

Cultural heritage and sustainability: What is the state of the art? A systematic literature review¹

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Marianna Marzano - Monia Castellini

Abstract

Frame of the research: This paper provides a systematic literature review of sustainability in the cultural heritage sector. The purpose is to understand where studies and research stand in analysing the sustainability factors of a specific enhancement project involving cultural heritage or cultural heritage management.

Methodology: A systematic literature review was conducted according to the PRISMA methodology. The current knowledge of the academic debate on the topic was mapped, providing a holistic and interdisciplinary perspective.

Findings: The literature review highlights the temporal evolution of studies on this topic and analyses the main focuses. This approach allows us to highlight how sustainability factors (economic, social and environmental) are addressed and interpreted in terms of cultural heritage. The results reveal multiple aspects, for example, the increase in studies under the impetus of Agenda 2030, the importance of interdisciplinary methods to understanding how to implement and subsequently measure sustainability, knowing what tools and indicators to refer to, and finally, trying to increase collaboration between theoretical and applied research from nonacademic research centres.

Research limits: This study is a snapshot in time, and future developments should be considered. In addition, comprehensive consideration of cultural heritage from other research perspectives can be difficult.

Practical implications: This study reveals gaps that should be filled for more effective sustainable management of cultural heritage, such as improving research methodology, promoting interdisciplinary research, actively involving local communities, and improving data collection and accessibility.

Originality of the paper: The paper shows a continuing lack of studies on this topic owing to the complexity of collecting sustainability information and the subject matter.

Key words: systematic literature review; cultural heritage; sustainability; sustainable development

¹ Paragraph attribution

“This contribution is the result of the joint effort of the authors. Despite the global responsibility for the work being equally shared between the two authors, Marianna Marzano is responsible for abstract and paragraphs 2, 3.1, 4.2.2, 4.2.4, and 4.2.5, and 5. While Monia Castellini is responsible for paragraphs 1, 3.2, 4.1, 4.1.2, 4.1.3, and 4.2

1. Introduction

Today, the concepts of sustainable development and sustainability are part of a common vocabulary. Every sector, disciplinary and non-disciplinary, has its own way of approaching the principles of sustainability.

The concept of “sustainable development” dates back to the 1970s, when concern grew over the risk of environmental collapse caused by uncontrolled economic growth. In 1987, it was elaborated by the United Nations Committee on the Human Environment, referring to development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 16). Natural resource conservation and environmental improvement have long attracted increasing attention (Du Pisani, 2006). In 2015, the United Nations Conference on Sustainable Development formulated 17 specific goals collected in Agenda 2030, an action programme for people, the planet, and prosperity oriented towards identifying and solving multiple social issues associated with the environment, people, and economic growth (ONU, 2015). However, in 2002, the Budapest Declaration on World Heritage defined World Heritage as an “instrument for the sustainable development of all societies” (2002, p. 43).

Despite Agenda 2030’s limited emphasis on cultural heritage (Vecco and Srakar, 2018), particularly in SDG 11, which strives to make cities inclusive and sustainable, the significance of cultural heritage as a source of value for future generations remains undeniable (ICOMOS, 2019). Cultural organizations can contribute to sustainable practices aligned with the proposed development goals, necessitating a systemic approach and strengthened stakeholder relationships (Cerquetti and Montella, 2021). Cultural heritage comprises tangible and intangible elements that hold value for a society, and it creates a sense of identity and belonging involving communities. As an umbrella term, it includes historical buildings, monuments or archaeological sites, and museum collections. Additionally, it refers to immaterial forms of art and popular or cultural traditions.

Because of its features, as noted by ICOMOS (2019), cultural heritage sustainability requires an evaluation of environmental, cultural, technical, and economic outcomes. These aspects refer to the pillar model of sustainability that contains an articulated economic dimension related to the creation and maintenance of economic value, a social dimension related to the impact on communities and well-being, and an environmental dimension related to the challenges of climate change (Keiner, 2005; UNIDO, 2005).

The economic dimension is regarded as a critical prerequisite for meeting human needs and effecting enduring enhancements of people’s living conditions. From the contemporary perspective, addressing economic growth in isolation from other developmental dimensions is no longer satisfactory. In the cultural heritage field, one critical and underrepresented component of economic sustainability management is financial sustainability (Rossitti *et al.*, 2021). This point is critical because research usually reveals the unsustainability of such projects and their

dependence on the provision of (scarce) public funds (Eppich and Grinda, 2019).

The social dimension of sustainable development underscores the imperative need to enhance people's overall well-being by elevating fundamental material income levels and fostering social equity. This entails ensuring that all demographic groups enjoy equal access to educational opportunities, livelihood options, and resources (UNIDO, 2005). The significance of this dimension is particularly pronounced when considering the inclusion of cultural heritage within the framework of sustainable development. Social sustainability concerns the impact on communities and their involvement (Li *et al.*, 2022) because the cultural heritage sector goes beyond the concepts of preservation and conservation to focus on value creation for users (Sacco and Teti, 2017). In the context of this discourse, the concept of intergenerational equity assumes particular relevance, with the present generation undertaking the preservation of cultural capital, as elucidated by Bourdieu (1984) to benefit subsequent generations.

Regarding environmental sustainability, the primary focus has been on resource utilization, encompassing both natural and environmental realms; thus, this dimension of development pertains to extensively researched and quantifiable subjects. Researchers have addressed the impacts of change on the conservation of heritage, the processes of the circular economy (Foster, 2020), and the consequences for the environment derived from tourist flows (Barthel-Bouchier, 2016).

These aspects have been underinvestigated, and research has become fragmented because cultural heritage embraces several dimensions of analysis, e.g., sociological, artistic, museological, architectural, engineering, environmental, and economic. Indeed, scholars have emphasized that there are gaps in research on evaluating the impacts of cultural heritage sustainability (Jelinčić and Tišma, 2020).

The objective of this systematic literature review (Xiao and Watson, 2019) is to define the state of the art of research on the relationship between sustainability and tangible cultural heritage and how this relationship has been analysed, especially in management studies dealing with the subject. We focus on this area because while tangible cultural heritage has a greater recognized likelihood of being managed by structured organizations, intangible heritage (social practices, rituals, and festive events) emphasizes defining the object, who manages it, and what impacts to measure (UNESCO, 2017).

