinary approaches, consideration of the gender dimension and other diversity aspects if relevant for the research project, and the quality of open science practices)

1.2.1 Overall methodology: DOMES involves a **multidisciplinary approach** made of architectural analysis of 5 Iranian monuments featuring a double-shell brick dome based on personal on-site surveys and the archival research of documents left by Sanpaolesi in Iranian archives. This methodology has a threefold aim: documenting direct historical relationships between Iran and Italy in the late medieval period; understanding the mechanisms of circulation of knowledge between these two regions; verifying the architectural analysis and restoration work carried out by Sanpaolesi, his team, and later Iranian conservators. The **selected Iranian domes** are (in chronological order): Kharraqan Towers near Qazvin (1067-93 AD/459-85 AH), Haruniye Mausoleum in Tus (mid-12th AD/8th AH), Mausoleum of Uljaytu in Soltaniyeh (1302 AD/701 AH), Seyyed Rukn al-Din Mausoleum in Yazd (1325 AD/725 AH), and Jamu Mosque of Yazd (14th AD/8th AH). They all show a double-shell brick dome system built during a period of 300 years, showing the progression of improvement of this specific technique.

In order to compare Iranian and Italian domes, an updated **campaign of documentation** of Iranian domes is the necessary foundation to this project (the Italian cases have been extensively documented). This is especially the case for the five selected Iranian monuments with double-shell domes for which the reduced distance between the two shells prevents from accessing the space in between, which is instead crucial to understand their structural behavior. In collaboration with the University of Tehran, I will use laser scanners and advance photogrammetric techniques to survey the monuments, endoscopy analysis through photos and videos to inspect the structure of the domes, and 3D software to build final models.

1.2.2 Integration of methods and disciplines to pursue the objectives

DOMES merges the scientific data collected during on-site campaigns with archival research on documents produced on those same monuments. The buildings will be analysed using the following methodologies: **Laser scanners** will be used

¹ Deborah Howard, *Venice & the East: the Impact of the Islamic World on Venetian Architecture 1100-1500* (New Haven, 2000); Finbarr Flood and Gülru Necipoğlu, "Global Empires and the World-System (1250-1450)," in *A Companion to Islamic Art and Architecture* (Wiley, 2017), O. Merisalo, M. Kuha and S. Niiranen (eds), *Transmission of Knowledge in the Late Middle Ages and the Renaissance* (Turnhout, 2019). In addition, very specific to the period considered: Judith Pfeiffer (ed.), *Politics, Patronage and the Transmission of Knowledge in 13th-15th Century Tabriz* (Boston, 2014).

² Westbrook, Nigel. "Exchange of Palatine Architectural Motifs between Byzantium, Persia and the Caliphate, in *Byzantium, Its Neighbours and Its Cultures*, ed. Danijel Dzino (Brisbane, 2014), 129-153; Arianna Carannante, "Influenze orientali e occidentali nello sviluppo degli organismi chiesastici a cupole in asse in Puglia," *Lexicon*, 25 (2017): 7-19.

³ Rosamond Mack, *Bazaar to Piazza: Islamic Trade and Italian Art, 1300-1600* (Berkeley 2002); Michele Bernardini, "Un mongolo nella Crocifissione trecentesca del Sacro Speco di Subiaco," M. Fontana and B. Genito (eds), *Studi in onore di Umberto Scerrato per il suo settantacinquesimo compleanno*. Naples, 2003. 1:77-103; Karl-Heinz Spiess, "Asian Objects and Western European Court Culture in the Middle Ages," M. North ed., *Artistic and Cultural Exchanges between Europe and Asia, 1400-1900* (Farnham, 2010): 9-28; Patricia Lurati, "Il Trionfo di Tamerlano. Una nuova lettura iconografica di un cassone del Metropolitan Museum of Art," *Mitteilungen des Kunsthistorischen Institutes in Florenz*, 49, no. 1/2 (2005): 101-18; Werner Bruggemann, "The Islamic-oriental Carpet in Giotto's Fresco *Christmas Mass at Greccio* in Assisi," in *Facts and Artefacts*, ed. A. Hagedorn and A. Shalem (Leiden, 2007), 373-393; Roxann Prazniak, "Tabriz on the Silk Roads: Thirteenth-Century Eurasian Cultural Connections," *Asian Review of World Histories*, 1:2 (July 2013), 169-88.

⁴ Anne Dunlop, "Ornament and Vice: The Foreign, the Mobile, and the Cocharelli Fragments," *Histories of Ornament: from Global to Local*. Edited by G. Necipoğlu and A. Payne (Princeton, 2016), 228-237.

to accurately survey building dimensions, the location, as well as the geometry of the architectural and structural elements, and later represented in a DWG-based three-dimensional model. **Photos & model:** Multiple overlapping photographs of the external and internal surfaces of the building will be taken by using aerial (a RTK equipped drone) and terrestrial (a full-frame digital single-lens reflex camera (DSLR)) close-range photogrammetry tools. The photos will be then incorporated with the 3D-model of the building and will produce an accurate and realistically photo textured model of it, representing the structural and constructional features of both the exterior and interior surfaces of the monument.

Endoscopy: Photos and videos of the construction techniques used between the two shells will be taken and recorded by the means of endoscopy of the space between the two shells. **Final model:** all the gathered information will be represented in the form of an integrated digital three-dimensional textured model as well as derived orthophotos.

The evidence from the monuments will be cross-referenced with the **archival research** on Sanpaulesi's collection of documents produced on those same buildings when he and his team were restoring it. This study is fundamental for the success of the project because it allows the visualization and understanding of the monuments in a pre-restoration phase, close to the time of their original construction.

Gender dimension and other diversity aspects: After a careful analysis I confirm that my research approach does not have any significant relevance on sex differences that should be investigated and addressed, as well as the gender assumptions do not influence my scientific priorities, research questions, and methods applied.

Open Science and Data Management Plan

This research project will be conducted at UNIBO and outputs will be open access and available through **UNIBO Open Education Repository** and **Research Data Repository** (<https://amsacta.unibo.it>), the platform makes available research data worldwide in accordance with UNIBO Research Data policy.

Research **data management and management of other research outputs:** collected data from archives and architectural analysis will be managed by the fellow in line with the FAIR principles (Findable, Accessible, Interoperable, Reusable), that will be addressed as described below:

- **Types of data:** DOMES will both generate and reuse different types of data that will be analyzed to support the project research activities. In particular, the generated data will consist of architectural drawings collected and pictures taken from monuments in Iran. Existing data will be derived from the following sources: archival material held at Iranian Center for Architectural Studies and Documentation at Shahid Beheshti University. 500GB is the estimated size of the whole project research data.
- **Findability of data:** the project research data and outputs will be deposited and described in institutional public data repositories that guarantee long term preservation and can attribute persistent unique identifiers (DOI) to the deposited items. The chosen data repositories are: the *Digital Humanities and Cultural Heritage* hosted by OpenAIRE, and *ARCHNET* hosted by the Aga Khan Documentation Center. They all adopt standard descriptive metadata such as Dublin Core and DataCite Metadata Schema and provide OAI-PMH interoperability to ensure data sets indexing and discoverability. The data repositories are registered in re3data directory and they are harvested by OpenAIRE to guarantee full visibility to the project research outputs within the European Open Science Cloud.
- **Accessibility of data:** research data underlying public reports and scientific publications will be deposited and made openly available immediately at the time of publication of results. The other project data will be deposited by the end of the project. My project will not have access restrictions because I do not foresee issues of privacy, ethical issues, copyright, confidentiality, and exploitation.
- **Interoperability of data:** the project data and research outputs will be described using standard descriptive metadata and, whenever possible, terms from controlled vocabularies and ontologies will be associated to the data to enhance semantic interoperability. Moreover, all the chosen data repositories provide public APIs supporting OAI-PMH interoperability standard to facilitate automatic harvesting of metadata.
- **Reusability of data:** applicants will distribute the shareable data and research outputs by adopting licenses that allow full data re-use. In general, the data/research outputs will be made available under Creative Commons BY 4.0 license. However, the applicants will specify in the DMP if different re-use licenses need to be applied to specific data/research outputs upon motivations. The deposited data will be made available along with relevant documentation explaining data collection/generation procedures and analysis (such as codebooks, methodologies, etc.) and instructions about any tool/software/model that may be necessary for data validation, interpretation, and re-use. Moreover, applicants will convert shareable data from proprietary formats and will make them available in standard documented, and possibly open, formats.
- **Curation and storage:** I will be responsible for project data quality, organization, management, and secure storage in the course of research and for their deposit for publication and preservation according to the instructions provided in the project Data Management Plan. Costs of data collection, quality check, cleaning and conversion to open formats, anonymization, pseudo-anonymization, description and documentation can be estimated as 5% of the research activities costs.

1.3 Quality of the supervision, training and of the three-way transfer of knowledge between the researcher and the host

All supervisors involved will adhere to the *European Charter for Researchers and Code of Conduct for the Recruitment of Researchers* as well as the *MSCA Guidelines on Supervision* on a best-effort basis. The *MSCA Guidelines on Supervision* has been considered from the outset of the proposal and will be taken into account during the planning phase of the research project. *Guidelines* will continue to apply throughout the whole lifetime of the project. The *MSCA Guidelines* complement other initiatives and codes of practice, which exist at institutional level.

