

Article

Methodological Protocol for Identifying Heritage Attributes in World Heritage Properties: The Alcázar of Seville

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Abstract

Cultural heritage management today faces the challenge of addressing increasingly complex realities. In this context, international organisations focus on identifying heritage attributes that consider not only physical and artistic values, but also symbolic, social and environmental dimensions, a task that has been implemented in recent years and in which significant progress has been made. The aim of this research is to develop a detailed protocol for identifying heritage attributes, using the Alcázar of Seville, a World Heritage Site, as an example. Based on a consolidated methodology, the aim is to outline the work process by identifying the sequence of tasks from the collection, selection and distribution of information to the formation of the transdisciplinary team, the analysis process and the selection of attributes. The result shows a sequenced process in which a wide range of material is reviewed in depth from various disciplines, allowing the identification of attributes beyond cultural significance. This methodological update involves increasing the size of the transdisciplinary team and taking a more social approach to the management of this heritage. The proposal takes the form of a useful working tool for heritage professionals and public administrations responsible for managing world heritage properties.

Keywords: heritage management; cultural value; multidisciplinary approach; heritage community; heritage impact assessment; Real Alcázar of Seville

1. Introduction

Cultural heritage management today faces the challenge of responding to increasingly complex social, environmental, and technological realities. Backed by international consensus through charters and recommendations, the discipline's focus has evolved from early conservation movements toward broader criteria regarding which qualities to be valued [1]. Traditionally, the identification of heritage attributes has focused on material, architectural, or aesthetic aspects, which has enabled the conservation of tangible assets of great historical value. However, this perspective is now deemed insufficient to address the richness and diversity of meanings that heritage properties hold in relation to the communities that produce, inhabit, and reinterpret them [2,3]. The introduction of World Heritage (WH) properties and its justification through Outstanding Universal Value (OUV) have actively driven the recognition of intangible values and fostered a comprehensive operational body of guidelines and manuals. In this regard, the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage [4] represents a significant



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milestone in expanding the value-based approach to heritage protection, conservation, and management [5].

In this evolving context, the need for a broader identification of heritage attributes becomes evident, one that considers not only physical and artistic values, but also symbolic, social, environmental, and use-related dimensions. This multi-dimensional shift aligns with the conceptualization of urban heritage as a complex system, where the overlapping of these diverse layers determines the property's overall dynamic [6]. Incorporating these approaches expands management capacity, as it allows the recognition of processes of community appropriation, relationships with the natural environment, and processes of cultural transmission that are fundamental to ensuring the sustainability of heritage [7].

Therefore, a comprehensive redefinition of heritage values through their informing attributes, grounded in an interdisciplinary approach and the integration of all voices connected to the property, emerges as a critical strategy to address the interpretation of increasingly complex heritage realities [8]. This integrative perspective becomes a key tool for informing the baseline of public policies, conservation plans, and participatory strategies that respond to the current challenges of heritage management. Ultimately, this approach provides the structural evidence needed to reinforce the physical protection of heritage assets, while offering a conceptual framework to support their long-term resilience against urban transformations, tourism pressures, environmental impacts, and systemic risks [9].

Against this background, the identification of heritage attributes constitutes a key phase in the processes of valuing, protecting, and managing cultural heritage, as it acts as an operational link between recognized heritage values and the decisions that affect their conservation and transformation [10]. Various authors have pointed out that an imprecise or incomplete definition of attributes leads to ambiguous interpretations of values, weakens protection instruments, and hinders heritage impact assessment (HIA) and long-term planning [11,12]. Although the methodological debate has gained particular visibility in the field of World Heritage—especially as a result of the need to justify OUV and its associated attributes—this issue is not exclusive to that category. On the contrary, the rigorous identification of attributes is equally necessary in any heritage context, regardless of its scale, protection regime, or institutional recognition, whether referring to properties inscribed on international lists, national or regional heritage, or heritage elements of a local character [13]. In all cases, the absence of systematic and transparent methodologies has encouraged fragmented approaches that are excessively dependent on specific regulatory frameworks or on isolated disciplinary perspectives, which limits the internal coherence of valuation processes and hinders their comparison and transferability across different contexts [14].

The University of Seville (Spain) is carrying out a research project based on this particular situational hypothesis. The project “World Heritage: an approach to social sustainability through the updating of its cultural values” (WHATS-UP) (PID2022-140917OA-I00), was funded by the Spanish Ministry of Science and Innovation through a competitive research program. The question is whether OUV statements formulated at earlier stages in the development of the concept of values, accurately represent these assets today. Drawing on case studies of the WH in the Andalusian context (the Alhambra in Granada and the Real Alcázar in Seville), this project proposes a reinterpretation of these values from a contemporary perspective. This is an ongoing project promoting aspects of the methodology used and its findings through recent publications [15], including the present article.

In line with developments shaped by international consensus, a transdisciplinary perspective takes on particular importance in contemporary values-based approaches to heritage. From heritage management and HIA processes, attributes are recognized not

merely as material components of a property, but as concrete expressions of historical, social, symbolic, aesthetic, or scientific values, constructed through complex cultural, institutional, and social processes [11]. This conception is shared both by the doctrinal frameworks developed within the field of WH and by those applicable to other types of heritage [16], and it requires methodologies capable of integrating multiple disciplines and scales of analysis, incorporating knowledge from history, architecture, archaeology, urban planning, geography, anthropology, sociology, and law, among others [9]. Each disciplinary lens captures only a partial perspective of highly complex objects; hence, integrating dispersed information and balancing differing interpretations of the same issue becomes paramount [17].

Likewise, the main international reference documents emphasize the need to ground the identification of attributes in a rigorous and critical review of heterogeneous documentary sources. These can range from legal and regulatory frameworks, protection instruments, heritage dossiers, territorial and urban planning documents, technical and academic studies, as well as evidence related to the use, perception, and social meaning of the property [2,18,19]. However, the principles extended from key documents such as the Faro Convention [3] call for the additional inclusion of evidence relating to the use, perception and social significance of the property. Rightholders and stakeholders are now involved in all stages of the decision-making process, including the identification of values. Far from constituting an exclusive or restrictive procedure limited to WH, this methodological approach is fully transferable and adaptable to other heritage contexts, strengthening the quality of knowledge, the traceability of decisions, and the coherence between values, attributes, and management measures.