In defining these objectives, it is necessary to understand which areas are most lacking and whether studies have paid more attention to analysing environmental, economic or social sustainability or whether the three areas are analysed indiscriminately in all works. Furthermore, it is important to understand how actions and activities oriented towards sustainability have been implemented and measured. The contribution analysis permits us to delineate

- The "time evolution" that has characterized the studies.
- How the studies have addressed the issue of integrating sustainability and cultural heritage.

- Which factors have been most investigated by studies in terms of which research topics should be pursued, and what kinds of methodologies have been used

In defining the latter, it is appropriate to understand which areas of sustainability have been less investigated and whether all forms of sustainability, i.e., environmental, economic, and social, have been investigated.

This analysis assesses the cultural heritage and sustainability literature from 2003 to 2022. It examines both bibliographic and nonbibliographic aspects, offering insights into the progression of studies on specific subjects, analytical methods, and sustainability facets. The findings serve as a foundation for future research, aiding scholars and experts in identifying replicable practices and new perspectives for advancing sustainability assessments. This review underscores the growing interest in integrating cultural heritage and sustainability, not only in academic circles but also in policies and practical applications. It explores the evolution and implementation of sustainability in cultural heritage, presenting a comprehensive overview of investigative focuses, methodologies, and sustainability factors selected for study. It identifies areas requiring further analysis and emphasizes the holistic integration of all sustainability pillars.

The paper is divided into five sections. The introduction follows the theoretical background with the framing of the topic in the literature. It is followed by the “Materials and Methods” section, which explains the research protocol. In Section 4, the results are presented in graphs and tables, after which the data are discussed. Finally, the concluding remarks are presented.

2. Theoretical Background

In contemporary times, sustainable development has acquired a more expansive interpretation (Bramwell, 1996). This evolution has given rise to three distinct “pillars” of sustainable development: economic, environmental, and social (Purvis *et al.*, 2019). Initially centred around environmental concerns such as ecology and natural resource conservation, the concept evolved to encompass economic aspects, incorporating not only material well-being and wealth distribution but also environmental and social outcomes that had long been overlooked (Foster and Kreinin, 2020).

While the relationship between culture and sustainability has been discussed in the public sphere since the 20th century, international institutional endeavours to establish global sustainability programs have not entirely recognized the significance of culture, centred around the three primary dimensions (Richards and Palmer, 2012).

Beginning in the 21st century, culture emerged as the “fourth pillar” of sustainable development and has played a vital role in achieving sustainability (Hawkes, 2001). This change led to a reassessment of the narrative surrounding cultural policy, with researchers urging a reconsideration of cultural management approaches to address the concerns voiced at the grassroots level within the sector.

The notion of culture as the fourth pillar (Nurse, 2006) in sustainable development faced criticism for both its rhetoric (Isar, 2019) and its inherent conceptualization (Soini and Dessein, 2016). Culture is a complex and multifaceted term that is often referenced both in relation to the expansive arts and culture sector and as encompassing ways of life and collective identities.

Many researchers have recognized the impact of culture on sustainable development, and in recent years, an increasing number of documents have contributed to the dimensions of cultural sustainability (Liu, 2019; Soini and Dessein, 2016; Kagan, 2012; Hawkes, 2001).

Throsby (2005), for instance, explored the role of culture in sustainability and presented three frameworks: cultural capital as a sustainable resource, the interaction between culture and the environment, and the sustainability of urban cultural heritage. The United Cities and Local Governments (2010) suggested a twofold approach to the relationship between culture and sustainable development: focusing on the development of the cultural sector itself (e.g., the art, cultural and creative industries) and ensuring that culture is integrated into other public policies (e.g., education, economics, and urban planning).

Duxbury *et al.* (2012) provided a comprehensive summary of the relevant literature, outlining four main axes for comprehending the role of culture in sustainable development: culture as capital (both tangible and intangible), culture as a process and way of life, culture as a central element in creating value for sustainable action, and culture as a creative expression offering insights into sustainability issues.

Finally, Soini and Dessein (2016) proposed a framework for cultural sustainability, emphasizing that culture is the fourth pillar of sustainable development (*culture in sustainability*), plays a mediating role in achieving economic, social, and ecological sustainability (*culture for sustainability*), and serves as the necessary foundation for overall sustainable development goals (*culture as sustainability*).

The World Commission on Culture and Development initially defined cultural sustainability as inter- and intragenerational access to cultural resources. Additionally, cultural sustainability entails conducting development in a manner that honours social cultural capital and values (Pop and Borza, 2014; Kohl, 2008). This concept is grounded in the principle that the present generation can utilize and modify cultural heritage only to the extent that it does not impede future generations' capacity to comprehend and live according to their diverse values and meanings (Pereira, 2007). Therefore, this dimension of sustainability focuses primarily on guaranteeing the continuity of cultural values that connect the past, present, and future (Pop *et al.*, 2019).

Recognizing cultural heritage as a valuable resource is imperative for implementing a strategy of sustainable development and enhancing quality of life and well-being within communities.

Cultural organizations have the potential to implement sustainable practices. However, in their management, it is important to adopt a system approach and strengthen relationships with the external context and stakeholders to achieve these objectives (Cerquetti and Montella, 2021).

On the other hand, culture is increasingly recognized as a vital element in the sustainability framework, facilitating connections across various policy domains (Burksiene *et al.*, 2018). Policymakers and decisionmakers are embracing this concept in guiding societal and human development (Duxbury *et al.*, 2012). Over the past two decades, a multitude of contributions on the subject have been made by economists, business management scholars, policymakers, cultural commentators, and practitioners. For example, the UK Department of Culture, Media, and Sports emphasized the central role of enjoying and participating in the arts in successful sustainable development. The historical significance of the arts extends beyond entertainment, as they play a crucial role in engaging, informing, and instigating attitudinal change. Leveraging imagination and creativity through the arts is deemed essential for driving social and environmental transformation, both of which are integral to achieving authentic sustainable development (Liu, 2019; DCMS, 2018).

There is a shared eagerness to actualize these principles not only in large and small cultural organizations and events but also in cities and regions on both local and global scales. The traditional belief that the protection of cultural heritage hinders economic development, ingrained in social mentality for generations, appears to be waning (Wróblewski *et al.*, 2019). Both local authorities and private sector representatives are increasingly recognizing that preserving cultural heritage can yield numerous economic benefits, including generating income and jobs, providing opportunities for vocational training and the preservation of crafts, revitalizing city centres, and promoting cultural heritage tourism. These outcomes can lead to increased real estate values, support small businesses, and bring additional advantages.

