Reframing Arab-Islamic Cultures and Their Interactions: Interdisciplinary Approaches in the Making

1. Introduction

The School of Arabic Studies (Escuela de Estudios Árabes, EEA) was established by the government of the Second Spanish Republic through a law passed on 27 January 1932 (published in *Gaceta de Madrid*, no. 35/1932, pp. 891–892), with the aim of "protecting and promoting Arabic studies in Spain". as stated in the preamble to the law. During its early years, the EEA was governed by a Board composed of members from the University of Granada and the Alhambra, and its first director was Emilio García Gómez, Professor of Arabic Language at the University of Granada. In 1939, the EEA was incorporated into the Spanish National Research Council (CSIC).

The EEA is a multidisciplinary research institute comprising 12 tenured researchers, 4 senior postdoctoral researchers, and 5 predoctoral researchers specialising in archaeology, architecture, philology, linguistics, and history. The institute studies Arab-Islamic societies and the Arabic language from the medieval period to the present, which makes it the only centre of its kind in Spain. Faithful to its original mission, it promotes scientific research in Arabic studies and fosters relations with Arab and Islamic countries—especially those in North Africa—as well as with regions that have had a historical connection with Arab and Islamic culture. The EEA places particular emphasis on transferring its work to civil society and public administrations through technological support contracts and scientific-technical advisory services for institutions and stakeholders involved in the study, conservation, and restoration of both tangible and intangible Arab and Islamic heritage, as well as heritage linked to this culture. These activities aim to have a direct impact on public policies. This mission is also pursued through participation in scientific outreach initiatives and citizen science courses and events.

The EEA is committed to developing excellent, cutting-edge research aimed at advancing knowledge of the past and enhancing the value of our historical and cultural heritage, while strengthening areas identified as open to improvement. Convinced that knowledge of this legacy contributes to the understanding and integration of Arab and Muslim minorities and helps prevent exclusion and inequality, the EEA's vision is to become a leading reference centre for the study of Europe's Islamic past, heritage of Islamic origin, the Arabic language, and related fields.

Members of the institute continuously contribute to the valorisation of both its historic headquarters—the Casa del Chapiz, declared a Site of Cultural Interest (BIC) in 2022, frequently requested for academic purposes and generating income through cultural tourism—and the heritage located in the Albaicín and the Alhambra—both designated World Heritage Sites by UNESCO—as well as Granada's entire heritage. In the fields of conservation and restoration, the EEA works closely with nearby institutions, including the Granada City Council and other local authorities, as well as the Alhambra Trust. Likewise, the EEA collaborates in researcher training and outreach activities with institutions such as the University of Granada, schools located in the Albaicín and other neighbourhoods of the city, and the other five CSIC institutes in Granada, among others. The distinctiveness of the EEA lies not only in its status as the only CSIC institute devoted to Arabic studies, but also in the fact that it is one of only three institutes within the territorial jurisdiction of the Andalusia and Extremadura Delegation belonging to the Social Sciences and Humanities area, and the only one of this area located in the city of Granada.

As noted above, since its creation the mission of the institute has been the study, promotion, and conservation of the Arab-Islamic element of the Iberian Peninsula and the Mediterranean, based on documentary sources (oral, written, and material). To fulfil this mission, the following scientific objectives have been proposed:

- Multidisciplinary and interdisciplinary research on Arab-Islamic culture in different geographical contexts and historical periods.
- The study of al-Andalus, its antecedents, and its consequences throughout the rest of the Mediterranean.
- Knowledge, conservation, and dissemination of Arab material and intangible heritage.

The pursuit of these objectives has been structured through the organisation of research around two research groups:

Philology, Historiography, and Textual Criticism, whose object of study is Arab-Islamic history, culture, and civilisation—with special emphasis on al-Andalus—through their written manifestations, as well as the Arabic language, using a wide range of sources.

Laboratory of Archaeology and Architecture of the City (LAAC), whose aim is the study, conservation, enhancement, restoration, and dissemination of historical heritage of Islamic and Christian origin (5th–15th centuries) in the Iberian Peninsula and in other countries linked to Arab and Islamic culture, with particular attention to al-Andalus and its relationship with the Christian kingdoms.

