

D 1.1

Initial survey of the experiences and technology state of the art



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List of acronyms and abbreviations

- 3D: Three-dimensional
- 4D: Four-dimensional
- AAT: Art & Architecture Thesaurus® Online, Getty Vocabulary Program, J. Paul Getty Trust, USA
- ALS: Aerial Laser Scanning
- AP: Aerial Photogrammetry
- AR: Augmented Reality
- BIM: Building Information Modelling
- CAD: Computer-Aided Design
- CBIR: Content-based Image Retrieval
- CC: Competence Centre
- CH: Cultural Heritage
- CIDOC: International Committee for Documentation (within ICOM)
- CMM: Coordinate Measurement Machine
- CMOS: Complementary Metal-Oxide-Semiconductor
- CMS: Collection Management System
- CoE: Council of Europe
- CRLS: Close Range Scanning
- CRM: Conceptual Reference Model
- CT: Computed Tomography
- DEM: Digital Elevation Map
- DOI: Digital Object Identifier
- DSLR: Digital Single Lens Reflex (camera)
- EDM: Electronic Distance Measurement/Meter
- EDS: Energy Dispersive Spectroscopy
- EDX: Energy Dispersive X-ray Spectroscopy
- FTIR: Fourier Transformed Infrared Spectroscopy
- GIS: Geographic Information System
- GPS: Global Positioning System
- GSD: Ground Sampling Distance
- HBIM: Heritage Building Information Modelling
- H-RTI: Highlight Reflectance Transformation Imaging
- HIS: Hyperspectral Imaging
- HTML: Hypertext Markup Language
- ICCROM: International Centre for the Study of the Preservation and Restoration of Cultural Property
- ICOM: International Council of Museums
- ICOM-CC: International Council of Museums-Committee for Conservation
- ICOMOS: International Council on Monuments and Sites
- ICP: Iterative Closest Point (algorithm)
- ICT: Information Communication Technology
- IoT: Internet of Things
- IS: Imaging Spectroscopy
- ISO: International Organization for Standardization
- IVE: Interactive Virtual Environment
- LED: Light-Emitting Diode

- LIBS: Laser-Induced Breakdown Spectroscopy
- LIDAR: Light Detection and Ranging (remote sensing)
- LS: Laser Scanning
- MSI: Multispectral Imaging
- MVS: Multiple View Stereovision
- NIR: Near Infrared
- OBJ: Computer file format for 3D geometry definition
- OWL: Web Ontology Language
- PEG: Polyethylene Glycol
- PGP: Prism-Grating-Prism
- PLY: Polygon File (computer file 3D format)
- PS: Photometric Stereo
- PTFE: Polytetrafluoroethylene
- PTM: Polynomial Texture Mapping
- PXRF: Portable X-ray Fluorescence (Spectroscopy)
- RDFa: Resource Description Framework in Attributes
- RRT: Round Robin Test
- RTI: Reflectance Transformation Imaging
- SEM: Scanning Electron Microscopy
- SfM: Structure from Motion
- SIVT: Spatial Image analysis and Viewing Tool
- SLI: Structured Light Imaging
- SLR: Single Lens Reflex (camera)
- SLS: Structured Light Scanning
- SOP: Standard Operating Procedure
- SWIR: Short-Wave Infrared
- TIN: Triangulated Irregular Network
- TLS: Terrestrial Laser Scanner
- TOF: Time of Flight
- UAV: Unmanned Aerial Vehicle
- URL: Uniform Resource Locator
- UV: Ultraviolet
- VNIR: Visible and Near Infrared
- VR: Virtual Reality
- VRML: Virtual Reality Modelling Language
- XML: eXtensible Markup Language
- XRF: X-ray Fluorescence Spectroscopy

Definitions

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Executive summary

This report describes the results of Task T1.1 concerning European experiences and best practices in Conservation, Preservation and Valorisation of monuments and sites, and of Task T1.3 concerning the state of the art in relevant technologies.

WP1 defines the basis for the achievement of project objective 1, collecting and relating experiences, skills and best practices acquired and implemented so far in the European Countries, with specific reference to EU-funded research. The WP's activities identify innovative approaches in initiatives, policies and strategies for the preservation and conservation of monuments and sites. In this way, it will help define in detail the fields which the Competence Centre will operate on.

Reflecting the overall concept, the methodology of WP1 is based on the implementation of 4 requirements and objects, which are explained below.

4CH PHASE 1 | Y1 CONCEPT | REQUIREMENTS AND OBJECTIVES

- Task T1.1 - Analysing the field
- Task T1.2 - Mapping risks
- Task T1.3 - Technological state of the art
- Task T1.4 - User needs

This report focuses on 2 objectives:

Task T1.1 - Analysing the field

Analysis of experiences, skills and best practices acquired and implemented so far in the European Countries, and beyond, in the field of Conservation, Preservation and Valorisation of monuments and sites.

Task T1.3 - Technological state of the art

Update the State of the Art via Market Watch of technology in the fields in which the Competence Centre will operate: 1) digitization and 3D modelling, 2) Conservation and Preservation, 3) exploitation of CH assets.

This report covers activities carried out from month 1 to month 16 of the project.

1. Background

Holistic documentation of historic buildings, archaeological monuments and sites based on 3D digitization provides a basis for conservation, preservation and valorisation. It is fundamental to effective management and preventive maintenance. Active condition monitoring helps to avoid the effects of environmental decay and catastrophic events, such as earthquakes, floods and fire. High quality digital documentation also helps support reconstruction, rehabilitation and access. The knowledge captured in such documentation contributes to sustainable development, preservation of history and identity (the diversity of cultures and social bonds that Cultural Heritage embodies), while enabling social and economic development in local areas and regions.

Digital technologies play a key role in allowing innovation in management practices, proving the framework for objective monitoring and scientific evaluation. They facilitate innovative engagement of local citizens in their CH and in co-creation and bottom-up conservation solutions, for example involving local communities in monitoring their local heritage sites. High-quality 3D digitization lies at the heart of some highly innovative solutions.

The 4CH project envisages a holistic approach, which encompasses interdisciplinary contributions, where accurate and precise 3D documentation of the shape and appearance of monuments and sites is linked to relevant information and rich data ranging from the location and history of the CH asset to its structural behaviour, reports into its condition (past and present), state of conservation, and the monitoring of foreseen risks. Holistic documentation aims to create a “Heritage Digital Twin”, a digital replica of the asset linked to information and data used to support management, conservation and access. The benefit of creating a digital twin is that various scenarios can be tested on the digital model rather than on the real thing, for example to model the performance of the asset in different conditions, such as changes in tourism flow or to plan for disaster prevention. The 4CH approach will contribute to the design of the Heritage Digital Twin concept, digital twin capable of enriching itself by collecting data from monitoring devices concerning preservation and maintenance, interventions for conservation and restoration, and management. CH institutions will benefit from digitization solutions that are based on standardization, exploit advanced technology and services, while at the same time enabling them to adopt optimal strategies and to improve the skills of their staff, volunteers, and students.

4CH will establish the tools and frameworks needed by the European Competence Centre on Cultural Heritage to make this possible.

1.1 Project objectives

The main aim of the 4CH project is to design and set up a Competence Centre (CC) for the Conservation of Cultural Heritage. The Centre will offer knowledge (advice and support activities) and services to national and regional heritage agencies, cultural heritage institutions, professionals, and citizens. The 4CH project will promote state of the art ICT solutions including 3D digitization, which have great potential for documenting, monitoring, mitigating, and preventing damage caused by natural degradation, human-related developments, and disasters.

To achieve the main goal, as stated above, WP1 pursues a sub-set of objectives:

Project Objective 1 | Establishing the methodological framework for the Competence Centre focusing on advanced digitization for preservation and conservation of Monuments and Sites.

The objective is to design the methodological framework for the Competence Centre. The framework will collect and relate experiences, skills and best practices, innovative approaches, policies, and strategies for preservation and conservation of monuments and sites.

Tasks T1.1 and T1.3 in WP1 concern the collection of results from significant interventions on CH (best practices), the most successful research projects and identification of cutting-edge technologies, with a positive impact on Conservation, Preservation and Valorisation of CH.

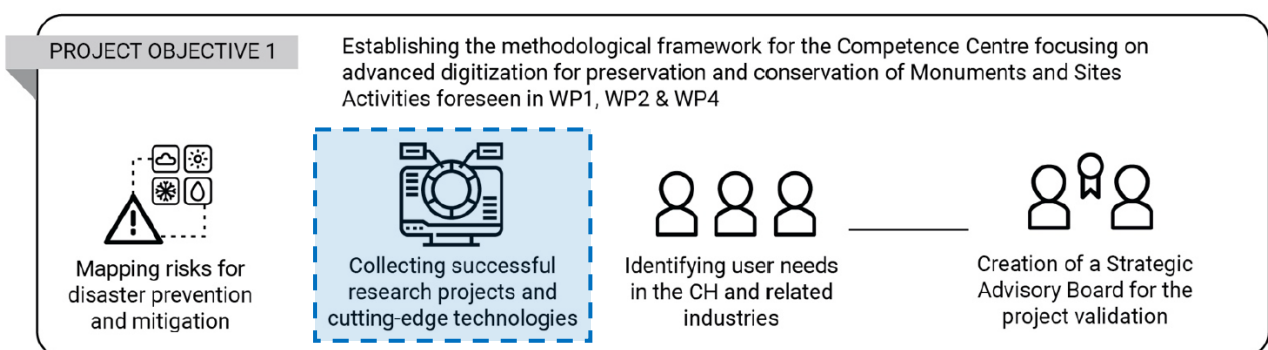


Figure 1.1 - Project Objective 1 for Task T1.1 and T1.3

1.2 Correlation between Tasks

WP1 define requirements and the field of activities of the future Competence Centre by four Tasks:

- **Task T1.1 - Analysis of experiences, skills and best practices acquired and implemented so far in the European Countries, in the field of preservation and conservation of monuments and sites.**
This task will collect and analyse the current progress of conservation and preservation research and practice in Europe, in order to integrate them in the Centre's recommendations. The results will be mainly achieved with desk work on reports, publications and so on, integrated by surveys and direct contacts where necessary.
- **Task T1.2 - Implementation of a map of all kinds of risks which can damage Cultural Heritage assets for prioritizing preservation and conservation activities.**
The task will analyse the current state of research linking causes to adverse effects. It will provide information to organize the knowledge base and the Centre's recommendations.
- **Task T1.3 - State of the Art, including update via Market Watch, of the technology in the fields in which the Competence Centre will operate: 1) digitization and 3D modelling, 2) conservation and preservation, 3) exploitation of CH assets.**
This task concerns technology, both digital and analogic, as for example techniques and instruments for digitization; diagnostic techniques and their interpretation; materials and nanomaterials; novel methods and devices for visualization; and so on. It will feed information in the knowledge base and generate short reports to be distributed to the community. The information will be regularly updated, especially when new tools or methods appear in the market. Attention will be paid to international reports and to global approaches to the subject, e.g., related EU reports, UNESCO statements, and so on.
- **Task T1.4 - User needs: mapping existing analysis on user needs and defining their continuous update.**
The task will integrate the user needs reports created with surveys e.g., by EU-funded projects and other collective analyses with targeted surveys covering aspects or communities not yet well analysed, e.g., staff skills and their attitude to digitization, organizational issues and so on.

In the following diagram it is possible to see the several inputs and outputs from each task and their indirect correlations.

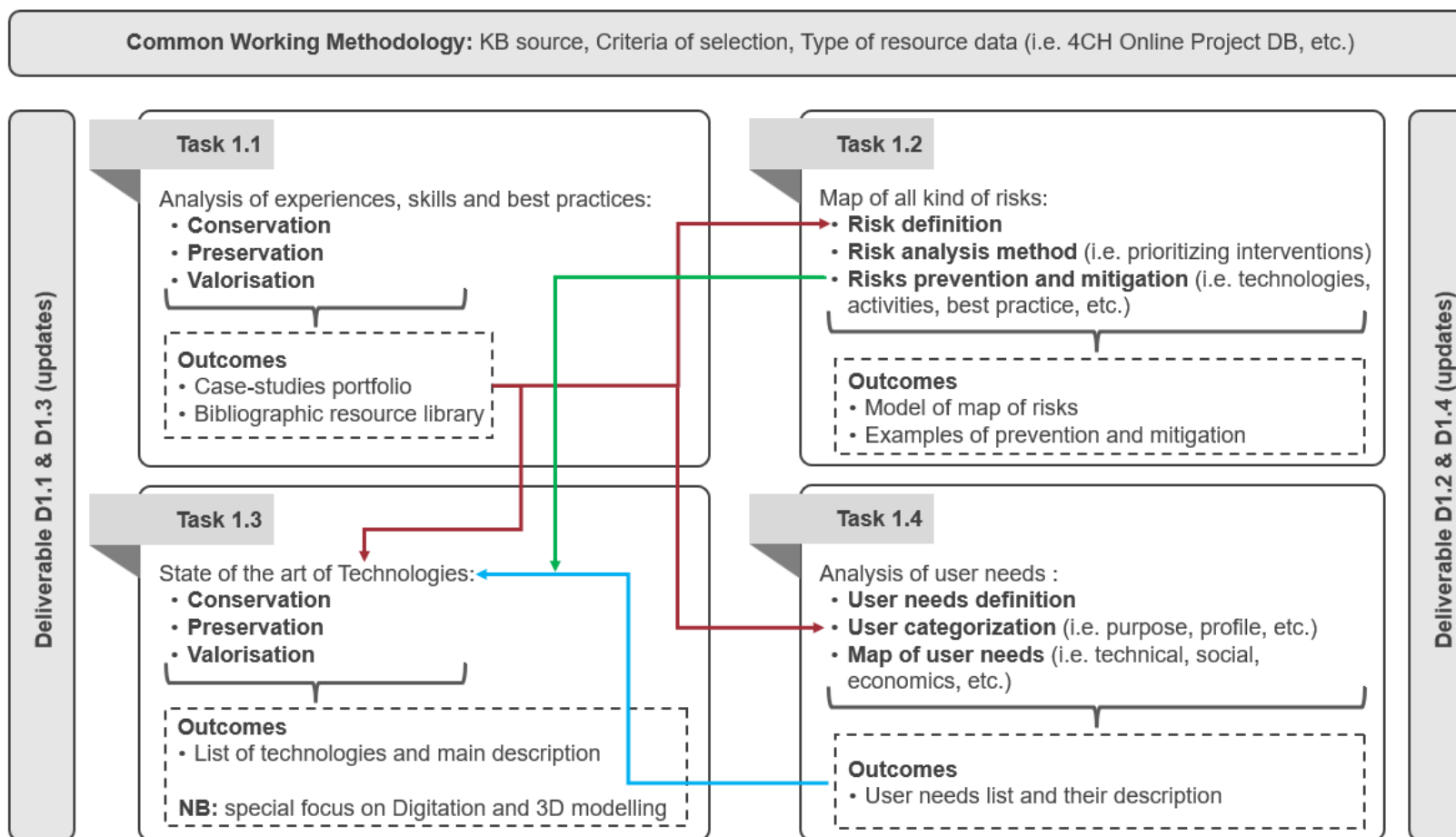


Figure 1.2 - Correlation between Tasks

In particular, the following common aspects and correlations have been highlighted between tasks T1.1 and T1.3:

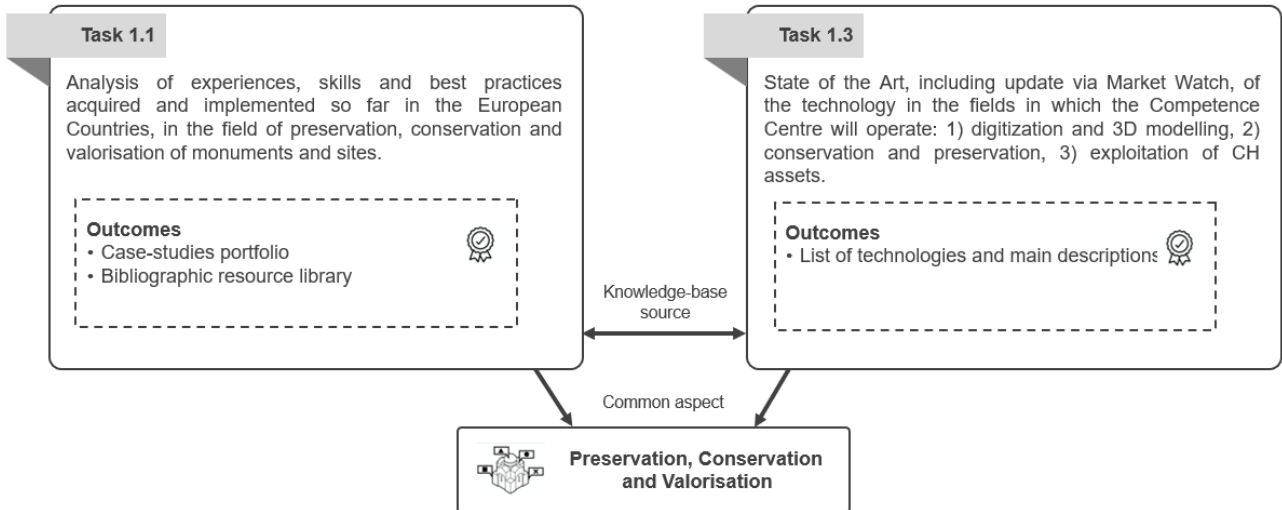


Figure 1.3 - Common aspects between Task T1.1 and T1.3

1.3 WP1 working methodology

A shared working methodology has been defined for each task in order to be able to exchange inputs and outputs and have the same analysis strategy.

The working methodology has been used to identify the state of the art, relevant best practices, the main technologies and their possible application in CH, risks related to conservation and preservation and, finally, user needs.

With reference to this, preliminary work was shared between the WP1 tasks, regarding the CH description, the method (matrix) and terminologies. Subsequently, the individual tasks continued the work by detailing and modifying their relative matrices.

For each data source (EU projects, technical reports, interventions on CH assets, bibliographic references, etc.) specific selection criteria were applied to have a common assessment parameter. The aim of this approach is was to create a Knowledge Base (KB) identifying the elements of interest: technologies, case studies, possible applications.

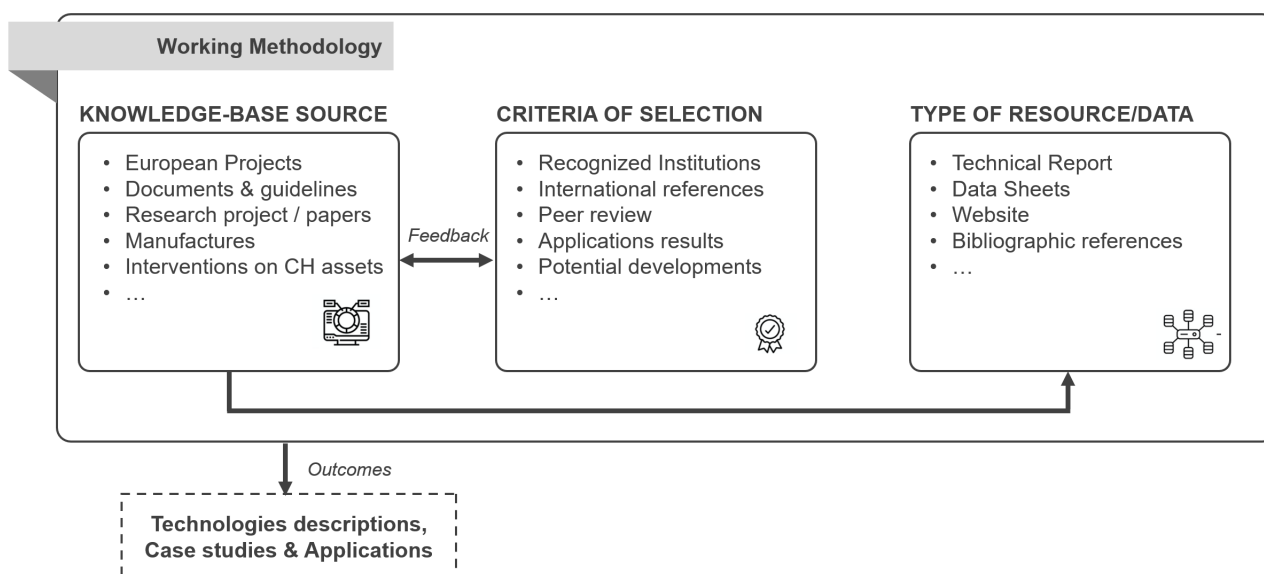


Figure 1.4 - Common working methodology

A [Database](#) of European projects on topics relevant for the 4CH work programme was created. These include among others 3D modelling for Cultural Heritage, Conservation and Preservation research, Cultural Heritage exploitation and communication with digital technologies, and more. The database contains hundreds of EU projects selected from FP3, FP4, FP5, FP6, FP7, Horizon 2020, CIP, Creative Europe, Interreg and other EU programmes, and is searchable according to different search parameters. The selection of the pertinent and relevant projects was carried out with the contribution of all the WP1 tasks, each for the topics of its competence. Summary information is presented for each project, with links to the project web site, project outcomes and reports where available.

New search
Propose a DB amendment

Text search

Project acronym

Funded under

Started **Ended**

Relevant for T1.1 Analysis of experiences skills and best practices:

Relevant for T1.2 Risk:

T.1.3 State of the Art of the technology in the fields in which the Competence Centre will operate.

Relevant for T1.3.1 Digitisation and 3D modelling:

Relevant for T1.3.2 Conservation and preservation:

Relevant for T1.3.3 Exploitation:

Relevant for T1.4 User need:

Documentation Provided

SEARCH

Figure 1.5 - Database of European projects on topics relevant for the 4CH work program

2. Analysis of experiences, skills, and best practices in the field of Conservation, Preservation and Valorisation of monuments and sites (T1.1)

2.1 Description

The aim of T1.1 is the analysis of experiences, skills and best practices in European Countries in the field of Preservation and Conservation of monuments and sites. T1.1 has chosen to broaden the focus also on Valorisation, included in the 4CH proposal and understood as a further essential practice for the Safeguarding of CH.

T1.1 has therefore collected and analysed current progress on Conservation, Preservation and Valorisation research and practice in Europe, to integrate this into the 4CH Competence Centre's recommendations. The activities mainly involved desk work on reports, publications and other pertinent documents, together with surveys and direct interviews when convenient.

The results contribute to implementing a Knowledge Base for CH Conservation, Preservation and Valorisation initiatives and actions. They are included in two specific outputs: a case studies portfolio and a bibliographic resource library. Heritage professionals and institutions will be able to browse the KB and find best practices, methods, technologies, tools, services, policies, strategies and solutions relevant to their needs.

The subsequent paragraphs reflect the process followed by T1.1. It started by the reconstruction of the state of the art, with a lunge onto the evolution of the concept of CH, the framework of Safeguarding, and the definitions of Conservation, Preservation and Valorisation, in order to better address the general and wide framework. Then, it continued with the definition of the working methodology, which includes a mapping strategy, the KB sources, and the selection criteria of the case studies. After the various analyses carried out on documents, European projects, innovative Safeguarding programmes and best practices, it addressed the writing of the results from a double perspective: on the one hand, comparing the best practices and the related skills; the second one, reading the evolution over time of the operational practices in relation to the documents and European projects in the field of CH Safeguarding. Finally, the final remarks highlighted the principal aspects and trends which emerged from this research.

2.2 State of the art

2.2.1 The evolution of the concept of Cultural Heritage

The discipline of Restoration of CH, in the modern sense, was born in the 19th century, when cultural, social and economic events introduced the current meaning of the term, leading to the emergence of a discipline with its own characteristics. After that moment, if the first Charters of Restoration focused attention to individual historic buildings and archaeological monuments, recognised as historical documents¹, the theory of restoration has developed, recognising new values in the material and immaterial proofs of the past. As a matter of fact, the concept of what is considered as CH evolved significantly through the 19th and 20th centuries.

At the beginning of the 20th century, Aloïs Riegl contributed to the evolution of the concept noting that historic buildings have different values: a value of antique (linked to the natural course of becoming), an historical value (representing a precise degree of development of some creative field of humanity), and value as memory (linked to works of human endeavour, created for the purpose of keeping individual human acts or destinies, or even aggregates of them, ever present and alive in the consciousness of generations to come). In addition to these, there are the contemporary values: the value of use linked to the practical function of the historic building, and the artistic value which refers to the aesthetic ideals of which the work is the bearer².

Up to the mid 20th century, attention focussed on visible individual monuments. After the end of the Second World War, the concept of CH began to widen from individual buildings to historic town centres³, and the setting (or environment) surrounding a monument. The *Venice Charter* (1964) states that the concept of a historic monument embraces not only the single architectural work, but also the urban or rural setting in which is found the evidence of a particular civilization, a significant development, or a historic event⁴.