Consequently, it becomes necessary to develop explicit, systematic, and replicable methodological protocols that structure the process of identifying attributes based on clear criteria, defined phases, and coherent analytical tools, ensuring their flexible application to different heritage frameworks without losing conceptual rigor. The methodological proposal presented in this article responds to this need by putting forward a protocol conceived as a common operational framework, applicable both to World Heritage and to any other cultural heritage, regardless of its scale or level of recognition.

In the Spanish and Andalusian contexts, this comprehensive approach to heritage complexity finds significant precedent in the long-standing methodological frameworks developed by the Andalusian Institute of Cultural Heritage (IAPH). These models were initially consolidated through specific criteria for cultural landscapes, emphasizing the need to systematically characterize assets by overlapping physical attributes, intangible qualities, and social perceptions under contemporary standards of governance [20]. Subsequently, this line of institutional research expanded into general heritage management standards, establishing multidisciplinary characterization as an essential, preliminary tool to ensure the long-term sustainability of cultural assets prior to executing any direct intervention or planning strategy [21]. Building on recent values-based approaches to heritage management and World Heritage guidance, this article uses a previously developed matrix of heritage values and attributes as its conceptual backbone. Rather than proposing a new typology, the present study assumes this matrix as an established framework that has already been tested in other contexts and endorsed in professional workshops. Its categories of values and attributes are therefore not the object of debate here, but the starting point for the methodological protocol [22].

Against this background, the specific contribution of this article lies in the development of a six-phase protocol that structures how heterogeneous sources are reviewed, unified and expanded into a coherent attribute base. The protocol organises documentary and participatory inputs from World Heritage nomination files, legal and planning instru-

ments, scientific research and community engagement, with the explicit aim of identifying attributes that are fragmented, inconsistently defined or simply absent from the World Heritage dossier. Rather than re-defining what counts as value or attribute, the focus is on how to systematically bring together dispersed information and to make emergent attributes traceable and usable for subsequent management and assessment tools.

This proposal is currently applied to the Real Alcázar of Seville case study as part of the WHATS-UP research project. The ongoing work relies on a matrix that is being developed to integrate existing administrative attributes with new insights from recent studies and citizen input. The objective of this article is therefore to present and test a methodological protocol for the identification, consolidation and expansion of heritage attributes in World Heritage properties. Using the Real Alcázar of Seville as a case study, the protocol is applied to: (i) review and systematise existing values and attributes across multiple document types; (ii) detect and integrate new attributes that are not captured in the World Heritage nomination file; and (iii) provide a transparent, transferable process that can be adapted to other heritage contexts and combined with conservation and impact-assessment tools.

2. Methodology

The proposed procedure, designed for application across diverse heritage contexts, is drafted based on the experience gained by the WHATS-UP project team on a specific World Heritage case: the Real Alcázar of Seville. To capture the high complexity of these assets, the proposed workflow facilitates the multidisciplinary collaboration needed for a comprehensive characterization, guided by international management recommendations. This approach establishes a structured sequence of phases to optimize internal organization and streamline task distribution among teams. Clarifying the steps taken, alongside the difficulties and successes encountered, forms the basis of the proposal presented in this text.

The final product is a scalable tool for organising information in tabular format, adaptable to the specific characteristics of each WH property without losing its theoretical and methodological grounding. The objective of this attribute–value matrix is to synthesize fragmented historical and administrative data alongside new participatory insights to uncover heritage attributes traditionally obscured by disciplinary silos. By bridging these gaps, the table becomes a vital communication and negotiation instrument for professionals, stakeholders, and managers, as well as a foundational baseline for future monitoring reports and impact assessments.

In order to transfer the experience gained from the Alcázar to a simplified methodological roadmap, the procedures were refined by identifying clear work phases and detailing both the actions involved and the agents responsible for them. These descriptions include recommendations and comments, highlighting the key issues to be considered for each stage.

To enhance clarity, this description is accompanied by a process map. For each of the six proposed phases, the map details four distinct dimensions: actors involved, specific tasks performed on documentary sources, integration of this data into the attribute–value matrix, and development of complementary documents essential for a comprehensive asset characterization. Sequencing notes and key interrelationships between these tasks are superimposed onto the map and indicated by directional arrows.

Finally, to illustrate the methodology, two representative attributes developed during the WHATS-UP project at the Alcázar were selected. The selection was made based on criteria of representativeness of the process, aiming to demonstrate its scope across different categories. To this end, the attributes were selected from one work unit, as described in Phase 4, corresponding to the “Research” category. Scientific research on the Alcázar to date has been predominantly archaeological, potentially shaping the recent

interpretation of the site while underscoring the importance of incorporating a broader range of disciplinary perspectives.

For each chosen attribute, the workflow outlines its evolution from initial identification in the primary source through the sequential phases of drafting, simplification and unification. These processes have been summarised in figures to allow tracking of the refinement process, from the initial statements and merging with other attributes to the final synthesis. Traceability of sources throughout the entire process, as well as changes to the attribute classification itself as its definition evolves are also provided.

3. A Six-Step Process for Identifying Values and Attributes

Building on practical insights, this work contributes to the evolving context of cultural heritage theory by integrating the diverse professional profiles necessary for a cross-cutting and comprehensive characterisation of heritage properties. This is achieved by developing a simple matrix capable of synthesising the characteristics and meanings of WH in the current context.

The working methodology followed for its production is set out in this article as a proposal for general application to World Heritage properties, organised into six work phases. Phases 1, 2 and 3 constitute the tasks relating to the preparation of materials and work equipment, which can be carried out in parallel when necessary. Phases 4, 5 and 6 cover the procedural development of the attribute–value matrix based on the consolidated database from the previous phases.

3.1. Phase 1: Formation of the Interdisciplinary Team

The first task is to set up a cross-disciplinary working team, whose composition will depend on the subject of study and the documentation to be analysed. The size of this team should be determined in parallel with the selection of documentary sources during phase 2, taking into account the subsequent formation of sub-teams.