These groups are articulated through the following lines of research, as recorded in the 2024 Annual Report of the School of Arabic Studies. The current research lines of the *Philology, Historiography, and Textual Criticism* research group are: (1) Networks of knowledge transmission; (2) Prosopography of the *ʿulamāʾ* of al-Andalus (PUA); (3) Andalusi Christian texts; (4) Islamic and Morisco Granada; (5) Arabic linguistics; (6) The Qur'an in the Iberian Peninsula: from original text to translation; (7) Intellectual history of the Islamic world; (8) Islamic models and concepts of the court; (9) Historiography, literature, and Orientalism. Likewise, the current research lines of the *Laboratory of Archaeology and Architecture of the City (LAAC)* are: (10) Islamic archaeology; (11) Islamic ceramics; (12) Archaeology of Late Antiquity and the Early Middle Ages; (13) Archaeology of the transition between the Byzantine and Islamic periods; (14) Islamic urbanism; (15) Islamic architecture; (16) Monument restoration; (17) Methodology of architectural archaeology; (18) Materials analysis of architectural and archaeological heritage; (19) Architectural photogrammetry.

The members of the EEA maintain numerous collaborations and interactions with other national and international institutions. The most frequent and close collaboration is with the University of Granada, through participation in master's-level teaching, supervision of master's theses and doctoral dissertations, and involvement in joint research projects, among other activities. This relationship has been consolidated through an Associated Unit (Unidad Asociada PACAI) of the University of Granada with the EEA and the Institute of Languages and Cultures of the Mediterranean and Near East (ILC). In this regard, ties have also been strengthened with the University of Oviedo through another Associated Unit. In addition, the EEA participates in one Interdisciplinary Thematic Platform (PTI)—PAIS—and in the ArchaeologyHub, which connects us with nearly 30 CSIC institutes. We also form part of the hub MovES, which is currently being evaluated. At the international level, we interact with researchers from institutions such as the CNRS, DAI-Madrid, ENIS, CISEM–Università di Bologna, IEM–Universidade Nova de Lisboa, AMU-IREMAM, CNRS and TELEMME, CNRS INALCO, Università L'Orientale di Napoli, the Institute of Oriental Studies at the University of Vienna, the University of Amsterdam, the University of Ankara, the University of Meknes, the University of El Jadida, the INSAP in Rabat, the CNRPAH in Algiers, the Centre des études andalouses in Tlemcen, and SIFHAMS at the University of Sharjah, among others.

4. EEA research lines: current status and transformation strategies

4.1. Current status: organisational structure and lines of research

The fundamental organisational unit of the School of Arabic Studies (EEA) is the **Department of Arabic Studies**. Its primary purpose is to provide a cohesive structure for the institute's activities, foster collaboration between its two research groups, and effectively manage the allocation of human and material resources. The Department of Arabic Studies is organised into two research groups: **"Philology, Historiography, and Textual Criticism"** and **"Laboratory of Archaeology and Architecture of the City" (LAAC)**.

The EEA's research lines, as described in the 2024 EEA annual report, are the result of aggregating the individual research interests of the institute's scientific staff. In this report, the EEA includes 19 lines of research across both research groups. This model has allowed for remarkable thematic and disciplinary diversity, but it has also led to a fragmentation of research lines, which hinders the internal coherence of scientific and technical activities and limits the development of genuinely cross-disciplinary and cross-group working dynamics.

While this organisation has enabled the institute to showcase its main areas of expertise, it does not automatically ensure effective integration between the two research groups or systematically encourage horizontal collaboration between philological, historiographical, archaeological, architectural, and scientific-technical disciplines. In order to improve the internal coherence of the institute's scientific and technical activities and strengthen interdisciplinary collaboration, the project proposes a transformation strategy structured around two complementary lines of action (4.2.1., 4.2.2.) and transversal methodologies for their integration (4.3.).