Academic publications and national and EU programmes have played significant roles in shifting this paradigm and encouraging the implementation of sustainable development policies in the cultural sector (Tobiasz *et al.*, 2019). However, as noted by Cerquetti and Montella (2021), there a limited number of contributions from scholars (Mio *et al.*, 2020) and policymakers have endeavoured to systematically and analytically integrate “sustainability” and “culture”, particularly with a concentration on the diverse roles of culture in sustainable development. The challenge is primarily the complexity of this endeavour, particularly considering the requisite transdisciplinary approach.

3. Materials and Methods

3.1 The protocol for publication selection

This systematic literature review is based on a research protocol that reduces researcher subjectivity, thus distinguishing it from traditional reviews (Hiebl, 2021; Kraus *et al.*, 2020)

The aim of the research is to map the current academic debate on the topic, providing a holistic and thus interdisciplinary view. Furthermore, it aims to enable scholars to determine what methodologies and methods are

still unexplored in investigating the relationship between cultural heritage and sustainability and what recommendations for policymakers emerge from the analysed studies.

Before we set a keyword search, it was appropriate to identify the presence or absence of literature reviews on the topic of cultural heritage and sustainability. The search was carried out on the following databases: Web of Science (WOS), EBSCO, and JSTOR. WOS stands out as a highly utilized academic research database that provides extensive citations organized by source and encompassing a significant volume of scientific literature. It is instrumental in assessing the pertinence of a search query, as it boasts robust data integrity (Chadegani *et al.*, 2013). This database is integrated with other multidisciplinary platforms that use different search criteria and with JSTOR, which focuses more on contributions in the social sciences and humanities (Bernnard and Hollingsworth, 1999). The Google Scholar search engine was also used but was not included in the research protocol. The reason is the algorithm setting, which shows results by author based on interactions and previous searches and does not allow a choice of search parameters (Gusenbauer and Haddaway 2020).

The first search involved the keywords “sustainability of cultural heritage and literature review”, “sustainable development in cultural heritage and literature review” and “sustainability and review of literature on cultural heritage”. The findings revealed papers carrying out literature reviews focusing on specific aspects of sustainability and cultural heritage but no literature review covering the state of the art of cultural heritage and sustainability studies from an interdisciplinary and holistic perspective. The literature reviews to date on the specific topics were

- “Heritage and Sustainability. A review of recent literature and a reflection on the role of participatory heritage practices in sustainable development” (Rossitti *et al.*, 2021). This proceedings paper was a systematic literature review of participatory heritage practices from a financial sustainability perspective.
- “Financial Sustainability of Cultural Heritage: A Review of Crowdfunding in Europe” (Jelinčić and Šveb, 2021). This paper dealt with the sustainability of cultural heritage from an economic-financial point of view. Indeed, through the application of the PRISMA guidelines, it systematically reviewed crowdfunding mechanisms applied to cultural heritage projects with the aim of providing practical information.
- “The use of indicators to measure the sustainability of tourism at cultural heritage sites: a critical review” (Spencer and Sargeant, 2022). This critical review analysed the use of indicators to measure the sustainability of tourism at cultural heritage sites.

Only these three contributions reviewed heritage participation practices, the economic sustainability of cultural heritage, and the measurement of tourism at cultural sites.

Therefore, after we conducted the initial search and defined the overall research objective, the first step was to search the literature through the strings “cultural heritage and sustainability” or “cultural heritage and sustainable development”. The term “cultur” was always searched in

combination with “heritage” and “tangible” since “cultural sustainability, sustainable culture, culture & sustainability” could have taken on other connotations. The word “culture” encompasses the semantic essence of human communities, embodying symbolic patterns, norms, and rules that demarcate the human sphere from the natural one (Eriksen, 2001). This intricate concept extends beyond a mere set of attributes, signifying a broader sense of civilization and the advancement of the human condition, human identity, and individual personal growth through knowledge and study (Hastrup, 2003).

The research string did not include “cultural heritage and climate change”, as aspects of climate change could be included in environmental sustainability and are included in environmental studies.

Furthermore, cultural sustainability (Soini and Birkeland, 2014) differs greatly from the sustainability of culture. It assumes the significance of preservation “for future generations while at the same time finding a balance and harmony between cultural heritage and the people who would like to experience it” (Jelinčić and Tišma, 2020, p. 79).

The research focus is on a specific type of cultural heritage that includes tangible cultural heritage such as archaeological sites, industrial heritage sites, monuments, cultural landscapes, and historical buildings.

For this reason, the research areas range from the social sciences to the economic-managerial sciences; due to the characteristics of cultural heritage, the humanities and arts are included.

The PRISMA flowchart (Figure 1) allows a graphical view of the screening stages before identifying the papers eligible for inclusion in the systematic review (Mishra and Mishra, 2023; Stovold *et al.*, 2014).

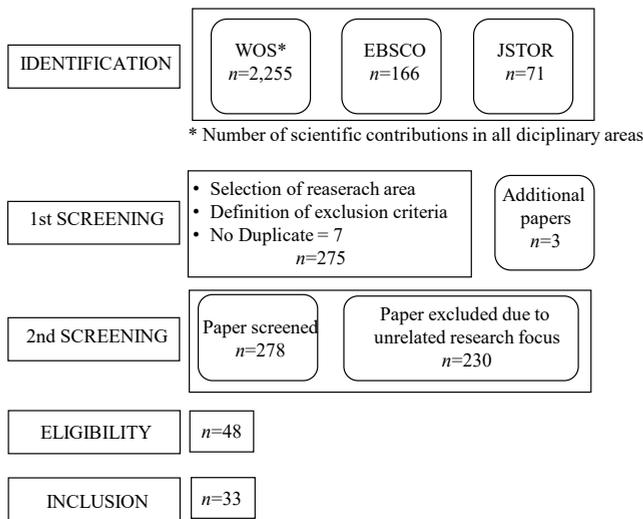
The first screening phase involved (Al-Tabbaa *et al.*, 2019)

- The selection of 4 research areas: archaeology, art, management, and social sciences. Architecture was excluded because distinguishing between architectural assets of cultural or noncultural value would have been complex. In addition, the topic is often accompanied by urban planning factors or sustainability aspects from the perspective of energy efficiency in buildings, urban regeneration, or building materials.
- The elimination of duplicates.
- Exclusion criteria: only articles contained in journals and subjected to a peer-review process and articles contained in book chapters were considered. In both cases, a refereeing process was foreseen. For each area of analysis, proceedings papers with a less rigorous review process and lower scientific impact were excluded. Furthermore, only English-language papers were considered.