A multidisciplinary perspective is essential to triangulate data and inform the various values identified. The scale and context of the asset under analysis will determine the specific disciplines required. Traditional fields such as architecture, archaeology, or art history can be complemented by urban planning and geography, as well as biology or ecology in territorial and landscape contexts. In addition, sociology and anthropology should be incorporated as complementary approaches to help align the understanding of heritage with contemporary paradigms. In all cases, engaging at least two experts from different disciplines is highly recommended to enrich the synthesis and ensure a robust cross-review of the information sources. Furthermore, when this procedure is carried out as part of an HIA process, the team involved does not necessarily require subject-matter specialists, as the documents under review are assumed to have been prepared by experts in the field. The diversity and number of disciplines involved will thus depend on the scope and characteristics of the heritage property.

3.2. Phase 2: Selection of Documentary Sources

This phase consists of a review of the various regulatory contexts of planning and management affecting the scope of the case study. The choice of sources is based on the premise of identifying the attributes of the WH property as recorded in official sources, prioritising them as a starting point. This initial data is then updated by incorporating sources from research on the property, as well as results derived from social participation.

To identify all possible sources of impact, it is generally recommended to conduct a comprehensive review across multiple scales, from international World Heritage status to local-level documents. While this framework can be tailored to the specific circum-

stances of each property, the following core documents should be considered within each analyzed context:

1. International level. Documents derived from WH status, generated mainly by UNESCO;
 - a. Statement of OUV;
 - b. WH registration process or declaration;
 - c. Other documents generated as WH;
 - i. Periodic reports;
 - ii. State of conservation reports;
 - iii. Heritage impact assessment reports;
 - iv. Other;
2. Regulations applicable at national level;
 - a. National protection documents
 - b. Cultural administrative protection
3. Regulations applicable at regional level;
 - a. Regional protection documents;
 - b. Land use and urban planning;
4. On the property itself, at local level;
 - a. Documents derived from urban planning;
 - b. Master plans;
 - c. Management plans;
 - d. Research;
 - e. Studies from various disciplines (these may include historical, architectural, structural, archaeological, landscape, biological, material or state of conservation, among others). These may be existing studies or proposals for new studies if deemed essential;
 - f. Any existing document issued by the relevant administration or private organizations on heritage communities.
 - g. Graphic and survey documentation: restitution drawings, architectural surveys, photogrammetry, laser scanning or structural analysis reports.

At this stage, it is essential to design an archive repository in order to manage all existing information, as well as newly generated data. The incorporation of both textual and graphic material is planned, selecting maps that show both the property itself and its surroundings, on which the different attributes listed in the table can subsequently be spatially located.

While this proposal was developed to identify values and attributes within the WH context, it can be adapted to other heritage scenarios by bypassing the aforementioned international sources, which typically provide a baseline framework where values are already identified through the OUV. However, the OUV covers specific attributes that internationalize the property, potentially omitting others that could be highly strategic for its day-to-day management. Consequently, other sources gain relevance in both scenarios: namely, scientific research, as well as the participatory engagement of stakeholders and rightholders alike.

Regarding participatory processes, the paradigm established by the Faro Convention [3] places the heritage community at the center of defining and identifying shared heritage properties. Consequently, the proposed methodology positions participatory processes as an indispensable source for data gathering and asset characterization—the essential preliminary stage before any operational decision-making occurs—and a core contribution of the study. When grounded in a rigorous definition of the heritage community,

methods such as perception studies, collaborative activities and interviews can help unveil values that go well beyond traditional historical or material aspects.

Should this task be necessary due to a lack of previous or sufficiently updated documentation, its execution is considered crucial to achieve the inclusive characterization pursued by this methodology. In such cases, it may attain the status of a standalone parallel phase focused on diagnostic consultation, which relies on the specialized expertise of relevant disciplines. This expertise is critical since the outcomes of this phase can vary significantly depending on the social research or data collection technique selected. Therefore, the design and execution of these participatory mechanisms should be entrusted to experts in social science or participatory methods.

In the context of the WHATS-UP research project and its application to the case studies—presented here as an illustrative example, without ruling out other participatory diagnostic methodologies—key stakeholder mapping was based on prior research supported primarily by ethnographic fieldwork. This served as an essential tool to contextualize the assets, define specific profiles, and unravel the complex network of relationships, roles, concerns, and reflections that different subjects maintain with their heritage. This initial diagnosis was followed by participatory workshops combined with shared walking tours through and around the assets, allowing residents and professionals to provide first-hand accounts of their daily experiences and connections with the historic sites. Subsequently, all qualitative and spatial information gathered in these sessions was integrated into Public Participation Geographic Information Systems (PPGIS) to map social perceptions of values and risks. This brief overview illustrates a community engagement process conceived as a diagnostic and consultative social research stage, one that necessarily precedes technical execution and may vary depending on the professional team. It should be noted that the present manuscript does not directly analyze primary data derived from these activities; rather, it synthesizes the social diagnosis and community participation methodology previously developed and documented by the project teams in the 2026 article “World Heritage and Intangible Cultural Heritage in Urban Contexts: Participatory Approaches to Addressing the Impact of Tourism” [15].

3.3. Phase 3: Table Layout: Definition of the Categories of Values and Attributes to Be Analysed

The objective of this phase is to establish the framework of attributes and values in which the reviewed information will be classified. In this case, the starting point will be the table drawn up by members of the University of Seville in 2025 for the Tajo de San Pedro in the context of the Alhambra in Granada [22], a study whose development marks the origin of the proposed methodology.

For its development, international documents were reviewed, leading to the identification of contemporary heritage values. These values were determined through a critical analysis of the documents, supported by the vision of a multidisciplinary team composed of architects, historians, archaeologists, urban planners, and biologists. With regard to attributes, the “Operational Guidelines for the Implementation of World Heritage Convention” [19] were taken as a reference, proposing an operational classification of tangible and intangible attributes. Tangible attributes were defined in terms of materiality, spatial scale hierarchy (from the object to the physical environment) and relationship to context, while intangible attributes were related to use and tradition. As a result of this process, a table of values and attributes was designed to systematise this information (Figure 1). However, each transdisciplinary team can contribute specific attributes and values as they see fit in their respective proposals.