4.2. Transformation strategies: towards greater mainstreaming

4.2.1. Horizontal integration of existing lines

The first line of action consists of strengthening current lines of research through horizontal integration within each research group. This first-step horizontal integration aims to overcome the fragmentation resulting from the aggregation of individual interests, favouring shared working frameworks to facilitate methodological and conceptual dialogue between specialists. This action builds on the nineteen lines already existing at the EEA, which form the basis on which more stable forms of interdisciplinary collaboration will be developed. The horizontal integration of the current nineteen lines of research results in the following seven horizontal lines:

1) **Knowledge Studies in Arab Cultures and Its Transmission,** integrating the lines *Networks of Knowledge Transmission*, *Prosopography of the ʿUlamāʾ of al-Andalus (PUA)*, and *Intellectual History of the Islamic World*.
2) **The Study of the Arabic Textual Legacy,** integrating the lines *Andalusi Christian Texts*, *Islamic and Morisco Granada*, and *The Qur'an in the Iberian Peninsula: From Original to Translated Text*.
3) **Arabic Linguistics.**
4) **History and Historiography,** integrating the lines *Islamic Models and Concepts of the Court* and *Historiography, Literature, and Orientalism*.
5) **Islamic Archaeology,** integrating the lines *Islamic Archaeology*, *Islamic Ceramics*, *Islamic Urbanism*, *Islamic Architecture* and *Islamic Landscape*.
6) **Archaeology of Late Antiquity and the Early Middle Ages,** integrating the lines *Archaeology of Late Antiquity and the Early Middle Ages* and *Archaeology of the Transition between the Byzantine and Islamic Periods.*
7) **Architectural Heritage,** integrating the lines *Monument Restoration*, *Methodology of Architectural Archaeology*, *Materials Analysis of Architectural and Archaeological Heritage*, and *Architectural Photogrammetry*.

4.2.2. Creation of common cross-cutting lines of research

The horizontal integration of existing lines of research is not sufficient to ensure full internal coherence between the two research groups. Therefore, the second line of action is aimed at creating cross-disciplinary lines of research shared by both groups. These lines do not replace the

previous ones, but rather act as common spaces for disciplinary convergence. The proposed cross-cutting areas are as follows:

1) **Documentary Sources**
This line is based on the hypothesis that historical processes leave traces in written, oral, and material sources alike. It promotes continuous dialogue between historiography, archaeological evidence, and the memory of social actors. One example is the study of the Western Mediterranean between the 5th and 11th centuries: the joint reassessment of pre-Islamic and Islamic sources will allow for comparisons of courtly models, construction and production practices, forms of territorial management, and processes of landscape transformation.

2) **Knowledge Transfer**
This line explores the circulation of knowledge and techniques, intellectual figures, materials, and cultural and linguistic practices across both shores of the Mediterranean. It examines whether these elements were preserved, transformed, or disappeared over time, and whether it is possible to speak of a cultural *koiné* in the Western Mediterranean, taking into account ethnic, religious, and cultural diversity. It also analyses how technological advances and the transitions derived from them have reshaped processes of knowledge production and interpretation over time.

3) **Materials Science**
This line is based on the hypothesis of the possible shared use of raw materials—such as pigments, pastes, and supports including paper, parchment, wood, plaster, and various clays. The study of their composition and alteration processes is applicable to ceramics, glass, manuscripts, metals, and architectural or documentary materials. This research line is nourished by transversal dialogue among pre-existing lines such as medieval and Islamic archaeology, architectural restoration, codicology, and scientific analysis of materials.

4.3. Transversal strategies for the integration of the lines of action

The transversal strategies for integrating the aforementioned two lines of action include (i) the implementation of a digital humanities scheme for developing prosopographical and geographic data mining in documentary corpora of medieval Arabic texts, identifying authorship and text reuse, and incorporating handwritten text recognition (HTR) systems based on deep-learning models trained on Arabic scripts; and (ii) the use of artificial intelligence–based systems for automatically extracting ontologies, recognising archaeological structures, morphometrically classifying topographic formations, detecting anomalies in LiDAR landscape data, and developing predictive models for locating settlements and communication routes. The AI method will also incorporate machine learning applications in optical, petrographic, and scanning electron microscopy, as well as X-ray fluorescence (XRF), X-ray diffraction (XRD), and electron microprobe analysis. These transversal strategies involve a necessary training process in the tools not yet implemented in the EEA, as specified in the Excellence Plan.

5. Scientific Project

The implementation of this Scientific Project is structurally supported by the actions defined in the institute's Excellence Plan, particularly those related to technical staffing, internationalisation, and internal coordination.