1.3.1 Qualifications and Experience of the Supervisor (Bologna):

I plan to execute this research project under the guidance of **Prof. Francesco Benelli**, associate professor of history of architecture in the Department of the Arts at Alma Mater Studiorum – Università di Bologna. Prof. Benelli teaches a wide range of courses on medieval and early modern architecture, with a focus on building practices and materiality. Prof. Benelli holds a jointly-awarded PhD in Architectural History by IUAV (Istituto Universitario di Architettura di Venezia) and Harvard University, in addition to a background as practicing architect, making him the perfect reference for a project focused not only on the history of architecture but also on material and structural aspects of the built environment. Prof. Benelli is deeply invested in issues related to the survival, protection, and conservation of cultural heritage, both practical and theoretical. He is a member of the International Observatory for Cultural Heritage at the Italian Academy at Columbia University, where he was associate professor for fourteen years. He recently led a team working on a digital humanities project on architectural treatises sponsored by the Getty Research Institute Library in Los Angeles and he is currently director of the research team at the Museo di Palazzo Farnese in Caprarola. Prof. Benelli has mentored a number of doctoral dissertations both in US and Italy and led numerous teams of scholars in academic projects and in on-site architectural surveys.

1.3.2 Qualifications and Experience of the Supervisor (Tehran):

The outgoing phase of this project would be under the supervision of **Prof. Saeid Khaghani**, assistant professor at the School of Architecture at the University of Tehran. In his Ph.D. at the University of Manchester, Prof. Khaghani specialized in historiography of Persian art and architecture; he is currently lecturing in architectural theory and history at Tehran University. Prof. Khaghani is also member of Iranian Architecture Research department which is a specific graduate program working on Iranian architectural history. He has supervised many MA and PhD students in this area. Among his publications, Prof. Khaghani has published in *Historiography of Iranian architecture* (2012); *Islamic Architecture in Iran: Poststructural Theory and the Architectural History of Iranian Mosques* (2011).

In addition to Prof. Khaghani, I will be working closely with **Prof. Hadi Safaeipour**, assistant professor of architecture at Shahid Beheshti University in Tehran (the same institution where Sanpaolesi and his team worked in the 1970s). Prof. Safaeipour's primary teaching and research interests encompass the study of historic load-bearing structures, especially vaults and domes, including their documentation, morphology, constructional process, and structural behaviour. He co-edited *Persian Architecture: Its Structure and Construction*, which was awarded the annual Iranian Book Prize in 2014. He was visiting scholar at the University of Pennsylvania and since 2016 he has been one of the members of the *Getty Connecting Art Histories Project* led by the Courtauld Institute of Art. He has been involved with the Ministry of Cultural Heritage and since 2019 he is the director of the Architectural Documentation Center at Shahid Beheshti University, where the Sanpaolesi archive is held. Prof. Safaeipour has supervised dozens of M.Sc. thesis and organized several projects involving on-site survey programs and archival research.

1.3.3 How the researcher will receive knowledge at the host (Tehran):

In addition to Farsi language courses (months 1-9, 13-22), my training program at the University of Tehran will involve taking courses on Iranian architectural history and Iranian traditional structures (Months 2-5), a unique opportunity not offered in European universities. Under the mentorship of my Iranian supervisor, I will conduct on-site visits to Iranian monuments during which we will exchange observations and methodologies (Months 6-11, 18-23). At the same time, during these visits I will acquire technical skills with the local use of technical survey tools such as laser scanning, photogrammetry, 3D-model generation (months 6-11).

1.3.4 How the researcher will receive knowledge at the host (Bologna):

My training at UNIBO will include acquiring transferable skills to disseminate my research through virtual media, communication, and outreach activities (months 25-29). I will attend seminars offered by the Research Support Office at UNIBO on open access, open data, and data protection regulation. I will also attend seminars organized by the Third Mission Division of UNIBO on knowledge transfer and IPR management, with the aim of learning how to fully develop the potential of my research results.

1.3.5 How the researcher will transfer knowledge to the host (Bologna):

The unique skills I will transfer from Iran include first-hand experiences in archives and the ones matured while visiting monuments in Iran, in addition to the language and specific skills acquired on Iranian architecture during classes and seminars at the University of Tehran. These skills are exclusive to my Iranian experience and will be valuable in a European context. A wide range of activities will take place at UNIBO directed to academic and non-academic audiences, as detailed in section 2.2.

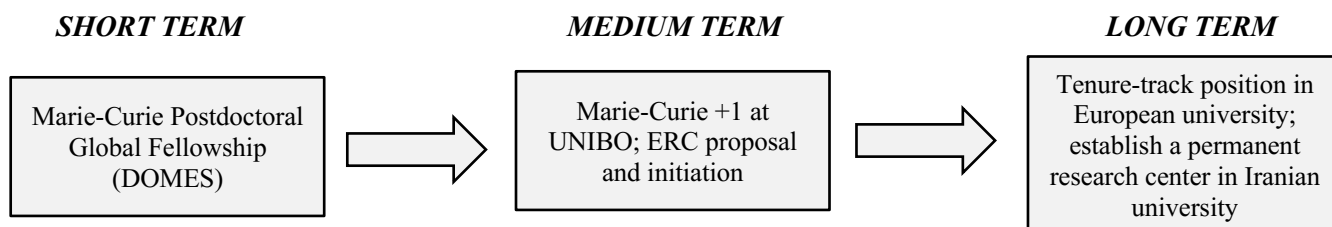
1.4 Quality and appropriateness of the researcher's professional experience, competences and skills

My academic and professional background mixes a specific knowledge of architecture and its traditional techniques (M.Arch. at the University of Florence with an emphasis on restoration issues) with a theoretical and global approach on art historical issues (Ph.D. in art history at Columbia University). These two components have a key role in DOMES, a project uniquely rooted in the specific understanding of **architectural materials and techniques**, but also requiring a **comprehensive understanding of global art history**, where a theory of influences from one centre to another is replaced by one considering networks among equally important centres of artistic production. This trans-national approach to the history of architecture has further matured during my participation in the activities organized by the Global Architectural History Teaching Collaborative (GAHTC), during which I contributed to an international effort to re-write the field through a cross-disciplinary perspective. Thanks to a grant from the Society of Architectural Historians, **I travelled extensively in Iran** to document medieval monuments and especially brick structures. During a following visit sponsored by the Kunsthistorisches Institut in Florenz, I discovered in the archives of the school of architecture in Tehran a large number of documents left by Italian restorers who worked in Iran during the 1960s and 1970s, and hastily abandoned at the time of the revolution. These were unknown to western scholars, and I started a **personal collaboration with the director of the archive** and architectural historian Prof. Hadi Safaeipour. My previous experience with archival research and the collaboration with Prof. Safaeipour allowed me to successfully **present and discuss six papers on the potential of this subject** at the latest CIHA in Brazil, University of Chicago, University of Florence, Shahid Beheshti University in Tehran, The Royal Swedish Research Institute, and University of Houston (the latter published in the edited volume *New Horizons in Trecento Italian Art*, Brepols 2020). My familiarity with the Iranian context, both in terms of local material and scholars, and my academic background will allow me to be productive on the first day of the outgoing phase at the University of Tehran.

2. Impact

2.1 Credibility of the measures to enhance the career perspectives and employability of the researcher and contribution to his/her skills development

My career will be greatly enhanced by the international collaboration with faculty members in Iran for two years, during which I will learn the language, the methodology of local archival research and historical analysis, and the material knowledge of traditional architectural production. A long period spent researching in Iran will provide me with the appropriate skills and data on Iranian construction techniques for a real comparison between two distant regions during the Middle Ages, which could lead to a meaningful first example for **the definition of a new global approach in the field of architectural history**. This would provide a response to the demand of post-colonial approaches, in which formal analysis is replaced by the study of technical knowledge and materials, with the aim of superseding traditional ideas of centre/periphery and stylistic influences.



This project will mark a significant advance toward **my ultimate goal of becoming a full-time research professor at a European University**. First, the international nature of this project will expand my academic network not only among Italian and Iranian scholars of architectural history, but also among those working on different fields of medieval cultural and material history, history of science, in addition to experts on contemporary issues of architectural preservation in different contexts. Second, through the cross-national execution of this international project, DOMES will expand my ability to execute and participate in mixed-method projects involving the methodological integration of on-site architectural analysis and archival research, a necessary skill for future, integrated research projects. These opportunities will be fostered through my exposure to and involvement with the different backgrounds and scholarships of the faculties of the University of Tehran and UNIBO. Third, the project will improve my publication record both with high impact academic journals and a monographic publication, and will promote my engagement with a different audience, such as with scholars, students, and the non-academic public in both Italy and Iran.

In order to further build my professional maturity, I will develop a full **Career Development Plan (CDP)** in conjunction with Prof. Benelli. The CDP will further specify opportunities for training, mentoring or tutoring, publishing and other research management activities (with the main objective of achieving a tenure-track position at a European University and the development of a research centre in Iran). DOMES will be particularly effective at UNIBO thanks to the **“Marie Curie +1”** initiative, which offers researchers who have received a Marie Skłodowska-Curie Fellowship an additional year on their contract, to allow them to consolidate their project results and provide them with support to fully develop ERC applications and other EU sponsored research proposals.