The second screening stage involved the exclusion, through an initial reading of the abstracts, of papers unrelated to the research focus and unaligned with the research requirements.

After the two assessments, the bodies of papers eligible for analysis and inclusion were obtained.

Fig. 1: PRISMA flow chart for literature selection



Source: Authors' elaboration

In the first-phase search of WOS, 2,255 papers were obtained. The number of contributions was high because no filters were applied to the disciplinary areas; rather, a generic search was performed for the keywords within the platform. The first research screening focused on the four selected disciplinary areas, which reduced the number to 270 papers. The final screening phase further reduced the number, resulting in 24 useful contributions. EBSCO generated 166 contributions in the initial phase. The first screening reduced the number to 12, and the final screening resulted in 8. Finally, the search on JSTOR was carried out within titles and abstracts based on the same keywords. The search of abstracts led to 59 results, none of which were relevant. The search of titles yielded 12 results, of which 2 were possible contributions to the analysis. After the second screening, one paper remained. JSTOR allows contributions to be selected not only by keyword but also by content type and subject type.

The number of specific papers on the subject was not high, which highlighted the immaturity of the research topic in the abovementioned fields. It is the norm to find few contributions in an "immature" research field (Frank and Hatak, 2014).

3.2 Introducing publication analysis methods for evaluating the studies

The selected articles were analysed according to two main factors:

- (1) The bibliographical information (e.g., year of publication, type of publication, authors and their professional affiliation and geographical origin, research category, journal, journal ranking, and number of citations of the article);
- (2) The methodological information (e.g., type of methodological contribution, kind of cultural heritage, geographical area of the research, conceptual analysis, and utility of future perspectives).

The bibliographical aspects were then analysed more specifically based on the following factors:

- Timeline of publications. The identification of the period of publication made it possible to create a timeline highlighting the moment when researchers' attention to a specific topic increased or decreased. In addition, it was possible to assess the consistency of scientific production, the maturity or immaturity of the topic, and any interest at the time of research.³
- Publication category. The types of publication here were "articles" or "articles in books".
- Research field. The research area covered six categories: archaeology, art, business, economics, management, and social sciences. The research field was useful for systematizing the contributions and understanding the researchers' focus.
- Authors. The authors were analysed in two aspects: their affiliation (whether university professors or experts at specific institutions) and geographical origin according to place of work.
- Journal and journal ranking. The publications were collected by journal, and the journal ranking was also assessed through impact factor, Scimago JR, and VHB JQ3.
- Number of article citations. Recent publications with a low number of citations were also taken into account based on the assumption that they take time to spread. Furthermore, we considered them interesting for research purposes.

On the other hand, regarding point 2, the methodological aspects considered were as follows:

- Type of methodological contribution. At this stage, articles were analysed according to the methodological approach. Furthermore, we distinguished whether an article was a conceptual paper, case study, empirical study, or exploratory study.
- Type of cultural heritage. This referred to the identification within the articles of the kind of cultural heritage analysed.
- Geographical area of research. The geographical area in which the research was developed by the authors of the article.
- Conceptual analysis, future perspectives, barriers, or benefits of the research. This provided a basis on which to read the research and analyse the concepts addressed and any future research perspectives or barriers. Furthermore, it highlighted whom the results of the research were addressed to (researchers, practitioners, institutions, policymakers, etc.).

4. Results and Discussion

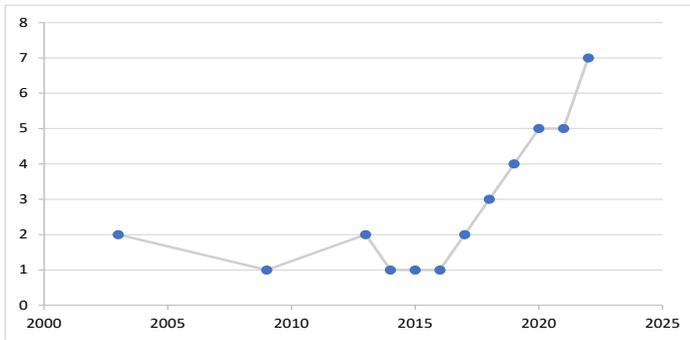
This section is based on the analysis and discussion of the bibliographic and methodological results. In the first case, the items of analysis were the year of publication, the distribution by research category based on journal subject area, the number of citations, the number of authors per contribution, and the authors' geographical distribution. In the second

case, the items were the content of the selected papers, focusing on elements concerning the geographical area in which the studies were developed, the methodology of the investigation, and finally, what aspects of sustainability were addressed and from what point of view.

4.1 Bibliographical information: Timeline of publications and research field

The SLR was based on 33 publications covering 2003-2022. This time horizon was justified by the first paper among those selected being dated 2003, while 2023 was the year in which the review took place. As shown in Figure 2, the number of publications increased after 2015, with a peak occurring in 2020-2022. The increasing number of publications after 2015 corresponded with the year of Agenda 2030, and the attention of researchers to this topic was likely linked to the specific objectives of the ONU.

Fig. 2: Number of publications per year



Source: Authors' elaboration

Of the papers selected, 97% were journal articles, and as stated earlier, proceedings papers were excluded. Regarding the field of research, management studies prevailed, followed by art studies.

Tab. 1: Distribution of publications per research category

Research category	%
Social sciences	6%
Management	50%
Art	26%
Archaeology	18%

Source: Authors' elaboration

4.1.1 Journals and number of citations

Table 2 shows the journals in which the articles were published, with the rows in grey indicating books or chapters in books. The analysis revealed a concentration of 52% of the articles in 3 journals: Journal of Cultural Heritage, International Journal of Heritage Studies, and Sustainability. Of

particular note were the special issue of Sustainability launched in 2021 entitled “Cultural Heritage and Sustainable Development”, were some of the articles were published. The quality of the selected papers was assessed through the classification of the journal in which the article appeared. Of the evaluable articles, 83% were published in journals that fell within Quartile 1.

The topic was approached from a multidisciplinary perspective, integrating humanities and art journals with management, economics, and environmental journals.