		Tangible				Intangible			
Attribute types		Materials & Techniques	Building & complex	Urban structure	Physical environment & natural areas	Relationship with cultural context	Relation to the use or function	Relationship with traditions & habits / practices	Relation to social context
Values set out in the Unesco declaration	Aesthetic Artistic								
	Historical								
	Scientific								
	Social								
Burra Charter (Icomos, 1979)									
Values linked to sustainability (Unesco, 2016)	Ecological								
	Economic								
Landscape (2022)									
	Landscape								

Figure 1. Matrix table of values and attributes created for the Identification of Values and Heritage Impact Assessment in the surroundings of the Alhambra and Generalife Monumental Complex in Granada, 2023. The classification of values is represented using a colour scale that identifies three historical turning points in their development. Source: Julia Pérez-Rey et al. [22].

The matrix itself was developed and discussed in detail in previous work, and is therefore assumed here as an established framework rather than as the main object of methodological innovation [22]. While this matrix provides the conceptual backbone for classifying values and attributes, it is not intended to incorporate all operational dimensions needed in conservation practice (such as detailed spatial scale hierarchies or intervention typologies). These dimensions are instead implemented in derived project tools that build on the unified attribute list generated by the protocol.

3.4. Phase 4: Distribution of Documents

Once the team and source materials have been determined, the selected sources of information are organised into thematic categories to facilitate subsequent analysis. These categories will vary depending on the characteristics of each heritage property, so it is advisable to review them for each case individually. In general, however, the following broad thematic categories are proposed for the assessment of World Heritage properties:

- World Heritage;
- Protection;
- Management documents;
- Urban planning;
- Research and graphic documentation;
- Participation.

This systematisation is then reflected in the organization of the working team, which is divided into specialized sub-teams whose size and composition vary depending on the type of property and documents under review. The aim is to create thematic work units to streamline the reading process, allowing each team to focus exclusively on the sources related to their assigned category. Team composition is determined based on disciplinary affinity with each theme and the volume of identified sources. While the number of members is assigned accordingly, a minimum of two people per group is required to guarantee effective cross-checking of the information.

3.5. Phase 5: Documentation Review

The objective of this phase is to conduct a thorough review of the existing information in order to identify heritage values and the attributes that inform them. Experience with WH sites has shown that, in some cases, the Management Plan (MP) provides an initial overview of the property's attributes, serving as a foundational basis for planning conservation, infrastructure, and tourism initiatives. Therefore, where available, it is considered a valuable starting point. However, given that these plans are often driven by tourism or development agendas, they must be analyzed critically alongside primary sources—such as archaeological reports, architectural surveys, scientific publications, and others—to ensure a balanced assessment.

In this phase, work is carried out within each sub-team, distributing the documents across team members who then log their findings into a common shared worksheet. The working method consists of systematically and analytically reading the different sources to detect each attribute, subsequently assigning it to the cell in the matrix that most closely matches its definition. To streamline data entry and handling, only syncretic phrases referring to these attributes will be entered into the matrix. Detailed information is instead compiled in a shared text file as an annexed document following the order of the identified attributes.

Due to the nature of these types of documents, it is common to find the same attributes across multiple sources, which could lead to duplication in the shared matrix. Similarly, while it might seem logical to assign a single attribute to multiple cells, to maintain manageability it is recommended that each attribute—or set of attributes—appears only once. For this reason, it is advisable to hold internal meetings to identify duplicates in the results and discuss the most suitable location for attributes within table cells.

Each time an attribute is entered into the matrix, it must be accompanied by a record of the specific source from which it was extracted, thus creating a list of acronyms or abbreviations for each specific source. When several attributes are unified into a single definition, these abbreviations are listed together, thereby highlighting the attributes with a higher rate of occurrence across the reviewed documents.

3.6. Phase 6: Results Merge

Once all sub-teams have completed their respective matrices, a coordination committee is formed—comprising one representative from each group—to supervise the integration of all identified attributes into a single master matrix: the general attribute–value matrix for the property. This consolidation process begins by assigning a distinctive colour to each

category, ensuring that the thematic origin of each attribute in the master matrix is easily recognisable.

It is preferable to carry out this consolidation during joint working sessions to refine the wording of the attributes, comprehensively encompassing the different nuances that may arise from newly identified duplicates. These sessions also serve to collaboratively decide on the definitive naming of each attribute and the specific details to be included in the accompanying annex document. As with the category-specific matrices, when attributes from different sources are combined, all references are compiled. Furthermore, a specific colour code is introduced to highlight those attributes that have been cross-identified across multiple source categories.

To ensure the matrix remains manageable, the extended explanation justifying the selection of each attribute and its assigned values is developed as supplementary text. Related attributes may be grouped together, provided they include the complete set of reference documents where they were identified. The drafting of this supplementary document can be carried out alongside this process.

Simultaneously, planimetric resources are developed to spatially locate the attributes identified in the table. The spatial mapping of these attributes—traditionally supported by geographic information systems (GIS) or advanced geomatic data such as laser scanning (TLS)—constitutes a highly powerful tool for guiding decision-making in architectural practice. This is especially true when integrated with domain-specific information management technologies within the heritage field, such as Historical Building Information Modelling (HBIM). The diversity of tangible attributes can lead to object-based, linear or superficial representation. It is essential to incorporate the names and constituent parts of the attributes into this mapping, depending on their scale, following the matrix categories in Figure 1: materials and techniques, buildings and complexes, urban structure, physical environment and natural spaces. Occasionally, intangible attributes can also be mapped by linking them to the specific tangible elements with which they are associated. In this case, the mapping follows the matrix's intangible categories: relationship with cultural context, relationship with use and/or function, relationship with traditions and/or customs, and relationship with social context. To help contextualise these attributes, they are represented using the same colour classification by category used in the table.

At this point, the protocol deliberately stops at the level of cognitive and documentary synthesis. The consolidated matrix provides a coherent and traceable baseline of values and attributes, upon which additional operational dimensions required in conservation practice—such as explicit spatial scale hierarchies or intervention typologies—can be defined in project-specific tools (e.g., HBIM models, conservation schedules or design briefs) without modifying the underlying conceptual framework.