2.2 Suitability and quality of the measures to maximise expected outcomes and impacts, as set out in the dissemination and exploitation plan, including communication activities

One significant objective of DOMES is the dissemination of the results to the academic and non-academic communities in Italy and Iran. In order to accomplish this goal, I plan to publish **two academic journal articles** in peer-reviewed high impact journals in Months 16 and 24, and a co-authored book on Month 36. Furthermore, I plan to present the work at **two academic conferences**: the *European Architectural History Network (EAHN)* conference, and the *Historians of Islamic Art Association (HIAA)* conference. In addition to the journal articles and conferences, I plan to disseminate the work directly to the international institutions of interest. These include *The International Association for Mediterranean and Oriental Studies (ISMEO)*, which was and still is involved with restorations programs in Iran led by Italian institutions; and UNESCO's office in Iran, which manages the site of the Mausoleum of Soltaniyeh in Iran. Lastly, having established direct connections between UNIBO and the University of Tehran, I plan to create a joint research unit on Iranian architecture, with the future aim to organize a program offering courses on Iranian architecture to European students under the aegis of UNIBO/University of Tehran.

DOMES includes a robust communication plan in order to transfer knowledge to academic and non-academic public in both Italy and Iran and facilitate access to the research results:

PUBLIC ENGAGEMENT	PLANNED ACTIVITIES	TARGET GROUPS
Workshop at the University of Tehran	I will organise a workshop at the University of Tehran together with local scholars to start a fruitful exchange of ideas , where Italian and Iranian scholarship and approaches can be shared and compared, together with the definition of the best practices to be included in the project. (D4.1)	Students, Faculty, Year 1
UNIBO Media	The beginning and the objectives of the project will be advertised on UNIBO Magazine , the university magazine (https://magazine.unibo.it/). I will have the opportunity to communicate the main aspects and progress of DOMES and EU funding strategies. (D4.9)	Scholars, Students, General Public, Years 1-3
Marie Skłodowska-Curie Project Open Day	Run a workshop/activity day related to the raising of scientific awareness and promote social science research among high school and undergraduate students. The workshop will focus on the cross-cultural interactions between Iran and Italy . (D4.2)	High School Students and Undergraduate Students, Year 3
Publication of peer-reviewed article 1	Publication focused on the use of bricks in the construction of domes in medieval Iran and Italy, aimed to a scientific and architectural academic audience. (M1)	Students, Architectural Scholars, Year 2
Publication of peer-reviewed article 2	Publication on the definition of a new methodological approach to the history of medieval architectural history, aimed to scholars in different fields interested in a global approach. (M2)	Students, Scholars, Year 2
Teaching at UNIFI	I will be invited to hold a lecture about the role of Sanpaolesi in establishing the Preservation and Conservation Institute in Tehran for the students and faculty at the School of Architecture at the University of Florence, the institution where Sanpaolesi taught and was the dean. (D4.6)	Students, Scholars, Year 3
Researchers Night	Every year, UNIBO participates in the "European Researchers Night" (event associated with MCSA-NIGHT). I will have the opportunity to demonstrate the results of my research to an estimated general audience of approximately 500 people. (D4.3)	General Public, Year 3
GAHTC Architecture Talk Podcast	I will upload an Architectural Talk Podcast on GAHTC website (https://gahtc.org/architecture-talk) to disseminate the results and the new methodology to be used by students and faculty. (D4.10)	Students, Scholars, General Public, Year 3
Conference at UNIBO	I will organize a conference day at UNIBO together with my supervisors from Italy and Iran to present the results of the project. (D4.7) A workshop with Italian students will be organized to compare methodologies between Italian and Iranian scholars. (D4.3)	Students, Scholars, General Public, Year 3
Publication of book	Submission to UNIBO Press of a co-authored book on the work of Sanpaolesi and his team on the restoration of the Mausoleum of Soltaniyeh and the establishment of the first Preservation and Conservation Institute in Iran. (M3)	Scholars, General Public, Year 3

2.3. The magnitude and importance of the project's contribution to the expected scientific, societal and economic impacts

2.3.1 Expected scientific impact: Responding to two historical moments in which exchanges between Italy and Iran were increasing (14th and 20th centuries), DOMES **advances current scholarship** through a cross-cultural and multi-disciplinary approach to the field of architectural history. The collaboration between universities based on both territories of research—Italy and Iran—aims to develop a broader system of classification for medieval and early modern domed structures: one that proposes new ways of grouping, based on the process of making, and a focus on material qualities and technical devices. The study of technological innovations, when seen in a comparative perspective, will thus reshape long-established narratives in the history of architecture and question its typological tools, ultimately opening to a greater understanding of the circulation of knowledge across the Mediterranean and Iranian plateau.

2.3.2 Expected societal impact: DOMES is a collaborative project: it builds on the dialogue among scholars from different backgrounds, who will collaborate to address scientific questions so far ignored by the scholarly traditions of respective countries, be it because of linguistic limitations or self-referential historical narratives. My research bridges academic communities from different continents not lastly with the **ambition of countering the dangers of fragmentation and isolation** posed by recent political events. In so doing, it envisions a geography of continuities, rather than oppositions, and ultimately aims to contribute to a shared discourse on the common traits of our heritage. Through DOMES, UNIBO and the University of Tehran I will start a cooperation which will foster **academic partnership** and hopefully the establishment of a permanent, joint research centre on Iranian architecture not only on architecture but also as the centre for the large number of Iranian-focused projects led by UNIBO faculty members will collaborate with Iranian scholars. According to the goal of the *MSCA Green Charter* a sustainable thinking in research management is respected, starting from a sustainable implementation of research activities at the planning stage and continues throughout the lifetime of the project. All project events will be organized ensuring the sustainability and promoting teleconferencing whenever possible.

2.3.3 Expected technological/economic impact: For the first time, DOMES will provide scientific data on Iranian monuments never studied before for a comparison of architecture materials and building technologies, with the aim of contributing to a shared multi-regional history of architecture. More specifically, the project will measure the dimensions of mass-produced architectural materials (bricks, blocks of stone, timber, metal elements such as nails, chains, rods, etc...) and the quality of their composition, with standards that will allow an easy comparison with similar monuments built in Europe. This new data and the other outcomes of DOMES will allow further international cooperation in managing and restoring the 5 selected monumental sites, including international agencies such as UNESCO, which has been proven to attract academic interest and touristic developments, impacting local scholars and communities at large.

3. Quality and Efficiency of Implementation

3.1 Quality and effectiveness of the work plan, assessment of risks and appropriateness of the effort assigned to work packages

	Year 1 – Tehran Training & Research	Year 2 – Tehran Elaboration	Year 3 - Bologna Dissemination
Language training	Learning Persian language (elementary level) attending a language course at the Dehkhoda Institute	Learning Persian language (intermediate level) at the Dehkhoda Institute	
Islamic architecture training	Courses on Iranian architectural history and Iranian traditional structures	Team work on shared methodologies for a new global approach in the field	
Technical training	Use of technical survey tools such as laser scanning and photogrammetry for 3D model generation		Skills to disseminate my research through virtual media, communication, and outreach activities
Archival research	Studying archival material at Shahid Beheshti University	Transcribing and translating selected archival material for the publication	Research on comparable medieval domes in Italy
Architectural research	On-site analysis of the Mausoleum in Soltaniyeh	On-site analysis of other 4 selected Iranian domes (see 1.2.1)	On-site analysis of comparable Italian domes

Research Program Summary:

Year 1 in Tehran: is devoted to training activities: necessary linguistic training (T2.1), courses on Iranian architecture, and participation in a research group in Islamic architectural techniques (D2.2). I will learn how to use survey tools in the Iranian context (T3.3). I will also conduct the archival research and on-site architectural analysis to collect data from primary sources never previously published or accounted for (both archives at the Architectural Documentation Center at Shahid Beheshti University and domed monuments, D3.1, D3.2) and necessary for the three major research outputs. During this phase, I will present my project on UNIBO online Magazine (D4.9) and organize a workshop in Tehran to share with local scholars and students my goals and methodologies (D4.1).

Year 2 in Tehran: I will continue the language training (T2.3) and participate in a second research group finalized to share and compare different approaches to architectural historiography for the second article (M2). The archival research will focus on transcribing sources in Italian and sources in Farsi (with help by local students) (T3.4, D3.3). Dissemination activities will include participating in an academic conference (D4.6) and submitting two articles on peer-reviewed journals (M1, M2).

Year 3 in Bologna: focus on the scientific output and dissemination of the results. First, the archival research and the on-site architectural analyses will be compared with Italian medieval traditions (D3.5) and utilized to prepare the manuscript for the co-authored book (M3). At UNIBO I will organize a conference to present the results together with the Italian and Iranian supervisors (D4.8), a workshop with Italian students on the new methodology (D4.4). Additionally, I will discuss the Sanpaolesi archive at the University of Florence, where part of his drawings and notes are held (D4.7). I will upload a video podcast on GATCH Architecture Talk (T4.10), and I will participate in a second academic conference (D4.8).

In order to realize the objectives of DOMES, the following workplan is divided into 4 work-packages (WPs), tasks (T), deliverables (D), and milestones (M). The duration of the project will be 36 months:

WP 1: Management / Supervision

T1.1 – Month 1. Coordination of activities with supervisors for months 1-12.