In the 1970s, the need for the protection of the world cultural and natural heritage was recognised by UNESCO⁵. In those years, the 1978 *Charter of Machu Picchu* focused attention on the organic growth of human settlements as a continuity of the built environment that reflects the essential dynamic unity between all elements of the urban structure⁶. Other

¹ The *Resolution of the Third Congress of Engineers and Architects* (1883) speaks about “architectural monuments”; *The Athens Charter for the Restoration of Historic Monuments* (1931) speaks about “historic monuments”; the *Italian Restoration Charter* (1932) speaks about “historical documents”. Cfr. *Resolution of the Third Congress of Engineers and Architects*, 1883 (<https://denkmalpflege.tuwien.ac.at/wp-content/uploads/2014/11/Boito-Carta-del-restauro-1883-ital.-u.-engl..pdf>); *The Athens Charter for the Restoration of Historic Monuments*, 1931 (<https://www.icomos.org/en/167-the-athens-charter-for-the-restoration-of-historic-monuments>); *Italian Restoration Charter*, 1932 (http://www.brescianisrl.it/newsite/public/link/Carta_restauero%20_1932.pdf).

² Cfr. A. RIEGL, *Der Moderne Denkmalkultus. Sein Wesen Und Seine Entstehung*, Braumüller, Wien und Leipzig 1903.

³ Cfr. *Gubbio Charter*, 1960 (<https://www.italianostra.org/la-carta-di-gubbio-del-1960/>).

⁴ Cfr. ICOMOS, *International Charter on the Conservation and Restoration of Monuments and Sites*, 1964 (<https://www.icomos.org/en/participer/179-articles-en-francais/ressources/charters-and-standards/157-the-venice-charter>).

⁵ Cfr. UNESCO, *Convention Concerning the Protection of the World Cultural and Natural Heritage*, 1972 (<https://whc.unesco.org/archive/convention-en.pdf>).

⁶ Cfr. *Charter of Machu Picchu*, 1978 (<http://orcp.hustoj.com/wp-content/uploads/2015/12/1977-The-Charter-of-Machu-Picchu.pdf>).

aspects of CH also became recognised, such as historic gardens⁷, historic centres⁸, historic towns and urban areas⁹.

Progressively, attention widens towards the cultural significance of the CH places¹⁰, and the diversity of CH: the *Convention for the Protection of the Architectural Heritage of Europe* (1985) by the Council of Europe recognises that architectural heritage constitutes an irreplaceable expression of the richness and diversity of Europe's CH, bears inestimable witness to our past and is a common heritage of all Europeans¹¹.

In the following years, *The Nara Document on Authenticity* (1994) reaffirmed the richness of the cultural and heritage diversity (the article 5 affirms that “*The diversity of cultures and heritage in our world is an irreplaceable source of spiritual and intellectual richness for all humankind. The protection and enhancement of cultural and heritage diversity in our world should be actively promoted as an essential aspect of human development*”)¹². This diversity is reflected in documents dedicated to objects of art and culture¹³, the archaeological heritage¹⁴, the underwater CH¹⁵, the built vernacular heritage¹⁶, the

⁷ Cfr. ICOMOS, *Florence Charter*, 1981

(https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_baf8432e213a404dbdadef5171b7df90.pdf).

⁸ Cfr. *Noto Charter*, 1986 (<https://ipce.culturaydeporte.gob.es/dam/jcr:c985ba29-4817-442b-8cde-e2a490140936/1986-carta-de-noto.pdf>).

⁹ ICOMOS, *Charter for the Conservation of Historic Towns and Urban Areas*, 1987 (https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_012ee3b47bea4183b8a7d344d1bcd340.pdf).

¹⁰ Cfr. Australia ICOMOS, *Australia ICOMOS Guidelines for the Conservation of Places of Cultural Significance*, 1979 (https://australia.icomos.org/wp-content/uploads/Burra-Charter_1979.pdf); Australia ICOMOS, *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance*, 1981 (https://australia.icomos.org/wp-content/uploads/Burra-Charter_1981.pdf); Australia ICOMOS, *Australia ICOMOS Guidelines for the Conservation of Places of Cultural Significance*, 1987 (https://australia.icomos.org/wp-content/uploads/Burra-Charter-1981_1987-reprint.pdf);

Australia ICOMOS, *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance*, 1988 (https://australia.icomos.org/wp-content/uploads/Burra-Charter_1988.pdf);

Australia ICOMOS, *Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports*, 1988 (https://australia.icomos.org/wp-content/uploads/Guidelines-to-the-Burra-Charter_-_Procedures.pdf);

Australia ICOMOS, *Guidelines to the Burra Charter: Cultural Significance*, 1988

(https://australia.icomos.org/wp-content/uploads/Guidelines-to-the-Burra-Charter_-_Cultural-Significance.pdf);

Australia ICOMOS, *Guidelines to the Burra Charter: Conservation Policy*, 1988

(https://australia.icomos.org/wp-content/uploads/Guidelines-to-the-Burra-Charter_-_Conservation-Policy.pdf);

Australia ICOMOS, *Code on the Ethics of Co-existence in Conserving Significant Places*, 1998

(<https://australia.icomos.org/wp-content/uploads/Code-on-the-Ethics-of-Co-existence.pdf>); Australia ICOMOS, *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance*, 1999 (https://australia.icomos.org/wp-content/uploads/BURRA_CHARTER.pdf).

¹¹ Cfr. Council of Europe, *Convention for the Protection of the Architectural Heritage of Europe*, 1985

(<https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=090000168007a087>).

¹² Cfr. ICOMOS, *The Nara Document on Authenticity*, 1994 (<https://www.icomos.org/charters/nara-e.pdf>);

Nara + 20: on Heritage Practices, Cultural Values, and the Concept of Authenticity, 2014

(http://www.japan-icomos.org/pdf/nara20_final_eng.pdf).

¹³ Cfr. CNR, *Charter of Conservation and Restoration of Objects of Art and Culture*, 1987

(https://www.inforestauro.org/carta-del-restauro-1987/#Paragrafo_II_-_Le_definizioni).

¹⁴ Cfr. ICOMOS, *Charter for the Protection and Management of the Archaeological Heritage*, 1990

(https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_fdf09c5b303f4fa09a283992ae16bcb8.pdf).

¹⁵ ICOMOS, *Charter on the Protection and Management of Underwater Cultural Heritage*, 1996

(https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_13e5d780e52a40dd8f168e08c63a0365.pdf).

¹⁶ Cfr. ICOMOS, *Charter on the Built Vernacular Heritage*, 1999

(https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_d7d3daf9acad4e8bac140b6676712a38.pdf).

landscape¹⁷, the architectural heritage¹⁸, cultural routes¹⁹, the industrial heritage²⁰, and the rural landscape²¹. Progressively, the concept of CH widened to include recent assets, such as the 20th century architecture²², as well as the intangible heritage²³. As the concept of CH evolved, not only has the scope widened, but also the importance of relationships between tangible and intangible, and between movable and immovable, has been gradually recognised and strengthened.

In this context, UNESCO works to promote CH diversity as a force for dialogue and development. It encourages international cooperation and knowledge-sharing and supports Member States in building their human and institutional capacities²⁴. The promotion of CH diversity has thus been progressively affirmed, including by the publication of the UNESCO *Convention on the Protection and Promotion of the Diversity of Cultural Expressions* (2005)²⁵.

The *Treaty on the Functioning of the European Union* (EU, 2012)²⁶ reserved a specific title to culture (title XIII) that includes the article 167 (ex article 151 TEC) which states that “the Union shall contribute to the flowering of the cultures of the Member States, while respecting their national and regional diversity and at the same time bringing the common cultural heritage to the fore” (c. 1). Action by the Union aims to encourage cooperation between Member States and, if necessary, supporting and supplementing their actions in disseminating knowledge, in understanding of culture and history, in conserving and safeguarding the CH, in cultural exchanges, and in artistic and literary creation, including in the audiovisual sector (c. 2). As affirmed in this treaty, the Union and the Member States foster cooperation with third countries and international organisations in the sphere of

¹⁷ Cfr. Council of Europe, *European Landscape Convention*, 2000 (<https://rm.coe.int/1680080621>).

¹⁸ Cfr. ICOMOS, *Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage*, 2003 (https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_9ba4ae0879f24300855d751ab8c1449f.pdf).

¹⁹ Cfr. ICOMOS, *ICOMOS Charter on Cultural Routes*, 2008

(https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_d8d00a05c0da4f5f83d87b5771796fd7.pdf).

²⁰ Cfr. ICOMOS-TICCIH, *Joint ICOMOS-TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes*, 2011

(https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_d251c1dbc22a4210a5d893cf058f8c41.pdf).

²¹ Cfr. ICOMOS-IFLA, *ICOMOS-IFLA Principles Concerning Rural Landscapes as Heritage*, 2017

(https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_cd7200d8a8b04613b4456f230c433a15.pdf).

²² Cfr. *I dieci punti del comitato dei monumenti moderni*, 1991 (F. PEREGO, *Monumenti moderni, un'emergenza nuova*, in “Edilizia Popolare”, 216-217, 1991, p. 48); ICOMOS ISC20C, *Approaches for the Conservation of 20th Century Architectural Heritage*, Madrid Document, 2011

(<http://orcp.hustoj.com/wp-content/uploads/2016/04/madriddocumentenglish.pdf>);

The Getty Conservation Institute, *A Colloquium to Advance the Practice of Conserving Modern Heritage*, 2013

(https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/colloquium_report.pdf);

ICOMOS ISC20C, *Approaches for the Conservation of Twentieth-Century Architectural Heritage*, Madrid Document, 2014

(http://www.icomos-isc20c.org/pdf/madrid_doc_10_26.pdf); ICOMOS ISC20C, *Approaches to the Conservation of Twentieth-Century Cultural Heritage*, Madrid-New Delhi Document, 2017

(<http://www.icomos-isc20c.org/pdf/madrid-new-delhi-document-2017.pdf>).

²³ Cfr. UNESCO, *Convention for the Safeguarding of the Intangible Cultural Heritage*, 2003

(<http://unesdoc.unesco.org/images/0013/001325/132540e.pdf>).

²⁴ *Ibidem*.

²⁵ Cfr. UNESCO, *Convention on the Protection and Promotion of the Diversity of Cultural Expressions*, 2005 (<https://en.unesco.org/creativity/sites/creativity/files/passeport-convention2005-web2.pdf>).

²⁶ The *Treaty on the Functioning of the European Union* organises the functioning of the Union and determines the areas of, delimitation of, and arrangements for exercising its competences. Cfr. EU, *Treaty on the functioning of the European Union*, 2012 (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=IT>).

culture, in particular the Council of Europe (c. 3).

But what is meant, in the 4CH project, by Cultural Heritage and which Cultural Heritage does the project take into consideration?

4CH, while dealing with immovable CH and therefore with tangible assets, considers their relationships with both movable CH assets and also with the intangible dimension of CH. 4CH is particularly aware of the value of the relationships between these types of heritage.

2.2.2 The framework of Safeguarding

When the discipline of Architectural Restoration was born in the 19th century, three different trends emerged:

1. the French one linked to the stylistic restoration of Eugène Emmanuel Viollet-le-Duc²⁷;
2. the English one related to the pure conservation of John Ruskin²⁸;
3. the Italian one which is somewhere in between. Especially, starting from the theoretical formulations of Camillo Boito²⁹, it has been developed a way of acting on CH that has gradually moved away from the restitution of the image of the heritage assets, and towards the protection of the permanence of the existing heritage. In particular, the *Resolution of the Third Congress of Engineers and Architects* (Rome, 1883) introduced the themes of the distinguishability of the elements introduced by the restoration, of the minimum intervention and of the respect for additions introduced after the realisation of the heritage asset³⁰. *The Athens Charter for the Restoration of Historic Monuments* (1931) reiterated the need to move away from full restitutions and the necessity of the recognisability of the intervention³¹. Taking up the themes of the Athens Charter and translating them into a national perspective, the *Italian Restoration Charter* (1932) reaffirmed those issues also highlighting the theme of the minimum intervention³².

With reference to the parallel legal framework for Safeguarding CH, it has its roots in public protests against attempts to demolish individual monuments and the growth in interest in studying and advancing knowledge of antiquities and historic buildings. From the 16th to 19th century, this interest led to the establishment of learned societies, national museums and national legislation. For example, the *First Ancient Monuments Protection Act* was passed in the UK in 1882 establishing a schedule of 50 monuments protected by the State³³.

During the late 19th century, destruction of monuments (as a result of industrialization, urban expansion and changes in farming practices) led to a growing recognition of the need to preserve monuments *in situ*. Systematic efforts to identify, survey, document and preserve visible archaeological monuments commenced. Work to establish an inventory of monuments started in Denmark around 1873. By 1900 regional and national registers were emerging in many countries. The registered monuments were often recorded on modern topographical maps³⁴ and together these enabled the development of protective legislation.

²⁷ Cfr. E.E. VIOLLET-LE-DUC, *Dictionnaire raisonné de l'architecture française du XI^{ème} au XVI^{ème} siècle*, Bance et Morel, Paris 1854-1868.

²⁸ Cfr. J. RUSKIN, *The Seven Lamps of Architecture*, John Wiley, New York 1849.

²⁹ Cfr. Resolution of the Third Congress of Engineers and Architects, 1883, cit.

³⁰ *Ibidem*.

³¹ Cfr. *The Athens Charter for the Restoration of Historic Monuments*, 1931, cit.

³² Cfr. *Italian Restoration Charter*, 1932, cit.

³³ Cfr. Historic England, *Timeline of Conservation Catalysts and Legislation* (<https://historicengland.org.uk/whats-new/features/conservation-listing-timeline/>).

³⁴ Kristian Kristiansen, *The discipline of archaeology*, 2008

In 1969 the *European Convention on the Protection of the Archaeological Heritage* (also known as the London Convention) was adopted by the Council of Europe³⁵. This convention sought to ban clandestine excavations and trafficking in archaeological objects and established an important framework for Safeguarding. Each signatory to the convention agreed to:

- delimit and protect sites and areas of archaeological interest;
- establish a national inventory of archaeological objects (in both public and private ownership).

The convention entered into force in 1970 and the following States became party to it: Austria, Belgium, Cyprus, Denmark, France, Germany, Greece, Holy See, Italy, Liechtenstein, Luxembourg, Malta, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

In the 1960s, the Council of Europe was also taking the initiative in promoting European intergovernmental co-operation for the Safeguarding of historic buildings and sites. Meetings of the Committee of Ministers responsible for this sector increased recognition "general principles of the preservation and rehabilitation" of the heritage³⁶.

At the same time, always in the 1960s, attention began to focus on the Safeguarding of historic town centres³⁷. The *Venice Charter* (1964) highlighted the need to safeguard not only the isolated architectural creation, but also the urban or landscape environment, underlining the relevance of maintenance practices, the exceptional character of restoration, the importance of use with functions useful to society, the essential fact that stylistic unity is not the aim of restoration, and the need to safeguard and enhance the heritage assets and the environment around them³⁸.

The 1970s and 1980s were a period which saw large-scale construction projects across Europe (from motorway networks, underground railways, new train routes, high rise buildings, huge car parks and housing development) and changes in agricultural practice (consolidation of fields and holdings, deep ploughing) which threatened both the archaeological and architectural heritage.

The 1972 UNESCO *Convention Concerning the Protection of the World Cultural and Natural Heritage*³⁹ sets out the duty of each State in ensuring on a national level the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage. It goes on to set out measures to be taken (as appropriate) by each

(https://www.academia.edu/412741/The_discipline_of_archaeology).

³⁵ *European Convention on the Protection of the Archaeological Heritage*, 1969

(<http://conventions.coe.int/Treaty/en/Treaties/html/066.htm>).

³⁶ CoE, *Explanatory report – ETS 121 – Protection of the Architectural Heritage*

(<http://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016800ca436>).

³⁷ Cfr. *Gubbio Charter*, 1960, cit.

³⁸ Cfr. ICOMOS, *International Charter on the Conservation and Restoration of Monuments and Sites*, 1964, cit.

³⁹ Cfr. UNESCO, *Convention Concerning the Protection of the World Cultural and Natural Heritage*, 1972, cit.

country including establishing services with appropriate staff, scientific and technical studies, and legal, administrative and financial measures. The convention calls on States to submit an inventory of their cultural and natural heritage from which the World Heritage Committee would establish the “World Heritage List” and the “List of World Heritage in Danger” identifying a broad range of threats to heritage.

At the same time, if in 1972 the *Italian Restoration Charter* affirmed the importance of the principle of easy removability of the restoration work on a heritage building⁴⁰, in 1975 the *European Charter of the Architectural Heritage* introduced the concept of integrated conservation⁴¹. The adoption of this latter document by the Committee of Ministers of the Council of Europe in September 1975 was an important landmark in thinking about Conservation of the built heritage. The need to integrate Conservation with town planning, to preserve groups of historic buildings and their environment, and to take heritage into account as a part of economic and social life became generally accepted.

A further significant contribution was given in 1979 by the *Burra Charter* which provides a guidance for the Conservation and management of places of cultural significance⁴².

In the 1980s colloquia staged by the Council of Europe (Archaeology and Planning in Florence 1984 and Archaeology and Major Public Works in Nice 1987) lead to recommendations on the relationship between development and heritage. In 1989, the CoE’s Council of Ministers adopted a *Recommendation Concerning the Protection and Enhancement of the Archaeological Heritage in the Context of Town and Country Planning Operations*⁴³. This work led to the revision of the 1969 London Convention in the 1992 CoE *Convention for the Protection of the Archaeological Heritage of Europe* (the Valletta Convention)⁴⁴. The 1992 Convention reflects the change in the nature of threats to the

⁴⁰ Cfr. Ministry of Public Education, *Italian Restoration Charter*, 1972 (<https://soprintendenzapisa.livorno.beniculturali.it/wp-content/uploads/2019/08/circ-117-del-1972-Carta-del-restauro.pdf>).

⁴¹ Cfr. ICOMOS, *European Charter of the Architectural Heritage*, 1975 (<https://www.icomos.org/en/charters-and-texts/179-articles-en-francais/ressources/charters-and-standards/170-european-charter-of-the-architectural-heritage>); ICOMOS, *Declaration of Amsterdam*, 1975 (<https://www.icomos.org/en/and/169-the-declaration-of-amsterdam>).

⁴² Cfr. Australia ICOMOS, *Australia ICOMOS Guidelines for the Conservation of Places of Cultural Significance*, 1979, cit.; Australia ICOMOS, *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance*, 1981, cit.; Australia ICOMOS, *Australia ICOMOS Guidelines for the Conservation of Places of Cultural Significance*, 1987, cit.; Australia ICOMOS, *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance*, 1988, cit.; Australia ICOMOS, *Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports*, 1988, cit.; Australia ICOMOS, *Guidelines to the Burra Charter: Cultural Significance*, 1988, cit.; Australia ICOMOS, *Guidelines to the Burra Charter: Conservation Policy*, 1988, cit.; Australia ICOMOS, *Code on the Ethics of Co-existence in Conserving Significant Places*, 1998, cit.; Australia ICOMOS, *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance*, 1999, cit.

⁴³ O’Keefe P.J., *The European Convention on the Protection of the Archaeological Heritage*, *Antiquity* 67 (1993), pp. 406-413 (https://www.cambridge.org/core/services/aop-cambridge-core/content/view/21053974CFA226DF51BFEA16E1826E26/S0003598X00045506a.pdf/european_convention_on_the_protection_of_the_archaeological_heritage.pdf).

⁴⁴ Cfr. Council of Europe, *Convention for the Protection of Archaeological Heritage of Europe*, 1992 (<https://www.coe.int/en/web/culture-and-heritage/valletta-convention>).

archaeological heritage, which came less from unauthorised excavations, as in the 1960s, and more from major construction projects. It established basic legal standards for Europe, to be met by national policies for the protection of archaeological monuments as sources of scientific and documentary evidence. The Convention makes Conservation of the archaeological heritage one of the goals of urban and regional planning policies, and covers arrangements for co-operation between archaeologists and town/regional planners to ensure optimum Conservation of the archaeological heritage. It sets guidelines for (developer) funding of excavations and publication of research findings. It also deals with public access to archaeological sites, and educational actions to be undertaken to develop public awareness of the value of the archaeological heritage. The Convention also constitutes an institutional framework for pan-European co-operation on the archaeological heritage, entailing a systematic exchange of experience and experts among the various States.

Meanwhile, if the CoE *Convention for the Protection of the Architectural Heritage* was ratified in Granada in 1985, of prime importance in both the archaeological and architectural conventions is the identification and documentation of what is to be protected. Definitions vary from State to State and over time. For example, some States have specific legislation relating to maritime archaeology in their territorial seas. Other work focussed attention on specific aspects of heritage, such as the 1981 *Florence Charter* on the preservation of historic gardens⁴⁵, the 1986 *Noto Charter* on Conservation of the historic centres⁴⁶, the 1987 *Washington Charter* on protection historic towns and urban areas⁴⁷, whose need of safeguarding and management is reaffirmed by most recent documents, such as the 2011 *Valletta Principles*⁴⁸.

The CoE conventions call on States to establish inventories of the monuments, historic buildings, groups of buildings, landscapes and other sites to be protected. These national (also regional and international) inventories of the CH provide the fundamental basis for Safeguarding. They enable States to recognise monuments and historic buildings in the planning process, to monitor their condition (and, in this way, to recognise deterioration, dilapidation or other damage as it takes place), to manage Conservation or Preservation, and to enable access (to improve accessibility in the sense of a physical/architectural meaning, but also to better access to their understanding, i. e. accessibility to informations related to CH, using virtual representations).

The conventions also underline the importance of the planning process in Safeguarding the

⁴⁵ Cfr. ICOMOS, *Florence Charter*, 1981, cit.

⁴⁶ Cfr. *Noto Charter*, 1986, cit.

⁴⁷ ICOMOS, *Charter for the Conservation of Historic Towns and Urban Areas*, 1987, cit.

⁴⁸ Cfr. ICOMOS, *The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas*, 2011

(https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_b4260164b6a74386a9bc53253775bb98.pdf).

heritage. For example, the 1985 Geneva convention calls on States to introduce legislation that requires the owners of a monument or historic building to apply to a competent authority for permission to carry out works on that building. It also provides for both incentives (e.g. financial support) for maintaining the architectural heritage and penalties for causing damage.

At a national level, the framework for protection of the archaeological and architectural heritage is implemented through specific legislation. For example, the Republic of Ireland's *Local Government (Planning and Development) Regulations* (1994) provides the framework for local authorities to assess the impact of a proposed development on heritage and the environment. Decisions are informed by the State Heritage Service, which manages the national record of known sites and monuments⁴⁹. If the focus of the planning process is on developments and specific monuments and areas, the general principles of national policy is to promote knowledge and understanding of the past. The public and private bodies have important roles to play in heritage protection and most national heritage bodies have an educational role and attach importance to community involvement in heritage management.

In the same 1994, *The Nara Document on Authenticity* provided an essential contribution on the theme of the Conservation of CH. It affirmed that: “*Conservation of cultural heritage in all its forms and historical periods is rooted in the values attributed to the heritage. [...] Knowledge and understanding of these sources of information, in relation to original and subsequent characteristics of the cultural heritage, and their meaning, is a requisite basis for assessing all aspects of authenticity*” (art. 9); “*Authenticity, considered in this way and affirmed in the Charter of Venice, appears as the essential qualifying factor concerning values. The understanding of authenticity plays a fundamental role in all scientific studies of the cultural heritage, in conservation and restoration planning, as well as within the inscription procedures used for the World Heritage Convention and other cultural heritage inventories*” (art. 10); “*All judgements about values attributed to cultural properties as well as the credibility of related information sources may differ from culture to culture, and even within the same culture. It is thus not possible to base judgements of values and authenticity within fixed criteria. On the contrary, the respect due to all cultures requires that heritage properties must be considered and judged within the cultural contexts to which they belong*” (art. 11)⁵⁰.

At the beginning of the 21st century, the *Charter of Krakow* (2000)⁵¹, which deals with the

⁴⁹ Department of Arts, Heritage, Gaeltacht and Islands, Government of Ireland, *Framework and Principles for Protection of Archaeological Heritage*, 1999 (<https://www.archaeology.ie/sites/default/files/media/publications/framework-and-principles-for-protection-of-archaeological-heritage.pdf>).

⁵⁰ ICOMOS, *The Nara Document on Authenticity*, 1994, cit. See also: *Nara + 20: on Heritage Practices, Cultural Values, and the Concept of Authenticity*, 2014, cit.

⁵¹ Cfr. *Principles for Conservation and Restoration of Built Heritage*, 2000 (<http://smarterheritage.com/wp-content/uploads/2015/03/KRAKOV-CHARTER-2000.pdf>).

theme of the contemporary language of the restoration intervention, was drafted for CH Safeguarding. In the same year, the European Landscape convention (also known as the 2000 *Florence Convention*)⁵² promoted the protection, management and planning of landscapes calling on signatories to recognise landscapes in law.

Other documents have been specifically dedicated to the Safeguarding of specific heritage assets, such as objects of art and culture⁵³, archaeological heritage⁵⁴, 20th century heritage⁵⁵, underwater CH⁵⁶, built vernacular heritage⁵⁷, landscape⁵⁸, architectural heritage⁵⁹, cultural routes⁶⁰, industrial heritage⁶¹ and rural landscape⁶², as well as heritage components, such as historic timber structures⁶³ and wall paintings⁶⁴.

Thus, as the concept of (what is understood to be) CH evolved to become more inclusive of different aspects of the CH, and Preservation practices evolved, legislative measures were put in place across Europe, providing the modern basis for Safeguarding.