5.1. State of the art

The field of Arabic studies has long been shaped by disciplinary and cultural classifications. Rigid categories—Christian, Jewish, Muslim—have obscured the historically entangled nature of Mediterranean societies. These categories have influenced research agendas across disciplines and leading to artificial divisions in archaeology and the prioritisation of certain textual traditions in historical and philological studies. Within this framework, al-Andalus has frequently been treated as an isolated or exogenous entity, detached from the *dār al-islām* and wider Mediterranean dynamics. These divisions are reinforced by inherited methodological frameworks—such as ecdotic models aimed at reconstructing a single original text—which sit uneasily with the fluid and cumulative nature of Arabic manuscript traditions, as well as by colonial-era cataloguing practices. These epistemological limitations are further compounded by structural gaps in training, particularly with regard to Arab and Islamic history, archaeology, and social and territorial diversity.

Together, these factors have hindered the development of integrated and genuinely comparative approaches linking Arab cultures with their surrounding environments. Addressing this situation requires new research questions and sustained interdisciplinary frameworks capable of rethinking the relationships between philology, history, archaeology, architecture, and related fields.

In recent years, several initiatives have begun to respond to these challenges. European projects such as RomanIslam, EuQu, MIDA, and MONZARAB promote interdisciplinary perspectives, question entrenched narratives, and highlight complex cultural entanglements across Islamic and Christian contexts. This renewal is further supported by two key developments. The consolidation of Digital Humanities—an area in which the EEA has played a pioneering role—has enabled large-scale, comparative analysis through resources such as the OpenITI corpus and databases including PUA, HATA, and the Manuscript Certificates. At the same time, decolonial approaches have challenged inherited categories and disciplinary boundaries, fostering more integrated interpretations of Arab cultures and their environments.

5.2. Opportunity and scientific capacity

These initiatives demonstrate not only that overcoming these limitations is feasible, but also that the field is already moving in this direction. The EEA has begun to engage with these perspectives through the leadership and participation of its researchers in the projects mentioned above. Advancing towards a genuinely multidisciplinary and transversal approach to the study of Arab cultures and their environments therefore represents a natural and necessary next step. As outlined in the scientific introduction (Section 1), the singularity of the EEA lies in its ability to combine well-established expertise with newly incorporated profiles, ensuring both scientific ambition and feasibility. Moreover, the Institute's research lines are sufficiently consolidated in terms of technical and scientific capacities. Together with the active participation in international networks and the development of projects already integrating transversality and Digital Humanities, these factors place the EEA in an optimal position to propose a project that moves beyond the traditional constraints of Arabic Studies.

5.3. Objectives

In light of the gaps identified in the state of the art, the EEA has established the following general objectives (GO) and specific objectives (SO):

GO1. Consolidate an integrative scientific project that, beyond the temporal limits of this initiative, reinforces the internal coherence of the EEA and positions it as an international reference centre for the interdisciplinary study of Arab cultures and their environments.

- **SO1.1** Conduct studies on Arab cultures and their environments.
- **SO1.2** Disseminate the knowledge generated through the study of Arab cultures to the scientific community, communicate it to society, and transfer it to public and private entities.

GO2. Test new methodologies and improve those already in use to overcome fragmentation.

- **SO2.1** Examine whether the notion of *entanglement* functions as a methodological tool that contributes to overcoming established classifications.
- **SO2.2** Advance current methodologies by incorporating new technologies such as LiDAR, GIS, Digital Humanities, and Artificial Intelligence.
- **SO2.3** Overcome traditional classifications between disciplines, cultures, and chronological periods through the application of transversal methodological approaches.

GO3. Critically reflect on the very notion of "Arab cultures".

- **SO3.1** Examine how Arab cultures are defined within each discipline and explore the historiographical debates that have arisen around these definitions and the scope of the concept.
- **SO3.2** In light of decolonial studies, reflect on our legitimacy to address this question.
- **SO3.3** Investigate whether it is possible to interpret "Arab cultures" in relation to the physical and conceptual environments that surround them. For instance, explore related concepts such as "Mozarab", and "Islamicate", among others.
- **SO3.4** Analyse why the concept of "Arab culture" is useful compared to related terms such as "Arab world", "Islamicate world", or "Arab society".