To summarise and facilitate the dissemination of this proposal, the methodology has been systematically represented in a process map the relationship between the work phases, procedures and professionals involved. It also incorporates recommendations arising from the empirical application of this approach to the Real Alcázar of Seville, as shown in Figure 2.

In summary, this protocol is conceived as a methodological bridge between dispersed documentary and participatory evidence and the diverse instruments used in conservation planning. Its specific contribution lies in the systematic identification, consolidation and expansion of heritage attributes, while operational layers such as scale hierarchies, intervention typologies and detailed risk assessments are implemented in complementary tools that work on top of the unified attribute list.

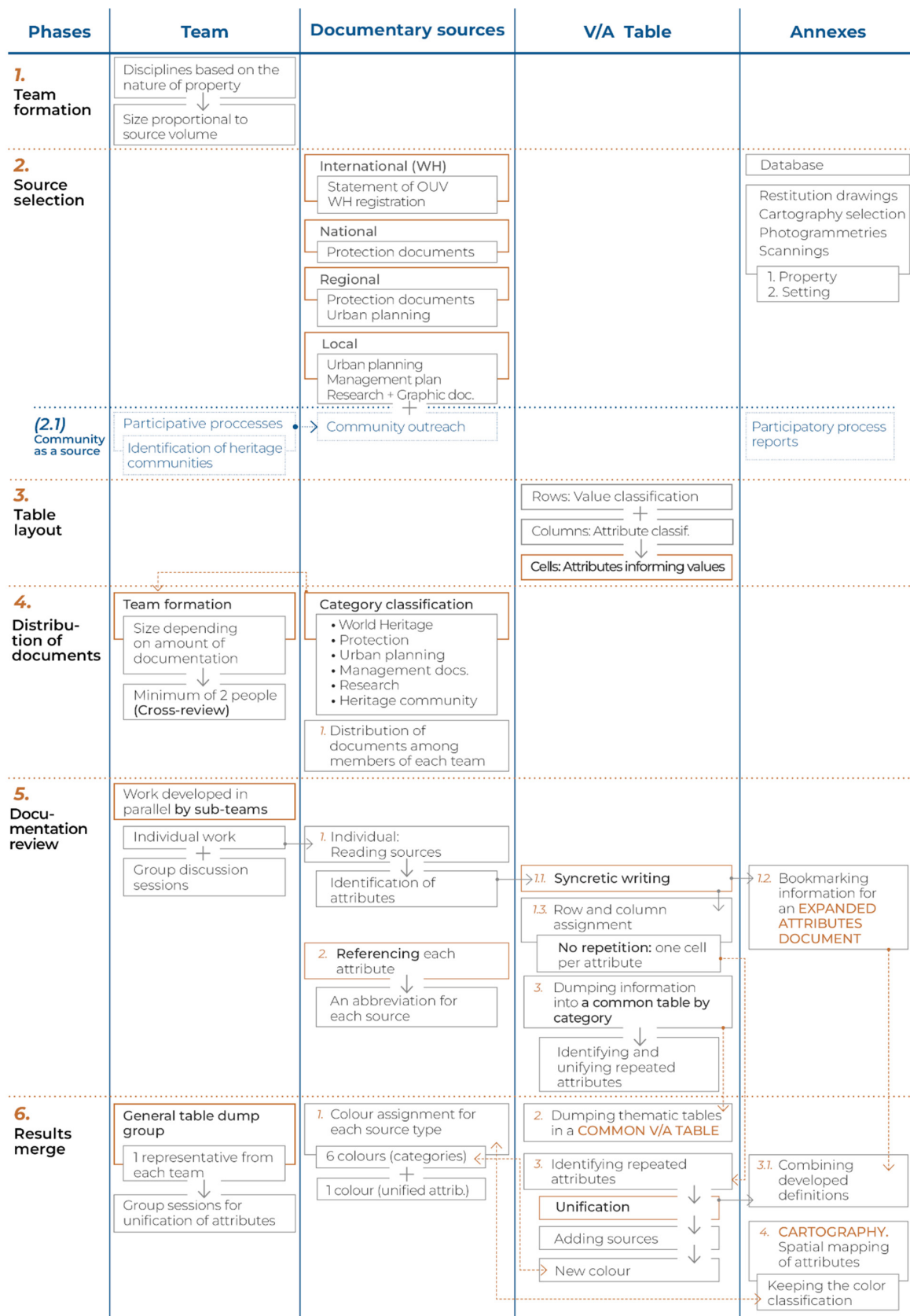


Figure 2. Process diagram for the creation of a table of heritage attributes for WH properties based on the methodology developed in the WHATS-UP project for the creation of a table for the Real Alcázar of Seville. The sequence of processes is indicated by symbols and arrows (in grey), showing the relationships between different stages (dashed arrows). The documents produced as a result of applying the process are highlighted in orange. Source: Soledad González Arques, 2025.

4. Development: The Attributes Derived from Archaeological Research at the Real Alcázar of Seville

As previously stated, the application of the proposed methodological process to WH properties will be demonstrated through two representative attributes derived from archaeological research sources, showcasing the capacity of this discipline to document the material and symbolic significance of this property and the density of its values. By doing so, they facilitate an approach to the Real Alcázar's values from broader perspectives than those traditionally inherent to the discipline, thereby revealing social, economic, or ecological dimensions. Ultimately, applying this methodology to the Real Alcázar has proven that this multidimensionality occurs across all types of consulted sources, reinforcing the importance of a protocol that enables interdisciplinary cross-referencing to ensure these nuanced, interconnected insights are not lost.

Once the various working groups had been formed, a three-member team—comprising one archaeologist and two architects—was assigned to the archaeological research sources. The process of identifying heritage attributes began with the analysis of documents resulting from archaeological research carried out on the Real Alcázar of Seville since 1997. These programmes, directed by Dr Tabales Rodríguez, have been key to understanding not only the building complex and its historical, functional and constructive evolution, but also the origins and transformation of this urban sector, at the southern end of the historic centre of Seville, demonstrating great complexity in both the site and the complex of palaces.