Tab. 2: Publication source ranked per paper and VHB

Journal	N° papers	H-Index	Impact Factor	Scimago Journal Rank	Vhb jq3
Journal of Cultural Heritage	9	70	2,955	0,722	Q1
Sustainability	7	109	4,17	0,234	Q1
International Journal of Heritage studies	5	50	2,27	0,791	Q1
Studies in Conservation	2	39	0,84	0,373	Q1
Tourism Management	1	216	13,79	1,611	Q1
International Journal of Conservation Science	1	18	0,76	0,295	Q1
Journal of Cultural Heritage Management and Sustainable Development	1	18	1,72	0,33	Q1
Tourism Management Perspectives	1	54	8,48	1,761	Q1
Urbani Izziv	1	17	1,36	0,268	Q1
Journal of Management & Governance	1	53	2,54	0,579	Q2
Property Management	1	29	1,42	0,316	Q3
Art-Sanat - Istanbul University Press	1	NA	N/A	N/A	N/A
Geografia-Malaysian Journal of Society & Space - University Kebangsaan Malaysia	1	NA	N/A	N/A	N/A
Revista pensamiento americano	1	NA	N/A	N/A	N/A

Source: Authors' elaboration

Table 3 shows the time horizons of the articles that were cited several times, which differ greatly. Reflection on the type of journal in which publications with a high number of citations were contained reveals that these journals specialize in cultural heritage.

Tab. 3: Six most cited publications

Authors	Publication Title	Source Title	Times Cited	Publication Year
Nocca F.	The Role of Cultural Heritage in Sustainable Development: Multidimensional Indicators as a Decision-Making Tool	Sustainability	271	2017
Orr <i>et al.</i>	Climate Change and Cultural Heritage: A Systematic Literature Review (2016-2020)	The Historic Environment: Policy & Practice	222	2021
Howard & Pinder	Cultural heritage and sustainability in the coastal zone: Experiences in southwest England	Journal of Cultural Heritage	115	2003
Ferretti <i>et al.</i>	Decision making and cultural heritage: An application of the Multi-attribute Value Theory for the reuse of historical buildings	Journal of Cultural Heritage	107	2014
Harrison R.	Forgetting to remember, remembering to forget: Late modern heritage practices, sustainability and the crisis of accumulation of the past	International Journal of Cultural Heritage Studies	105	2013
Landorf C.	A Framework for Sustainable Heritage Management: A Study of UK Industrial Heritage Sites	International Journal of Cultural Heritage Studies	86	2009

Source: Authors' elaboration

Studies by Nocca (2017) and Orr *et al.* (2021) showed an increasing focus on the relationship between cultural heritage and climate change. In the former, case studies led to the development of measurement indicators to understand the role of cultural heritage not only in climate change but also in economic and social improvement. However, the scarcity of resources for cultural heritage management, including assessment tools that highlight risks and impacts of environmental challenges and sustainable tourism, was reiterated. In the second case, the systematic review highlighted the low level of collaboration on the topic and the urgency of expanding research and collaboration globally.

The single Anglo-Saxon case study by Hovard and Pinder (2003) opened up the perspective of applying sustainability principles to coastal cultural and natural heritage. This study also considered the challenge of climate change. It provided evidence that the impacts of climate change may make the costs of conserving coastal cultural heritage unsustainable and that the exploitation of such heritage through tourism is not conducive to sustainable practices. In particular, tourism should not be the sole key to economic development and growth, as it is associated with consequences of environmental degradation.

A study by Ferretti *et al.* (2014) also focused on a single case in Italy. Applying a multicriteria analysis, it considered the problem of sustainability assessment in cultural heritage projects, which is useful for decision-making and investment processes. The paper highlighted the importance of using methods that support cultural heritage planners in the monetary and nonmonetary evaluation of cultural heritage projects.

Harrison's (2012) speculative article addressed the implications of cultural heritage creation practices and their sustainability. The sustainability of cultural heritage begins with the way in which the past is considered. A more sustainable approach to cultural heritage management involves acknowledging the historical narratives that are preserved and maintained through heritage records. It involves actively monitoring and refining these narratives in the present rather than simply allowing them to accumulate without intervention.

Finally, Landorf (2009) focused on analysing the relationship between frameworks for managing complex cultural sites and the sustainability paradigm. Through a content analysis of UNESCO management plans for Anglo-Saxon sites, the study highlighted the criticality of the management plans analysed at the time. These critical issues related to a lack of strategic integration of sustainability principles and failure to focus on economic and social factors, undermining the ability to understand the potential benefits of management and the impacts on the wider community (British Council, 2021).

4.1.2 Authors

The analysis covered several aspects of authors:

- Total number of authors on the topic
- Author distribution by geographical area
- Affiliation (university or not) of the authors

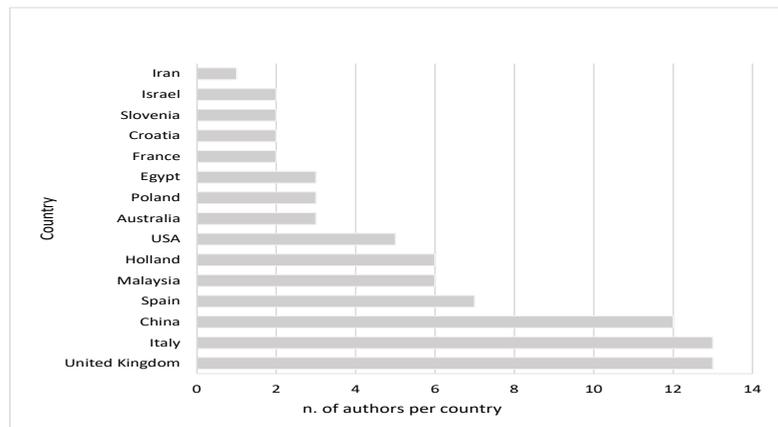
The publications considered included 80 authors distributed across 15 countries on five continents. Ninety-four percent of the authors were university researchers, and only 6% are affiliated with research centres.

As shown in Fig. 3, the country with the largest number of authors on the research topic was the United Kingdom, followed by Italy and China.

For countries where a significant number of authors addressed this topic, some insights can be gleaned about their policies and the value placed on their cultural sector.

Notably, Italy and China possessed the highest number of UNESCO Heritage Sites (whc.unesco.org/en/list/). Italy has a vast cultural heritage, while China boasts one of the world's oldest histories, as stated in its Constitution. The protection of Italy's historical and artistic heritage is highlighted in Article 9 of its Constitution, whereas the preservation of cultural heritage in China has been a contentious and demanding issue, as has sustainability. For many years, the country's vision has prioritized only strategies and policies aimed at achieving sustainable economic development, causing debate (Wai-Yin and Shu-Yun, 2004). The UK's national policies, particularly those overseen by the Department for Digital, Culture, Media and Sport (DCMS), demonstrate a strong focus on cultural heritage management. Academics play a crucial role in this area. The thoughtful management of cultural heritage is seen as pivotal not only to economic development but also to social development by reinforcing intercultural dialogue and fostering closer ties between communities and their heritage sites.