GO4. Study Arab cultures from a historical-social perspective by deepening the analysis of Arab cultures and their environments, including societies, cultures, linguistic varieties, historical events, and cultural phenomena, both within sub-disciplines and across them. To this latter end, the Scientific Project addresses three Case Studies (CS), namely:

- **SO4.1.** CS1. "Economy, Power, Networks, Landscape, and Dissent in al-Andalus" analyses the social tensions arising from economic expansion in al-Andalus, with special attention to the rural world and other marginalised sectors, and draws on both textual and archaeological evidence.
- **SO4.2.** CS2. "Craftsmanship, Technology, Terminology, and Sociolinguistics in the Far West" studies the technology, terminology, and transmission of artisanal knowledge in the Islamic West.
- **SO4.3.** CS3. "Architectural Manifestations of Religiosity in the Western Mediterranean" analyses the heterodox religious movements, their charismatic leaders, and the architectural typologies of the buildings associated with them.

5.4. Entanglement as a transversal methodological framework

The methodological framework of this project has been explicitly designed to respond to the general and specific objectives outlined in Section 5.3.

Given the project's multidisciplinary scope, the methodologies adopted are diverse, innovative, and explicitly transversal. The project is structured around the concept of entanglement, which provides a coherent framework for addressing all the general and specific objectives. Adapted from quantum physics to the humanities, entanglement views cultures, languages, social structures, religious practices, and material environments as mutually constitutive rather than isolated. This approach directly addresses the fragmentations identified in the state of the art by enabling the analysis of Arab cultures in continuous interaction with their physical, social, political, and conceptual environments across regions (al-Andalus, Sicily, the Maghreb, Ifrīqiya) and periods. It is particularly well suited to examining how shared architectural, religious, and linguistic forms, as well as social identities, emerge through long-term processes of interaction and transformation within and beyond Arab-Islamic and Christian spheres, providing a basis for reassessing the analytical usefulness of "Arab cultures" as a category (GO3) in dialogue with other partially overlapping notions such as "Islamicate".

To further strengthen the correlation between objectives and methodology, the project adapts Geographic Information Systems (GIS) as a unifying analytical environment for the different disciplines represented at the EEA. Within this framework, philological, linguistic, historical, archaeological, and architectural data are integrated as superimposed layers within a single georeferenced visualisation system, allowing for systematic transversal analysis and direct comparison across disciplines. Three complementary analytical layers have been identified:

- **Horizontal layer**, which captures interconnections within a single discipline (e.g., textual transmission networks, settlement patterns, architectural typologies).
- **Vertical layer**, which identifies correlations and interactions between disciplines (e.g., linking textual evidence with archaeological or architectural data).
- **Reflexive layer**, which makes explicit the relationship between the researcher and the object of study, thereby addressing SO3.2 by visualising the ideological, methodological, and epistemological frameworks that shape research questions and interpretations.

This layered model directly supports the implementation of the transversal case studies defined under GO4 (SO4.1-SO4.3), ensuring that economic, social, technological, linguistic, and religious phenomena are analysed as interrelated processes rather than isolated variables.

5.5. Promotion of coordination of lines and internal synergies

Building on the methodological framework outlined in Section 5.4, this project establishes concrete organisational mechanisms to enhance coordination across research lines and promote sustained internal synergies within the EEA. Shared methodological principles are translated into structured spaces of interaction that enable the circulation of research questions, data, and results across disciplines. As a result, the coordination across research lines becomes embedded in everyday research practice, strengthening internal coherence and consolidating a genuinely interdisciplinary research culture. These strategies are implemented through the following actions:

Action 1. Development of three lines of work structured around three case-study projects (GO2, GO4) conceived as integrative studies that apply the project's methodological approach transversally and foster dialogue among the different disciplines and research lines of the School of Arabic Studies. Each case study (SO4.1–SO4.3) functions as an interdisciplinary laboratory combining documentary sources, archaeology, archaeometry, spatial analysis, linguistics, and digital humanities, contributing to an integrated socio-historical analysis of Arab cultures and their environments (GO4) while overcoming disciplinary fragmentation (GO2).

Action 2. Implementation of joint coordination and dissemination strategies (GO1, GO2, GO3) established to ensure sustained collaboration across disciplines and research lines. Regular meetings will be held every three months to monitor the progress of the case studies, compare methodological approaches, identify convergences and interpretative tensions, and coordinate dissemination activities (e.g., podcast series, online seminars, conferences). These mechanisms embed interdisciplinarity into the everyday research practice of the project, strengthen internal scientific cohesion (GO1), and promote the circulation and transfer of knowledge within the EEA and beyond (SO1.2), while reinforcing transversal collaboration (GO2).