T1.2 – Month 13. Coordination of activities with supervisors for months 13-24.

T1.3 – Month 25. Coordination of activities with supervisors for months 25-36.

D1.1 – Month 2. Career Development Plan.

D1.2 – Month 12. Report to be presented to supervisors for months 1-12.

D1.3 – Month 24. Report to be presented to supervisors for months 12-24.

D1.4 – Month 36. Final project report to be presented to supervisors and sent to REA.

WP 2: Training activities

T2.1 – Months 1-9. Certificate of Farsi language course at elementary level at Dehkhoda Institute.

T2.2 – Months 2-5. Taking a class and participating in a research group on Islamic traditional architecture, before the on-site visits start; learn the use of technical survey tools such as laser scanning, photogrammetry, 3D model generation (T3.3).

D2.2 – Month 5. Selection of the monuments to investigate with on-site visits (T3.3).

T2.4 – Months 14-17. Participating in a research group on comparative methodologies on architectural histories.

D2.3 – Month 17. Report on different methodologies to be used for second article (M2).

T2.3 – Months 13-22. Certificate of Farsi language course at intermediate level at Dehkhoda Institute.

T2.5 – Months 25-29. Acquiring transferable skills to disseminate my research through virtual media, communication, and outreach activities.

WP 3: Research

T3.1 – Month 1. Identification of the archival material at Shahid Beheshti University.

T3.2 – Months 2-11. Studying archival material at Shahid Beheshti University.

T3.3 – Month 6-11. On-site analysis of the Mausoleum of Soltaniyeh and other relevant domes.

D3.1 – Month 11. Early summary of the architectural analysis for article 1 (M1).

D3.2 – Month 12. Selection of documents relevant for the project.

T3.4 – Months 13-21. Transcription and translation of archival material at Shahid Beheshti University.

T3.5 – Month 14. Selection of domed monuments to be studied to complete the project.

T3.6 – Month 14-23. On-site analysis of other relevant domes.

D3.3 – Month 22. Completed list of documents (already transcribed) to be used in the book (M3).

D3.4 – Month 23. Full report on the architectural analysis.

D3.5 – Months 25-28. Research on Italian medieval architecture to be used in the book (M3).

WP 4: Dissemination and Communication

D4.1 to D4.4 – Months 4, 26, 27, 33. Two workshops with students, Marie Curie Open Day, Researchers Night.

D4.5 to D4.8 – Months 7, 19, 29, 33. Participation in two international academic conferences, the lecture at University of Florence, and the final 1-day conference organized at UNIBO.

D4.9 to D4.10 – Months 5, 34. Online presence on UNIBO Magazine and on GAHTC Architecture Talk Podcast.

T4.1 to T4.2 – Months 14, 21. Drafted articles to be discussed with supervisors.

T4.9 to T4.10 – Month 23, 31. Drafted book manuscript to be discussed with supervisors.

Milestones

M1 – Month 18. Peer reviewed article submitted on the use of bricks in medieval Iranian and Italian buildings.

M2 – Month 24. Peer reviewed article submitted on the definition of a new methodological approach to the history of Medieval architectural history.

M3 – Month 36. Co-authored book manuscript ready to be submitted to publisher.

	Year 1: Tehran												Year 2: Tehran												Year 3: Bologna												
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
Work Package 1 - MANAGEMENT/SUPERVISION																																					
Supervision	T1.1	D1.1											T1.2													T1.3											
Reports												D1.2													D1.3											D1.4	
Work Package 2 - TRAINING																																					
Farsi language	T2.1												T2.3																								
Islamic architecture		T2.2			D2.2									T2.4			D2.3																				
Dissemination skills																										T2.5											
Work Package 3 - RESEARCH																																					
Archival Research		T3.1	T3.2										D3.2																								
Transcription & translation														T3.4																							
Architectural research						T3.3						D3.1		T3.5	T3.6																						
Work Package 4 - DISSEMINATION AND COMMUNICATION																																					
Workshops				D4.1																							D4.2	D4.3							D4.4		
Lectures & conferences							D4.5												D4.6										D4.7				D4.8				
Online presence					D4.9																														D4.10		
Academic articles														T4.1				M1		T4.2																	
Book																									T4.9							T4.10				M3	

Risks management: I will be part of the scientific group of both my supervisors, whom I will meet/video chat on a regular basis, at least monthly and more frequently at the beginning and at the end of the project. The meetings, part of this monitoring mechanism, will be arranged in the Supervisor's office or via video chat in order to produce periodic reporting for a constant update on the state of the research activities and training. In case of needed contingency, the risk plan is as follows:

RISK	LEVEL	CONTINGENCY MEASURE
Access to international websites blocked by Iranian internet.	Medium	Purchase of VPN subscription to access databases and online libraries located in Europe/US.
Limited access to monuments' sites across Iran.	Medium	Network with Ministry of Cultural Heritage and Iranian UNESCO office to ensure on-site access. If not possible, change case-study or use architectural drawings held at the Iranian Centre for Architectural Studies and Documentation at Shahid Beheshti University.
Books in other languages, online databases and articles not available at UT and UNIBO	Low	Coordination with the libraries at UNIBO or payment of subscription fees to access the information; use of Columbia University online access privileges, which I enjoy as former graduate student and current alumnus.
Time delays due to relocation of family.	Low	Support from the International Office at the University of Tehran.
Return to pandemic-related travel restrictions.	Low	Work in a team with Iranian scholars at University of Tehran and Shahid Beheshti University until the restrictions are lifted.

3.2 Quality and capacity of the host institutions and participating organisations, including hosting arrangements

Hosting arrangements at University of Tehran

During the first two years, the fellow will be hosted by the School of Architecture at the University of Tehran, which international office has a long experience in providing visas to foreign students and scholars. The supervisor and the school will provide the technical training for the use of survey technology. The Dehkhoda Lexicon Institute & International Center for Persian Studies, an affiliated institution of the University of Tehran, will provide the language courses for the fellow. The School of Architecture at the University of Tehran is the ideal place to carry out the outgoing phase of DOMES. First, the UNESCO Chair in Islamic Architecture is based at the Architectural School; it has a dedicated Department of Architectural Conservation to the study or restoration of historical monuments; and the Centre of Excellence in Architectural Technology (CEAT) is devoted to the investigation of structures and building techniques.

I also plan to collaborate with the The Institute of the History of Science, a specific institution inside the university for the study of the scientific progress in the wider interconnected Islamic world.

Hosting arrangements at UNIBO

UNIBO offers a unique academic environment for my research on Iranian cultural heritage, its recent restoration, and the exchange of knowledge between Persia and Italy. The faculty of the Department of Cultural Heritage maintains an outstanding tradition in a multidisciplinary focus on a variety of aspects of Iranian studies, from archaeology of ancient and medieval periods to Persian literature, religion, and history.⁶ Together with ISMEO—The International Association for Mediterranean and Oriental Studies,⁷ the department leads archaeological excavations at the most important Achaemenid sites such as Persepolis. Dr. Emad Matin specializes on construction techniques and the production of building material in Iran; Prof. Callieri is involved in the *Eranshahr* project, the study of early Medieval interconnection among politic power and land control under the Sassanid rulers.⁸ Other projects focus on ancient languages (*Skudra*), religious texts circulating in Iran during the Middle Ages (*Syriaca*), images of astronomy and astrology produced in Iran and their reception in Italy (*Visualization of the Heavens and Its Material Culture*). In addition, the Department of Modern Languages, Literatures, and Cultures (LILEC) is one of the few in Italy to have a team working on Persian language.

Project organisation and management structure: The Department of the Arts will be the Host structure in charge of managing and releasing the financial contribution allocated for this project in compliance with both Horizon Europe financial rules, the provisions of the GA and the Italian financial system. UNIBO has considerable experience implementing and managing EU and international research projects (see B.2 Section 5). The European Research Support Office of UNIBO will support the Department to ensure high quality management for the project and will assist it during the grant preparation phase. UNIBO is currently managing a large number of H2020/Horizon Europe research grants and international and national programs (see PART B2 Section 5). The project will therefore utilize the existing management expertise and procedures at UNIBO.

Progress monitoring mechanisms put in place: As detailed in section 3.1 (with a number of meetings and reports listed in Task 1), the advancements of the project will be periodically monitored and tested by the Fellow and his Supervisors, at least at the beginning of each year, at the end of each phase and during the implementation of the main outcomes and public deliverables. This mechanism will prevent the main risks assessed in section 3.1 under *Risk Management*.

As Supervisor, Prof. Benelli is fully aware of the general principle for Supervision and integration of the researcher and he will facilitate access to all information, infrastructures and any needs to ensure an effective implementation of the project and integration of the researcher in the Host Institution. Prof. Benelli and Khaghani will support the researcher in research activity by monitoring and giving periodic feedback, as well by counselling and mentoring the researcher in the career development, in agreement with **MSCA Guidelines for Supervision**.

The Host will assure management support. Regular meetings among the fellow and the supervisor with the administrative staff of the Department will be held in order to monitor the flow of expenses. UNIBO has an office dedicated to MSCA actions support and has already provided me with all the information needed on the agreement between the fellow and the Host Institution. The management support office will further support the Department in managing the administrative and financial issues related to the implementation of this project. Assistance will also be provided in the negotiation of contracts (agreements, revision of technical issues, IPR, etc.).