Following the CoE conference of Ministers in Portoroz in 2001, HEREIN was established as a permanent European information system of CH policy in each State⁶⁵. Since 2006, the European Heads of Heritage Forum has gathered once a year to share information and experience about the built heritage, landscape and archaeology of the countries of the EU, EEA and CoE. The European Commission's 2007 INSPIRE Directive established an infrastructure for spatial information in Europe to support Community environmental policies⁶⁶. Its scope includes data about protected sites (including sites where formal protection is given to buildings, archaeological sites of all pre-historic and historic times) provided by States from their national inventories. These measures provide for common ground and shared understanding of the frameworks for Safeguarding.

⁵² CoE, *European Landscape Convention*, 2000 (<https://www.coe.int/en/web/landscape/home>).

⁵³ Cfr. CNR, *Charter of Conservation and Restoration of Objects of Art and Culture*, 1987, cit.

⁵⁴ Cfr. ICOMOS, *Charter for the Protection and Management of the Archaeological Heritage*, 1990, cit.

⁵⁵ Cfr. *I dieci punti del comitato dei monumenti moderni*, 1991, cit.; ICOMOS ISC20C, *Approaches for the Conservation of 20th Century Architectural Heritage*, Madrid Document, 2011, cit.; The Getty Conservation Institute, *A Colloquium to Advance the Practice of Conserving Modern Heritage*, 2013, cit.; ICOMOS ISC20C, *Approaches for the Conservation of Twentieth-Century Architectural Heritage*, Madrid Document, 2014, cit.; ICOMOS ISC20C, *Approaches to the Conservation of Twentieth-Century Cultural Heritage*, Madrid-New Delhi Document, 2017, cit.

⁵⁶ ICOMOS, *Charter on the Protection and Management of Underwater Cultural Heritage*, 1996, cit.

⁵⁷ Cfr. ICOMOS, *Charter on the Built Vernacular Heritage*, 1999, cit.

⁵⁸ Cfr. Council of Europe, *European Landscape Convention*, 2000, cit.

⁵⁹ Cfr. ICOMOS, *Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage*, 2003, cit.

⁶⁰ Cfr. ICOMOS, *ICOMOS Charter on Cultural Routes*, 2008, cit.

⁶¹ Cfr. ICOMOS-TICCIH, *Joint ICOMOS-TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes*, 2011.

⁶² Cfr. ICOMOS-IFLA, *ICOMOS-IFLA Principles Concerning Rural Landscapes as Heritage*, 2017, cit.

⁶³ Cfr. ICOMOS, *Principles for the Preservation of Historic Timber Structures*, 1999 (https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_7407be5840354e808bbcabf4bb74a9cd.pdf).

⁶⁴ Cfr. ICOMOS, *ICOMOS Principles for the Preservation and Conservation-Restoration of Wall Paintings*, 2003 (https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_e3bd27cbd5624fd4bf4af48b5622539a.pdf).

⁶⁵ HEREIN (<https://www.coe.int/en/web/herein-system/about>).

⁶⁶ European Commission, *INSPIRE knowledge base* (<https://inspire.ec.europa.eu/>).

In parallel, the CoE *Convention on the value of Cultural Heritage for Society* (Faro Convention, 2005)⁶⁷ promoted a wider understanding of heritage and its relationship to communities and society, emphasizing important aspects of heritage as they relate to human rights and democracy. It encouraged recognition that CH objects and places are important because of the meanings and uses people attach to them and the values they represent.

For the most recent documents, Safeguarding means “*measures aimed at ensuring the viability of heritage places, including the identification, documentation, research, preservation, protection, promotion, enhancement, transmission, particularly through formal and non-formal education, as well as the revitalization of the various aspects of such heritage*”⁶⁸.

Attention has been progressively widened towards understanding and Safeguarding the intangible dimension of CH, including:

- heritage, as it is transmitted from generation to generation;
- culture, as it provides to communities a sense of identity and continuity;
- intangible, as transmitted by imitation and immersion in a practice.

In this sense, Intangible Cultural Heritage (ICH) refers to the practices, representations, expressions, knowledge and know-how, transmitted from generation to generation within communities, created and transformed continuously by them, depending on the environment and their interaction with nature and history. UNESCO’s 2003 *Convention for the Safeguarding of the Intangible Cultural Heritage*⁶⁹ recognises the deep-seated interdependence between the intangible CH, tangible CH and natural heritage. It considers that ICH exists in the present: what communities today recognize as part of their CH, often called “living heritage” (expressions that are no longer practised are considered to be part of cultural history).

The intangible, as the tangible, CH can adapt to the present and can be a powerful driver for development. It is a wealth of assets and knowledge that can be used in many aspects of life, such as society, food security, health, education, and sustainable use of natural resources. Women hold a special place in the transmission of ICH and have knowledge that contributes to their empowerment and which can, in turn, contribute to revenue generation. ICH is vital for maintaining cultural diversity in the face of globalization: it contributes to intercultural dialogue, encourages mutual respect and helps ensure social cohesion. The

⁶⁷ CoE, *Convention on the Value of Cultural Heritage for Society*, Faro Convention, 2005 (<https://www.coe.int/en/web/culture-and-heritage/faro-convention>).

⁶⁸ Cambridge Dictionary (<https://dictionary.cambridge.org/dictionary/english/valorization>). See also: ICOMOS Heritage Conservation Terminology (http://ip51.icomos.org/~fleblanc/documents/terminology/doc_terminology_e.html#C).

⁶⁹ Cfr. UNESCO, *Convention for the Safeguarding of the Intangible Cultural Heritage*, 2003, cit.

importance of ICH is not the cultural manifestation itself: it lies in its significance to communities. In this sense, its value is both intangible and tangible, linked to the social and economic effects of the knowledge and skills being transmitted.

The *Convention for the Safeguarding of the Intangible Cultural Heritage* is the international community's first binding multilateral instrument intended to safeguard and raise the profile of the ICH. Its goal is to encourage countries to care about and look after the ICH present on their territories.

But how can we safeguard something intangible? For the *Convention for the Safeguarding of the Intangible Cultural Heritage*, approaches to Safeguarding the intangible "living heritage" require strengthening and reinforcing the diverse and varied circumstances, tangible and intangible, necessary for the continuous evolution and interpretation of ICH, and for its transmission to future generations. Thus, it is necessary to find a balance between Safeguarding and allowing it to grow and adapt to the community's present reality, which may even mean allowing it to die out.

Therefore, in the CH Safeguarding practices, it has been progressively strengthened the need of taking into account the essential relationships between not only movable and immovable heritage, but also tangible and intangible CH.

In the framework of Safeguarding, strategic recommendations also come from the 2005 *Cultural Heritage Counts for Europe*⁷⁰. It conducted an EU-wide survey and analysis which identified the multiple benefits of heritage including economic, social, cultural and environmental. The project made a set of strategic recommendations aiming to demonstrate that CH makes a key contribution to the *Europe 2020. A European Strategy for Smart, Sustainable and Inclusive Growth*⁷¹. The European Commission's *New European Bauhaus* is an interdisciplinary initiative which calls on citizens to imagine a sustainable and inclusive future in places which are enriched (by art and culture), sustainable (in harmony with the environment) and inclusive (across generations, cultures, disciplines, genders and ages)⁷². The United Nations' Sustainable Development Goals (SDGs) also highlight that CH can be considered as a driver for the sustainable development, and thus Safeguarding can contribute to sustainability⁷³.

⁷⁰ Cfr. CHCfE Consortium, *Cultural Heritage Counts for Europe*, 2015 (<https://www.europanostra.org/our-work/policy/cultural-heritage-counts-europe/>).

⁷¹ European Commission, *Europe 2020. A European Strategy for Smart, Sustainable and Inclusive Growth* (<https://op.europa.eu/en/publication-detail/-/publication/6a915e39-0aab-491c-8881-147ec91fe88a/language-en>).

⁷² European Commission, *New European Bauhaus*, 2021 (https://europa.eu/new-european-bauhaus/index_en).

⁷³ United Nations, Sustainable Development Goals: <https://sdgs.un.org/goals> See also ICOMOS, *Cultural Heritage, the UN Sustainable Development Goals, and the New Urban Agenda*, 2015 (); ICOMOS, *ICOMOS Action Plan: Cultural Heritage and Localizing the UN Sustainable Development Goals (SDGs)*, 2017

In parallel, *Innovation in Cultural Heritage Research - for an integrated European research policy* (2018)⁷⁴ was written in preparation for the first European Year of Cultural Heritage. It was not only an institutional recognition of the importance of CH in Europe, but also a notable attempt to assess the potentials and challenges of a shared European CH. Research on these complex challenges helps provide evidence and advice towards better education, cultural, social and other policies at European, national and regional levels.

Within this framework, the *Work Programme 2021-2022* of Horizon Europe by the European Commission underlines, at the point 5, the essential themes of culture, creativity, inclusive society and participation for CH.

Acknowledging the value of CH for society⁷⁵ and the importance of protection and promotion of diverse cultural expressions⁷⁶, underlines the importance of the educational role (of state heritage agencies) and for guidance dedicated to the interpretation and presentation of CH⁷⁷, and to cultural tourism at places of heritage significance⁷⁸.

In this regard, Digital and Virtual Reality (VR) technologies are significant because they allow different manifestations of heritage and its tangible and intangible aspects to be related. This is confirmed by heritage digitisation projects that take into account not only immovable CH, but also what is contained within the asset, including paintings, objects, archive documents, people's memories/experiences, and contents related to events in those spaces⁷⁹.

All these challenges, as affirmed by the *Leeuwarden Declaration* (2018)⁸⁰, are to Safeguarding CH not only for the present, but also for future generation.

2.2.3 Evolution of Conservation as discipline

As affirmed in the 4CH proposal, "Preservation and Conservation terms are often used without an actual distinction. However, they deserve to be clearly defined in order to avoid misunderstandings". In relation to this, the first step of the present investigation, as for the

(https://www.icomos.org/images/DOCUMENTS/Secretariat/2017/ICOMOS_Action_Plan_Cult_Heritage_and_Localizing_SDGs_20170721.pdf).

⁷⁴ Cfr. European Commission, *Innovation in Cultural Heritage Research - For an integrated European Research Policy*, 2018 (<http://openarchive.icomos.org/id/eprint/2323/1/KI0118044ENN.en%20%281%29.pdf>).

⁷⁵ Cfr. Council of Europe, *Council of Europe Framework Convention on the Value of Cultural Heritage for Society*, Faro Convention, 2005, cit.

⁷⁶ Cfr. UNESCO, *Convention on the Protection and Promotion of the Diversity of Cultural Expressions*, 2005, cit.

⁷⁷ Cfr. ICOMOS, *ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites*, 2008 (https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_4ab285a463404c0c8af194ae65fc9f4d.pdf).

⁷⁸ Cfr. ICOMOS, *International Cultural Tourism Charter Managing Tourism at Places of Heritage Significance*, 1999 (https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_aee47329a3e34675b6ed97e5cc0bdd4e.pdf).

⁷⁹ An example is the INCEPTION project which did something similar for the Ospedale degli Innocenti in Florence, Italy (see this case study in the appendix 2).

⁸⁰ Cfr. *Adaptive Re-Use of the Built Heritage: Preserving and Enhancing the Values of our Built Heritage for Future Generations*, 2018 (https://www.ace-cae.eu/fileadmin/New_Upload/15_EU_Project/Creative_Europe/Conference_Built_Heritage/LEEWARDEN_STATEMENT_FINAL_EN-NEW.pdf).

previous one about Safeguarding, was the understanding of the different definitions of Conservation, Preservation and also Valorisation, which are all terms related to CH Safeguarding and included in the 4CH project proposal.

As their meanings have evolved over time, and understanding may change according to the geographical context, it seemed useful to provide a clarification and definition. Therefore, the UNIBO team worked with partners in T1.1 to define these three broad themes for the 4CH Competence Centre's KB.

Conservation and Preservation are widely shared concepts, on which there are authoritative sources, and the definitions presented below come from the ICOMOS Heritage Conservation Terminology;

Valorisation is proposed as an alternative to the term "Promotion", identified in the 4CH grant agreement, to cover a broader and more wide-reaching range of actions. Valorisation is not a term that is defined in international documents and so a definition has been agreed and shared for 4CH activities based on related terms in the ICOMOS glossary and drawing to some extent from the notion of Valorisation in the Italian Legislative Decree 42/2004 (art. 6 "Valorizzazione del patrimonio culturale"). Valorisation (*mise en valeur*) or "Cultural Valorisation" can be intended as the act of thinking or stating that something has value or is valuable. 4CH includes efforts designed to recognise, interpret, understand, make accessible, enhance, promote and sustainably develop heritage places and objects.

The team debated which term would be most suitable for the project purposes and agreed on the term Valorisation, being aware of the evolution of various terms and their nuanced meanings in relation to CH. The ICOMOS Heritage Conservation Terminology provides a wide reference; it provides a series of definitions which, in turn, derive from internationally recognised documents about CH. Nevertheless, it does not include a specific definition of Valorisation. For this reason, the team defined the term Valorisation in the project context by referencing activities defined by ICOMOS, such as Value, Interpretation, Cultural Diversity, Understanding and Sustainable Development. In this sense, Valorisation is a complex of actions aiming to recognise the cultural value of tangible and intangible heritage assets to the public by various means. Thus the working method included analysis of the terms and their definitions (in a table with the related references), as well as writing and sharing of a discussion paper with partners as a tool for decision making.

The definitions used for the 4CH project are the following:

Conservation (from ICOMOS⁸¹):

1. Conservation means all the processes of looking after a place so as to retain its cultural significance (Australia Burra Charter).
2. All efforts designed to understand cultural heritage, know its history and meaning, ensure its material safeguard and, as required, its presentation, restoration and enhancement (Cultural heritage is understood to include monuments, groups of buildings and sites of cultural value as defined in article one of the World Heritage Convention; Nara Conference on Authenticity in Relation to the World Heritage Convention, held at Nara, Japan, from 1-6 November 1994).
3. Concerned with the transmission of cultural heritage, with its significant values intact and accessible to the greatest degree possible (Recording, Documentation and Information Management for Historic Places - Guiding Principles; Getty Conservation Institute, 2008).
4. The profession devoted to the preservation of cultural property for the future. Conservation activities include examination, documentation, treatment, and preventive care, supported by research and education (AIC Definitions of conservation terminology - <http://aic.stanford.edu/geninfo/defin.html>).
5. All activities involved in the protection and retention of heritage resources. Includes the study, protection, development, administration, maintenance and interpretation of heritage resources, whether they are objects, buildings or structures, or environments. Often used interchangeably with preservation ("heritage conservation" in Canada is "historic preservation" in the U.S.). It is also used to refer to a highly specialized field of activity that normally deals with the protection of objects in museum collections: a conservator is the person who is responsible for the care and treatment of objects (Heritage BC - <http://www.heritagebc.ca/resources/guides-tips-1/terms-definitions>).
6. All actions or processes that are aimed at safeguarding the character-defining elements of a cultural resource so as to retain its heritage value and extend its physical life. This may involve "Preservation", "Rehabilitation", "Restoration", or a combination of these actions or processes. Reconstruction or reconstitution of a disappeared cultural resource is not considered conservation (Parks Canada Standards and Guidelines for the Conservation of Historic Places in Canada - <https://www.historicplaces.ca/media/18072/81468-parks-s+g-eng-web2.pdf>).
7. All measures and actions aimed at safeguarding tangible cultural heritage while ensuring its accessibility to present and future generations. Conservation embraces preventive conservation, remedial conservation and restoration. All measures and actions should respect the significance and the physical properties of the cultural heritage item (ICOM-CC, 2008).
8. Refers to the discipline involving treatment, preventive care, and research directed toward the long-term safekeeping of cultural and natural heritage (Getty Research - Art & Architecture Thesaurus Online).
9. Means all the processes of looking after a place so as to retain its Natural, Indigenous and Cultural significance. It includes protection, maintenance and monitoring. According to circumstance it may involve preservation, restoration, reconstruction, reinstatement or adaptation and will be commonly a combination of more than one of these. For Indigenous communities, it can include conserving relationships between people and place that

⁸¹ Cfr. ICOMOS Heritage Conservation Terminology, cit.

embrace spiritual as well as historical values, and protecting Aboriginal Sites in order to protect their significance to people (Australia Centennial Parklands Conservation Management Plan, 2003).

10. All actions aimed at the safeguarding of cultural property for the future. The purpose of conservation is to study, record, retain and restore the culturally significant qualities of the cultural property as embodied in its physical and chemical nature, with the least possible intervention. Conservation includes the following: examination, documentation, preventive conservation, reservation, treatment, restoration and reconstruction ("Code of Ethics" - Canadian Association for Conservation of Cultural Property and the Canadian Association of Professional Conservators, 2000).

11. Conservation implies keeping in safety or preserving the existing state of a heritage resource from destruction or change, i.e., the action taken to prevent decay and to prolong life (Feilden, 1982: 3). Another definition of conservation is broader. This is the Australia Burra Charter definition which is "all the processes of looking after a place so as to retain its cultural significance" (Article 1.4). The general concept of conservation implies various types of treatments aimed at safeguarding buildings, sites or historic towns; these include management, maintenance, repair, consolidation, reinforcement. Preventive Conservation consists of indirect action to retard deterioration and prevent damage by creating optimal conservation conditions as far as is compatible with its social use (Conservation Management Planning: Putting Theory into Practice. The Case of Joya de Cerén, El Salvador - Getty Conservation Institute, 2009).

12. All actions designed to understand a heritage property or element, know, reflect upon and communicate its history and meaning, facilitate its safeguard, and manage change in ways that will best sustain its heritage values for present and future generations (In ICOMOS - NARA + 20: On Heritage Practices, Cultural Values, and the Concept of Authenticity).

13. An umbrella term to mean all the processes of looking after a place so as to retain what is important about it or its cultural significance. These actions include repair, restoration, maintenance and in some instances, reconstruction (Australia ICOMOS, 2013).

Preservation (from ICOMOS⁸²):

1. Preservation means maintaining the fabric of a place in its existing state and retarding deterioration (Australia Burra Charter).

2. The protection of cultural property through activities that minimize chemical and physical deterioration and damage and that prevent loss of informational content. The primary goal of preservation is to prolong the existence of cultural property (AIC Definitions of conservation terminology - <http://aic.stanford.edu/geninfo/defin.html>).

3. All actions taken to retard deterioration of, or to prevent damage to, cultural property. Preservation involves management of the environment and of the conditions of use, and may include treatment in order to maintain a cultural property, as nearly as possible, in a stable physical condition. With respect to material valued exclusively for its information content, for example some archival material, preservation may include reformatting ("Code of Ethics" - Canadian Association for Conservation of Cultural Property and the Canadian Association of Professional Conservators, 2000).

4. A generic term for the broad range of processes associated with the restoration,

⁸² *Ibidem.*

rehabilitation and adaptive re-use of historic structures. Other activities including the identification, evaluation, interpretation, maintenance and administration of historic resources form an integral part of the movement to retain elements from the past (The Heritage Canada Foundation - Preservation Strategy No. 3, 1983).

5. Is defined as the act or process of applying measures to sustain the existing form, integrity, and material of a building or structure, and the existing form and vegetative cover of a site. It may include initial stabilization work, where necessary, as well as ongoing maintenance of the historic building materials (USA Secretary Of The Interior's Standards For Historic Preservation 1979; Design Guidelines for Department of Defense Historic Buildings and Districts; US Department of Defense, 2008).

6. The action or process of protecting, maintaining, and/or stabilizing the existing materials, form, and integrity of a historic place or of an individual component, while protecting its heritage value (Parks Canada Standards and Guidelines for the Conservation of Historic Places in Canada - <https://www.historicplaces.ca/media/18072/81468-parks-s+g-eng-web2.pdf>).

7. Refers to actions taken to prevent further changes or deterioration in objects, sites, or structures (Getty Research - Art & Architecture Thesaurus Online).

8. This is often used as a synonym of conservation; many people use the word in an all-encompassing sense, including also issues related to the broader administrative, economic, legal, political and social context in which conservation takes place (e.g. legal protection, policies, public awareness) (Conservation Management Planning: Putting Theory into Practice. The Case of Joya de Cerén, El Salvador - Getty Conservation Institute, 2009).

9. The action or process of protecting, maintaining, and/or stabilizing the existing materials, form, and integrity of a historic place or of an individual component while protecting its heritage value ('Building Resilience', 2016 by Federal Provincial Territorial Ministers of Culture and Heritage in Canada).

Valorisation

From Italian Legislative Decree 42/2004⁸³:

1. Valorisation consists in the exercise of functions and regulation of activities aimed at promoting the knowledge of CH and ensuring the best conditions for the public use and enjoyment of the heritage itself, including people with disabilities, in order to promote the development of culture. It also includes the promotion and support of interventions for conservation of CH. With reference to the landscape, it also includes the rehabilitation of buildings and areas under safeguard that are compromised or degraded, or the realization of new coherent and integrated landscape values (art. 6, c. 1).

2. Valorisation is carried out in compatible forms with safeguard and in such a way as not to prejudice its needs (art. 6, c. 2).

From Cambridge Dictionary⁸⁴:

Valorisation can be defined as the act of thinking or stating that something has value or is

⁸³ Cfr. Italian Legislative Decree 42/2004

(https://www.gazzettaufficiale.it/atto/serie_generale/caricaDettaglioAtto/originario?atto.dataPubblicazioneGazzetta=2004-02-24&atto.codiceRedazionale=004G0066&elenco30giorni=false).

⁸⁴ Cfr. Cambridge Dictionary, cit.

valuable. In the context of 4CH, Valorisation covers:

1. Cultural significance - All efforts designed to recognise the cultural significance of a place or object (its aesthetic, historic, scientific, social or spiritual value) for past, present or future generations.
2. Value - All efforts designed to recognise the positive characteristics attributed to heritage places and objects by legislation, governing authorities, and/or other stakeholders.
3. Social value - All efforts designed to recognise that heritage places and objects have a range of values for different individuals or groups. Range of qualities for a place such as spiritual, traditional, economic, political, or national qualities which are valued by the majority or minority group of that place. Social values include contemporary cultural values (Conservation Management Planning: Putting Theory into Practice. The Case of Joya de Cerén, El Salvador - Getty Conservation Institute 2009).
4. Interpretation - efforts to interpret or present the cultural significance of a place and the ideas and feelings which help people to enrich their understanding and appreciation of their world and role within it.
5. Understanding - All efforts designed to understand cultural heritage, know its history and meaning, ensure its material safeguard and, as required, its presentation, restoration and enhancement (Cultural heritage is understood to include monuments, groups of buildings and sites of cultural value as defined in article one of the World Heritage Convention) (Nara Conference on Authenticity in Relation to the World Heritage Convention, held at Nara, Japan, from 1-6 November 1994).
6. Enhancement - measures to enhance access to heritage places and objects including provisions for physical access, access by individuals and groups in society with diverse needs, provisions for access to documentation, interpretations, visualisations and perhaps other terms.
7. Promotion - measures to promote heritage places and objects, and their documentation, interpretations, visualisations etc.
8. Sustainable development - measures to provide for sustainable, values-based management of heritage places and objects including exploitation, income generation, co-financing, crowd funding etc.
9. The act of making something valuable or useful from an existing substance.

From Collins Dictionary⁸⁵:

1. Increased status.
2. Reusing.
3. Exploitation.
4. Promotion.
5. Increased valuation.

⁸⁵ Cfr. Collins Dictionary (<https://www.collinsdictionary.com/dictionary/french-english/valorisation>).

Terms linked to Valorisation:

Cultural diversity (from ICOMOS⁸⁶):

1. “Cultural diversity” refers to the manifold ways in which the cultures of groups and societies find expression. These expressions are passed on within and among groups and societies.
2. Cultural diversity is made manifest not only through the varied ways in which the cultural heritage of humanity is expressed, augmented and transmitted through the variety of cultural expressions, but also through diverse modes of artistic creation, production, dissemination, distribution and enjoyment, whatever the means and technologies used (UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions 2005).

Interpretation (from ICOMOS⁸⁷):

1. Interpretation means all the ways of presenting the cultural significance of a place (Australia Burra Charter).
2. Interpretation is a means of communicating ideas and feelings which help people enrich their understanding and appreciation of their world and their role within it (Conservation Management Planning: Putting Theory into Practice. The Case of Joya de Cerén, El Salvador - Getty Conservation Institute 2009).

Social value (from ICOMOS⁸⁸):

1. Range of qualities for a place such as spiritual, traditional, economic, political, or national qualities which are valued by the majority or minority group of that place. Social values include contemporary cultural values. (In: Conservation Management Planning: Putting Theory into Practice. The Case of Joya de Cerén, El Salvador - Getty Conservation Institute 2009).

Understanding (from ICOMOS⁸⁹):

1. All efforts designed to understand cultural heritage, know its history and meaning, ensure its material safeguard and, as required, its presentation, restoration and enhancement (Cultural heritage is understood to include monuments, groups of buildings and sites of cultural value as defined in article one of the World Heritage Convention) (Nara Conference on Authenticity in Relation to the World Heritage Convention, held at Nara, Japan, from 1-6 November 1994).

Upgrade (from ICOMOS⁹⁰):

1. To enhance in quality and/or value (as for improve above), but also including remodeling, revitalization and perhaps other terms (National Research Council of Canada, 1982).

Value (from ICOMOS⁹¹):

1. Value is the positive characteristics attributed to heritage places and objects by legislation,

⁸⁶ Cfr. ICOMOS Heritage Conservation Terminology, cit.

⁸⁷ *Ibidem*.

⁸⁸ *Ibidem*.