The research project carried out between 1997 and 1999 “Comprehensive Archaeological Analysis of the Real Alcázar of Seville: A study on the historical evolution and urban integration of the palace” [23] provided the basis for the Special Protection Plan and set out the conclusions of the first comprehensive and systematic study of this palace complex conducted using archaeological methodology. While previous work had focused on the architectural and artistic aspects of the emerging structure based on typological and chronological analogies, this document addresses for the first time the analysis of the elevations through wall studies, complemented by stratigraphic surveys and specific excavations. In the illustrative figures showing the process development (Figures 3 and 4), this document is referred to as PIA1999.

The “Research Report: Archaeological Excavations in the Patio de Banderas of the Alcázar of Seville” (2015) [24] has also proved highly informative, named PGI2015 in Figures 3 and 4. This major research project focused on the archaeological investigations carried out in the Patio de Banderas. This space, currently configured as a square open to the city, is the result of various historical demolition and functional and aesthetic reorganisation operations in the eastern sector of the Alcázar. Its excavation provided a highly significant scientific opportunity to understand the layout and functioning of the earliest Islamic military enclosure, as well as to document the initial protohistoric occupation and a complete sequence of the urbanisation of the sector from the beginning of the 1st century BC to the present day.

The documentation for the research project entitled “Chronological Systematisation of the Real Alcázar of Seville. Absolute dating and information management using Archaeological GIS and BIM” [25]—developed between 2017 and 2021 within the framework of the State Plan for Scientific and Technical Research and Innovation, 2013–2016—was also reviewed. It is referenced in Figures 3 and 4 as PGI2017-21. Its analysis made it possible to review and reformulate the chronology of the earliest Alcázar, its walls and the construction of the first great palace between the mid and late 11th century.

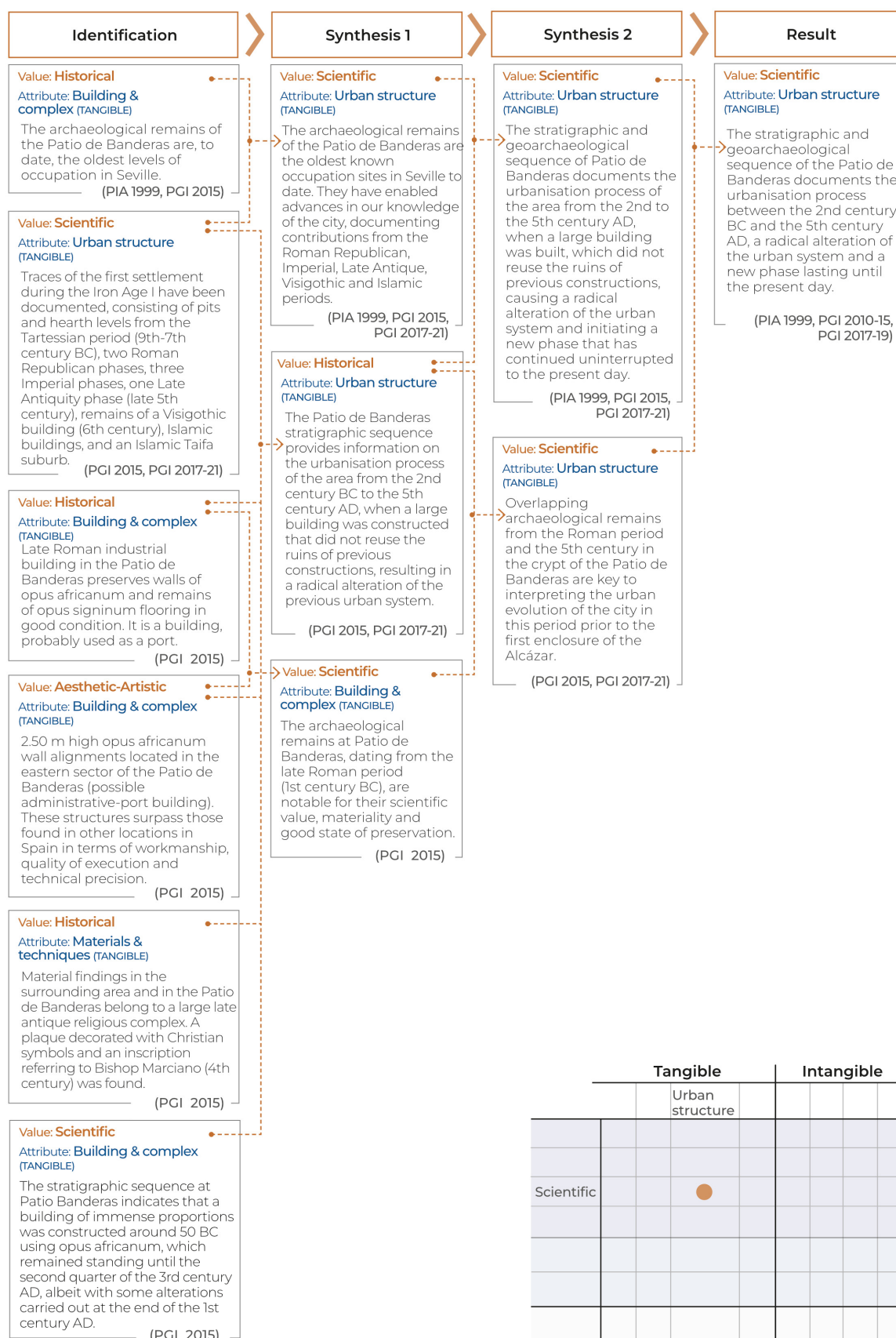


Figure 3. Phases for defining the selected attribute representative of scientific value, by merging different value statements (dotted arrows) Final location in values/attributes matrix marked in orange. Source: Authors' elaboration, 2025.