Financial and legal management: UNIBO has had a success in managing FP7 and H2020 Marie Curie Individual Fellowships. It will appoint me under an employment contract and will pay the allowances monthly for the entire duration of the project, according to the provisions of Horizon Europe GA. In this proposal, the research and training activities have been carefully planned, considering the amount of contribution corresponding to the cost category (Research, Training & Networking costs). These costs will be devoted to the research activities, training opportunities and courses (on scientific, technical and soft skills), participation in conferences and workshops, open access publications, dissemination and public engagement material. At the beginning of the project, I will meet with the supervisor and the accountant staff of the Department to share the financial plan and receive instructions on the eligible expenses and the applicable rules and regulations.

The Legal Support Service of UNIBO will provide legal advice and counsel on matters relating to both knowledge transfer, IPR and conduct of research at the University. All potential research results of this proposal will be managed in accordance with EU principles, IP rules for funded projects, as well as Italian and international legislation.

⁶ <https://beniculturali.unibo.it/it/ricerca/ambiti-di-ricerca/iran>

⁷ <https://www.ismeo.eu/home-english/>

⁸ <https://cris.unibo.it/handle/11585/740977#.YT-r254zYW0>

4. CV of the researcher

Lorenzo Vigotti

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CURRENT POSITIONS

2020-22 Postdoctoral Fellow, Kunsthistorisches Institut in Florenz.

Project title: The Early Origins of the Renaissance Palace

2016-22 Senior Researcher, Medici Archive Project.

Project title: The Reconstruction of the Florentine Ghetto. Preparing the exhibition for the Uffizi Gallery, Florence, scheduled in 2022.

EDUCATION

22/05/2019 **Ph.D.**, History of Architecture

Columbia University, Department of Art History and Archaeology, New York, US

Dissertation title: "The Origin of the Renaissance Palace: Private Architecture during the Florentine Oligarchy, 1378-1432."

16/05/2012 **M.Phil.**, History of Art and Architecture

Columbia University, Department of Art History and Archaeology, New York, US

Major: Renaissance Art and Architecture; Minor: Ancient Roman Architecture

19/10/2011 **M.A.**, History of Architecture

Columbia University, Department of Art History and Archaeology, New York, US

Thesis: "The Representation of Trajan's Column on Roman Coins"

02/11/2008 **Master of Architecture**, *summa cum laude* in History of Architecture

Università degli Studi di Firenze, School of Architecture, Florence, Italy

RESEARCH EXPEDITIONS (LEADER)

2019 Leader of the expedition to Tehran, Iran to study the Architectural Documentation Centre at Shahid Beheshti University, sponsored by the University of Florence (22-28/02/2019).

2016 Leader of the expedition to the selected Seljuk and Ilkhanid domes, sponsored by the Kunsthistorisches Institut in Florenz – Max-Planck-Institut (28/09-7/10/2016).

2013 Leader of expedition to Iran to survey medieval domes, sponsored by the Society of Architectural Historians (1-30/07/2013).

SELECTED PUBLICATIONS

[book under contract] *The Origin of the Renaissance Palace*, The Medici Archive Project series, Brepols

2020 "The Ilkhanid-Italian Relationship during the Trecento: Medieval Persian Prototypes for Brunelleschi's Dome in Florence," in *New Horizons in Trecento Italian Art*, edited by Karl Whittington and Bryan Keene (Brepols, 2020), 157-70.

2020 "The Emergence of the New Florentine Oligarchy: Palazzo Alessandri as a Pre-Renaissance Prototype for the Palazzo Typology (1369-76)," *Palladio. Rivista di Storia dell'architettura e restauro* 32, no. 65-66 (Dec 2020): 7-24.

2018 "Before Palazzo Medici: Earlier Domestic Traditions in Shaping the Renaissance Palace in Florence, 1380-1420," in *Art and Experience in Trecento Italy*, edited by H. Flora and S. Wilkins (Brepols, 2018), 117-31.

2017 "From Centuries-old Squalor: The Ghetto of Florence, from History to Virtual Life. Introduction to the Ghetto Mapping Project," *Rivista di Letteratura Storiografica Italiana*, 1 (2017), 73-84.

- 2017 “Reconstructing a Lost Space: The Ghetto Mapping Project at the MAP”, *Materia Giudaica*, XXII (2017), 221-232.
- 2014 Chapter ‘Late Renaissance,’ in *Architecture: the Whole Story*, edited by Denna Jones, Thames & Hudson, 2014, 214-221.
- 2014 “The Seljuq and Ilkhanid Architecture of Medieval Persia,” *SAH Newsletter* (December).

BOOK/EXHIBITION REVIEWS

- 2021 Review of *Palimpsests: Buildings, Sites, Times*, edited by N. Aksamija, C. Maines, P. Wagoner (Brepols, 2017), in *Architectural Histories*, 9, no. 1 (Winter 2021), 1-11. <https://doi.org/10.5334/ah.580>
- 2017 Review of “Jerusalem 1000-1400 Every People Under Heaven” (Metropolitan Museum of Art), *Journal of the Society of Architectural Historians*, 76, no. 4 (December 2017), 569-70.
- 2014 Review of “Museo delle Terre Nuove - The Museum of Terre Nuove in San Giovanni Valdarno,” *Journal of the Society of Architectural Historians*, vol. 73, no. 4 (December 2014), 584-586. <https://doi.org/10.1525/jsah.2014.73.4.584>
- 2014 Review of “*Venice & Vitruvius*,” by Margaret Muther D’Evelyn (Yale University Press, 2012), in *Renaissance Quarterly*, vol. 67, no. 2 (Summer 2014), 599-600. <https://doi.org/10.1086/677440>
- 2012 Review of *Nati sotto Mercurio: Le architetture del mercante nel Rinascimento Fiorentino*, by Battilotti, Belli, Belluzzi (Firenze: Polistampa, 2011). *Renaissance Quarterly*, v. 65 no. 4 (Winter 2012), 1225-1227. <https://doi.org/10.1086/669385>
- 2010 Review of “Compass and Rule: Architecture as Mathematical Practice in England, 1500-1750” (Yale Center for British Art, 2009), *EAHN Newsletter*, no. 3, September 2010, 60-65.

INVITED PRESENTATIONS

- 2022 “Diplomatic Exchanges and Architectural Inventions along the Silk Road: The Case of Soltaniyeh and Santa Maria del Fiore,” College Art Association, Chicago 16-19 February.
- 2022 “Migrating Inventions. The Double-Shell Domes of Soltaniyeh and Santa Maria del Fiore,” Comité International d’Histoire de l’Art, San Paolo, Brazil, January 17-21.
- 2022 “Plague Architecture: Strategies Against Global Diseases in Early Modern Italy,” *Narratives of Resilience along the Silk Road: Responses to the Plague across Eurasia*, Lingnan University, Honk Kong.
- 2019 “Architecting a Political Philosophy: Mormonism and Theodemocracy,” *Association for Political Theory*, University of California, Irvine, October 24-26 (co-author Jacob Garrett).
- 2019 “Diplomatic Exchanges and Architectural Inventions along the Silk Road between Soltaniyeh and Italy during the Fourteenth Century,” *From Sultanyya to Florence: Architectural Design and Craftmanship Traditions in the Fourteenth-and-Fifteenth-Century Architecture*, Shahid Beheshti University, Tehran, February 23-24.
- 2019 “Mediterranean Dialogues: Palladio and Sinan,” Graduate School of Architecture, Columbia University, October 30.
- 2019 “Archival Research in Early Renaissance Florence: The Case of Domestic Architecture,” Master Course in Architecture, Shahid Beheshti University, Tehran, February 25.
- 2018 “Ilkhanid-Italian Relationship during the Trecento: Persian Medieval Prototypes for Brunelleschi’s Dome in Florence,” *Andrew Ladis Memorial Trecento Conference*, University of Houston, November 8-10.
- 2018 “Sebastiano Serlio’s Technical Language in Book VI,” *The Digital Serlio Symposium*, Columbia University, October 19-20.
- 2018 “A Real Estate Project in Early Modern Florence: Social Housing and Public Services in the Ghetto,” *The Medici and the Jews: Urban Strategies, Religion, and Culture in Early Modern Florence*, Tel Aviv University, June 13-14.