Fig. 3: Distribution of authors per country



Source: Authors' elaboration

A low degree of collaboration at the international level was noted, as an analysis of collaboration between authors from different countries showed that only 26% of the articles were written by several authors located in different countries. The remaining 74% were written by authors located in the same country, with the same university affiliation prevailing, revealing a low degree of collaboration between different academic and nonacademic institutions.

Further analysis confirmed this aspect of poor integration and collaboration, revealing that 43% of the articles were written by a single author and only 35% by two authors; the proportion decreased to 14% for collaborations among three authors (see Table 4).

Tab. 4: Number of publications per number of authors

Number of publications based on number of authors	% of publications
One author	43%
Two authors	35%
Three authors	14%
>3 authors	9%

Source: Authors' elaboration

4.2 Methodological information: The geographical areas of the studies and countries

The following section is based on the content analysis of the papers. Geographical information on the countries where the surveys were conducted was extracted. This made it possible to understand where the studies focused most by either applying qualitative (e.g., case studies) or quantitative methodologies.

Comparative case studies included more than one analysed country.

The analysis revealed that in seven articles, no geographical area was mentioned. Moreover, there were 37 countries in total. A division between EU and non-EU countries showed that there was a 59% concentration in EU countries. Research was further concentrated in 41% of non-EU countries.

Among the EU countries included in the analysis were Great Britain, with 16% of the total, and Italy, with 11%. In the non-European area, the studies focused heavily on Egypt (14%).

4.2.1 Type of heritage

An analysis of the type of cultural heritage on which the selected studies were based was necessary to understand whether some areas had been analysed more and whether sustainability had been investigated less.

The following results in the tabs emerged from the analysis of the data:

Tab. 5: The type of cultural heritage

Type of cultural heritage	% analysed in the articles
Coastal Heritage	5%
Industrial Heritage	5%
World Heritage Site	16%
Rural and Cultural Landscape	13%
Museums and Archives	11%
Historical Buildings	21%
Cultural Heritage (general)	21%
Archeological Siter	5%

Source: Authors' elaboration

Table 5 shows that the heritage analysed in the contributions was general cultural heritage, historical buildings, and World Heritage sites under the protection of UNESCO. Importantly, some contributions paid attention to preserving rural and cultural landscapes from the effects of climate change or restoration practices as a factor that could harm the environment caused. Other studies referred museums and archives in terms of applying sustainable solutions or increasing relationships with communities to enhance social sustainability.

This table also illustrates that scant attention has been paid to sustainability in coastal heritage and industrial heritage. These two forms of heritage present climate change-related obstacles, which tend to concentrate analysis on environmental sustainability. Nonetheless, the economies, social-territorial regions, tourist industries, cultural activities, commercial sectors, and other facets linked to these types of heritage require consideration.

The review's contributions encompassed the most prevalent types of tangible cultural heritage, including some naturalistic examples, albeit in fewer numbers. Archaeological sites that had not been designated World Heritage sites by UNESCO were the most extensively studied. Historical and monumental buildings were frequently evaluated for the potential reuse of space, renovation, and regeneration of areas in support of environmental sustainability.

4.2.2 Methodologies of the Studies

This section is important for understanding the methodologies used in the selected contributions. Qualitative methodologies were the most widely used, occurring in 68% of cases, while quantitative methodologies were less commonly used. Interestingly, in 17% of the cases, the authors applied a mixed methodology that combined qualitative and quantitative methods (Tab. 6).

Tab. 6: Methodologies used in the analysed contributions

The methodology applied and the method used	% Of contributions
Qualitative	
Action research	3%
Case studies	29%
Conceptual framework	18%
Content analysis	9%
Narrative	3%
Literature review	3%
Social impact assessment	3%
Total a	68%
Qualitative-quantitative	
Case study and multicriteria analysis	6%
Theoretical paper and optimal model	3%
Life-cycle analysis (lca)	3%
Unstructured interview and statistical data analysis	6%
Total b	17%
Quantitative	
Structural equation model (sem)	6%
Descriptive analysis	9%
Total c	15%

Source: Authors' elaboration

A secondary analysis based on methodology identified the themes emerging from the chosen studies.

Table 7 presents the primary findings, categorized under three headings: main challenges and themes addressed in the research papers, methodology, and literature references.

Tab. 7: Explication of items investigated according to the methodology used.

Investigated Topics	Research Methodology	Literature References
<p>The need for an integrated conservation approach to plan and implement actions to preserve the past.</p> <p>The need to enhance the dialogue with cultural heritage and to underline the value of heritage as a mechanism that improves the social impact and the participation of communities.</p> <p>Accessibility to heritage is a social and societal problem of sustainability.</p> <p>The need for a tool to measure the sustainable management of heritage sites.</p> <p>The need for a change management approach to guide sustainability within organizations.</p> <p>The need for a holistic and multidimensional approach to preserve cultural heritage from unsustainable tourism practices.</p> <p>The importance of policy strategies to support the process of sustainability.</p> <p>The process of integrating sustainability into the education training course.</p> <p>The use of technologies to enhance the sustainability of cultural heritage.</p> <p>Cultural heritage is leverage to cope with problems linked to sustainable development (e.g., poverty, gender equality, environmental issues).</p> <p>The need to enforce and adopt sustainable accounting and accountability in cultural heritage organizations.</p> <p>The decision-making process for projects that affect cultural heritage is a complex problem that involves technical decisions and the preservation of values.</p> <p>The importance of a common taxonomy to define sustainability targets in an international context.</p> <p>The need for dynamic and flexible reporting that is adaptable to internal and external changes in the management of heritage sites.</p> <p>Attention to decision-making processes and the integration of different disciplines (archaeological, management, geomorphologic, and so on) to mitigate the effects of climate change.</p>	Qualitative	<p>Howard and Pinder, 2003; Pinder, 2003; Landord, 2009; Harrison, 2013; Howard, 2013; Ferretti <i>et al.</i>, 2014; Baker and Collins, 2015; Caust and Vecco, 2017; Nocca, 2017; Al-Tabbaa <i>et al.</i>, 2019; Gallou and Fouseki, 2019; Tobiasz <i>et al.</i> 2019; Havinga <i>et al.</i>, 2020; Koren-Lawrence <i>et al.</i>, 2020; Pardo Abad, 2020; Petti <i>et al.</i>, 2020; Jelincić and Tišma, 2021; Orr <i>et al.</i>, 2021; Magliacani, 2022; Gilberto and Labadi, 2022; Saunders, 2022; Wuebold <i>et al.</i>, 2022.</p>
<p>The theme of external factors, such as wars, that affect the sustainability of cultural heritage. From this perspective, it is important to construct an index to assess sustainability in these places.</p> <p>The evaluation of the spatiotemporal distribution of heritage to assess its sustainable development.</p> <p>The measurement of the level of sustainability in historic cities to enhance the process of sustainable development and have a strong impact on communities.</p> <p>Understanding the relationship between citizenship and heritage to achieve sustainable management.</p>	Quantitative	<p>Vecco and Srakar, 2018; Jiang <i>et al.</i>, 2022; Saleh <i>et al.</i>, 2022; Molina <i>et al.</i>, 2023</p>
<p>Focus on environmental sustainability: assess and evaluate the impact of restoration on climate change.</p> <p>Focus on economic sustainability in terms of adaptive reuse.</p>	Qualitative-Quantitative	<p>Magrini and Franco, 2016; Settembre <i>et al.</i>, 2018; Sharifi, 2020; Liang <i>et al.</i>, 2021; Rossitti <i>et al.</i>, 2021; Li <i>et al.</i>, 2022.</p>