5.6. Strategies to strengthen international collaboration and leadership

The development of this project constitutes an explicit strategy to strengthen the scientific leadership of the School of Arabic Studies (EEA) at national and international levels. As the only European centre specialising comprehensively in the study of Arab-Islamic societies and cultures, the EEA seeks to consolidate and raise the visibility of this leadership through a clearly defined, interdisciplinary scientific agenda geared towards measurable results.

To advance these objectives, the following actions will be undertaken: (i) at least one case study involving international collaboration will be led by the EEA scientific staff; (ii) research stays will be funded for established international researchers to visit the EEA and, conversely, for EEA researchers to conduct stays at international institutes; (iii) an international workshop will be organised; and (iv) the EEA's most relevant activities (e.g. annual report, website, social media, and

a periodic newsletter) will be disseminated in Spanish, Arabic, and English. These actions will be implemented progressively over the three-year duration of the project, with clearly identified annual milestones, ensuring that the institute's leadership is both visible and sustainable.

5.7. Strategies to strengthen knowledge transfer

The project's knowledge-transfer strategies are conceived as a natural extension of the research and directly address the weaknesses and opportunities identified in the SWOT analysis. Considering the special features of the EEA, the institute is particularly well positioned to generate specialised knowledge transfer aimed at public administrations, heritage institutions and cultural agents, especially in areas such as Islamic-heritage management, architectural conservation, documentation of tangible and intangible heritage, building and field archaeology, and the applied use of archaeometry and digital humanities.

In order to strengthen the EEA's knowledge-transfer capacities, the following actions will be undertaken: (i) the Research Support Services (RSS) will be promoted through the gradual incorporation of technical staff as mentioned in the Excellence Plan (EP); (ii) technical equipment will be acquired for these RSS; (iii) their visibility will be improved by incorporating them into the EEA website and by translating the RSS catalogue into English and Arabic; and (iv) the available channels of the PTI-PAIS will be used to improve transfer.

These technical reinforcements are essential to guarantee the credibility of the project, its medium-term sustainability, and the proper functioning of critical scientific and technical infrastructure.

5.8. Strategies to strengthen public dissemination

A structured scientific communication strategy will be developed to disseminate, in a rigorous yet accessible way, the historical and cultural realities of the Arab-Islamic world, thereby countering stereotypes and reductive narratives while reinforcing the EEA's role as a social reference point. In addition to the actions mentioned in section 5.5, ongoing knowledge-transfer activities will be consolidated and aligned with a strategic approach by hiring a full-time technician who specialises in outreach and communication activities. This strategy will improve the participation of EEA technical and scientific staff in public dissemination initiatives and enable the organisation of the EEA centenary. It will provide an opportunity to showcase the institute's trajectory and its shift towards innovative approaches.

6. New areas that can promote mainstreaming in the use of selected new technologies

The cross-cutting strategy requires the adoption of new areas and technologies that generate new knowledge and a broader and deeper understanding of the fields of study of EEA research staff, including the three case studies proposed for the MaX Research Project. **Seven technologies** have been selected for implementation across the **three case studies** (CS) and the **three cross-cutting areas** (Documentary Sources, Knowledge Transfer and Materials Science): Digital humanities (DH), Artificial Intelligence (AI), Virtual reality (VR), Surveys using Light Detection and Ranging (LiDAR), Reverse engineering (RE), Archaeometry (AM) and Big Data (BD). The following examples illustrate how these new technologies will be deployed:

- CS1. Economy, Power, Networks, Landscape, and Dissent in al-Andalus: Archaeometric methodology (AM) for the study of ceramics and other materials (microscopy and chemical analysis) enabling the reconstruction of economic and cultural exchange networks, landscape change and settlement patterns (LiDAR), degrees of monetisation and levels of commercial integration in rural settlements. The project also incorporates a digital humanities dimension aimed at organising, analysing and disseminating the data generated, by structuring it in a database (BD).