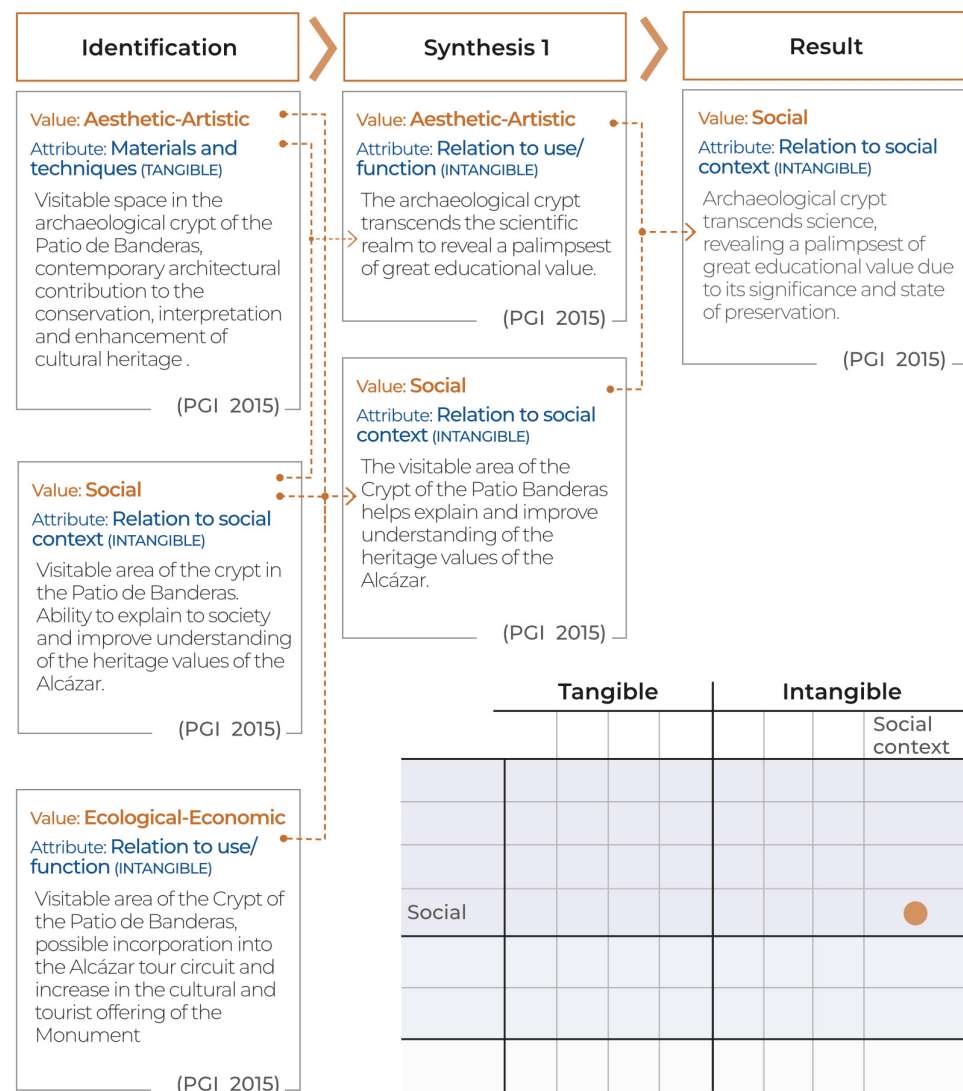


Figure 4. Phases for defining the selected attribute representative of social value, by merging different value statements (dotted arrows). Final location in values/attributes matrix marked in orange. Source: Authors' elaboration, 2025.

The consultation of the mentioned sources led to the identification of—among many others—the first attribute chosen to illustrate the practical application of our protocol. After following the complete methodological process—illustrated in Figure 3—it was stated as the following attribute of scientific value:

“The stratigraphic and geoarchaeological sequence of the Patio de Banderas documents the urbanisation process between the 2nd century BC and the 5th century AD, a radical alteration of the urban system and a new phase lasting until the present day”.

Scientific value, as defined in the 1972 World Heritage Convention [4], is understood as the potential of a heritage asset to serve as a primary source of direct knowledge based on verifiable data. In the case of the Alcázar, this translates into the capacity of the complex itself to generate verifiable information based on archaeological records and the study of its materiality. Unlike other types of documents that literally describe the values and attributes of the Real Alcázar, such as declarations and protection or management instruments, the analysis of these scientific texts requires a decoding process to translate objective data into attributes that qualify the object of study. This approach involves an interpretive reading of the documents, implying an identification of attributes and their organization into the methodology's established categories, which may inherently carry a certain degree

of initial subjectivity. To address this, iterative rounds of textual synthesis are deployed. These rounds allow the most critical elements of each attribute to emerge, facilitating the identification of convergences among different attributes during cross-review sessions. This process is repeated as many times as the volume and complexity of the sources dictate, until a consensus is reached among the team members.

Figure 3 exemplifies the diverse case-by-case scenarios encountered along the path toward identifying the attribute under analysis. This process began with an initial identification of various attributes related to the Patio de Banderas, which ascribed value to elements from different historical periods, as well as to the critical role of archaeological stratification in the city's formation. Factors such as the narrative style, the identification of specific elements, or the location of the text within the analyzed documents determined the initial classification of each value within the matrix. Consequently, historical or aesthetic evaluations were added to the scientific value, and attributes were categorized as representative of either the Alcázar's materials and techniques, its urban growth, or the palace complex itself. All of these represent analytical dimensions for which some of Alcázar's construction elements constitute a decisive source of knowledge. Ultimately, all identified attributes possessed a sufficiently multifaceted nature to be legitimately considered under any of these classifications.

The application of the methodology entailed prioritizing consensus-driven interpretations to streamline the volume of the master matrix into a scale designed to efficiently inform future decision processes. In this instance, the process required undergoing three refinement stages in the phrasing of the attributes, progressively identifying informational overlaps that reinforced the consensus regarding the value of overlapping historical layers within a single location, rather than the isolated value of each historical period.

All of this required a process of debated synthesis, bringing together characteristics of the same nature but of different significance into a single attribute. This also involved discussing the most representative placement within the matrix for each new version of the attributes, despite their complex nature, in order to achieve a streamlined tool free of redundancies. Consequently, the elements listed in each category were effectively reduced to those most significant and relevant in terms of their scientific potential (Figure 3).

This tangible attribute found in the archaeological structures unearthed in the Patio de Banderas was ultimately classified in the urban structure category. Concurrently, it links to a second attribute that, despite sharing the exact same physical space, was classified as representative of the potential social return of this heritage through its activation as a cultural resource. The complete identification and tracking process for this second attribute is illustrated in Figure 4, stated as follows:

"Archaeological crypt transcends science, revealing a palimpsest of great educational value due to its significance and state of preservation".