Source: Authors' elaboration

In the first area, the qualitative approach generally concentrated on the need for tools to monitor sustainability and focused on accounting and

accountability. This involved an integrated analysis approach encompassing conservation and sustainable management. It also involved considering the role and implications of sustainability in strategic decision-making processes.

Additionally, the findings showed that a considerable number of articles utilized qualitative methodologies such as case studies, theoretical frameworks, and content analysis. The preference for these methodologies resulted, in part, from the frequent insufficiency of data within the sector as well as the specificities of the cultural sector. This prompted us to contemplate the need for the industry to meticulously recognize and scrutinize potential replicable models post adaptation. Additionally, it is imperative to delineate theoretical frameworks that amalgamate the research and unlock new assessment methods. Regrettably, the quantitative approach appears to have been the most neglected, thus warranting an evaluation of research paths. Some studies combined qualitative and quantitative methods (Brannen, 2017).

4.2.3 Categories and subcategories of analysis: Dimensions of sustainability

Sustainability and its relationship with cultural heritage are the focus of this study. In this literature review, sustainability has three dimensions; however, it has been extrapolated that sustainability should be studied as a singular issue or in combination with other issues.

Of the papers analysed, 47% referred to one dimension of sustainability (Table 8), with the analysis of social factors having the greatest frequency, followed by environmental sustainability (Table 8.1).

Tab. 8: General table of the dimensions of sustainability analysed in the contributions

no. of dimensions of sustainability analysed	% of contributions for each dimension
1 dimension	47%
2 dimensions	15%
3 dimensions	38%

Source: Authors' elaboration

Tab. 8.1: Details of the single dimension of sustainability

Dimension of sustainability	% of frequency for each dimension of sustainability
Economic	9%
Social	21%
Environmental	17%

Source: Authors' elaboration

Furthermore, the frequency of two dimensions of sustainability extrapolating from the combination that emerged was analysed. In this case, there was almost a homogeneous distribution of frequency (Table 8.2).

Tab. 8.2: Details of the combination of dimensions of sustainability

Combination	Frequency
Economic and Social	6%
Economic and Environmental	6%
Social and Environmental	3%

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Source: Authors' elaboration

4.2.4 Explication of dimensions of sustainability

In the final part of the analysis of the selected contributions, the content of the papers was used to identify how the sustainability dimensions were made explicit. In summary, analysis and systematization of the content of the papers were conducted in two macro-areas:

- (1) For each sustainability dimension, the study highlighted which elements recurred in the studies analysed.
- (2) For each methodological approach (qualitative, quantitative, or mixed), the main objectives and results of the studies were highlighted to determine whether a common line or future research approach emerged.

The table 9 summarizes the two points made above.

Tab. 9: Explication of the 3 dimensions of sustainability

Dimension of sustainability	Main details extrapolated from the papers
Economic sustainability...	<ul style="list-style-type: none"> - depends on the potential use of heritage. - depends on planning capacity. - depends on processes oriented towards the implementation of sustainable accounting and accountability in organizations. - could have a basis within the cultural heritage area. - derives from the economic value creation associated with the revitalization of cities because of cultural heritage.
Social Sustainability...	<ul style="list-style-type: none"> - refers to the participation and involvement of the community at the local level or through social media tools. - refers to the relationship between citizens and the perception of cultural heritage and sustainability. - refers to the capacity of cultural heritage to create new opportunities for local people (e.g., new jobs and commercial activities).
Environmental Sustainability...	<ul style="list-style-type: none"> - refers to the use of sustainable materials for storage in cultural heritage or historical buildings. - refers to the impact of climate change on the conservation of heritage. - refers to the impact of conservation practices on climate change. - is linked to the planning of cultural heritage use. - refers to the preservation of cultural heritage from the impact of tourism and not only from climate change

Source: Authors' elaboration

The information presented in the table reveals that the cultural heritage sector expresses the concept of sustainability in varying ways. Specifically, the chosen papers indicate that the economic sustainability concept is contingent upon the characteristics of heritage, which serves as the foundation for evaluating the sustainability of cultural heritage itself. Additionally, successful management of heritage assets relies on the ability to forecast accurately and generate value through revitalizing neighbouring regions.

Social sustainability is closely connected to community involvement and its relationship with heritage, emphasizing the potential for heritage to contribute to achieving social goals and improving the wider community in areas such as education, cultural and social initiatives, work, and well-being.

Environmental sustainability was examined primarily in relation to impact on climate change and mitigating forms of overtourism. Regarding climate change, the focus was on the effects of conservation, usage, and reutilization of materials as well as the consequences of omitting effective environmental preservation practices for heritage. Technical terms were explained when introduced. Common academic sections were included, and the text maintained formal and grammatically sound language. Regular author and institution formatting were also maintained.

4.2.5 Features analysed in the papers: Whom they addressed

Each study aimed to contribute to different categories of people, such as scholars, local governments, the broader community, policy- and decision makers, and practitioners. Another aim of this literature review was to identify the categories to which each article referred. In many cases, the studies selected were aimed at “local governments, policy, and public-private decision-makers” (30%). This finding underlined the importance of making a practical contribution and not just a theoretical one. It followed that in 24% of the cases, the research contribution was double: it was intended for both academics/scholars and practitioners, while in 18%, the practical contribution addressed specific actors, such as cultural institutions and policymakers (see Table 10).