- CS2. Craftsmanship, Technology, Terminology and Sociolinguistics in the Far West: GIS applied to the location of medieval and contemporary production centres; mapping out possible routes for technology transfer and transmission of know-how; automatic data processing (HD) of audiovisual documentation, interviews, archaeometry, legal written sources, hisba treatises, etc; Reverse Engineering (RE) of 'chaîne opératoire' of glazed ceramic and plasterwork. The reconstruction of a medieval pottery workshop applying Virtual Reality (VR) for bringing historical heritage closer to society.

- CS3. Architectural Manifestations of Religiosity in the Western Mediterranean: Agent-based models and spatial analysis to study the circulation of knowledge. Implementation of new data collection and digitisation techniques (LiDAR, BD). Study of ceramics and other materials associated with these places of worship using archaeometric techniques (AM) that enable the reconstruction of pilgrimage and exchange networks linked to rural settlements (AI). A digital humanities dimension is also included, aimed at organising, analysing and disseminating the data generated by structuring it in a database.

CASE STUDIES	**CROSS-CUTTING AREAS**		
	Documentary Sources	**Knowledge Transfer**	**Materials Science**
CS1: Economy & Dissent	DH, BD, AI, LiDAR		AM
CS2: Craft & Sociolinguistics	BD, AI	DH, VR	RE, AM
CS3: Architecture & Religion	DH, BD	LiDAR, AI	AM

7. Impact

The impact of this project derives directly from its objectives (Section 5.3), its transversal methodological framework (Section 5.4), and its implementation strategy (Sections 5.5–5.8).

Scientific impact

The project will consolidate the EEA as an international reference centre in Arab and Islamic Studies through the development of an original and integrative methodological framework grounded on the concept of *entanglement*, which contributes directly to the redefinition of key analytical categories in Arabic studies and to the strengthening the scientific leadership of the EEA (GO1, GO2, GO3, GO4). By implementing the above-mentioned strategies, the EEA will be able to lead international and national projects and scientific technical services, thereby generating innovative and groundbreaking research outputs. These results will be disseminated in scientific forums and high-impact open access (HI-OA) publications.

Social and economic impacts

The project is aligned with the UN Sustainable Development Goals (SDGs), specifically: SDG1. No poverty; SDG8. Decent work and economic growth; SDG10. Reduce inequality within and among countries; SDG11. Sustainable cities and communities; SDG15. Life on land.

The project will contribute to a more nuanced, informed, and inclusive understanding of Arab cultures in contemporary society, countering stereotypes and reductive narratives (SDG10). By foregrounding the concept of "environments" as a central analytical axis, the project fosters dialogue with local communities, heritage practitioners, and broader publics (SDG10 & 15). At the same time, it promotes the documentation, preservation, and revalorisation of tangible and intangible cultural heritage—particularly endangered architectural structures, craft traditions, and cultural practices—through advanced documentation, analysis, and conservation techniques (SDG8). The project will also generate economic impact in local communities by helping to mitigate the depopulation of rural areas (SDG1 & 11), which may use the heritage as living resources (SDG8). Moreover, the transfer of knowledge, methodologies, and technical expertise to public administrations, heritage institutions, restoration professionals, architects, and specialised companies, has the potential to generate inclusive and sustainable employment (SDG8 & 10). Finally, the knowledge of heritage and historical landscapes may generate new strategies for the sustainable development of marginal and peripheral territories (SDG15).

Specific impact of the Case Studies

The three Case Studies constitute the main vectors through which the project's impact is materialised:

- **CS1. Economy, Power, Networks, Landscape, and Dissent in al-Andalus** will generate new scientific knowledge by critically reassessing the so-called "green revolution" and by foregrounding the role of rural and marginalised groups through the integrated analysis of Arabic sources, archaeology, and data-science methodologies. Its results will contribute to the development of more inclusive historical narratives addressing inequality and conflict.
- **CS2. Craftsmanship, Technology, Terminology and Sociolinguistics in the Far West** will document and valorise intangible heritage related to traditional crafts, thereby promoting social awareness and enabling economic transfer through knowledge exchange with artisanal sectors and the development of cultural routes.
- **CS3. Architectural Manifestations of Religiosity in the Western Mediterranean** will expand knowledge on religious movements and their associated architecture, support the documentation and conservation of endangered buildings, and promote sustainable restoration practices aligned with traditional construction techniques.