⁸⁹ *Ibidem*.

⁹⁰ *Ibidem*.

⁹¹ *Ibidem*.

governing authorities, and/or other stakeholders. These characteristics are what make a site significant, and they are often the reason why society and authorities are interested in a specific cultural site or object. In general, groups within society expect benefits from the value they attribute to the resource (Getty Conservation Institute Glossary for Iraq Course 2004).

Related to value:

1. Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects. Places may have a range of values for different individuals or groups (Australia Burra Charter)⁹².
2. The combination of cultural values of a place (such as aesthetic, historic, scientific, social or spiritual values) to past, present or future generations (Conservation Principles for Concrete of Cultural Significance - Getty Conservation Institute 2020)⁹³.
3. Heritage value - The aesthetic, historic, scientific, cultural, social or spiritual importance or significance for past, present or future generations. The heritage value of a historic place is embodied in its character-defining materials, forms, location, spatial configurations, uses and cultural associations or meanings (Parks Canada Standards and Guidelines for the Conservation of Historic Places in Canada)⁹⁴.

⁹² *Ibidem*.

⁹³ *Ibidem*.

⁹⁴ Cfr. <https://www.historicplaces.ca/media/18072/81468-parks-s+g-eng-web2.pdf>.

2.2.4 Objectives and activities of Conservation, Preservation and Valorisation

T1.1 defined the objectives and activities of Conservation, Preservation and Valorisation to build on the definitions (in 2.2.5 above) in a practical and functional way.

A set of actions was identified from analysis of recognised documents on CH including CH and European projects. This comparative and transversal approach highlighted that Conservation can be considered as a sub-component of Preservation, while Valorisation may include or anticipate Conservation and Preservation practices.

Although there is a strong link between Conservation, Preservation and Valorisation (the boundaries of these concepts are often blurred with some areas of overlap), the 4CH project had fixed on specific definitions of the various related activities, which were divided and classified between the three concepts. As some activities encompass all three general concepts (e.g. historical research), some activities are found under more than one of them. Where it is possible to distinguish whether the activity is done with the specific purpose of Conservation or Preservation or Valorisation, it has been associated to the related category; where this is not possible, the activity is reported for more than one of them. The work tries not to lose sight of this complexity and diversity, characteristics that enrich and ground worldwide the definition of CH, while making an effort to synthesize the results and make them processable in the matrix.

The CH objectives and activities which were identified starting from the definitions are the following:

Conservation

- Actions designed to facilitate CH safeguarding;
- Efforts designed to ensure safeguarding of CH material and, as required, its presentation, restoration and enhancement⁹⁵ - Conservation may involve preservation, rehabilitation, restoration, or a combination of these actions or processes⁹⁶ - Conservation embraces preventive conservation, remedial conservation and restoration⁹⁷ - Conservation may involve preservation, restoration, reconstruction, reinstatement or adaptation and will be commonly a combination of more than one of these⁹⁸ - Reconstruction or reconstitution of a disappeared cultural resource is not considered conservation⁹⁹ - Conservation includes preventive conservation, preservation, restoration and reconstruction¹⁰⁰ - Actions which include repair, restoration, maintenance and in some instances, reconstruction¹⁰¹;
- Activities including the study, recording, examination and documentation of CH;
- Efforts designed to understand and interpret CH;

⁹⁵ Cfr. *Nara Conference on Authenticity in Relation to the World Heritage Convention*, 1994.

⁹⁶ Cfr. *Parks Canada Standards and Guidelines for the Conservation of Historic Places in Canada*.

⁹⁷ Cfr. ICOM-CC, 2008.

⁹⁸ Cfr. *Australia Centennial Parklands Conservation Management Plan*, 2003.

⁹⁹ Cfr. *Parks Canada Standards and Guidelines for the Conservation of Historic Places in Canada*.

¹⁰⁰ Cfr. "Code of Ethics" - Canadian Association for Conservation of Cultural Property and the Canadian Association of Professional Conservators, 2000.

¹⁰¹ Cfr. Australia ICOMOS, 2013.

- Efforts designed to know, reflect upon and communicate CH history and meaning;
- Activities supported by research and education;
- Measures and actions which should respect the significance and the physical properties of the CH item;
- Processes of looking after a place so as to retain what is important about it or its natural, indigenous and/or cultural significance;
- Conserving relationships between people and place that embrace spiritual as well as historical values, and protecting sites in order to protect their significance to people;
- Discipline involving treatment, preventive care and research directed toward the long-term safekeeping of CH;
- Actions or processes that are aimed at safeguarding the character-defining elements of a cultural resource so as to retain its heritage value and extend its physical life;
- Keeping in safety or preserving the existing state of a heritage resource from destruction or change (i.e. the action taken to prevent decay and to prolong life);
- Retaining and restoring the culturally significant qualities of the cultural property as embodied in its physical and chemical nature, with the least possible intervention;
- Preventive conservation which consists on indirect actions to retard deterioration and prevent damage by creating optimal conservation conditions as far as is compatible with its social use;
- Various types of treatments aimed at safeguarding CH, including repair, consolidation and reinforcement;
- Activities involved in the protection and retention of heritage resources;
- Monitoring of CH;
- Activities including maintenance, development, administration and management of CH resources;
- Actions aimed at the safeguarding of cultural property for the future;
- Measures and actions aimed at safeguarding tangible CH while ensuring its accessibility to present and future generations;
- Activities concerned with the transmission of cultural heritage, with its significant values intact and accessible to the greatest degree possible;
- Actions designed to manage change in ways that will best sustain its heritage values for present and future generations;
- Conservation is also used to refer to a highly specialized field of activity that normally deals with the protection of objects in museum collections (a conservator is the person who is responsible for the care and treatment of objects);
- The profession devoted to the preservation of cultural property for the future (conservation is often used interchangeably with preservation).

Preservation

- Identification, evaluation, interpretation, maintenance and administration of historic resources form an integral part of the movement to retain elements from the past;
- Treatments in order to maintain CH, as nearly as possible, in its existing state and stable physical condition;
- Actions or processes of applying measures to sustain the existing form, integrity and material of a building or structure, and the existing form and vegetative cover of a site;

- Actions or processes of protecting, maintaining and/or stabilizing the existing materials, form and integrity of a historic place or of an individual component, while protecting its heritage value;
- Actions taken to prevent further changes or deterioration in CH;
- Protecting CH through activities that retard and minimize chemical and physical deterioration and damage, and that prevent loss of informational content, in order to prolong the existence of CH;
- Processes associated with the restoration, rehabilitation and adaptive re-use of CH;
- Management of the environment and the conditions of use;
- Preservation may include initial stabilization work, where necessary, as well as ongoing maintenance of CH materials;
- Preservation may include issues related to the broader administrative, economic, legal, political and social context in which conservation takes place (e.g. legal protection, policies, public awareness);
- With respect to material valued exclusively for its information content, for example some archival material, preservation may include reformatting;
- Preservation is often used as a synonym of conservation.

Valorisation

- The exercise of functions and regulation of activities aimed at promoting the knowledge of CH, in order to promote the development of culture;
- The exercise of functions and regulation of activities aimed at ensuring the best conditions for the public use and enjoyment of the heritage itself, including people with disabilities, in order to promote the development of culture;
- The promotion and support of interventions for conservation of CH;
- The rehabilitation of buildings and areas under safeguard that are compromised or degraded;
- The realization of new coherent and integrated values;
- Activities carried out in compatible forms with safeguard and in such a way as not to prejudice its needs;
- Increasing status;
- Reusing;
- Exploitation (i.e. communication purposes);
- Promotion;
- Increasing valuation;
- Making something valuable or useful from an existing substance;
- Participation (e.g. communities involvement);
- Educational activities and programmes;
- Partnership and networking;
- Advertising;
- Gaming.

The CH operative activities related to Conservation, Preservation and/or Valorisation, extrapolated from the objectives and activities that have been identified, are the following:

- Historic and bibliographic research;
- Studies on CH;
- Documentation of CH;
- Communication of CH;
- Dissemination through publications;
- Preventive conservation;
- Diagnostic activities;
- Identification of the risks and deterioration patterns;
- Materials conservation tests;
- Pre-consolidation, cleaning, consolidation and protection of CH materials;
- Reinforcement of CH buildings;
- Monitoring;
- Maintenance practices;
- Management and administration practices;
- Promotion and support of interventions for conservation;
- Project of restoration;
- Adaptive re-use of CH;
- Accessibility;
- Reconstruction;
- Organisation of events and festivals;
- Encounters with communities;
- Educational activities and programmes;
- Creation of partnership and networking;
- Advertisements with CH;
- Gaming with CH.

Table 2.1 - Relation between the individuated activities and the Conservation, Preservation and Valorisation practices

Conservation	Preservation	Valorisation	Activities
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Historic and bibliographic research
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Studies on CH
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Documentation of CH
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Communication of CH
<input type="checkbox"/>	<input type="checkbox"/>		Preventive conservation
<input type="checkbox"/>	<input type="checkbox"/>		Diagnostic activities
<input type="checkbox"/>	<input type="checkbox"/>		Identification of the risks and deterioration patterns
<input type="checkbox"/>	<input type="checkbox"/>		Materials conservation tests
<input type="checkbox"/>	<input type="checkbox"/>		Pre-consolidation, cleaning, consolidation and protection of CH materials
<input type="checkbox"/>	<input type="checkbox"/>		Reinforcement of CH buildings
<input type="checkbox"/>	<input type="checkbox"/>		Monitoring
<input type="checkbox"/>	<input type="checkbox"/>		Maintenance practices
<input type="checkbox"/>	<input type="checkbox"/>		Management and administration practices
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Promotion and support of interventions for conservation
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Project of restoration
<input type="checkbox"/>			Reconstruction
	<input type="checkbox"/>	<input type="checkbox"/>	Adaptive re-use of CH
	<input type="checkbox"/>	<input type="checkbox"/>	Accessibility
		<input type="checkbox"/>	Dissemination through publications
		<input type="checkbox"/>	Organisation of events and festivals
		<input type="checkbox"/>	Encounters with communities
		<input type="checkbox"/>	Educational activities and programmes
		<input type="checkbox"/>	Creation of partnership and networking
		<input type="checkbox"/>	Advertisements with CH
		<input type="checkbox"/>	Gaming with CH

2.3 Working Methodology

2.3.1 Mapping strategy

A mapping strategy was developed by T1.1, to set the field of investigation and the criteria of selection of the KB sources (see fig. 2.1). This work framed the principal aspects of interest and comparison, and enabled analysis and survey of skills, experiences and best practices in the extremely wide field of CH Conservation, Preservation and Valorisation.

The mapping strategy, basing on a multi-sheet Excel file, follows the below sections (one per worksheet):

- CH_Definitions (reporting Conservation, Preservation and Valorisation definitions, as described at paragraph 2.2.3);
- CH_Objectives and Activities (reporting Conservation, Preservation and Valorisation objectives and activities, as described at paragraph 2.2.4);
- CH_Description (reporting the T1.1 CH descriptive matrix, see tab. 2.2, section 2);
- KB_Criteria (reporting the KB sources, the criteria of selection, the type of resources and the outputs, see fig. 2.1).

The mapping strategy includes the specifications about the Conservation, Preservation and Valorisation activities, the type and characteristics of CH (described with macro-categories and sub-categories), and the objects of inquiry (digital technologies, techniques, methodologies, strategies, policies, governance and bottom-up approaches).

T1.1 worked in collaboration with the other WP1 tasks to identify the type and characteristics of the CH involved in the best practice under analysis, in order to address its study sharing a common framework and descriptive glossary. The Excel sheet reporting the common/shared items of description of CH assets has been implemented with additional fields, with the aim/objective of better suit the description and analysis of the best practices.

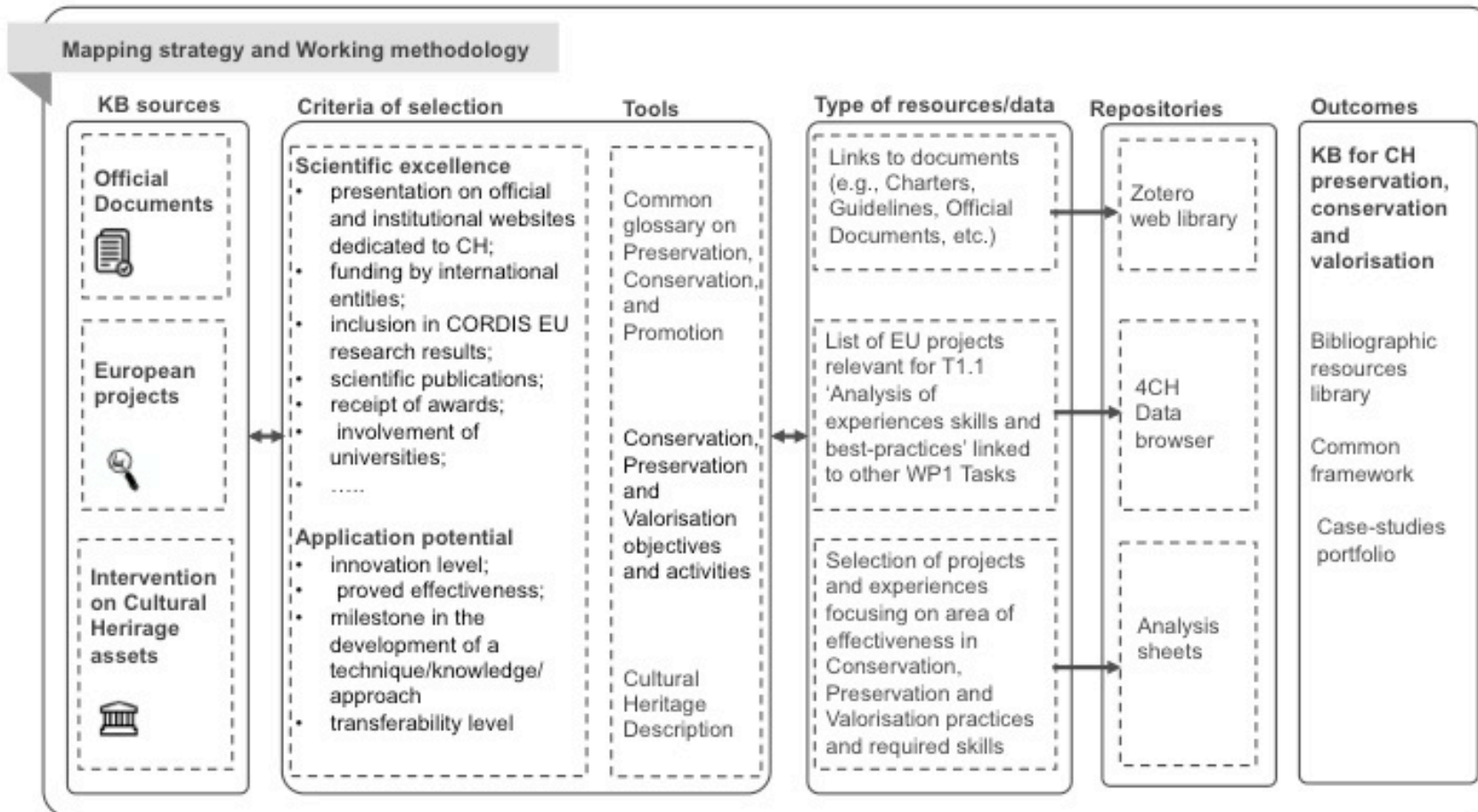


Figure 2.1 - Mapping strategy scheme and images of the excel sheets

2.3.2 KB sources

To define the reference framework and identify the European best practice to be analysed as case studies, T1.1 identified different kinds of KB sources. The selection includes:

- documents (which include international guidelines and charts of restoration);
- European research projects;
- innovative Safeguarding programmes;
- CH cataloguing systems;
- interventions on CH assets.

In order to have a common field/realm of comparison/correspondence between these different types of KB sources, facilitating the subsequent analyses and comparisons, the T1.1 defined some tags, related to the action of Conservation, Preservation and/or Valorisation and the type of CH asset, in order to operate thematic and transversal queries (see appendix 4).

2.3.3 Selection criteria

In order to scope the limits of the research, T1.1 defined a set of selection criteria for the KB sources, defining two main levels of relevance:

- the **scientific excellence**, guaranteed by the presentation on official and institutional websites dedicated to CH (such as UNESCO), the funding by international entities (such as the Getty Conservation Institute), the inclusion in CORDIS EU research results, the scientific publications, the receipt of awards and/or the involvement of universities, etc.;
- the **application potential**, such as the innovation level, the proved effectiveness, if they are milestone in the development of a technique/knowledge/approach, the transferability level, etc.

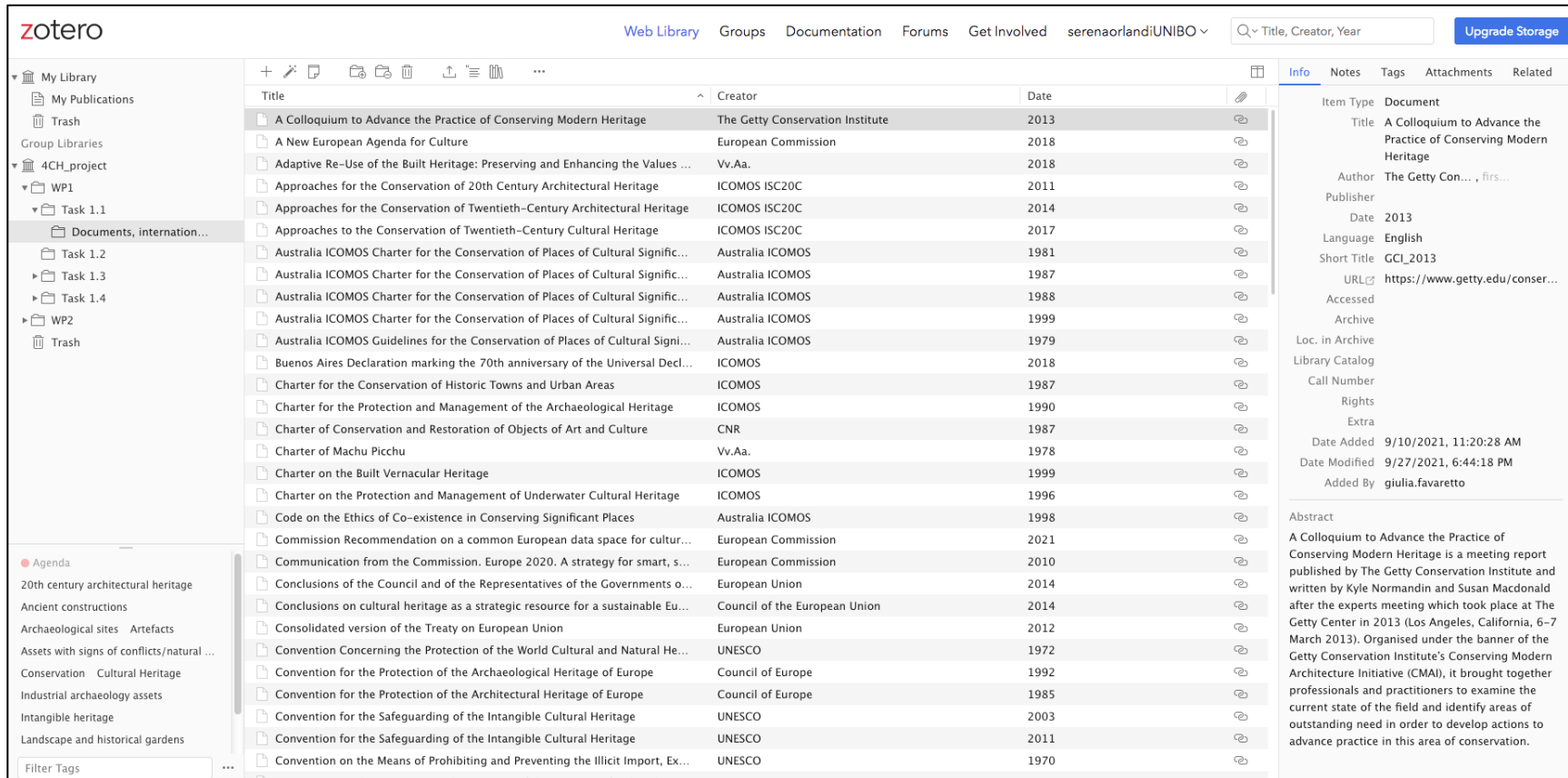
2.4 Analysis

With regard to the operative work, T1.1 considered and collected a lot of data and resources related to documents, European projects, innovative Safeguarding programmes, cataloguing systems, and case studies referring to CH Safeguarding best practices. Then, it carried out different analyses on the investigated sources. The analysis on documents, European projects, innovative Safeguarding programmes and cataloguing systems not only served for the construction of the reference framework, but also prepared for subsequent work on the best practices. In fact, the identification and analysis of significant best practices and the related embedded skills is the main in-depth field and focus of T1.1, as affirmed by the 4CH proposal (T1.1 has the task of carrying out the “Analysis of experiences, skills and best practices acquired and implemented so far in the European countries, in the field of Preservation and Conservation of monuments and sites”), and characterized its research activity with respect to the other WP1 tasks. The overall analysis allowed the construction of a KB which will contribute to enable heritage professionals and institutions to search and find solutions tailored to their specific needs in terms of methods, technologies, tools, services, policies and strategies.

2.4.1 Documents

Documents in the field of the Safeguarding of CH have been collected, selected and analysed to draw the state of the art in the field of Conservation, Preservation and Valorisation of CH, and the construction of the reference framework. The collection/selection includes restoration charts and international guidelines by recognised institutions, such as UNESCO, ICOMOS and the European Commission.

These documents were inserted in a common/shared repository based on the Zotero platform, identified by the 4CH project as the main database for papers and documents. For each document, T1.1 indicated the item type, the title, the short title (when present), the author, the date, the language, the link to the document and an abstract (see fig. 2.2). Moreover, T1.1 associated some relevant tags to each document, useful not only for the search and identification of the various documents, but also for the construction of a common framework which relates the documents with the other objects of the analysis (e.g. best practices). These tags are related to the activities of Conservation, Preservation and/or Valorisation, as well as to the type of CH asset, using the same shared lexicon.



Title	Creator	Date
A Colloquium to Advance the Practice of Conserving Modern Heritage	The Getty Conservation Institute	2013
A New European Agenda for Culture	European Commission	2018
Adaptive Re-Use of the Built Heritage: Preserving and Enhancing the Values ...	Vv.Aa.	2018
Approaches for the Conservation of 20th Century Architectural Heritage	ICOMOS ISC20C	2011
Approaches for the Conservation of Twentieth-Century Architectural Heritage	ICOMOS ISC20C	2014
Approaches to the Conservation of Twentieth-Century Cultural Heritage	ICOMOS ISC20C	2017
Australia ICOMOS Charter for the Conservation of Places of Cultural Signific...	Australia ICOMOS	1981
Australia ICOMOS Charter for the Conservation of Places of Cultural Signific...	Australia ICOMOS	1987
Australia ICOMOS Charter for the Conservation of Places of Cultural Signific...	Australia ICOMOS	1988
Australia ICOMOS Charter for the Conservation of Places of Cultural Signific...	Australia ICOMOS	1999
Australia ICOMOS Guidelines for the Conservation of Places of Cultural Signi...	Australia ICOMOS	1979
Buenos Aires Declaration marking the 70th anniversary of the Universal Decl...	ICOMOS	2018
Charter for the Conservation of Historic Towns and Urban Areas	ICOMOS	1987
Charter for the Protection and Management of the Archaeological Heritage	ICOMOS	1990
Charter of Conservation and Restoration of Objects of Art and Culture	CNR	1987
Charter of Machu Picchu	Vv.Aa.	1978
Charter on the Built Vernacular Heritage	ICOMOS	1999
Charter on the Protection and Management of Underwater Cultural Heritage	ICOMOS	1996
Code on the Ethics of Co-existence in Conserving Significant Places	Australia ICOMOS	1998
Commission Recommendation on a common European data space for cultur...	European Commission	2021
Communication from the Commission. Europe 2020. A strategy for smart, s...	European Commission	2010
Conclusions of the Council and of the Representatives of the Governments o...	European Union	2014
Conclusions on cultural heritage as a strategic resource for a sustainable Eu...	Council of the European Union	2014
Consolidated version of the Treaty on European Union	European Union	2012
Convention Concerning the Protection of the World Cultural and Natural He...	UNESCO	1972
Convention for the Protection of the Archaeological Heritage of Europe	Council of Europe	1992
Convention for the Protection of the Architectural Heritage of Europe	Council of Europe	1985
Convention for the Safeguarding of the Intangible Cultural Heritage	UNESCO	2003
Convention for the Safeguarding of the Intangible Cultural Heritage	UNESCO	2011
Convention on the Means of Prohibiting and Preventing the Illicit Import, Ex...	UNESCO	1970

Info Notes Tags Attachments Related

Item Type Document

Title A Colloquium to Advance the Practice of Conserving Modern Heritage

Author The Getty Con... , firs...