- 2018 “Dirt and Sickness in the Florentine Ghetto during the Plague of 1630,” *Love and Death in Italian Ghettos in the Time of the Plague*, Streicker Center at Temple Emanu’el, New York, February 22.
- 2017 “Migrating Inventions: The Case of the Double-Shell Domes in Sultanyeh and Santa Maria del Fiore,” *Synagogues, Churches, Mosques: Connections and Interactions*, Royal Swedish Research Institute, Istanbul, November 16-18.
- 2017 “Ghetto Mapping Project: Recovering a Lost Jewish Space,” *Jewish Cultural Heritage and Cultural Sustainability*, Basel, September 6-8.
- 2017 “La nascita della tipologia classica del palazzo a Firenze”, *La nascita del linguaggio classico nell’architettura del Rinascimento in città prive di exempla antichi*, Università degli Studi di Bologna and École Pratique des Hautes Études, Bologna, January 31.
- 2016 “Before Palazzo Medici: Earlier Domestic Traditions in Shaping the Renaissance Palace in Florence, 1380-1420,” *Andrew Ladis Memorial Trecento Conference*, Tulane University, New Orleans, November 10.
- 2016 “Introduction to the Florentine Ghetto Mapping Project”, *The Ghetto and Beyond: The Jews in the Age of the Medici Conference*, The Center for Jewish History, New York City, September 18-19.
- 2016 “The Origin of the Renaissance Palace in Florence, 1380-1430,” *Society of Architectural Historians*, Pasadena, April 6-10.
- 2016 “Palazzo Busini-Bardi (1420-27): An Early Renaissance Palace by Brunelleschi?,” *Renaissance Society of America*, Boston, March 31-April 2.
- 2015 “The Shift in the Internal Organization of Domestic Interiors in Florentine Palaces (1380-1440),” *Renaissance Society of America*, Berlin, April.
- 2013 “Daily Life in a Merchant's Home in 1390s Prato,” *Renaissance Society of America*, San Diego, April 4-6.
- 2012 “Palazzo Datini Between Middle Ages and Renaissance,” *Society of Architectural Historians*, Detroit, April 18-22.
- 2018 “The Digital Reconstruction of the Florentine Ghetto,” Bildner Center for the Study of Jewish Life, Rutgers University, NJ, February 21.

TEACHING EXPERIENCE

- 01/07/2017-31/07/2022 **Pratt Institute, Graduate Architecture and Urban Design**, Instructor:
Architecture and Urban Design in Rome
- 01/09/2018-31/12/2018 **New York University, School of Professional Studies**, Instructor:
History of Architecture
- 01/01/2018-30/06/2018 **University of Utah, School of Architecture**, Visiting Associate Professor:
Survey of World Architecture; Architecture and the Politics of Space
- 01/09/2012-31/05/2020 **Columbia University, Art History and Archaeology Dpt.**, Instructor:
Architecture and Society: New York’s Built Environment; Introduction to Western Architecture
Architecture and Propaganda; Masterpieces of Italian Architecture
- 01/03/2015-31/07/2016 **Union College, NY**, Instructor:
Florentine Art & Architecture, International Program in Florence

TRANSLATIONS

- 2021 Translation of exhibition text for the MIT/GAHTC pavilion at the Venice Biennale 2021.
- 2020 Translation and editing of architectural terms for Francesca Funis, *The Vasari Corridor. A Road Above the City* (Florence: Le Gallerie degli Uffizi, 2020).

GRANTS/AWARDS

2022 Italian Art Society Conference Travel Grant for Emerging Scholars
 2022 Kress Foundation International Travel Grant
 2020-22 Postdoctoral Fellowship, Kunsthistorisches Institut in Florenz
 2019-20 Visiting Fellowship, European Institute, Columbia University
 2017-18 C. V. Starr Scholarship, Columbia University
 2017-18. Samuel H. Kress Graduate Art History Fellowship, Medici Archive Project
 2016-17. The Eugene Grant Research Program in Jewish History Fellowship, Medici Archive Project
 2015-16. Rudolf Wittkower Finishing Grant, Columbia University
 2014-15. Mellon International Travel Fellowship, Columbia University
 2013-14. GSAS Excellence Dissertation Fellowship, Columbia University
 2013. SAHARA Travel Fellowship, Society of Architectural Historians
 2013, 2014. Summer Teaching Scholarship, GSAS, Columbia University
 2012. Art Humanities Teaching Fellowship, Columbia University
 2010-12. Department of Art History and Archaeology Summer Research and Travel Grant
 2010 and 2012. CISA Summer Scholarship, Centro Internazionale di Studi di Architettura Palladio
 2010-11. Teaching Fellowship, GSAS, Columbia University
 2009. Faculty Fellowship, GSAS, Columbia University
 2006-2007. Thesis Research Fellowship, Magdalen College, Oxford University

RESEARCH EXPERIENCE

Sebastiano Serlio Digital Project, The Getty Research Institute & Avery Library, 2016-2018
 In charge of the analysis of the technical vocabulary used in the manuscript on domestic architecture.
<https://library.columbia.edu/libraries/avery/digitalserlio.html>

PALATIUM – Court Residences as Places of Exchange in Late Medieval and Early Modern Europe, 1400–1700, Master Class, Munich (LMU Institut für Kunstgeschichte), Germany, March 2015.

Duke University + IUAV Visualizing Venice Summer Workshop: The City and the Lagoon, Venice (Summer 2014). My project has been published in: Kristin Huffman Lanzoni,, Mark James-Vrooman Olson, and Victoria E. Szabo, “Wired! and Visualizing Venice: Scaling up Digital Art History,” *Artl@s Bulletin*, 4, n.1 (2015).

CISA - Centro Internazionale di Studi di Architettura Andrea Palladio, Vicenza, Italy

54th Palladian Architecture Course: “Palladio: Language and Orders” (2012)

26th International Seminar in Architectural History “Giuliano da Sangallo” (2012)

52nd Palladian Architecture Introductory Course (2010).

The Medici Archive Project, Firenze, Italy (July 2011)

Paleography and Archival Studies Seminar: “Art and Material Culture in Early Modern Italy”.

Galleria degli Uffizi – Gabinetto Disegni e Stampe, Firenze, Italy (Summer 2011)

Internship at EUPLOOS-Linesonline project (cataloguing Renaissance architectural drawings) under the supervision of Dr. Marzia Faietti.

ASSFORM, Lucca, Italy (December 2008)

Seminar on “3D Laserscan Techniques for Documentation and Restoration in Historical Buildings”.

Archivio di Stato di Prato, Prato, Italy (October 2007)

Seminar on “Italian Vernacular Paleography using 14th Century Manuscripts in the Datini Archives”.

Magdalen College, Oxford University, Oxford, UK (August 2006, 2007)

Research Fellowship awarded by the British Institute in Florence.

LANGUAGES

Italian: native speaker

English: fluent

French: good

Latin: good.

RECEIVED FUNDING

Project Title	Funding Source	Amount	Period	Role of the researcher
The Early origins of the Renaissance Palace	Kunsthistorisches Institut in Florenz – Max-Planck Institut	€62.876	2020-22	Postdoctoral Researcher
Early Domestic Architecture in Florence	Samuel H. Kress Foundation, Medici Archive Project	€6.850 (\$8.000)	2018-19	Research Fellow
Reconstructing the Florentine Ghetto	The Eugene Grant Research Program, Medici Archive Project	€6.850 (\$8.000)	2016-17	Junior Research Fellow
Domestic Archives in Florence	Columbia University	€20.737 (\$24.250)	2015-16	Pre-doc Fellow
The Seljuq and Ilkhanid Architecture of Medieval Persia	Society of Architectural Historians	€1.376 (\$1.610)	2013	Content contributor
Renaissance Architecture	Columbia University	€20.800 (\$24,330)	2013-14	Pre-doc Fellow
Palladian Architecture	CISA – Centro Internazionale di Studi di Architettura Andrea Palladio	€1.000	2012	Fellow
Renaissance Architecture	Columbia University	€83.000 (\$97.000)	2009-2013	Pre-doc Fellow
Datini Palace in Prato	Magdalene College, Oxford University	€5.000	2006-7	Researcher

5. Capacity of the Participating Organisations**5.1 Template table: *Overview of Participating Organisations***

Organization role	PIC	Legal Entity Short Name	Academic organization (Y/N)	Country	Name of Supervisor
Beneficiary	999993953	UNIBO	Y	Italy	Francesco Benelli
Associated partner for the outgoing phase	975464496	UT	Y	Iran	Saeid Khaghani