Tab. 10: Utility of contributions for stakeholders

Perspectives and utility of the studies	%
Local Governments; Policymakers and Public and Private Decisionmakers	30%
Academics/Scholars and Practitioners	24%
Cultural Institutions (e.g., UNESCO or museums/heritage sites in general), Policymakers	18%
Academics/Scholars	15%
Local Government; Public and Private Decisionmakers; Citizens	12%

Source: Authors' elaboration

The table illustrates the variability in the intended utility of the analysed studies. It is essential to note that these studies aimed to spread knowledge

and practices in two primary ways. First, they were intended for an academic audience, and second, they were useful for evaluating or aiding decisions made by policymakers or institutions. They provided scientific contributions to operational and management support. Collective analysis of the results made this aspect more prevalent than before.

5. Conclusions

Culture is considered the fourth pillar of sustainable development, but some studies have integrated cultural heritage into the general concept of culture, focusing on the pursuit of sustainability objectives in these areas (Labadi and Gould, 2015). The topic of sustainability and cultural heritage has been recognized as having conceptual interaction and integration (Lounlaski, 2007) and was included in the goals of Agenda 2030.

This literature review provides context by creating an overview and outlining the state of the art of research, studies, and practices related to sustainability in cultural heritage. Consequently, it identifies gaps in the current knowledge and identifies challenges and opportunities for future research.

Studies have increasingly focused on sustainability since 2015, with a strong increase in publications on the topic. However, attention still needs to be paid to which areas of sustainability are most investigated in terms of project implementation and impact analysis. In particular, we are in the presence of a complex object of analysis because cultural heritage includes a wide range of resources and assets, which can be tangible or intangible (Andrews *et al.*, 2006). This complexity can make it difficult to define a standardized approach to sustainability management (Barthel-Bouchier, 2016).

Regarding the aspects that can be instrumental in guiding future research, this review provides a set of propositions.

Proposition no. 1. *Increase studies that comprehensively analyse sustainability in the cultural sector with a holistic and interdisciplinary approach.*

There is a case for increasingly taking an integrated research approach. Despite efforts to promote an integrated approach to sustainability in the cultural heritage sector, there is still a dearth of research that comprehensively addresses the social, environmental, and economic aspects of sustainability. Often, research has focused on one of these aspects while neglecting the others, thus avoiding the overview needed for effective, sustainable management. For this reason, the integration discourse must be extended to the choice of journals so that academics can transfer the discourse to journals that are not only sector specific but also are open to the interdisciplinary nature of the subject. Special attention should be paid to improving these two aspects of research by increasing collaboration between academia and other research centres, involving experts more closely in the search for appropriate solutions. Moreover, interdisciplinary and international collaboration between researchers should be increased

because it is necessary to promote the sharing of data and information among researchers, practitioners, and institutions to improve the quality of research and foster a better understanding of sustainability in cultural heritage.

Proposition no. 2. *Focus on research with a longitudinal perspective of the dynamics of sustainability in cultural heritage.*

Sustainability is a long-term goal, but many studies on sustainability and cultural heritage are time limited. The lack of long-term studies prevents understanding changes over time and evaluating the effectiveness of sustainable management strategies over the years and their effects (including job creation, income generation, and contribution to overall economic development).

Proposition no. 3. *Adequate impact measurement tools based on the type of heritage analysed.*

The scarcity of data undermines adequate assessment and measurement of the impact of sustainability management practices. However, reliable and comprehensive data on cultural resources and the impact of conservation and management activities are often lacking. Data collection and analysis can be complex due to problems of accessibility, lack of standardization, and limited information sharing among stakeholders.

Proposition no. 4. *Expand the investigative methodology in research through*

- Action and participatory research: Action research methodologies should be implemented by actively involving local communities, cultural organizations and other stakeholders in the research process. A participatory approach should be promoted to develop sustainable solutions together with the communities involved.
- Quantitative investigations should be conducted to collect numerical data on the economic, social, and environmental performance of sustainability initiatives in cultural heritage.

Proposition no. 5. *Analyse the relationship between sustainability and cultural heritage from a value creation perspective.*

This proposition has several aspects. It would be desirable for studies to be directed towards

- Examining the social dimension of sustainable development in the cultural heritage sector, focusing on inclusiveness, community involvement, and the impact on different demographic groups.
- Analyzing the role of cultural heritage in promoting intergenerational equity, considering the responsibility of the current generation for preserving cultural capital for future generations.
- Evaluating the effectiveness of cultural heritage organizations in ensuring equitable access to educational opportunities, livelihood options, and resources for all communities.
- Investigating the effectiveness of educational programs in raising awareness of the link between sustainability and cultural heritage

and how they influence the practices of cultural organizations And developing innovative educational strategies to promote awareness and adoption of sustainable practices in the sector.

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Proposition no. 6. *Analyse socioeconomic performance in achieving sustainability.*

- Conduct a comprehensive review of economic sustainability in cultural heritage projects, addressing issues such as financial viability, dependence on public funds, and the role of private funding. Many cultural sites have limited financial resources and depend on public funding or donations; thus, sustainable financial models must be developed to balance conservation and management needs with available financial resources.
- Explore whether sustainability is achieved with better performance results by public or private cultural organizations and identify the critical issues.
- Explore the changing sociocultural dynamics that may influence public interest, management practices, and stakeholder expectations. The participation and involvement of local communities are essential for sustainable cultural heritage management.

Proposition no. 7. *Analyse the relationship between sustainability and cultural heritage to create economic circularity.*

- Explore the integration of circular economy principles into cultural heritage conservation, evaluate their effectiveness in reducing the environmental footprint, and propose adaptive strategies for sustainable conservation practices.

Addressing these gaps requires continued efforts to improve research methodologies, promote interdisciplinary research, actively involve local communities, and improve data collection and accessibility. Greater attention to these areas will enable more effective and sustainable management of cultural heritage in the context of sustainability.

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**Marianna Marzano
Monia Castellini**
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Academic or professional position and contacts

Marianna Marzano

Research Fellow of Business Administration and Management
University of Ferrara - Italy
e-mail: marianna.marzano@unife.it

Monia Castellini

Associate Professor of Business Administration and Management
University of Ferrara - Italy
e-mail: monia.castellini@unife.it

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