Publisher

Date 2013

Language English

Short Title GCI_2013

URL <https://www.getty.edu/conser...>

Accessed

Archive

Loc. in Archive

Library Catalog

Call Number

Rights

Extra

Date Added 9/10/2021, 11:20:28 AM

Date Modified 9/27/2021, 6:44:18 PM

Added By giulia.favaretto

Abstract

A Colloquium to Advance the Practice of Conserving Modern Heritage is a meeting report published by The Getty Conservation Institute and written by Kyle Normandin and Susan Macdonald after the experts meeting which took place at The Getty Center in 2013 (Los Angeles, California, 6–7 March 2013). Organised under the banner of the Getty Conservation Institute's Conserving Modern Architecture Initiative (CMAI), it brought together professionals and practitioners to examine the current state of the field and identify areas of outstanding need in order to develop actions to advance practice in this area of conservation.

Figure 2.2 - T1.1. Zotero screenshot, showing part of the documents inserted by T1.1 and, on the right, an example of information available for the first one of the list. https://www.zotero.org/groups/2797594/4ch_project/collections/2EHMIT4D/items/6V2568WU/collection (accessed on 15 March 2022).

2.4.2 European projects

To build an overview of the European research projects (type of programmes: H2020, FP7), T1.1 searched the CORDIS database (<https://cordis.europa.eu/>) to find projects with the following query: “Conservation CH” and “Preservation CH”. The team collected information about these projects and the links to their official websites in an excel file and compared them with those identified by the other WP1 tasks. In total, 203 projects were identified and listed in the excel file.

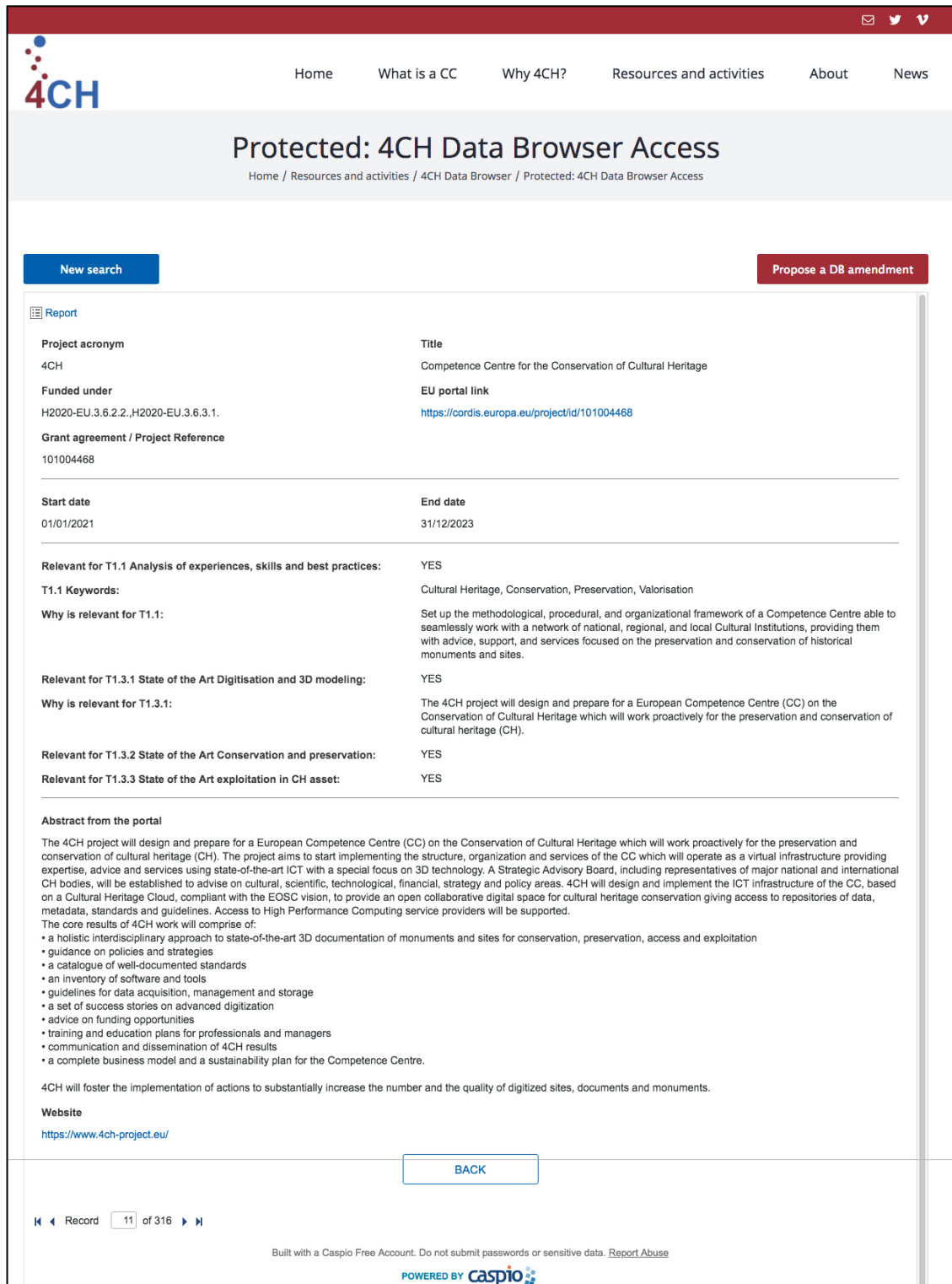
Further analysis of these 203 European research projects led to the selection of 156 projects. The selected projects were listed in an Excel sheet including descriptive details, such as the title, acronym, identification number, funding program and sub-program, the start and end date, link to the CORDIS portal and to the project website, an abstract, the documentation (results in brief, reporting and results), the link to the news, and a note about the reason why it has been considered relevant for T1.1. As with documents, relevant tags were applied to each project (see table 2.2).

This research and analysis was useful for the inclusion of relevant European projects in a common 4CH data browser¹⁰², as well as for both the identification and selection of some best practices deriving from virtuous actions carried out in the framework of European projects (see paragraph 2.4.5), and the construction of a common framework which put into relations documents, European projects and best practices (see paragraph 2.5.2).

¹⁰² See the specifications about the Database of European projects inside the point 4 about the Working Methodology in the present report.

Table 2.2 - Example of a European project sheet

Code	EP_001
ID	101004468
Acronym	4CH
Title	Competence Centre for the Conservation of Cultural Heritage
Funded under	H2020
Sub-program	EU.3.6.2.2., H2020-EU.3.6.3.1.
Start date	01/01/21
End date	31/12/2023
EU portal link	https://cordis.europa.eu/project/id/101004468
Keywords	Cultural Heritage, Conservation, Preservation, Valorisation
Relevance	Set up the methodological, procedural, and organizational framework of a Competence Centre able to seamlessly work with a network of national, regional, and local Cultural Institutions, providing them with advice, support, and services focused on the preservation and conservation of historical monuments and sites.
Abstract	Digitalisation is crucial in improving cultural heritage (CH) services. The EU-funded 4CH project will design and develop the structure, functioning and services of a European Competence Centre (CC) on Conservation of Cultural Heritage. The CC will operate as a virtual infrastructure using pioneering ICT focusing on 3D technology to provide expertise, advice and services. The project will establish an Advisory Board involving representatives of national and international CH institutions to make recommendations on cultural, scientific, technological, financial and policy issues and design and apply a CH cloud-based ICT infrastructure allowing access to repositories of data, metadata, standards and guidelines. 4CH will substantially improve the quality of digitised sites, documents and monuments.
Documentation	
Results (Brief)	
Reporting	
Results	
News	
Website	https://www.4ch-project.eu



Home / Resources and activities / 4CH Data Browser / Protected: 4CH Data Browser Access

Protected: 4CH Data Browser Access

New search Propose a DB amendment

Report

Project acronym	Title
4CH	Competence Centre for the Conservation of Cultural Heritage
Funded under	EU portal link
H2020-EU.3.6.2.2.,H2020-EU.3.6.3.1.	https://cordis.europa.eu/project/id/101004468
Grant agreement / Project Reference	
101004468	
Start date	End date
01/01/2021	31/12/2023
Relevant for T1.1 Analysis of experiences, skills and best practices:	YES
T1.1 Keywords:	Cultural Heritage, Conservation, Preservation, Valorisation
Why is relevant for T1.1:	Set up the methodological, procedural, and organizational framework of a Competence Centre able to seamlessly work with a network of national, regional, and local Cultural Institutions, providing them with advice, support, and services focused on the preservation and conservation of historical monuments and sites.
Relevant for T1.3.1 State of the Art Digitisation and 3D modeling:	YES
Why is relevant for T1.3.1:	The 4CH project will design and prepare for a European Competence Centre (CC) on the Conservation of Cultural Heritage which will work proactively for the preservation and conservation of cultural heritage (CH).
Relevant for T1.3.2 State of the Art Conservation and preservation:	YES
Relevant for T1.3.3 State of the Art exploitation in CH asset:	YES

Abstract from the portal

The 4CH project will design and prepare for a European Competence Centre (CC) on the Conservation of Cultural Heritage which will work proactively for the preservation and conservation of cultural heritage (CH). The project aims to start implementing the structure, organization and services of the CC which will operate as a virtual infrastructure providing expertise, advice and services using state-of-the-art ICT with a special focus on 3D technology. A Strategic Advisory Board, including representatives of major national and international CH bodies, will be established to advise on cultural, scientific, technological, financial, strategy and policy areas. 4CH will design and implement the ICT infrastructure of the CC, based on a Cultural Heritage Cloud, compliant with the EOSC vision, to provide an open collaborative digital space for cultural heritage conservation giving access to repositories of data, metadata, standards and guidelines. Access to High Performance Computing service providers will be supported.

The core results of 4CH work will comprise of:

- a holistic interdisciplinary approach to state-of-the-art 3D documentation of monuments and sites for conservation, preservation, access and exploitation
- guidance on policies and strategies
- a catalogue of well-documented standards
- an inventory of software and tools
- guidelines for data acquisition, management and storage
- a set of success stories on advanced digitization
- advice on funding opportunities
- training and education plans for professionals and managers
- communication and dissemination of 4CH results
- a complete business model and a sustainability plan for the Competence Centre.

4CH will foster the implementation of actions to substantially increase the number and the quality of digitized sites, documents and monuments.

Website

<https://www.4ch-project.eu/>

BACK

Record 11 of 316

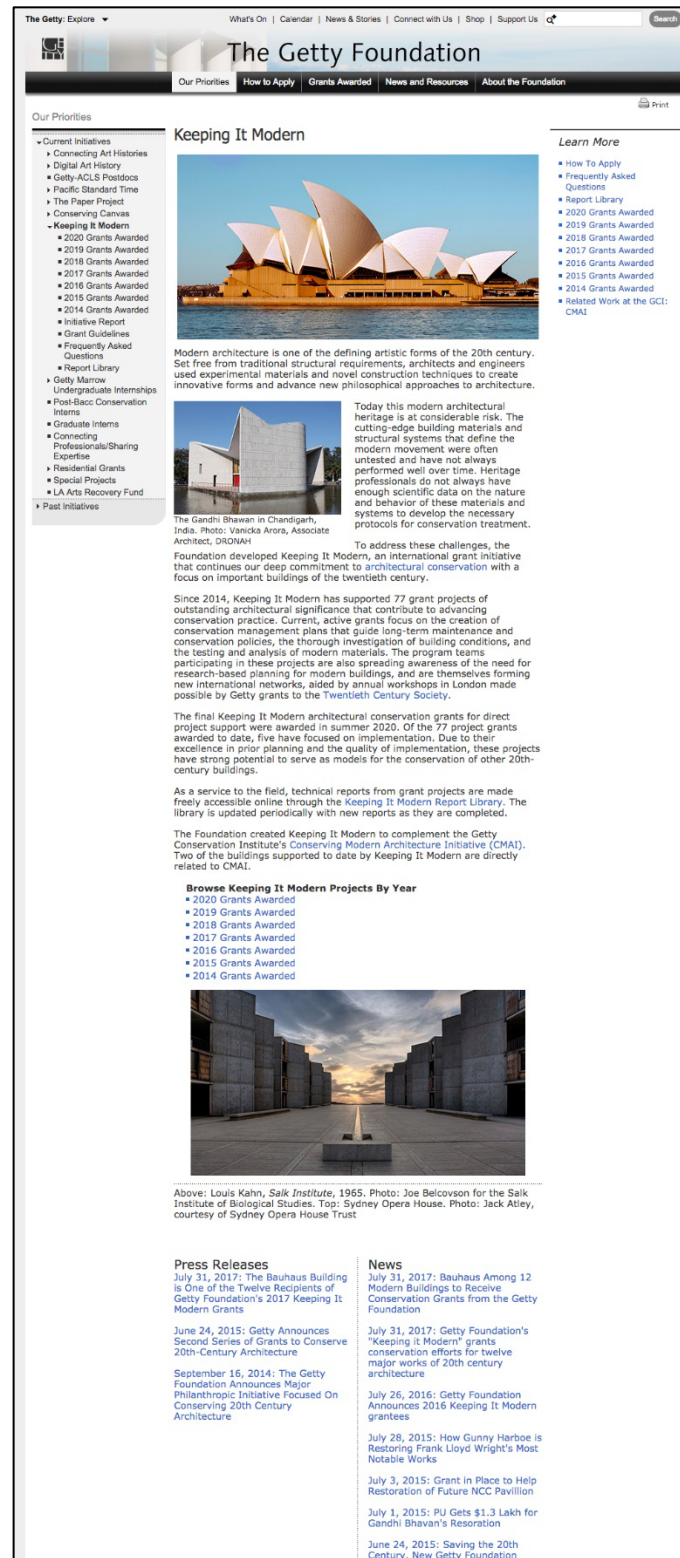
Built with a Caspio Free Account. Do not submit passwords or sensitive data. [Report Abuse](#)

POWERED BY **caspio**

Figure 2.3 - One page of the data browser about European funded projects. <https://www.4ch-project.eu/resources-activities/4ch-data-browser/4ch-data-browser-access> (accessed on 01 April 2022).

2.4.3 Innovative Safeguarding programmes

The work carried out on innovative Safeguarding programmes concerned their identification and analysis to select further best practices. For this, T1.1 analysed databases related to initiatives supported by UNESCO (<https://whc.unesco.org>), international grant initiatives (e.g. Keeping It Modern by the Getty Foundation for the financing of interventions of conservation of the 20th century architecture, https://www.getty.edu/foundation/initiatives/current/keeping_it_modern/), European Union programmes (e.g. EU Major Projects, https://ec.europa.eu/regional_policy/en/projects/major/) and public tenders for interventions on CH and the development of heritage communities (e.g. the "Extraordinary plan for the development of the cinemas and multifunctional halls" funded by the Italian Ministry of Culture, <https://cinema.cultura.gov.it/cosa-facciamo/sostegni-economici/linee-di-sostegno/piani-straordinari/introduzione/>; the Bando 57 by the Foundation of Community in Milan, Italy, <https://www.fondazionecomunitamilano.org/bando-57/>) (see paragraph 2.4.5).



The screenshot shows the 'Keeping It Modern' page on the Getty Foundation website. The page features a navigation bar with 'Our Priorities', 'How to Apply', 'Grants Awarded', 'News and Resources', and 'About the Foundation'. A sidebar on the left lists various initiatives and grants. The main content area includes a large image of the Sydney Opera House, a section titled 'Keeping It Modern' with a sub-image of the Gandhi Bhawan, and several paragraphs of text discussing modern architectural conservation. A 'Learn More' sidebar on the right lists various resources. At the bottom, there are sections for 'Browse Keeping It Modern Projects By Year' and 'Press Releases'.

Figure 2.4 - Keeping It Modern by the Getty Foundation for the financing of interventions of conservation of the 20th century architecture website. https://www.getty.edu/foundation/initiatives/current/keeping_it_modern (accessed on 20 March 2022).

2.4.4 Other investigated sources

Among the other investigated sources used for the individuation of the best practices, there are the online webpages dedicated to awards in the field of the actions for CH (e.g. EU Awards for CH; EU Prizes for Contemporary Architecture; European Awards for Architectural Heritage Intervention; Europa Nostra Prizes; International Awards Domus Restoration and Conservation Fassa Bortolo; Heritage in Motion Awards; Museums + Heritage Awards for Innovation; Gold Medals for Italian Architecture by the Triennale; Urban Prizes of Urbanpromo; Cultural Award of cities; Clio Awards). Other investigated sources are the scientific publications, and webpages of Universities with specific reference to their involvement in projects for CH (e.g. PRIN BHIMM, a Research Project of National Interest financed by the Italian Ministry of University and Research). Furthermore, different and further best practices have been investigated, starting from suggestions by 4CH partners, as well as considering case studies investigated by other WP1 tasks (see paragraph 2.4.5).

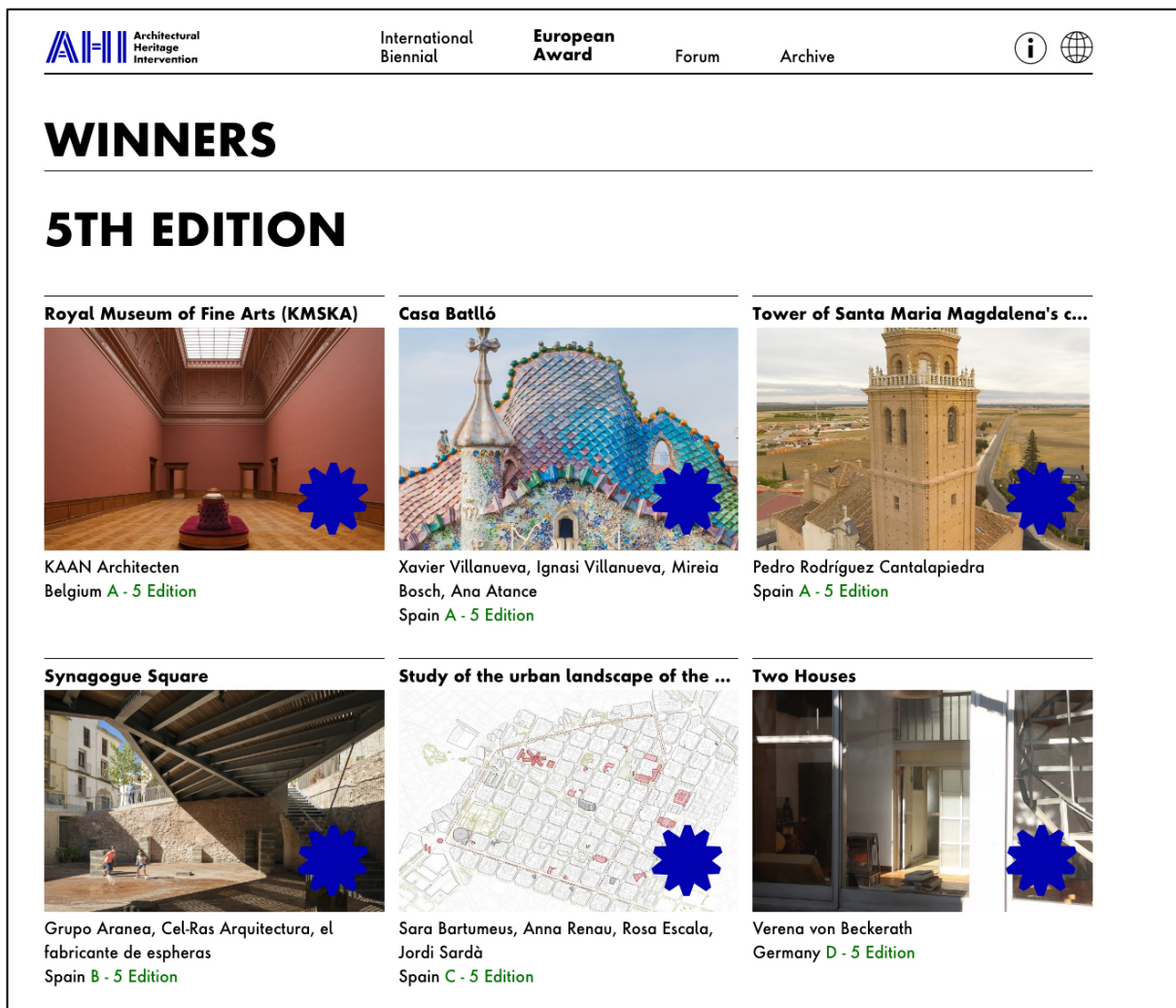


Figure 2.5 - European Awards for Architectural Heritage Intervention website.
<https://eu-architecturalheritage.org/en/european-award/winners> (accessed on 02 April 2022).

2.4.5 Analysis and cataloguing of best practices

To prepare for the cataloguing and analysing phase of selection of the best practices, T1.1 reviewed possible cataloguing systems. These included the template prepared by the Italian Central Institute for Cataloguing and Documentation (ICCD) for its general catalogue of CH (<https://catalogo.beniculturali.it>), CARARE's metadata schema¹⁰³ and Historic England's MIDAS Heritage data standard¹⁰⁴. These systems were used and adapted to create a model that reflects the priorities/objectives of the 4CH project and the matrix terms.

The result is a series of sheets, initially included in an excel file and lately converted in a more comprehensible table made of 4 sections, for the description of the best practice case study. The structure of the table template covers (see table 2.3 below for an example – for all the best practices analysis sheets, see appendix 2):

- an introduction to the case study (with a general identification of the best practice through textual parts and images);
- the identification of the heritage asset (with the asset description);
- the characterisation of the best practice (with a description of the significant interventions on the heritage asset);
- conclusions (which relates the activities carried out on the heritage asset with the related skills).

The sheets also make a reference/connection to the other WP1 tasks.


After defining the analysis methodology and the cataloguing filing sheets, some tests were done to check and assess their responsiveness to the expected clarity and completeness of contents. Thus, the system composed by the methodology and the filing sheets was applied to a first set of case studies about real interventions on CH. After the fine-tuning of the system, the next phase was its application to the other best practices.

¹⁰³ Cfr. CARARE, *Metadata Schema* (<https://pro.carare.eu/en/introduction-carare-aggregation-services/carare-metadata-schema/>).

¹⁰⁴ Cfr. Historic England, *MIDAS Heritage* (<https://historicengland.org.uk/images-books/publications/midas-heritage/>).

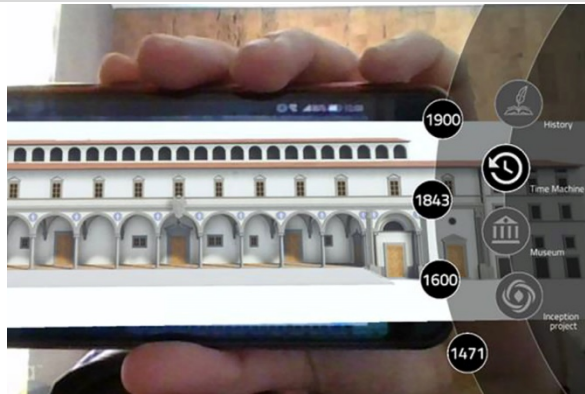
Table 2.3 - Example of best-practices analysis sheets.