5.2 Template table: Capacity of the Participating Organisations

<i>Beneficiary</i>	
ALMA MATER STUDIORUM – Università di Bologna – UNIBO- ITALY	
General description: UNIBO is one of the largest and most active Italian universities in research and technology transfer in Italy. It stands among the most important institutions of higher education in EU with 87.590 enrolled students in 2020/21, 6.725 of which are International Students; in 2020: 2.842 faculty members (Associate and Full Professors, Researchers), 1.232 research fellows, 1.631 PhDs students, 2,936 administrative and technicians' staff units. The activities are implemented in 5 Campuses based in the Emilia-Romagna Region and in Buenos Aires, Argentina. UNIBO offers 48 PhD/Doctoral degree programs and 86 professional master programs of which 18 are International Master, 53 post-lauream Specialisation Schools. At international level, Unibo ranks 167th worldwide and first in Italy in terms of number of students in exchange programmes abroad and within the top 5 Universities in Europe for number of exchange students according to the Times Higher Education University Impact Rankings 2021. According to QS World University Rankings Unibo is 160th, in the first 200 top world universities, with position 69 worldwide and first in Italy for Academic Reputation. Unibo is 1st Italian University and ranks 10 worldwide in the GreenMetric ranking and it is 1st in Europe and 6th globally in the Times Higher Education University Impact Rankings 2020, measuring the performance towards United Nation's Sustainable Development Goals. At EU level UNIBO ranks 2nd University in Italy and 37th in Europe for FP7 funded projects (EC 7th Monitoring Report). UNIBO is involved in 275 projects funded in FP7 (87.7 Mil€ granted), 41 of which are PEOPLE projects, with 16 Individual Fellowships and 11 ITN (3 coordinated by UNIBO). In H2020, UNIBO is involved in 350 funded projects (148,8 Mil€ granted), among which 56 are MSCA funded projects with 17 Individual Fellowships (9 GF, 8 EF), 26 ITN (4 coordinated by Unibo), 9 RISE (3 coordinated by Unibo), 4 NIGHT (1 coordinated by Unibo). At UNIBO, research activities are promoted, coordinated and supported by the 32 Scientific Departments and by the Research and Competitive Funding Division, with the support of the European Research Development and Projects & Programmes Sectors which has more than 15 years' experience with European projects. This project will be hosted by the Department of the Arts.	
Role and profile of supervisor	<i>Prof. Francesco Benelli, associate professor in the Departments of the Arts</i>
Key research facilities, Infrastructure and Equipment	<i>UNIBO offers a unique academic environment for research on Iranian cultural heritage, its recent restoration, and the exchange of knowledge between Persia and Italy. UNIBO offers courses on proposal preparation and writing, management of IPR, communication, and outreach activities relevant to the project. UNIBO will host presentations of the project on its UNIBO Magazine and will publish the book through its University Press.</i>
Previous and current involvement in EU-funded research and training programmes/actions/projects	<i>UNIBO has currently 749 EU-funded projects. Among the ones related to Iranian topics:</i> <i>The faculty of the Department of Cultural Heritage maintains an outstanding tradition in a multidisciplinary focus on a variety of aspects of Iranian studies, from archaeology of ancient and medieval periods to Persian literature, religion, and history</i> <i>(https://beniculturali.unibo.it/it/ricerca/ambiti-di-ricerca/iran). Together with ISMEO—The International Association for Mediterranean and Oriental Studies, the department leads archaeological excavations at the most important Achaemenid sites such as Persepolis. Dr. Emad Matin specializes on construction techniques and the production of building material in Iran; Prof. Callieri is involved in the Eranshahr project, the study of early Medieval interconnection among politic power and land control under the Sassanid rulers (https://www.ismeo.eu/home-english/).</i> <i>Other projects focus on ancient languages (Skudra), religious texts circulating in Iran during the Middle Ages (Syriaca), images of astronomy and astrology produced in Iran and their reception in Italy (Visualization of the Heavens and Its Material Culture). In addition, the Department of Modern Languages, Literatures, and Cultures (LILEC) is one of the few in Italy to have a team working on Persian language.</i>

<i>Associated partner for the outgoing phase</i>	
University of Tehran – UT – IRAN	
General description The University of Tehran is the oldest and most prestigious public university in Iran; it offers more than 111 bachelor's degree programs, 177 master's degree programs, and 156 Ph.D. programs in seven different campuses, for a total of 52.588 enrolled students (19.397 undergraduates and 33.191 graduate). The university has the largest academic library in Iran, 40 research centres and institutes, and 14% of Centres of Excellence of the Country. The School of Architecture has been recently ranked in the top 200 schools for the study of Architecture & Built Environment in the world by QS World University Rankings. This project will be hosted by the School of Architecture.	
Role and profile of supervisor	<i>Prof. Saeid Khaghani, associate professor at the School of Architecture</i>
Key research facilities, Infrastructure and Equipment	<i>The School of Architecture at the University of Tehran hosts the UNESCO Chair in Islamic Architecture; it has a dedicated Department of Architectural Conservation to the study or restoration of historical monuments; and the Centre of Excellence in Architectural Technology (CEAT) is devoted to the investigation of structures and building techniques.</i> <i>Th university will provide the survey tools for the project (laser scanning, cameras, drones, 3D modelling software).</i>
Previous and current involvement in EU-funded research and training programmes/actions/projects	<i>The University of Tehran is part of the EU's Erasmus Plus program (E+), with more that 40 agreements with European universities. The University has currently more than 500 international MoUs signed with academic partners. A selection of related projects are:</i> <i>“Capacity Building in Sustainability for Architectural Heritage” is a EU-funded project with the Università dell'Aquila, Italy.</i> <i>“Ancient Iran: a Social Archaeology” is a EU-funded project with University College London, UK.</i> <i>“Environmental management in the Middle-East: Spatial Approaches” is a EU-funded project with Lunds Universitet, Sweden.</i>

6. Additional ethics information

Activity involves a non-EU country that is also a lower-middle income country.

1. Objectives of the activities: activities conducted in a non-EU country

DOMES focuses on archival research an on-site architectural analysis of historical buildings carried out in a non-EU country, the Islamic Republic of Iran. All activities will be executed on public-owned and publicly accessible material. **Documents** held at the Iranian Center for Architectural Studies and Documentation at Shahid Beheshti University are publicly accessible and do not contain personal or sensitive data. **Buildings** that will be visited for architectural analysis are also public property (owned by the state) and open to the general public. All planned activities are legally allowed in Italy, a EU country.

2. Methodology: non-EU countries

Large part of the activities planned for this project involved materials with historical value in a lower-middle income country. All research activities and human interactions will be in accordance with the principles of fairness, respect, care, and honesty as stated in the **Declaration of Helsinki and Global code of conduct for research in resource-poor settings**, and in particular:

1. All activities in Iran will be determined, approved, and supervised in collaboration with Iranian officers: during the research in Iranian Center for Architectural Studies and Documentation at Shahid Beheshti University, the activities will be supervised by the director of the centre itself, Prof. Hadi Safaeipour; Prof. Khaghani, together with local officials from the Ministry of Cultural Heritage and Iran's UNESCO office will be included in all on-site activities at historical monuments (articles 1-3, 20-22).

2. Local graduate students and scholars will be included in the research process during all steps of the project. They will share ownership of study designs, databases, and final data. The book I plan to write will be co-authored with Prof. Safaeipour (articles 4-6).
3. The graduate students that will be hired to assist with translations of documents written in Farsi will be fairly compensated (article 7).
4. Visits to historical and religious monuments will be carefully planned together with local communities, government officials, and Ministry of Cultural Heritage/UNESCO representatives (articles 8-9).
5. Activities related to the project will not reduce or stop access to resources (archives and libraries) and sites (monuments) by local scholars and public. In fact, the aim of the project is to widely circulate among an international audience these primary sources, both archivist and architectural (article 16).

3. *The potential impact of the activities: political or financial adverse consequences*

I do not foresee negative political or financial consequences derived by my planned activity in Iran. The topic of my research is not politically sensitive, and the welfare of Iranians will not be impacted.

Compliance with ethical principles and relevant legislations

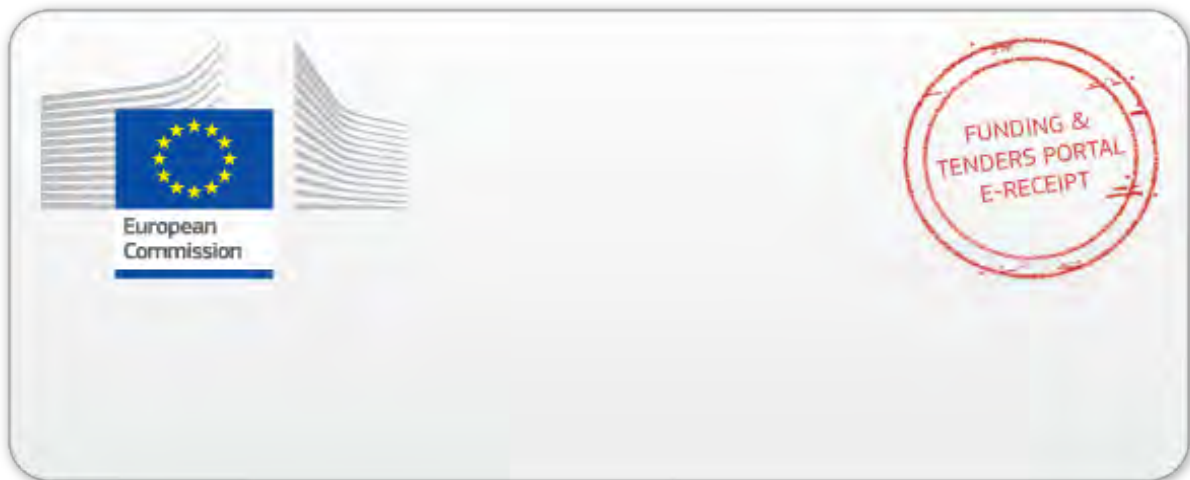
The research activity envisaged in the project will be conducted applying fundamental ethical principles and relevant national, EU and international legislation, including the *Charter of Fundamental Rights of the European Union*, the *European Convention on Human Rights*, and the *General Data Protection Regulation* (GDPR - Regulation EU 2016/679).

Fundamental principles underpinning the whole research activity are: the respect for the welfare (health and safety) of the participants to the research; participation only after informed consent; personal data protection, anonymity and confidentiality; fairness; equity; justice; social responsibility.

DOMES does not include research or activities with humans, animals, or living beings of any sort; it does not involve the transportation of any item (documents or architectural fragments) in or out Iran and Italy, nor the transfer of personal data between an EU and a non-EU country.