The same procedure was repeated, working from the fusion of others initially identified in the early stages of work under different value classifications. This process centered around a recent intervention at the Patio de Banderas, designed to make the dense historical information concentrated at the site accessible to the public. However, the focus on the new visitable crypt introduced new value considerations, incorporating economic, educational, and social functions. Consequently, a new attribute emerged with its own distinct identity, rooted in contemporary design. This approach recognizes contemporary intervention as a valid contribution to the site's history, thereby demonstrating the necessity of keeping this type of heritage characterization continuously updated. The educational potential of these remains, together with their appropriate museum display, ultimately lead the team to highlight the value of this attribute for contemporary society. This case highlights a core strength of the proposed protocol: its operational flexibility to fluidly assimilate

contemporary design and modern socio-economic dimensions as an active vehicle that unlocks the socio-educational potential of the archaeological remains while transforming them into dynamic resources for present-day communities.

While some attributes continued to undergo synthesis during Phase 6, when new overlaps were identified among attributes stemming from different working teams in an iteration of the described process, these two specific attributes were chosen because they did not require further modification, thereby keeping the methodological description straightforward.

5. Discussion and Conclusions

The methodological development for identifying heritage values and attributes is ongoing and has evolved alongside the concepts that have been fundamental to the cultural theory of heritage. In this regard, the turn of the century has seen a shift in the recognition of heritage as an active agent in ensuring the cultural, economic and social development of the communities to which it belongs. The approach adopted by conservation is now people-focused, with the heritage community—including experts from multiple disciplines—playing a key role in bridging the gap between scientific knowledge and heritage management. This work contributes to this evolving context by providing a streamlined matrix framework that integrates diverse disciplinary perspectives on WH properties as complementary vectors. While the development of actionable conservation strategies or direct intervention schedules remains a subsequent phase of project management, this streamlined cognitive baseline is what guarantees that future architectural interventions and administrative protections are firmly rooted in the multi-layered historical values of WH properties.

The main contribution of this article is not the reformulation of the values/attributes matrix, but the six-phase protocol that enables attributes to be systematically identified, unified and expanded beyond the World Heritage dossier. The resulting matrix is conceived as a cognitive and traceable baseline that can support subsequent conservation tools, including HBIM models, Heritage Impact Assessments and other project-specific instruments. In this way, the protocol bridges the gap between dispersed documentary and participatory evidence and the practical needs of protection, management and future decision-making, while leaving additional operational layers to be developed in applied conservation contexts.

The description of this methodological process stems from its repeated application across various heritage properties and contexts, confirming its effectiveness in identifying attributes and values that capture current perceptions of heritage. Particularly in the case of WH properties with older inscriptions, such modern perceptions are often underrepresented in original nomination files. Experience gained from applying the process to various cases has enabled its refinement and improvement to the form presented in this article. Its primary benefit lies in facilitating the review and updating of the values and attributes of these properties in light of new considerations, while offering a structured approach not only to identify attributes, but also to organize, evaluate, prioritize, and quantify them. This structured approach to available information constitutes a foundational first step toward developing effective conservation and governance policies.

However, the very mechanisms for the sustainable and comprehensive management of heritage properties established at the international level for WH have now extended their scope of application to other local heritages. HIA methodologies, as well as the preparation of value reports as tools underpinning the theory of sustainable conservation of heritage properties, are widely accepted as applicable to any heritage context. Thus, the methodology developed, initially designed for the preparation of value reports that could

serve as a reference for HIA studies in WH properties, was developed with the consideration that it could be adapted to the specific characteristics of other national, regional or local heritage. Its usability and adaptability depend less on the level of inscription or the category of the properties, and more on aspects related to their context and scale. In this regard, the differences between urban and non-urban contexts, or even between small and large cities, are more decisive. Scale is relevant in terms of the urban, territorial or landscape integration of the properties. Furthermore, a spatial mapping of the attributes resulting from the application of this methodology through tools specific to architectural practice such as HBIM would yield a critical tool to underpin subsequent conservation decision-making.

The application of the methodology to the case study of the Real Alcázar successfully validated its usefulness, providing the research team with a holistic approach to the property's values and attributes, comprehensive findings that extend far beyond those originally established in the OUV. However, the successful transfer of this process to other heritage contexts remains fundamentally contingent upon the precise selection and commitment of the interdisciplinary fields involved. Furthermore, while new meanings may emerge in the future from new information sources and developments, heritage communities must be considered one of the most dynamic and recurrent update providers. Engaging these communities as active stakeholders is therefore essential in any heritage valuation process, whether during the initial identification phase or through the dissemination of results. Rather than a static ledger, the proposed attribute–value framework is designed to act as the catalyst for future participatory design tools, offering a clear baseline where potentially conflicting social, economic, and historical interests can be systematically negotiated and resolved. Consequently, such participatory approaches will play a pivotal role in subsequent phases of decision-making for the heritage site.

Proper traceability of these sources has also proved to be a critical asset, ensuring that results can be reviewed when necessary or as valuation criteria evolve alongside cultural theory. Given the interdisciplinary nature of this proposal, different teams might reach slightly different conclusions regarding the same property. Consequently, a methodology anchored in the rigorous collection of sources—combined with a refined process for analysing and processing the resulting data—is fundamental to achieving a rigorous and comprehensive characterization of these heritage properties.

Limitations of this methodology reside in the constraints of existing protective regulations and the accessibility of comprehensive data. Furthermore, assembling large, highly representative teams poses a practical financial challenge, even though decoding the complex layers of meaning embedded within these properties benefits enormously from diverse perspectives capable of detecting such nuances. While this process remains inherently interpretive, its design leverages interdisciplinary debate and collective consensus to offer a contemporary approach to the interpretive complexity of World Heritage sites.

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Abbreviations

The following abbreviations are used in this manuscript:

HIA	Heritage Impact Assessment
WH	World Heritage
OUV	Outstanding Universal Value
IAPH	Andalusian Institute of Historical Heritage
PPGIS	Public Participation Geographic Information Systems
MP	Management Plan
GIS	Geographic Information Systems
TLS	Terrestrial Laser scanning
HBIM	Historical Building Information Modeling

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