1. CASE STUDY (INTRODUCTION)		BP_026
Best practice ref. <i>identification code (add text)</i>	BP_026	
Object <i>object of the case study (add text)</i>	OSPEDALE DEGLI INNOCENTI, FLORENCE, ITALY	
Intervention <i>subject of the case study (add text)</i>	Phisical and digital enhancement of a cultural heritage asset	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2008
	End date	2016
Actors <i>main actors involved (add text)</i>	Ipostudio with Pietro Carlo Pellegrini and Eugenio Vassallo; INCEPTION project (coordinator: University of Ferrara, Italy)	
Description of the best practice <i>Brief abstract (add text)</i>	<p>After an international competition held in 2008 by the Istituto degli Innocenti, a design phase carried out from 2008 to 2011 by Ipostudio with Pietro Carlo Pellegrini and Eugenio Vassallo, and a construction phase from 2012 to 2016, the MUDI - Museo degli Innocenti has been inaugurated. The project for the Nuovo Museo degli Innocenti involved the new public accesses from the square through two metal mechanisms, and concerned the reorganisation of the internal paths, both vertical and horizontal, the refurbishment, the enhancement of temporary and permanent exhibition spaces, and the recovery of the large loggia on the top floor for the construction of a new cafeteria with a view of the monuments of Florence, that can be closed by movable glass panels. In the framework of the project, it has been addressed target users, such as tourists, visitors, cultural heritage asset owners, scholars and professionals. In this regard, INCEPTION project developed a user-based walkthrough which is related to the understanding of the evolution of the building, as a support for restoration or touristic applications. This cultural heritage workflows allows the definition and implementation of what a user can do to retrieve, provide, link, analyse, validate, interpret and use data, and can be performed for tasks such as preservation, site management, and connect tangible and intangible information. Especially, the acquired documentation aimed at the creation of a 3D model, that could allow multimedia visualisations and applications to enhance the new museum and to create innovative ways to explore the artistic and architectonic heritage and new forms of accessibility. By the use of a 3D morphometric survey, it was possible to investigate the complexity of the object using different technologies, such as the 3D laser scanner in order to obtain a 3D database, the topographic survey for geo-referencing of the database, and the photographic survey aimed at the implementation of a comprehensive knowledge of surfaces state of conservation. Moreover, it was highlighted possible uses of the 3D models and information, semantically linked towards applications. Especially, the implementation of the overall documentation and data aggregation for the 3D modelling semantic approach allowed data association among survey data, modelled geometries (parametric modelling) and information enrichment (building evolution, historical analysis, new form of accessibility to the museum). In this way, the project activities have addressed the modelling approach within the 3D semantic H-BIM, aggregating semantic attributes to 3D geometric models to allow new forms of heritage data management. In particular, the semantic part consisted of nomenclature and interpretation of building elements, and integration of additional documents and information related to the history of the building and 3D data capturing.</p>	

	This has been performed by involving the dedicated stakeholder (Istituto degli Innocenti) and the members of the stakeholder panel that supported the consortium in focusing effective strategies to increase use and reuse of digital models.
<p>Bibliography and sitography main sources referred to the best practice (add text)</p>	<ul style="list-style-type: none"> • Mulazzani M. (ed.), <i>L'Ospedale degli Innocenti di Firenze. La fabbrica brunelleschiana dal Quattrocento al Novecento. Il nuovo museo</i>, Electa, Milano 2016. • Terpolilli C., <i>Oltre il Restauro. La valorizzazione del patrimonio edilizio pubblico monumentale. L'Istituto degli Innocenti e il progetto MUDI</i>, in "TECHNE", 2, 2012, pp. 158-171. • https://www.abitare.it/it/architettura/progetti/2016/10/18/ipostudio-spedale-degli-innocenti/ • https://www.aeiprogetti.com/projects/museo-degli-innocenti/ • https://www.themaprogetto.it/il-progetto-del-museo-degli-innocenti-fiorenze/ • https://www.inception-project.eu/en/demonstration_cases/istituto-degli-innocenti-florence-italy • https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5c487bf10&appId=PPGMS • http://www.salonedelrestauro.com/new/admin/upload/incontro/Combine_2.pdf • https://www.abstrartfirenze.org/blog/putti-andrea-della-robbia/
<p>Documental references (add text)</p>	CH general criteria framework (common framework, documents, CH)
<p>Keywords transversal tags among different fields of research (add text)</p>	<p>Ancient constructions</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>
<p>Image/s of the best practice nr. 1/3 image/s to identify the type of best practice</p>	 <p>https://www.aeiprogetti.com/projects/museo-degli-innocenti/</p>




<https://www.aeiprogetti.com/projects/museo-degli-innocenti/>



<https://ec.europa.eu/research/participants/documents/downloadPublic?documentId=s=080166e5c487bf10&appld=PPGMS>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_026

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Ospedale degli Innocenti</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Spedale degli Innocenti Istituto degli Innocenti</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection Local listing (a monument, building, urban area or landscape which is listed on a local register for protection) National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection) International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.aeprogetti.com/projects/museo-degli-innocenti/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Florence	
		Address	Piazza della Santissima Annunziata 12	
		Country	Italy	
		Continent	Europe (European Union)	
	Environment <i>(select from list)</i>	Urban		
		Rural		
		Coastal		
		Natural		
	Location <i>(select from list)</i>	On ground		
		Underwater/maritime		
Underground				
Cave				
Find spot				
CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual		
		Group		
		Complex		
		Settlement		
		Landscape		
		Route		
	Type A (of the heritage asset) <i>(select from list)</i>	Built		
		Carved		
		Natural		
		Earthworks		
		Open surface		
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>	
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>	
		Commercial	<i>(passages, markets, etc.)</i>	
		Cultural	<i>(libraries, archives, etc.)</i>	
		Cultural Landscape		
		Dwellings	<i>(villas, palaces, houses, etc.)</i>	
		Educational		
		Expositive	<i>(museums, galleries, etc.)</i>	
		Gardens and Parks		
		Health and Welfare	<i>(hospitals, spas, etc.)</i>	
		Industrial and Technological	<i>(factories, power plants, etc.)</i>	
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>	
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>	
		Mining	<i>(mines, etc.)</i>	
		Other, Public	<i>(law courts, city hall, etc.)</i>	
		Performing	<i>(theatres, etc.)</i>	
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>	
		Routes	<i>(trading, pilgrimage, etc.)</i>	
		Settlement	<i>(towns, town centres, villages, etc.)</i>	
		Symbolic and Memorial	<i>(monuments, plates, etc.)</i>	
	Vernacular			
	Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		
	Function	Function	Horphanage	

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	<i>significant uses of the heritage asset</i> <i>(add text)</i>	Century	15th-19th century
		Start year	1445
		End year	c. 1875
		Function	Brefotrophy
		Century	19th century
		Start year	c. 1875
		End year	1890
		Function	Museum
		Century	19th-21st century
	Start year	1890	
	End year		
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation
		Actor	Filippo Brunelleschi
		Century	15th century
		Start year	1419
		End year	1427
		Event	Continuation of the construction work
		Actor	Francesco della Luna
Century		15th century	
Start year		1436	
End year		1445	
Event		Restoration	
Actor		Leopoldo Pasqui	
Century		19th century	
Start year		1845	
End year		1845	
Event	Addition of an attic on the Renaissance façade		
Actor	Luigi Fusi		
Century	19th century		
Start year	1895		
End year	1895		
Event	Restoration		
Actor	Design by architects Rodolfo Raspollini, Domenico Cardini and Guido Morozzi, and construction supervision by architect Domenico Cardini and engineer Mario Focacci		
Century	20th century		
Start year	1966		
End year	1970		
Event	Restoration of the front on the square including the loggia		
Actor			
Century	20th century		
Start year	1994		
End year	1994		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
Immaterial aspects	Architectural typology		
	Artisanship		

<i>connection to immaterial aspects (select from list) (add text)</i>	Authorship	Filippo Brunelleschi
	Knowledge/ideas	
	Performance	
	Rituals/festivals/folklore/ceremonies	
	Social activities/practices	
	Traditional arts	
	Traditional communication means	
	Traditional construction systems	
	Traditional craftsmanship	
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Renaissance milestone

Cultural Heritage Type			
ARTEFACTS (particular consideration for, if relevant)			
CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
		Immovable	Written evidences
			Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i> Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_026

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Hospital		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		Ceramic, terracotta, brick
	Concrete		
	Concrete derivatives		
	Glass materials		Glass
	Metal materials		Metal
	Paints, varnishes and enamels		
	Plasters		Plaster
	Polymeric materials		
	Marbles, travertines, stones and granites		Stone
	Vegetable, mineral and animal fibres		
	Wood		Wood
Wood derivatives			
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological) Anthropogenic risks (heritage management)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	3D model 3D laser scanner 3D database		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization Professional researchers Companies from the creative industry producing heritage-based content, apps, games, education and tourism services		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Documentation of CH; Communication of CH; Educational activities and programmes
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	Project of restoration; Creation of partnership and networking

		<i>standards, replicable strategies</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Communication of CH
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Encounters with communities

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_026

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Historic and bibliographic research					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Studies on CH					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Documentation of CH	Skills on developing knowledge banks on Cultural Heritage materials, techniques and know-how				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Communication of CH	Skills on digitalisation			Skills on mapping and analysis of users' needs and requirements	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preventive conservation					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Diagnostic activities					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Identification of the risks and deterioration patterns					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Materials conservation tests					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pre-consolidation, cleaning, consolidation and protection of CH materials					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reinforcement of CH buildings					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Maintenance practices					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Management and administration practices					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Promotion and support of interventions for conservation					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Project of restoration			Skills on organisation and logistics of complex situations (management of means and resources)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reconstruction					

<input type="checkbox"/>	<input type="checkbox"/>	Adaptive re-use of CH					
<input type="checkbox"/>	<input type="checkbox"/>	Accessibility					
	<input type="checkbox"/>	Dissemination through publications					
	<input type="checkbox"/>	Organisation of events and festivals					
	<input type="checkbox"/>	Encounters with communities					Skills on training and educational activities
	<input type="checkbox"/>	Educational activities and programmes	Skills on training and educational activities				
	<input type="checkbox"/>	Creation of partnership and networking			Skills on encouraging and supporting the development of networks		
	<input type="checkbox"/>	Advertisements with CH					
	<input type="checkbox"/>	Gaming with CH					

2.4.6 Analysis and cataloguing of best practices

According to the criteria of selection, the atlas of best practices includes 42 interventions on CH assets carried out in different geographical locations and time periods. The individuated best practices, listed in alphabetical order according to the name of the country where they are based/sites/located, are:

AUSTRIA

BP_001. Altenburg Abbey, Altenburg (International Award Domus Restoration and Conservation Fassa Bortolo) - 2002-2012

BELGIUM

BP_002. Ename Abbey, Ename (Heritage in Motion 2016 Award) - 2015-on-going

BP_003. Horta Museum, Brussels (EU Award for CH 2014) - 1989-2014

BOSNIA AND HERZEGOVINA

BP_004. Mostar Bridge, Mostar (supported by UNESCO) - 2001-2004

CYPRUS

BP_005. Choirokoitia Archaeological Site, Choirokoitia (successfully submitted to UNESCO for inclusion in the World Heritage List) - 2018-on-going

BP_006. Pafos Gate, Nicosia (Public Play Space project) - 2019-on-going

BP_007. Troodos Churches, Troodos (Excellence project) - 2008-on-going

CZEC REPUBLIC

BP_008. Villa Tugendhat, Brno (from publications) - 2010-2012

FRANCE

BP_009. Luma, Arles (from publications) - 2014-2021

BP_010. Jardin des Vestiges, Marseilles (from publications) - 2009-2019

BP_011. Festival of Lights, Lyon (from ROCK project) - 2016-on-going

BP_012. Palace of the Popes, Avignon (from publications) - 2017-on-going

GEORGIA

BP_013. Bagrati Cathedral, Kutaisi (International Award Domus Restoration and Conservation Fassa Bortolo) - 2011-2012

GERMANY

BP_014. Bauhaus building, Dessau (from Keeping It Modern) - 1996-2006

BP_015. Congress Hall, Nuremberg (from publications) - 1998-2001

BP_016. Neues Museum, Berlin (2011 EU Prize for Contemporary Architecture) - 1998-2009

BP_017. Park of the Varus Battle, Kalkriese, Bramsche (from publications) - 1998-2006

BP_018. Topography of Terror, Berlin (from publications) - 2007-2010

ITALY

- BP_019. Basilica Palladiana, Vicenza (2014 EU Award for CH) - 2007-2012
- BP_020. Cestia Pyramid, Rome (2017 EU Award for CH) - 2012-2015
- BP_021. Forum of Augustus, Rome (from publications) - 2017-2019
- BP_022. Great Pompeii Project (EU Great Project) - 2012-2018
- BP_023. Malatestiana Library, Cesena (University of Bologna) - 2013
- BP_024. MUBIG, Milan (from Bando 57) - 2020
- BP_025. Officine Grandi Riparazioni, Turin (Urban Prize of Urbanpromo, 2015) - 2014-2019
- BP_026. Ospedale degli Innocenti, Florence (from publications and INCEPTION project) - 2008-2016
- BP_027. Piazza Rossini, Bologna (from ROCK project) - 2017-2020
- BP_028. San Saba Oratory, Rome (from PRIN BHIMM) - 2010-2011
- BP_029. Santa Marta Barracks, Verona (2015 Gold Medal for Italian Architecture by the Triennale) - 2009-2015
- BP_030. Temple Cathedral, Pozzuoli (International Award Domus Restoration and Conservation Fassa Bortolo) - 2004-2009
- BP_031. Trevi Fountain, Rome (from publications) - 2015-2016
- BP_032. Troisi Cinema, Rome (winner of a public tender: restoration with funds of the Italian Ministry of Culture in the framework of the "Extraordinary plan for the development of the cinemas and multifunctional halls") - 2019-2021
- BP_033. Urbino Colleges, Urbino (from Keeping It Modern) - 2015-2017
- BP_034. Villa Contarini, Piazzola sul Brenta (PD) (University Luav of Venice) - 2000-2004

PORTUGAL

- BP_035. São Roque Chapel, Lisbon (from publications) - 2015-2016

SLOVENIA

- BP_036. Celica Hostel, Ljubljana (from publications) - 2001-2018

SPAIN

- BP_037. Casa Batlló, Barcelona (2004 Europa Nostra Prize, 2017 European Award for Architectural Heritage Intervention) - 2017-2019
- BP_038. Galera, Granada (from CARARE project) - 1960s-on-going
- BP_039. Matadero, Madrid (from publications) - 2006-2007

SWITZERLAND

- BP_040. Shelter for Roman Ruins, Chur (2020 Cultural Award of the City of Chur) - 1985-1986

UNITED KINGDOM

- BP_041. Streetmuseum, London (2011 Clio Awards Bronze) - 2010-
- BP_042. The Lost Palace, London (winner of the 2017 Museums + Heritage Award for Innovation) - 2015-on-going

2.4.7 Skills on CH Safeguarding

According with the aims of the T1.1 (Analysis of experiences, skills and best practices acquired and implemented so far in the European Countries, in the field of preservation and conservation of monuments and sites) the collection of information and the analyses on the selected best practices was at the base of another specific T1.1 objective: the investigation of the more relevant, innovative and emerging skills involved in the intervention under inquiry. The detection of the skills that the users of the CC may need to improve or develop, represents a fundamental point to be addressed in the perspective of the services that the future CC will provide, especially the training and up-skilling ones. In fact, as stated in the 4CH proposal, the CC will produce training activities and material, to improve and update the skills of professionals and heritage institutions staff (Project Objective 4). Training content will be decided in detail during the project and will include technologies, procedures, standards and guidelines identified by 4CH.

With this in mind, for each intervention, the analysis sheets provided evidence of the skills which emerged from the related best practice.

For the definition of the concept of skill, regulations and recommendations have been individuated, also in order to define the characteristics and differences among competences, skills and knowledge. After the consultation of the Italian Legislative Decree 16 January 2013, no. 13 “Definition of the general rules and essential performance levels for the identification and validation of the non-formal and informal learning and the minimum service standards of the national system of certification of competences, pursuant to article 4, paragraphs 58 and 68, of the law 28 June 2012, no. 92”, it has been consulted the Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning (Text with EEA relevance) (2008/C111/01). In particular, for the purposes of this Recommendation, the definitions of competence, skills and knowledge are the following:

- **‘competence’** means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy;
- **‘skills’** means the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments);
- **‘knowledge’** means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual.

In order to identify the skills involved (and required) in the field of CH Safeguarding, T1.1 made some other preliminary analyses of:

- the skills trained by schools for CH (e.g. the Italian CH School; the French École de Chaillot¹⁰⁵);
- documents about skills for CH (e.g. the report *Cultural Heritage Counts for Europe* drafted in the framework of the Culture Programme of the EU; the report *EUHeritage* on skills for promotion, valorisation, exploitation, mediation and interpretation of European CH drafted in the framework of the Erasmus+ Programme of the EU; the point 5 “Culture, creativity and inclusive society” of the *Work Programme 2021-2022* of Horizon Europe by the European Commission¹⁰⁶).

For 4CH project, the skills are related to the following user categories, which derive from the research activities implemented by T1.4 about ‘User needs’, as it will be reported in D.1.2 and that is complementary to the present one:

- Public and private heritage institutions responsible for managing monuments and sites
- Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization
- Professionals and SMEs providing services for preservation, conservation and restoration
- Associations, NGOs and local communities aiming at maintaining and communicating cultural heritage
- Companies from the creative industry producing heritage-based content, apps, games, education and tourism services
- General and educational users and visitors, tourists
- Museums curators
- Professional researchers
- Non specific

On the basis of the literature review and analyses, the individuated skills, together with the related competence and knowledge, have been grouped into three main categories:

1. Cultural Heritage and territorial development
2. Cultural Heritage and technological/digital innovation
3. Cultural heritage and mediation

¹⁰⁵ Cfr. <https://www.fondazione scuolapatrimonio.it/en/foundation/>; <https://www.citedelarchitecture.fr/en/article/ecole-de-chaillot>.

¹⁰⁶ Cfr. CHCfE Consortium, *Cultural Heritage Counts for Europe. Full Report*, 2015, <https://www.europanostra.org/our-work/policy/cultural-heritage-counts-europe/>; EUHeritage, *Report sul profilo delle competenze professionali nei settori del patrimonio culturale*, 2019, https://www.euheritage.eu/wp-content/uploads/2020/07/euheritage_exSummary_IT.pdf; European Commission, *Horizon Europe Work Programme 2021-2022*, 2021, https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-5-culture-creativity-and-inclusive-society_horizon-2021-2022_en.pdf; <https://www.coe.int/en/web/culture-and-heritage/strategy-21-k>; https://wayback.archive-it.org/12090/20210122120503/https://eacea.ec.europa.eu/erasmus-plus/selection-results/sector-skills-alliances-2020_en.

Table 2.4 - Competence, skills and knowledge concerning the three fields of application (Cultural Heritage and territorial development; Cultural Heritage and technological/digital innovation; Cultural heritage and mediation).

Cultural Heritage and territorial development	
Competence	To be able to promote and support productive, organisational, cultural and innovative processes based on the protection and enhancement of Cultural Heritage, as well as on open cooperation for its environment.
Skills	<ul style="list-style-type: none"> • Skills on taking care of Cultural Heritage materials • Skills on achievement of environmental challenges and objectives • Skills on sustainable management of Cultural Heritage • Skills on organisation and logistics of complex situations (management of means and resources)
Knowledge	<ul style="list-style-type: none"> • Knowledge of history and construction of Cultural Heritage • Knowledge of the degradation phenomena • Knowledge of the disciplines of the legal-administrative area
Cultural Heritage and technological/digital innovation	
Competence	To be able to define, promote, enhance and support the strategic vision of technological and digital innovation processes based on the needs of cultural institutions, professionals, researchers, SMEs, Associations, Foundations, NGOs, and their public.
Skills	<ul style="list-style-type: none"> • Skills on application of new technologies • Skills on digitalisation • Skills on social media • Skills on developing knowledge banks on Cultural Heritage materials, techniques and know-how
Knowledge	<ul style="list-style-type: none"> • Knowledge of new technologies • Knowledge of digital tools • Knowledge of data banks
Cultural heritage and mediation	
Competence	To be able to research, understand and define the needs and requirements of stakeholders and potential users in order to promote the involvement and the physical and intellectual access to Cultural Heritage, as well as to activate networking with its inhabitants/communities-stakeholders.
Skills	<ul style="list-style-type: none"> • Skills on encouraging and supporting the development of networks • Skills on training and educational activities • Skills on implementing measures to encourage people to practice heritage • Skills on encouraging creative industries' involvement in CH domains • Skills on mapping and analysis of users' needs and requirements
Knowledge	<ul style="list-style-type: none"> • Knowledge of the disciplines of the economic-managerial area (financing, fundraising) • Knowledge of network building methods • Knowledge of communication methods

2.5 Results

The results of the analyses, carried out in T1.1, aim to provide a reference framework related to Conservation, Preservation and Valorisation practices. The final output has been structured into two main sub-sections: the first one specifically related to the comparison among the best practices and the related skills (2.5.1 Best practices), the second one about the evolution over time of the operational practices in relation to the documents and European projects in the field of CH Safeguarding (2.5.2 Common framework).

2.5.1 Best practices

The results related to the best practices derive from the transversal and critical reading of their analysis¹⁰⁷. It has been carried out in parallel with the reading of the outcomes of the related acknowledgment of the most common and relevant skills for Conservation, Preservation and Valorisation, in the field of CH Safeguarding, as resulting from the analysis of the best practices. In order to carry out this investigation, the results related to the best practices have been examined in relation to the individuated areas of effectiveness in Conservation, Preservation and Valorisation practices, and reflecting the activities associated to the skills (listed at 2.4.7). The above-mentioned areas are the following:

- **digital innovation** (it includes ICT solutions and tools, 3D documentation and digitisation, digital twin, and digital storytelling);
- **development and/or experimentation of techniques and methodologies** (referred to interventions on CH, it includes the use of special and advanced materials, technologies and/or restoration methodologies, interdisciplinarity, transversal approaches, and sustainable and green solutions);
- **transferability** (it includes the provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, and replicable strategies);
- **policies and governance strategies** (they include the guidance on policies and governance strategies, the advice on funding opportunities, and the brokerage between heritage and related industries);
- **engagement, exploitation and social innovation** (they include the bottom up approaches, the heritage communities and citizens involvement, the stakeholders and volunteers management and advocacy, the exploitation of CH as social and economic resource, the exploitation results, and the social innovation).

¹⁰⁷ See appendices 2-3.

Digital innovation

With reference to the digital innovation applied in practices related to the Conservation, Preservation and Valorisation of CH, the analysed case studies confirmed that digitalisation has established itself in the field of CH starting from the 21st century. Supported by historical research and studies on CH, digital innovation has proved to be a useful and strategic support for CH Safeguarding.

The realisation of **3D models** has proved useful for allowing multimedia visualisations and applications to enhance the CH asset and create innovative ways to communicate and explore the artistic and architectural heritage, providing new forms of accessibility *in situ*. In this way, digitalisation can contribute to educational activities and programmes targeted at different users, such as tourists, visitors, cultural heritage asset owners, scholars and professionals (Ospedale degli Innocenti, Florence, Italy, BP_026).

Interactive spatial data visualisation is therefore a useful tool for **stakeholder engagement**, also from a perspective of co-creation and co-management of CH. Aiming at fostering the co-production of inclusive, cohesive and sustainable public spaces, transdisciplinary platforms can be established to explore how play and gamification tools in combination with advanced digital technologies can be used to foster the process of public space co-design and place-making, enhancing the understanding of the relationship between the space and its users (Pafos Gate, Nicosia, Cyprus, BP_006).

Digitalisation can provide **new ways to experience CH** and the past. For example, it allows to navigate through and interact with a reconstructed virtual world through arm gestures, providing a virtual walk through the reconstructed asset, which can have a 3D soundscape, creating a strong feeling of presence (Ename Abbey, Ename, Belgium, BP_002).

Other cases of **digital reconstruction** showed instead the possible use of smartphones or tablet apps to communicate CH by showing scenes from a bygone era, which are related to different locations in the city recognisable by GPS (Streetmuseum, London, United Kingdom, BP_041). Inside the buildings, visitors can be the actors of their own visit: with interactive devices and thanks to 3D technologies, augmented reality and a geolocation system, they can see in 360° what the asset was like, as well as learn about its history (Palace of the Popes, Avignon, France, BP_012).

The documentation, visualisation and analysis of CH can be carried out also through **online platforms and databases**, from which information and data can be extracted (Troodos Churches, Troodos, Cyprus, BP_007).

Moreover, it has been highlighted the potentialities inherent the **3D semantic H-BIM**, aggregating semantic attributes to 3D geometric models to allow new forms of heritage data management. In this way, 3D models and information can be semantically linked towards applications, and this allows data association among, for example, survey data, modelled geometries, building evolution, and historical analysis. Therefore, digitalisation can constitute also a support for restoration or touristic applications, giving the possibility to

retrieve, provide, link, analyse, validate, interpret and use data for Conservation, Preservation, Valorisation, connecting tangible and intangible information (Ospedale degli Innocenti, Florence, Italy, BP_026; San Saba Oratory, Rome, Italy, BP_028).

3D models are extremely useful not only for CH professionals, but also for planning the **“musealisation” of assets or sites**, considering the paths visitors should take in order to fully explore their extent, while at the same time, keeping to a minimum the risks related to such visits. Moreover, not only do the models provide a detailed visual record: they can also be used to make comparisons over time and hence used as a tool for monitoring the state of the complete asset or site, enabling interventions to be made quickly when needed (Choirokoitia Archaeological Site, Choirokoitia, Cyprus, BP_005).

Within the framework of digitalisation, ICT include the possibility to use **light installations for the communication of CH**. In this way, people can be encouraged to enjoy the friendly and joyful spirit of buildings, streets, squares and parks, underlining how urban lighting can be closely embedded in the whole city scape (Festival of Lights, Lyon, France, BP_011).

The use of **social media** can also provide services that envisage the design and realisation of portals for an integrated cultural tourist system, through which to network those operating in the territory, as well as to publicise the initiatives and events aimed at expanding the tourist offer and creating greater involvement of residents and visitors, also suggesting itineraries presented in relation to the financial and time resources (Great Pompeii Project, Italy, BP_022).

Finally, **educational games** have been produced. They include CH assets which can reveal a part of the game story through a short narrative when selected, based on historical reference elements. Moreover, sounds accompany and help the user to understand the memories of the past (Ename Abbey, Ename, Belgium, BP_002; Forum of Augustus, Rome, Italy, BP_021).

Skills emerged from the analysis:

- skills on digitalisation (with regard to the historic and bibliographic research, the studies on CH, the documentation and communication of CH, the monitoring, the management and administration practices, the reconstruction, and the gamings with CH);
- skills on application of new technologies (with regard to the communication of CH);
- skills on developing knowledge banks on Cultural Heritage materials, techniques and know-how (with regard to the historic and bibliographic research, the studies on CH, and the documentation and communication of CH);
- skills on social media (with regard to the organisation of events and festivals);
- skills on training and educational activities (with regard to the educational activities and programmes);
- skills on mapping and analysis of users' needs and requirements (with regard to the encounters with communities).

Development and/or experimentation of techniques and methodologies

The practices which highlighted the development and/or experimentation of innovative or cornerstone techniques and methodologies in interventions on CH apply to/cover a wide/large sample of situations.

With regard to the **approach of the intervention**, some selected virtuous practices refer to actions carried out in recent times, at the turn of the 20th and 21st century. They highlighted the affirmation of the principle of respecting the historical asset in its stratifications. In these cases, the restoration of the existing was driven by the idea that the existing asset should be emphasized in its spatial context and authentic materiality. Moreover, the use of softwares able to simulate and test the results showed how digitalisation can help in the control of the process from project to realisation (Neues Museum, Berlin, Germany, BP_016).