8. Letter of commitment from associated partners

(see next 2 pages)



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Proposal Evaluation Form

	EUROPEAN COMMISSION Horizon Europe Framework Programme (HORIZON)	Evaluation Summary Report - Postdoctoral Fellowships
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Call: HORIZON-MSCA-2022-PF-01
Type of action: HORIZON-TMA-MSCA-PF-GF
Proposal number: 101111404
Proposal acronym: DOMES
Duration (months): 36
Proposal title: Architectural Technology Transfer on the Silk Road: Iranian Double-Shell Domes and the West: 14th to 20th Century
Activity: GF-SOC

N.	Proposer name	Country	Total eligible costs	%	Grant Requested	%
1	ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA	IT	0	-	94,295.04	32.96%
2	UNIVERSITY OF TEHRAN	IR	0	-	191,760	67.04%
Total:			0		286,055.04	

Abstract:

DOMES is an exploration of the shared architectural legacy of Europe and the Middle East. Specifically, my project details the transmission of architectural knowledge across the Silk Road from Persia to medieval Italy during the fourteenth century. Utilizing an innovative research methodology, DOMES aims to overcome traditional classification of architectural history based on the linear evolution and comparison of styles and forms, to promote a more comprehensive account of the history of construction, nourished by the material understanding of site-specific traditions. Utilizing structural building techniques as the basis for the project, DOMES focuses on the transmission of two types of architectural knowledge: technical knowledge and preservationist knowledge. This project proposes that the technological knowledge of building double-shell brick domes was originally transferred from Iran to Italy. Furthermore, DOMES investigates the historical exchange of Italian architectural restorers and Iranian preservationists through the study of the restorations of the same double-shell brick dome monuments during the 1960-70s. Through the combination of the study of unpublished archival documents in Tehran and the on-site analysis of the restorations carried out on monuments, DOMES will provide an innovative example of medieval global architectural history and will narrate the transfer of preservation knowledge from Italy to Iran.

Evaluation Summary Report

Evaluation Result

Total score: 98.80% (Threshold: 70/100.00)

Criterion 1 - Excellence

Score: 5.00 (Threshold: 0/5.00 , Weight: 50.00%)

- **Quality and pertinence of the project's research and innovation objectives (and the extent to which they are ambitious, and go beyond the state of the art).**
- **Soundness of the proposed methodology (including interdisciplinary approaches, consideration of the gender dimension and other diversity aspects if relevant for the research project, and the quality of open science practices).**
- **Quality of the supervision, training and of the two-way transfer of knowledge between the researcher and the host**
- **Quality and appropriateness of the researcher's professional experience, competences and skills.**

STRENGTHS

• *This proposal on Iranian and Italian double-shell brick domes from a comparative perspective is exceptionally well written, carefully framed, and well-argued, with excellent integration and articulation of objectives and components. It is highly farsighted in its goals, from short- (skills and data acquisition), to middle- (drafting an ERC project) and long-term (setting up an international specialized research center). Building on the existing literature, it presents a novel focus on "technical knowledge" and "preservationist knowledge" as opposed to the previous stylistic base of comparison. The proposal convincingly argues that new exploration techniques are likely to make these determinations, thereby truly advancing the state of knowledge to potentially inform a convincing paradigm change that is realistically achievable, with much potential for global architectural history.*

• *An innovative and robust multidisciplinary methodology is set up to study the transmission of architectural know-how through cultures and times, combining architectural on-site analysis and the study of archival documentation, on a sizeable corpus of buildings, with high-tech tools (laser scanners) and methods (e.g. endoscopy analysis). The management of data in the framework of Open Science is explained in an excellent and detailed manner and demonstrates a rare and remarkable advanced digital literacy. The researcher has carefully considered the issue of gender bias and factors, concluding (and justifying) that these are not pertinent to the proposed research*

• *The main supervisor at the host institution has a high international profile, with an excellent track record in digital humanities projects. The supervisors at the associated partner institution have very good experience with international projects, and the researcher has already collaborated with them. The training is very well proportioned to the proposed research as it combines language and survey techniques needed for on-site research during the out-going phase, as well as digital communication skills and data management during the ingoing phase for the dissemination of results. This makes for an excellent three-way transfer of knowledge, with knowledge acquired during the year abroad to be transferred to the host institution through workshops, publications, teaching a course, a podcast, a conference, and a co-authored book, while the researcher receives advanced training at both universities.*

• *The researcher presents an impeccable CV, with a double education in architecture and art history, prior extensive experience in conducting on-site research in the concerned country, excellent post-doctoral achievements, and significant teaching experience. The track record in publications is impressive considering the researcher's experience (PhD defended in 2019), with articles in high-ranking journals and a book under contract. The researcher also demonstrates substantial research experience that is substantiated by their participation in 9 collaborative projects. They have demonstrated high capacity in obtaining funding (18 grants since their initial graduation in architecture)*

NO WEAKNESSES IDENTIFIED

Criterion 2 - Impact

Score: **4.80** (Threshold: 0/5.00 , Weight: 30.00%)

- **Credibility of the measures to enhance the career perspectives and employability of researchers and contribution to their skills development.**
- **Suitability and quality of the measures to maximise expected outcomes and impacts, as set out in the dissemination and exploitation plan, including communication activities.**
- **The magnitude and importance of the project's contribution to the expected scientific, societal and economic impacts.**

STRENGTHS

- *The researcher has very clear and credible career perspectives (full research professorship at a European University) beyond the duration of the proposal, building on the unique skills and research achieved in its framework, and along a carefully thought-out plan. The proposal plans beyond its duration to set up a joint research center under the aegis of the host institution and associated partner.*
- *The proposal has set up a robust communication plan specifying in a very good manner the different groups targeted. The academic dissemination of results is well thought out and credible, with presentations at identified international conferences and essays in journals yet to be identified.*
- *The scientific impact of the proposed research is likely to be of very significant magnitude, as it would delineate a new system, based on materiality and technology, to study the circulation of knowledge across the Mediterranean and the Iranian plateau, contributing at a broader level to the understanding of cross-cultural interactions. The proposal has the potential to develop a new approach to global architectural history beyond the conventional paradigm of stylistic influences. Both the scientific and societal impact is potentially impressive and credible, by building on already existing academic links between the host institutions. In addition, the proposal presents new opportunities to share knowledge and expertise between them, and it has good potential for building bridges where previously language, and possibly political, limitations prevented the sharing of academic and professional knowledge. At a broader societal level, the proposal would contribute to enhancing international intercultural dialogue on a shared cultural heritage.*

WEAKNESSES

- *The researcher suggests under the economic impact that the proposal could potentially attract further academic interest and tourist development beyond the duration of the proposed research, but no outline or plan has been suggested to promote such activities.*

Criterion 3 - implementation

Score: **5.00** (Threshold: 0/5.00 , Weight: 20.00%)

- **Quality and effectiveness of the work plan, assessment of risks and appropriateness of the effort assigned to work packages.**
- **Quality and capacity of the host institutions and participating organisations, including hosting arrangements.**

STRENGTHS

- *The work plan is very well thought out; it is simple, and well-articulated; all tasks are rigorously described and represented in the Gantt chart, with appropriate milestones and deliverables; their schedule is very credibly achievable. This corresponds very well to the proposal as outlined in other sections. The assessment of risks is excellently drafted, with good identification of possible setbacks at the time of writing the proposal; for each case, alternative and credible actions have been envisioned.*
- *The associated partner for the outgoing phase has an international office with long experience in providing visas to foreign students and scholars. Arrangements have already been made for the courses in the Iranian language and the integration into the school of architecture. The host institution offers a unique environment for the proposal because of its strong specialization in Iranian studies. The host institution features an excellent scheme with its MSCA+1 support allowing fellows to prepare for the next step of their academic careers. Excellent hosting arrangements have been already discussed for the efficient joint supervision of the work.*

NO WEAKNESSES IDENTIFIED

Scope of the application

Status: **Yes**

Comments (in case the proposal is out of scope)

Not provided

 Associated with document Ref. Ares(2023)674900 - 30/01/2023

Exceptional funding

A third country participant/international organisation not listed in [the General Annex to the Main Work Programme](#) may exceptionally receive funding if their participation is essential for carrying out the project (for instance due to outstanding expertise, access to unique know-how, access to research infrastructure, access to particular geographical environments, possibility to involve key partners in emerging markets, access to data, etc.). (For more information, see the [HE programme guide](#))

Please list the concerned applicants and requested grant amount and explain the reasons why.

Based on the information provided, the following participants should receive exceptional funding:

Not provided

Based on the information provided, the following participants should NOT receive exceptional funding:

Not provided

Use of human embryonic stem cells (hESC)

Status: **No**

If YES, please state whether the use of hESC is, or is not, in your opinion, necessary to achieve the scientific objectives of the proposal and the reasons why. Alternatively, please state if it cannot be assessed whether the use of hESC is necessary or not, because of a lack of information.

Not provided

Use of human embryos

Status: **No**

If YES, please explain how the human embryos will be used in the project.

Not provided

Activities excluded from funding

Status: **No**

If YES, please explain.

Not provided

Do no significant harm principle

Status: **Not applicable**

If Partially/No/Cannot be assessed please explain

Not provided

Exclusive focus on civil applications

Status: **Yes**

If NO, please explain.

Not provided

 Associated with document Ref. Ares(2023)674900 - 30/01/2023

Artificial Intelligence

Status: **No**

If YES, the technical robustness of the proposed system must be evaluated under the appropriate criterion.

Overall comments

This proposal was declared as a resubmission and the corresponding procedure has been applied. Note that over the years, proposals are usually assessed by different Evaluators who may express different judgements and opinions.