Also with reference to more recent assets, such as the 20th century architecture, it is possible to highlight some virtuous practices carried out starting from the end of the 20th century. They underline the possibility to preserve CH materials in their stratifications, not only with their pre-consolidation, cleaning, consolidation and protection, but also with the maintenance practices (Bauhaus building, Dessau, Germany, BP_014).

In the 21st century, the approach towards CH progressively started including also reasoning on facing **climate change and environmental challenges**. This is evident in the adaptive re-use of CH which put into practice strategies that took into account both energy consumption containment/reduction, through reflections able to link use vocation, space dimensions and thermic dispersions, and the purposes of user wealth, respect for the environment, costs reduction and building preservation. . In the field of CH, it is important to remark the fact that the goal is not reaching the same performance of new buildings ones, but obtaining an “improvement” of the environmental behaviour. In this sense, adaptive re-use recognizes that the effort is to keep together issues related to conservation of values of the asset while paying attention to an environmental sustainable approach. New plant systems contributed to the achievement of environmental targets and objectives, for example by introducing geothermal plants with heat pumps instead of conventional thermal power plants, or providing the energy supply by centralized cogeneration systems using waste vegetable oil. Moreover, interventions of energy renovation aimed to increase energy efficiency also through new lighting installations with LED technology (Bauhaus building, Dessau, Germany, BP_014; Santa Marta Barracks, Verona, Italy, BP_029; Luma, Arles, France, BP_009; Celica Hostel, Ljubljana, Slovenia, BP_036).

In the field of the new **plant systems**, some practices showed an excellent organisation and logistics of the complex situations related to the adaptive re-use of CH. Especially, the possibility of maximising the conservation of the CH assets can be achieved by intervening not inside, but on the outdoor neighbouring spaces (Basilica Palladiana, Vicenza, Italy, BP_019).

In addition, it is in the 21st century that attention has broadened towards **microclimate** monitoring and well-being improvement. In this regard, microclimate monitoring campaigns

have been carried out with innovative technologies to detect and assess energy efficiency to foster preventive conservation of CH and indoor comfort (Malatestiana Library, Cesena, Italy, BP_023; Urbino Colleges, Urbino, Italy, BP_033).

Monitoring activities can be useful also to monitor the public interest towards a CH site and its accessibility, counting/measuring the presence of visitors, thanks to crowd analysis sensors (Piazza Rossini, Bologna, Italy, BP_027).

New technologies have been applied also for the **diagnostic activities**, for instance scanning electron microscopies coupled with an X-ray energy-dispersive spectrometer (SEM-EDS), Leica DFC295 digital cameras coupled to Leica M205C stereomicroscopes, energy-dispersive X-ray fluorescence (ED-XRF) with hand-held Bruker Tracer III spectrometers, the ARTAX software, and the SPSS® software platform by IBM Analytics (São Roque Church, Lisbon, Portugal, BP_035).

They have also proved to be useful for the reconstruction and communication of CH, through the creation of a rich virtual and augmented reality which can be enriched by **immersive sounds** (The Lost Palace, London, United Kingdom, BP_042).

New technologies have been useful also for the **adaptive re-use of CH**, usable by everyone, and therefore also by people with disabilities, for example introducing systems for the hearing and visually impaired (Troisi Cinema, Rome, Italy, BP_032).

Again with reference to the innovative technologies, they highlighted their possible contribution to the promotion and support of interventions for Conservation, as well as to the communication of CH. Of high potential proved to be the **lighting design** for the enhancement of CH, also with a look towards its sustainable management, using light better for urban and social development, preventing the danger of luminous cacophony, and reducing energy demand and nocturnal pollution (Mostar Bridge, Mostar, Bosnia and Herzegovina, BP_004; Festival of Lights, Lyon, France, BP_011).

The **sustainable management** of CH is possible also paying attention to the strategies for the management practices and the adaptive re-use of CH. Not only the impact of social, economic and environmental redevelopments can be evaluated in terms of CO2 and management costs saved each year, but innovative and transversal approaches highlighted the possible interpolation between CH Safeguarding and greening and lighting as design elements, showing how present and future changes in the climate can be addressed through actions able to modify users/citizens behaviour and reduce temperatures in urban spaces (Troisi Cinema, Rome, Italy, BP_032; Piazza Rossini, Bologna, Italy, BP_027).

Finally, other recent practices carried out in the 21st century showed an interesting approach related to the **advertisements with CH**, achieved thanks to the development of networks, and directed to implementing measures to encourage people to know and practice heritage (Trevi Fountain, Rome, Italy, BP_031).

Skills emerged from the analysis:

- skills on taking care of Cultural Heritage materials (with regard to the preventive conservation, the pre-consolidation, cleaning, consolidation and protection of CH materials, and the maintenance practices);
- skills on achievement of environmental challenges and objectives (with regard to the project of restoration, and the adaptive re-use of CH);
- skills on sustainable management of Cultural Heritage (with regard to the communication of CH, the management and administration practices, and the adaptive re-use of CH);
- skills on organisation and logistics of complex situations (management of means and resources, with regard to the project of restoration, and the adaptive re-use of CH);
- skills on application of new technologies (with regard to the communication of CH, the diagnostic activities, the monitoring, the promotion and support of interventions for conservation, the reconstruction, the adaptive re-use of CH, and the accessibility);
- skills on encouraging and supporting the development of networks (with regard to the creation of partnership and networking);
- skills on implementing measures to encourage people to practice heritage (with regard to the advertisements with CH).

Transferability

With regard to the case studies which highlighted virtuous possibilities of transferability, the analysed practices carried out starting from the second half of the 20th century showed **replicable actions** for taking care of CH through interventions of pre-consolidation, cleaning, consolidation and protection of materials, as well as the reinforcement of CH buildings. Focusing attention to the CH asset, possible reference strategies are also about the organisation and logistics of complex situations, in terms of management of means and resources, inside the project of restoration. Within this framework, particular attention was given to the implementation of measures to encourage people to practice heritage by guaranteeing reuse and accessibility to the CH asset (Horta Museum, Brussels, Belgium, BP_003; Bauhaus building, Dessau, Germany, BP_014; Neues Museum, Berlin, Germany, BP_016; Congress Hall, Nuremberg, Germany, BP_015; Shelter for Roman Ruins, Chur, Switzerland, BP_040; Park of the Varus Battle, Kalkriese, Bramsche, Germany, BP_017). Other more recent practices highlighted replicable strategies always with reference to the above-mentioned issues, also with reference to the historic and bibliographic research, the studies on CH, the preventive conservation, the diagnostic activities, the identification of the risks and deterioration patterns, and the materials conservation tests, as well as the monitoring, also with the application of new technologies, and the maintenance, management and administration practices (Villa Tugendhat, Brno, Czech Republic, BP_008; São Roque Church, Lisbon, Portugal, BP_035; Malatestiana Library, Cesena, Italy, BP_023; Altenburg Abbey, Altenburg, Austria, BP_001; Temple Cathedral, Pozzuoli, Italy, BP_030; Basilica Palladiana, Vicenza, Italy, BP_019; Bagrati Cathedral, Kutaisi, Georgia, BP_013; Cestia Pyramid, Rome, Italy, BP_020; Casa Batlló, Barcelona, Spain, BP_037; Santa Marta Barracks, Verona, Italy, BP_029; Matadero, Madrid, Spain, BP_039; Officine Grandi Riparazioni, Turin, Italy, BP_025; Urbino Colleges, Urbino, Italy, BP_033; Troisi Cinema, Rome, Italy, BP_032; Villa Contarini, Piazzola sul Brenta (PD), Italy, BP_034; Ospedale degli Innocenti, Florence, Italy, BP_026; Jardin des Vestiges, Marseilles, France, BP_010; Great Pompeii Project, Italy, BP_022). Furthermore, virtuous examples of reconstruction can be highlighted for their potentiality of transferability in terms of approach (Mostar Bridge, Mostar, Bosnia and Herzegovina, BP_004; Bagrati Cathedral, Kutaisi, Georgia, BP_013).

With respect to the reuse of CH, different possible replicable strategies can be adopted for the documentation and communication of the asset. In this regard, **training and educational activities**, able to bring people closer to the heritage, can be carried out through exhibitions and insertions which tell the CH asset history, sometimes loaded with memories linked to an “uncomfortable” past. Especially, the process of narration can be developed through a combination of a didactic intent, based on the data available on the site, and an evocative intent, based on a subjective interpretation that leads the visitor to follow both the material and immaterial traces of the asset (Congress Hall, Nuremberg, Germany, BP_015; Park of the Varus Battle, Kalkriese, Bramsche, Germany, BP_017). Furthermore, other recent practices showed how communication of CH can also be done through the application of new technologies, such as those for lighting design (Festival of Lights, Lyon, France, BP_011).

In addition, it is during the 21st century that adaptive re-use strategies highlighted a powerful

contemplation of the reasoning about **consumes containment**, reachable also through a skilful use of the spaces of the CH asset, and transferable to other realities thanks to the training directed to professionals (Bauhaus building, Dessau, Germany, BP_014). With reference to the achievement of environmental challenges and objectives, other practices highlighted how the monitoring and the project of restoration can address these topics (Villa Tugendhat, Brno, Czech Republic, BP_008). Moreover, virtuous possibilities of transferability have been shown by cases of sustainable management of CH and urban districts which allowed accessibility and reuse of those spaces through valorisation and participation practices, and the adoption of green solutions (Piazza Rossini, Bologna, Italy, BP_027).

High potential has been demonstrated also by the **creation of partnership and networking**, highlighted how they can promote heritage protection processes, improve the quality of intervention, and favour knowing of CH, also through digitalisation processes able to address different points of view, from that of professionals to that of civil society (Mostar Bridge, Mostar, Bosnia and Herzegovina, BP_004; Ospedale degli Innocenti, Florence, Italy, BP_026; Trevi Fountain, Rome, Italy, BP_031).

In parallel, the organisation of **cultural initiatives** showed the potentiality inherent the creative industries' involvement in CH domains, highlighting how these processes could be implemented in various realities (Officine Grandi Riparazioni, Turin, Italy, BP_025).

Transferability can regard also **advertisements with CH**, able to contribute to implementing measures to encourage people to know and practice heritage (Trevi Fountain, Rome, Italy, BP_031), as well as digitalisation applied to gamings which narrate CH (Forum of Augustus, Rome, Italy, BP_021).

Finally, the **dissemination** of good interventions plays an essential role, demonstrating how it can be a useful tool for education, as well as for the training/up-skilling for professions (Neues Museum, Berlin, Germany, BP_016; Villa Contarini, Piazzola sul Brenta (PD), Italy, BP_034; Santa Marta Barracks, Verona, Italy, BP_029; São Roque Church, Lisbon, Portugal, BP_035).

Skills emerged from the analysis:

- skills on taking care of Cultural Heritage materials (with regard to the historic and bibliographic research, the studies on CH, the preventive conservation, the diagnostic activities, the identification of the risks and deterioration patterns, the materials conservation tests, the pre-consolidation, cleaning, consolidation and protection of CH materials, the reinforcement of CH buildings, the monitoring, and the maintenance practices);
- skills on achievement of environmental challenges and objectives (with regard to the monitoring, and the project of restoration);
- skills on sustainable management of Cultural Heritage (with regard to the adaptive re-use of CH, and accessibility);
- skills on organisation and logistics of complex situations (management of means and resources, with regard to the reinforcement of CH buildings, the management and

administration practices, the project of restoration, the reconstruction, the adaptive re-use of CH, and the accessibility);

- skills on application of new technologies (with regard to the communication of CH, and the monitoring);
- skills on digitalisation (with regard to the gamings with CH);
- skills on encouraging and supporting the development of networks (with regard to the creation of partnership and networking);
- skills on training and educational activities (with regard to the documentation of CH, the dissemination through publications, and the educational activities and programmes);
- skills on implementing measures to encourage people to practice heritage (with regard to the communication of CH, the adaptive re-use of CH, the accessibility, and the advertisements with CH);
- skills on encouraging creative industries' involvement in CH domains (with regard to the organisation of events and festivals).

Policies and governance strategies

Taking into account emblematic and innovative policies and governance strategies in the field of CH, the analysed best practices showed how the creation of **partnership and networking** is at the core of experimentations and applications which encourage and support their development.

Starting from the second half of the 20th century, some virtuous actions involved **inhabitants** in a participatory network for Safeguarding practices (Galera, Granada, Spain, BP_038).

Other emblematic actions constructed a network for the promotion and support of interventions for CH Safeguarding, for example through grant initiatives and the involvement of **institutions**, such as The Getty Foundation and UNESCO (Bauhaus building, Dessau, Germany, BP_014; Urbino Colleges, Urbino, Italy, BP_033; Mostar Bridge, Mostar, Bosnia and Herzegovina, BP_004).

Various are the examples of collaboration between different institutions and **specialists** in order to improve the practices for CH, including those of monitoring and management, as well as to encourage people to practice heritage through the organisation of events and festivals (Troodos Churches, Troodos, Cyprus, BP_007; São Roque Church, Lisbon, Portugal, BP_035; Choirokoitia Archaeological Site, Choirokoitia, Cyprus, BP_005; Pafos Gate, Nicosia, Cyprus, BP_006; Villa Tugendhat, Brno, Czech Republic, Troisi Cinema, Rome, Italy, BP_032; BP_008; Piazza Rossini, Bologna, Italy, BP_027; Festival of Lights, Lyon, France, BP_011; The Lost Palace, London, United Kingdom, BP_042; Jardin des Vestiges, Marseilles, France, BP_010).

Moreover, the collaboration between different institutions allowed to favour the educational activities and **dissemination** of the practices carried out through scientific publications (Villa Tugendhat, Brno, Czech Republic, BP_008; Urbino Colleges, Urbino, Italy, BP_033).

In addition, the creation of partnership and networking can encourage **creative industries' involvement in CH domains** (Officine Grandi Riparazioni, Turin, Italy, BP_025).

The development of networks has been proved useful also for the organisation, logistics and management of complex situations, such as those related to **reconstructions** (Mostar Bridge, Mostar, Bosnia and Herzegovina, BP_004).

Moreover, the communication of CH directed to different target users, such as tourists, visitors, CH asset owners, scholars and professionals, can be addressed and successfully developed thanks to the **collaboration** between professionals, universities and entities, for example in the context of European projects (Ospedale degli Innocenti, Florence, Italy, BP_026; Palace of the Popes, Avignon, France, BP_012).

Skills emerged from the analysis:

- skills on organisation and logistics of complex situations (management of means and resources, with regard to the reconstruction);
- skills on encouraging and supporting the development of networks (with regard to the monitoring, the management and administration practices, the promotion and support of interventions for conservation, the project of restoration, the dissemination through publications, and the creation of partnership and networking);
- skills on training and educational activities (with regard to the communication of CH, and the dissemination through publications);
- skills on implementing measures to encourage people to practice heritage (with regard to the organisation of events and festivals);
- skills on encouraging creative industries' involvement in CH domains (with regard to the creation of partnership and networking);
- skills on mapping and analysis of users' needs and requirements (with regard to the communication of CH).

Engagement, exploitation and social innovation

With reference to the engagement, exploitation and social innovation, starting from the second half of the 20th century, some practices started to involve **local communities** for the documentation of stories, songs and customs. Their participation is evident also in operational activities, such as archaeological excavations, as well as in theatrical performances, directed to children too, which have strengthened the encouraging to investigate CH and awaked people curiosity (Galera, Granada, Spain, BP_038).

Between the 20th and 21st century, **training and educational activities** progressively started contemplating the organisation of study programmes for school classes, and youth and adult groups, providing various insights, as well as of creative workshops, always with a look also towards children (Congress Hall, Nuremberg, Germany, BP_015; Horta Museum, Brussels, Belgium, BP_003).

During the 21st century, training and educational activities continued to be combined with measures to encourage people to practice CH, favouring processes of **cultural tourism** by residents and visitors inside assets and along itineraries. Exhibitions, guided tours, cultural experiences and visits, initiatives, events, festivals, concerts and other activities, which could be educational but also for example open-air wellness activities in CH lanscape, aimed, in this sense, at raising awareness of the values of CH, as well as at creating inclusive spaces in people's social lives (Villa Contarini, Piazzola sul Brenta, PD, Italy, BP_034; Jardin des Vestiges, Marseilles, France, BP_010; Casa Batlló, Barcelona, Spain, BP_037; Palace of the Popes, Avignon, France, BP_012; Troisi Cinema, Rome, Italy, BP_032; The Lost Palace, London, United Kingdom, BP_042; Great Pompeii Project, Italy, BP_022; Festival of Lights, Lyon, France, BP_011).

An interesting practice is **combining cultural visit and restoration worksites**, in order to share with visitors the discoveries of the shipyard and to show the restoration team at work (Casa Batlló, Barcelona, Spain, BP_037).

Other practices highlighted how one of the aim of a conservation plan can be the collection, exploring and discussing of different point of view expressed by different **stakeholders**, and this is possible also through workshops, in an approach that is complex and interdisciplinary, since it include a comprehensive evaluation and understanding of the material and immaterial values that are represented in the CH asset, including the different meaning experienced by the users of it (Urbino Colleges, Urbino, Italy, BP_033).

Within this framework, the mapping and analysis of **users' needs and requirements**, through the interception of communities and different kinds of users, as well as the involvement of a variety of stakeholders, has been used with the intent of improving and customizing to specific needs the communication of CH (Ospedale degli Innocenti, Florence, Italy, BP_026; Troodos Churches, Troodos, Cyprus, BP_007).

Measures for the communication of CH and to encourage people to practice it have been progressively conducted also for the so-called **dissonant heritage**, which includes the CH

that recall past events not easy to be reconciled with visitors' values and everyday experience (Topography of Terror, Berlin, Germany, BP_018).

In order to encourage people to practice heritage, adaptive re-use progressively contemplated the organisation of **artistic events**, as well as the involvement of artists in the practices for CH (Matadero, Madrid, Spain, BP_039; Celica Hostel, Ljubljana, Slovenia, BP_036).

In addition, there is the possible encouraging of creative industries' involvement in CH domains, favouring the encounters with **heritage communities**, as well as the organisation of events, festivals, educational activities and programmes (Officine Grandi Riparazioni, Turin, Italy, BP_025; Luma, Arles, France, BP_009).

Finally, the **participatory methods and processes** must be highlighted. In this regard, the bottom-up production, the creation of a network with heritage community, the listening to the wishes of citizens, the co-designing for the adaptive re-use of CH, the co-production of inclusive, cohesive and sustainable spaces, the organisation of events and the communication activities via social media represent practices able to Safeguard CH, enhance the relationship between the CH assets and their users, and bring people closer to CH, initiating, in turn, processes to protect the heritage itself (Piazza Rossini, Bologna, Italy, BP_027; Pafos Gate, Nicosia, Cyprus, BP_006; MUBIG, Milan, Italy, BP_024).

Skills emerged from the analysis:

- skills on social media (with regard the communication of CH);
- skills on encouraging and supporting the development of networks (with regard to the encounters with communities, and the creation of partnership and networking);
- skills on training and educational activities (with regard to the encounters with communities, and the educational activities and programmes);
- skills on implementing measures to encourage people to practice heritage (with regard to the studies on CH, the communication of CH, the management and administration practices, the adaptive re-use of CH, the organisation of events and festivals, the encounters with communities, and the creation of partnership and networking);
- skills on encouraging creative industries' involvement in CH domains (with regard to organisation of events and festivals, the encounters with communities, and the educational activities and programmes);
- skills on mapping and analysis of users' needs and requirements (with regard to the communication of CH, and the encounters with communities).

		Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation Preservation Valorisation	Activities					
		DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
	• Historic and bibliographic research	BP_007; BP_028		BP_008		
	• Studies on CH	BP_007; BP_028		BP_008; BP_035		BP_038
	• Documentation of CH	BP_002; BP_005; BP_007; BP_012; BP_026; BP_028; BP_038		BP_015		
	• Communication of CH	BP_005; BP_007; BP_011; BP_012; BP_021; BP_026; BP_028; BP_041	BP_011; BP_042	BP_011; BP_017	BP_012; BP_026	BP_007; BP_018; BP_027; BP_042
	• Preventive conservation		BP_023	BP_022; BP_023; BP_033		
	• Diagnostic activities		BP_035	BP_001; BP_008; BP_022; BP_033; BP_037		
	• Identification of the risks and deterioration patterns			BP_019; BP_020; BP_022; BP_033; BP_037		
	• Materials conservation tests			BP_019; BP_020; BP_022		
	• Pre-consolidation, cleaning, consolidation and protection of CH materials		BP_014	BP_001; BP_003; BP_008; BP_013; BP_016; BP_019; BP_020; BP_022; BP_029; BP_030; BP_032; BP_033; BP_034; BP_035; BP_037; BP_039		
	• Reinforcement of CH buildings			BP_001; BP_019; BP_034		
	• Monitoring	BP_006	BP_023; BP_033	BP_008; BP_020; BP_023	BP_011	
	• Maintenance practices		BP_014	BP_020; BP_022; BP_023; BP_033; BP_037		
	• Management and administration practices	BP_005; BP_006	BP_004; BP_032	BP_033	BP_010; BP_011	BP_038
	• Promotion and support of interventions for conservation		BP_004		BP_004; BP_010; BP_014	
	• Project of restoration		BP_009; BP_016; BP_019	BP_001; BP_008; BP_013; BP_014; BP_015; BP_016; BP_019; BP_026; BP_029; BP_030; BP_039; BP_040	BP_008	
	• Reconstruction	BP_002; BP_041	BP_042	BP_004; BP_013	BP_004	
	• Adaptive re-use of CH		BP_014; BP_019; BP_027; BP_029; BP_032; BP_036	BP_001; BP_013; BP_014; BP_015; BP_025; BP_027; BP_029; BP_032; BP_033; BP_039		BP_027; BP_036
	• Accessibility		BP_027	BP_001; BP_010; BP_013; BP_017; BP_022; BP_025; BP_027; BP_029; BP_033; BP_040		
	• Dissemination through publications			BP_016; BP_029; BP_034; BP_035	BP_008; BP_033	
	• Organisation of events and festivals	BP_022		BP_025	BP_010	BP_009; BP_011; BP_012; BP_022; BP_027; BP_032; BP_034; BP_037; BP_038; BP_039
	• Encounters with communities					BP_006; BP_009; BP_010; BP_011; BP_024; BP_025; BP_026; BP_027; BP_033; BP_037; BP_038
	• Educational activities and programmes	BP_026		BP_017		BP_003; BP_009; BP_015; BP_018; BP_033; BP_034; BP_037
	• Creation of partnership and networking		BP_031	BP_004; BP_026; BP_031	BP_004; BP_005; BP_006; BP_007; BP_008; BP_010; BP_025; BP_027; BP_032; BP_033; BP_035; BP_038; BP_042	BP_024; BP_027; BP_039
	• Advertisements with CH		BP_031	BP_031		
	• Gaming with CH	BP_002; BP_021		BP_021		

Figure 2.6 - Best practices synthesis framework, according with their main activities (columns) and areas of effectiveness (rows).

2.5.2 Common framework

The results related to the common (theoretical and operational) framework derive from the transversal and critical reading of the analyses on the reference framework which put into relation the individuated best practices with the parallel implemented European projects and elaborated Safeguarding documents.

Beyond the several and numerous documents, guidelines and research projects for CH which have been implemented over time, the actions carried out on the different types of CH assets have been accompanied by a parallel evolution of theory, operational indications and European projects specifically dedicated to them¹⁰⁸.

The practices related to the ancient constructions highlighted a general particular attention to the **Conservation of CH materials and the Preservation of the meanings and stratifications of the assets over time**, not only with interventions of pre-consolidation, cleaning, consolidation and protection of the CH materials, after the identification of the risks and deterioration patterns, but also through monitoring and maintenance practices. The projects of Restoration mostly operated following the principle of addition, in order to achieve the objectives of reuse, structural security and accessibility (Altenburg Abbey, Altenburg, Austria, BP_001; Basilica Palladiana, Vicenza, Italy, BP_019; Cestia Pyramid, Rome, Italy, BP_020; Great Pompeii Project, Italy, BP_022; Ospedale degli Innocenti, Florence, Italy, BP_026; Temple Cathedral, Pozzuoli, Italy, BP_030; Villa Contarini, Piazzola sul Brenta (PD), Italy, BP_034; São Roque Church, Lisbon, Portugal, BP_035). Monitoring and maintenance practices proved to be very useful also for the preventive conservation of CH (Malatestiana Library, Cesena, Italy, BP_023).

A great contribution to Valorisation was given by the use of **digitalisation**, useful to document and communicate CH from different points of view, tailored to the users of this information (Troodos Churches, Troodos, Cyprus, BP_007; Palace of the Popes, Avignon, France, BP_012; Ospedale degli Innocenti, Florence, Italy, BP_026; San Saba Oratory, Rome, Italy, BP_028). Other Valorisation and participation practices regarded the **training and educational activities**, and the organisation of **events and festivals** (Palace of the Popes, Avignon, France, BP_012; Great Pompeii Project, Italy, BP_022; Ospedale degli Innocenti, Florence, Italy, BP_026; Villa Contarini, Piazzola sul Brenta (PD), Italy, BP_034; São Roque Church, Lisbon, Portugal, BP_035).

The **development of networks** proved to be useful to improve the quality of the interventions, as well as to respond to the users' needs and requirements, thanks to the involvement of different stakeholders and heritage communities (Troodos Churches,

¹⁰⁸ See references and appendix 4.

Troodos, Cyprus, BP_007; Ospedale degli Innocenti, Florence, Italy, BP_026; São Roque Church, Lisbon, Portugal, BP_035).

In addition to the documents that have been drawn up for the Safeguarding of this heritage¹⁰⁹, from the earliest restoration charters, a series of international documents have progressively focused attention on certain specific fields and aspects, such as the built vernacular heritage and the historic timber structures¹¹⁰.

The same can be said for the European projects, which paid attention also to the **intangible values** of these CH assets. This is the case of ACTECH (Ancient Construction TECHniques between East and West. Building traditions, technological innovations and workmanship circulation: from Roman Arabia to Medieval Europe), CATHEDRAL ACOUSTICS (Sound as Intangible Heritage: Preserving the Acoustics of Cathedrals in the United Kingdom) and MEXRES (Restoration and Faith: practicing religion and conservation in Mexico's historic churches).

With regard instead to the post industrial revolution architecture¹¹¹, Preservation practices had to take into account the issues related to the Conservation not only of the traditional materials, but also of the **industrially-produced materials**. In relation to the latter, the analysed interventions showed the same attention reserved to the first ones (Horta Museum, Brussels, Belgium, BP_003; Casa Batlló, Barcelona, Spain, BP_037). Attention was given to wider complexes too, also from a sustainable point of view (Santa Marta Barracks, Verona, Italy, BP_029). Moreover, creative and artistic practices began to be contemplate for this kind of heritage (Celica Hostel, Ljubljana, Slovenia, BP_036).

Precisely the implementation of measures to encourage people to practice heritage, as well as to favour **creative industries' involvement in CH domains**, constitutes the *fil rouge* of the analysed best practices related to the industrial archaeology assets. What these cases have in common are indeed the **creation of partnership and networking**, the encounters with communities, the **activation of participatory processes**, the educational activities and programmes and the organisation of events and festivals (Luma, Arles, France, BP_009; Officine Grandi Riparazioni, Turin, Italy, BP_025; Matadero, Madrid, Spain, BP_039). Further, some best practices highlighted a particular attention not only to Valorisation, but also to the Conservation and Preservation of CH materials and stratifications (Officine Grandi Riparazioni, Turin, Italy, BP_025; Matadero, Madrid, Spain, BP_039).

¹⁰⁹ See the list of documents inside the appendix 4.

¹¹⁰ Cfr. ICOMOS, *Charter on the Built Vernacular Heritage*, 1999; ICOMOS, *Principles for the Preservation of Historic Timber Structures*, 1999. Consider whether to refer to other documents in column CH in the table Common Framework.

¹¹¹ Industrial archaeology assets and 20th century architectural heritage will be specifically addressed later.

The International Committee for the Conservation of Industrial Heritage (TICCIH) was specifically founded for the Safeguarding of the industrial archaeology heritage. TICCIH is the world organisation representing industrial heritage and is special adviser to ICOMOS on it. In 2003, TICCIH originated The Nizhny Tagil Charter for the Industrial Heritage and, in 2011, the Joint ICOMOS-TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes¹¹².

On the European projects side, some of them specifically focused attention on this heritage, such as CENTRINNO (New CENTRALities in INDUSTRIAL areas as engines for inNOvation and urban transformation) and PICTURING (Post-Industrial Chimneys seen Through Urban Regeneration Imaginaries: toward a Networked GeoHumanities).

Also the interventions carried out in the 20th century architectural heritage showed the possibility to preserve the industrially-produced materials and their stratifications. In some of these buildings, the design considerations covered the plant systems too, which have been intended as “technical monuments” and musealised to document the original functioning of those architectures. Furthermore, microclimatic monitoring campaigns interested them, and **interventions to improve the internal comfort and reduce consumes** have been carried out. Moreover, in some cases, participatory spaces and actions have been implemented (Villa Tugendhat, Brno, BP_008; Bauhaus building, Dessau, BP_014; Troisi Cinema, Rome, BP_032; Urbino Colleges, Urbino, BP_033). Within this framework, history was documented also for buildings with a controversial memory link to the totalitarian regimes of the 20th century (Congress Hall, Nuremberg, BP_015; Topography of Terror, Berlin, BP_018).

After the first documents dedicated to the Safeguarding of the 20th century architectural heritage¹¹³, ICOMOS ISC20C (International Scientific Committee for Twentieth Century Heritage) was established. Starting from the 21st century, it has elaborated a series of guidelines related to the approaches for the Conservation of this CH¹¹⁴. The actions of The Getty Conservation Institute are also relevant. Among them, the elaboration of A Colloquium to Advance the Practice of Conserving Modern Heritage, which is a report of a meeting organised in 2013 under the banner of The Getty Conservation Institute’s Conserving Modern Architecture Initiative (CMAI) that brought together professionals and practitioners to examine the current state of the field and identify areas of outstanding need in order to develop actions to advance practice in this area of Conservation¹¹⁵.

¹¹² Cfr. ICOMOS-TICCIH, *The Nizhny Tagil Charter for the Industrial Heritage*, 2003; ICOMOS-TICCIH, *Joint ICOMOS-TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes*, 2011.

¹¹³ Cfr. VV.AA., *I dieci punti del comitato dei monumenti moderni*, in F. PEREGO, *Monumenti moderni, un'emergenza nuova*, in “Edilizia Popolare”, 216-217, 1991, p. 48.

¹¹⁴ Cfr. ICOMOS ISC20C, *Approaches for the Conservation of 20th Century Architectural Heritage*, 2011; ICOMOS ISC20C, *Approaches for the Conservation of Twentieth-Century Architectural Heritage*, 2014; ICOMOS ISC20C, *Approaches to the Conservation of Twentieth-Century Cultural Heritage*, 2017.

¹¹⁵ Cfr. The Getty Conservation Institute, *A Colloquium to Advance the Practice of Conserving Modern Heritage*, 2013.

With reference to this heritage, the European projects specifically addressed the issues of the Conservation of the 20th century concrete-based CH (InnovaConcrete, Innovative materials and techniques for the conservation of 20th century concrete-based cultural heritage).

In parallel, **archaeological sites** have been interested by practices of musealisation which addressed the issue of their **accessibility** and considered the paths visitors should take in order to fully explore them, while at the same time keeping to a minimum the risks related to such visits. Not only several events and initiatives have been organised for the Valorisation of this CH, also by involving local people, but green areas have been sometimes designed around archaeological remains, and **cultural tourism routes** have been implemented to connect these places. In this regard, if digital services contributed to disseminate initiatives and cultural paths, 3D documentation progressively helped to materially and immaterially explore this CH, providing **immersive experiences**, also through **gaming** (Shelter for Roman Ruins, Chur, BP_040; Choirokoitia Archaeological Site, Choirokoitia, BP_005; Galera, Granada, BP_038; Jardin des Vestiges, Marseilles, BP_010; Great Pompeii Project, BP_022; Ename Abbey, Ename, BP_002; Forum of Augustus, Rome, BP_021).

After the ICOMOS Charter for the Protection and Management of the Archaeological Heritage, prepared by ICAHM (International Committee for the Management of Archaeological Heritage) and approved in 1990, the Council of Europe elaborated the Convention for the Protection of the Archaeological Heritage of Europe, known as the Valletta Convention, which is a document adopted in 1992 and coming into force in 1995. In more recent times, ICOMOS drafted another document related to the management of public archaeological sites which has been adopted in 2017¹¹⁶.

At the same time, several European projects focused on archaeological sites, from different points of view: from that of **resilience** to that of materiality and construction, from that of knowing and learning to that of **sensing techniques** (CALI, The Cambodian Archaeological Lidar Initiative: Exploring Resilience in the Engineered Landscapes of Early SE Asia; Constr-HaVi, Construction techniques, experimentation and innovative architectural solutions at Hadrian's Villa (Tivoli, Italy); ED-ARCHMAT, European Doctorate in ARchaeological and Cultural Heritage MATerials science; LEAP, LEarning of Archaeology through Presence; MEDLAND_HORN.AFRICA, Medieval landscapes in the Horn of Africa. State, territory and materiality of the Adal Sultanate (15th-16th centuries AD); MendTheGap, Smart Integration

¹¹⁶ Cfr. ICOMOS, *Charter for the Protection and Management of the Archaeological Heritage*, 1990; Council of Europe, *Convention for the Protection of the Archaeological Heritage of Europe*, 1992; ICOMOS, *Salalah Guidelines for the Management of Public Archaeological Sites*, 2017.

of Genetics with Sciences of the Past in Croatia: Minding and Mending the Gap; RESEARCH, REremote SENSING techniques for ARCHaeology).

A specific field of attention regarded also the assets with signs of **conflicts or natural hazards**. Several reconstructions left the trace of these events to transmit memory, and integrated the CH assets with different but compatible materials. If lighting design helped for the Valorisation of this heritage, partnerships and networking gave a substantial contribution to its Safeguarding (Mostar Bridge, Mostar, BP_004; Bagrati Cathedral, Kutaisi, BP_013; Neues Museum, Berlin, BP_016).

It is after the end of the Second World War, that UNESCO elaborated the Final act of the Intergovernmental Conference on the Protection of Cultural Property in the Event of Armed Conflict. After that, other important documents have been drafted, such as the Lima Declaration for Disaster Risk Management of Cultural Heritage which is a document drafted by CH architects, archaeologists, structural engineers and other specialists met during the "Symposium on Disaster Risk Management of Cultural Heritage. Sustainable Conservation of Urban Cultural Heritage in Seismic Zones" in 2010. This symposium specifically aimed to share post-disaster recovery experiences and discuss the role of professionals for the protection of CH located in earthquake zones. The Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage was instead developed at the "International conference on reconstruction: The challenges of World Heritage recovery" held in 2018. The purpose of this international conference was particularly to summarize previous discussions and experiences regarding the recovery and reconstruction of UNESCO World Heritage sites, and attempt to develop the most appropriate and universal guidelines for moving forward with properties of exceptional value at the time of destruction, notably for historic urban areas¹¹⁷.

Focusing on **urban spaces** and assets, various activities have been carried out for the **engagement, bottom-up production, co-creation and co-management of inclusive, cohesive and sustainable historic public sites**. The collaboration of local actors (institutions, associations, students, etc.), as well as green solutions, showed their powerful contribution to the constructions of new possibilities of experimentation of this CH with new uses able to rediscover and appreciate the details of urban heritage treasures. In parallel, advanced digital tools have been implemented for the development of **real-time virtual environments**. Moreover, **light installations** highlighted their potential as useful tools for the Valorisation of urban spaces and assets, watching to Safeguard the spirit of the place. In addition, some **advertisements** have focused their attention on this CH, emphasising its

¹¹⁷ Cfr. UNESCO, *Final act of the Intergovernmental Conference on the Protection of Cultural Property in the Event of Armed Conflict*, 1954; VV.AA., *Lima Declaration for Disaster Risk Management of Cultural Heritage*, 2010; UNESCO, *Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage*, 2018.

beauty (MUBIG, Milan, BP_024; Piazza Rossini, Bologna, BP_027; Pafos Gate, Nicosia, BP_006; Streetmuseum, London, BP_041; Festival of Lights, Lyon, BP_011; Trevi Fountain, Rome, BP_031).

During the post-war period and in the following years, various documents were emanated for the Safeguarding of the historic centres, as well as for historic towns and urban areas¹¹⁸. In the 21st century, other documents implemented those indications and recommendations, also referring to the historic urban landscape¹¹⁹. Within this framework, it is in 2016 that the Urban Agenda for the EU was agreed at the Informal Meeting of EU Ministers Responsible for Urban Matters in Amsterdam. In order to realise the full potential of the European Union and deliver on its strategic objectives, this document strives to involve urban authorities in achieving better regulation, funding, and knowledge base and exchange¹²⁰.

In parallel, the European projects dedicated to the urban spaces and assets addressed the issues related to the Conservation of architectural finishes in urban heritage townscapes, the **resilience of historic areas against climate-related and other hazards**, the risk assessment and mitigation for urban structures such as bridges, the **smart cities**, and the **innovation and entrepreneurship** for the transformation of historic urban areas (CLEA, Reviewing and integrating methods for the Conservation of European **architectural** finishes in urban heritage townscapes; ARCH, Advancing Resilience of Historic Areas against Climate-related and other Hazards; FRAMAB, Flood Risk Assessment and mitigation for Masonry Arch Bridges; RAMBEA, Realistic Assessment of Historical Masonry Bridges under Extreme Environmental Actions; HISMACITY-pro, Historical Small Smart City Protocol for integrated interventions; HUB-IN, Hubs of Innovation and Entrepreneurship for the Transformation of Historic Urban Areas).

With reference to the **landscape and historical gardens**, experiences of Conservation, Preservation and Valorisation of this heritage showed the possibility to create paths also to stimulate the visitor's imagination related to past events, as well as to organically enhance naturalistic territories, such as coastal strips and green areas, including peri-urban ones (Park of the Varus Battle, Kalkriese, Bramsche, BP_017; Great Pompeii Project, BP_022).

A fundamental document on the Preservation of historic gardens is the Florence Charter, drafted by the ICOMOS-IFLA, an international scientific committee for the cultural

¹¹⁸ Cfr. VV.AA., *Gubbio Charter*, 1960; VV.AA., *Noto Charter*, 1986; ICOMOS, *Charter for the Conservation of Historic Towns and Urban Areas*, 1987.

¹¹⁹ Cfr. ICOMOS, *The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas*, 2011; UNESCO, *Recommendation on the Historic Urban Landscape*, 2011; UNESCO, *The UNESCO Recommendation on the Historic Urban Landscape*, 2019.

¹²⁰ Cfr. VV.AA., *Urban Agenda for the EU*, 2016 (https://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf).

landscapes and historic gardens, in 1981. Especially, this charter was registered and adopted by ICOMOS in 1982 as an addendum to the Venice Charter covering the specific field concerned. In 2017, always the ICOMOS-IFLA drafted both principles concerning rural landscapes as heritage and a document on historic urban public parks. By the Council of Europe it is instead the European Landscape Convention, adopted in Florence in 2000 with the aim to promote landscape protection, management and planning, and to organise European cooperation on landscape issues¹²¹.

Several European projects have been dedicated to these topics, such as COASTAL (Collaborative lAnd Sea inTegration pLatform), ECOPotential (ECOPOTENTIAL: Improving Future Ecosystem Benefits Through Earth Observations), FUTURES (Forefront UAV Technology for Underpinning Rainforest Environmental Sustainability), Geopark (Geoparks: Heritage, Education and Sustainable Development - an Innovative Methodology for Southern Countries. Case Study in Morocco (Atlas Mountains, Marrakech)), HiLSS (Historic Landscape and Soil Sustainability), MarginScapes (Long-term land use and water management strategies in arid margin landscapes), and OCHER (Owners of a Common Heritage. Commons, Environment and Rights in European Mountains (18th - 20th century)).

Other documents and research projects focused their attention to other CH assets. Among them, those dedicated to the **water's heritage**, such as the Charter on the Protection and Management of Underwater Cultural Heritage by ICOMOS, the Convention on the Protection of the Underwater Cultural Heritage by UNESCO¹²², and the European projects CONCHA (The construction of early modern global Cities and oceanic networks in the Atlantic: An approach via Ocean's Cultural HeritAge), ECOPotential (ECOPOTENTIAL: Improving Future Ecosystem Benefits Through Earth Observations), HYSOTIB (Global dynamics of hydro-sociality in river heritage landscapes of the Qinghai Tibetan Plateau), iMARECULTURE (Advanced VR, iMmersive serious games and Augmented REality as tools to raise awareness and access to European underwater CULTURal heritage) and TECTONIC (TEchnological Consortium TO develop sustaiNability of underwater Cultural heritage).

In parallel, numerous other documents and European research projects have been dedicated to the **artefacts**, which in turn could be housed within CH assets, as well as to the very relevant theme of the intangible heritage¹²³.

¹²¹ Cfr. ICOMOS, *Florence Charter*, 1981; ICOMOS-IFLA, *ICOMOS-IFLA Principles Concerning Rural Landscapes as Heritage*, 2017; ICOMOS-IFLA, *ICOMOS-IFLA Document on Historic Urban Public Parks*, 2017; Council of Europe, *European Landscape Convention*, 2000.

¹²² Cfr. ICOMOS, *Charter on the Protection and Management of Underwater Cultural Heritage*, 1996; UNESCO, *Convention on the Protection of the Underwater Cultural Heritage*, 2001.

¹²³ See the references, the appendices and what has been written in the previous paragraphs.

		ASSET TYPE										
PURPOSE SOURCE		Cultural Heritage										
		Ancient constructions	Post industrial revolution architecture	Industrial archaeological assets	20th century architectural heritage	Archaeological sites	Assets with signs of conflicts/natural hazards	Urban spaces/assets	Landscape and historical gardens	Water's heritage	Artefacts	Intangible heritage
CONSERVATION	Best Practices	BP_001; BP_007; BP_012; BP_019; BP_020; BP_022; BP_023; BP_026; BP_028; BP_030; BP_034; BP_035	BP_003; BP_029; BP_037	BP_009; BP_025; BP_039	BP_008; BP_014; BP_015; BP_018; BP_032; BP_033	BP_005; BP_010; BP_022; BP_038; BP_040	BP_004; BP_013; BP_016	BP_006; BP_011; BP_041	BP_022			
	Documents	VVAA_1883; VVAA_1931; SCAFA_1932; ICOMOS_1964; UNESCO_1972; NPE_1972; ICOMOS_1975; A_ICOMOS_1979; A_ICOMOS_1981; CE_1985; A_ICOMOS_1987; CNR_1987; A_ICOMOS_1988; ICOMOS_1994; ENCRE_1997; A_ICOMOS_1998; CEC_1998; A_ICOMOS_1999; VVAA_2000; ECCO_2002; ICOMOS_2003; a; CE_2005; ICOMOS_2005; ICOMOS_2008; a; ICOMOS_ISCS_2008; ICOMOS_2008; c; EC_2010; VVAA_2011; ICOMOS_2011; b; ICOMOS_2011; c; EU_2012; a; EU_2012; b; UNESCO_ICROM_ICOMOS_IUCN_2013; A_ICOMOS_2013; VVAA_2014; a; VVAA_2014; b; CEU_2014; EU_2014; b; ICOMOS_2014; CHCIE_2015; ICOMOS_2015; EC_2015; EU_2015; UN_2016; ICOMOS_2017; a; VVAA_2017; EC_2017; a; EC_2017; b; ICOMOS_2017; c; ICOMOS_2017; d; EC_2018; a; EC_2018; b; EU_2018; ICOMOS_2018; VVAA_2019; EC_2019; UNESCO_2019; b; ICOMOS_2020; EC_2021; a; EC_2021; b	ICOMOS_1999; b; ICOMOS_1999; c	ICOMOS_TICCIH_2003; ICOMOS_TICCIH_2011	VVAA_1991; ICOMOS_ISC 20C_2011; GCI_2013; ICOMOS_ISC 20C_2014; ICOMOS_ISC 20C_2017	ICOMOS_1990; CE_1992; ICOMOS_2017; b	UNESCO_1954; VVAA_2010; UNESCO_2018	VVAA_1960; VVAA_1986; ICOMOS_1987; ICOMOS_2011; a; UNESCO_2011; b; UNESCO_2019; a	CE_2000; ICOMOS_IF LA_2017; a; ICOMOS_IF LA_2017; b	ICOMOS_1996; UNESCO_2001	ICOMOS_2003; b	UNESCO_2003; UNESCO_2011; a
	EU - Projects	EP_001; EP_003; EP_007; EP_013; EP_016; EP_020; EP_031; EP_033; EP_037; EP_038; EP_040; EP_049; EP_050; EP_051; EP_052; EP_053; EP_054; EP_057; EP_058; EP_061; EP_062; EP_064; EP_067; EP_068; EP_071; EP_082; EP_085; EP_087; EP_088; EP_090; EP_097; EP_100; EP_106; EP_107; EP_108; EP_110; EP_112; EP_113; EP_114; EP_118; EP_119; EP_121; EP_122; EP_123; EP_124; EP_125; EP_126; EP_127; EP_128; EP_129; EP_132; EP_133; EP_135; EP_136; EP_137; EP_138; EP_140; EP_142; EP_146; EP_148; EP_149; EP_152; EP_153; EP_155; EP_156	EP_002; EP_083	EP_012; EP_102	EP_065	EP_010; EP_022; EP_031; EP_080; EP_081; EP_117		EP_004; EP_016; EP_043; EP_056; EP_058; EP_109	EP_030; EP_045; EP_055; EP_094	EP_019; EP_030; EP_141	EP_009; EP_023; EP_025; EP_029; EP_032; EP_047; EP_048; EP_066; EP_069; EP_072; EP_073; EP_086; EP_089; EP_091; EP_092; EP_093; EP_111; EP_139	EP_024; EP_026; EP_035; EP_078

Figure 2.7 - Common framework about best practices, documents and EU projects in relation with the type of CH asset.

PURPOSE	ASSET TYPE													
	Cultural Heritage	Ancient constructions	Post industrial revolution architecture	Industrial archaeology assets	20th century architectural heritage	Archaeological sites	Assets with signs of conflicts/natural hazards	Urban spaces/assets	Landscape and historical gardens	Water's heritage	Artefacts	Intangible heritage		
PRESERVATION	SOURCE	Best Practices	BP_001, BP_007, BP_012, BP_019, BP_020, BP_022, BP_023, BP_026, BP_028, BP_030, BP_034, BP_035	BP_003, BP_029, BP_036, BP_037	BP_009, BP_025, BP_039	BP_008, BP_014, BP_015, BP_018, BP_032, BP_033	BP_005, BP_010, BP_022, BP_038, BP_040	BP_004, BP_013, BP_016	BP_006, BP_011	BP_022				
			Documents	VVAA_1883; VVAA_1931; SCAFA_1932; ICOMOS_1964; UNESCO_1972; MPE_1972; ICOMOS_1975; VVAA_1978; A_ICOMOS_1979; A_ICOMOS_1981; A_ICOMOS_1987; CNR_1987; A_ICOMOS_1988; ICOMOS_1994; ENCORE_1997; A_ICOMOS_1998; CEC_1998; A_ICOMOS_1999; VVAA_2000; ECCO_2002; ICOMOS_2003_a; UNESCO_2005; ICOMOS_2005; ICOMOS_2008_a; ICOMOS_2008_c; EC_2010; VVAA_2011; ICOMOS_2011_b; ICOMOS_2011_c; EU_2012_a; EU_2012_b; UNESCO_ICCR0M_ICOMOS_IUCN_2013; A_ICOMOS_2013; VVAA_2014_a; VVAA_2014_b; CEU_2014; EU_2014_b; ICOMOS_2014; CHGIE_2015; ICOMOS_2015; EC_2015; EU_2015; UNL_2016; ICOMOS_2017_a; VVAA_2017; EC_2017_a; EC_2017_b; ICOMOS_2017_c; ICOMOS_2017_d; EC_2018_a; EC_2018_b; VVAA_2018; EU_2018; ICOMOS_2018; VVAA_2019; EC_2019; UNESCO_2019_b; ICOMOS_2020; EC_2021_a; EC_2021_b	ICOMOS_1999_b	ICOMOS_TICCIH_2003	VVAA_1991; ICOMOS_ISC_20C_2011; GCI_2013; ICOMOS_ISC_20C_2017	ICOMOS_1990; CE_1992; ICOMOS_2017_b	UNESCO_1954; VVAA_2010; UNESCO_2018	VVAA_1980; ICOMOS_2011_a; UNESCO_2011_b; UNESCO_2019_a	ICOMOS_1981; ICOMOS_IFLA_2017_a; ICOMOS_IFLA_2017_b	ICOMOS_1996; UNESCO_2001	UNESCO_1970; UNIDROIT_1995; ICOMOS_2003_b	UNESCO_2003
				EU - Projects	EP_001; EP_014; EP_015; EP_017; EP_020; EP_031; EP_033; EP_037; EP_038; EP_040; EP_049; EP_050; EP_052; EP_053; EP_054; EP_057; EP_059; EP_061; EP_062; EP_064; EP_067; EP_068; EP_071; EP_076; EP_085; EP_090; EP_096; EP_097; EP_098; EP_100; EP_101; EP_106; EP_108; EP_110; EP_112; EP_113; EP_114; EP_118; EP_119; EP_121; EP_122; EP_123; EP_124; EP_125; EP_126; EP_127; EP_128; EP_129; EP_130; EP_133; EP_135; EP_136; EP_137; EP_138; EP_140; EP_142; EP_146; EP_148; EP_149; EP_152; EP_153; EP_155; EP_156	EP_002; EP_011; EP_083	EP_012; EP_102	EP_065	EP_022; EP_031; EP_080; EP_081; EP_117	EP_016; EP_043; EP_058; EP_109	EP_018; EP_030; EP_045; EP_078	EP_019; EP_030; EP_060; EP_141	EP_023; EP_032; EP_047; EP_073; EP_075; EP_084; EP_086; EP_093; EP_099; EP_111; EP_115; EP_130; EP_144; EP_147	EP_011; EP_024; EP_026; EP_028; EP_035; EP_041; EP_042; EP_077; EP_105; EP_116; EP_143; EP_151; EP_154

Figure 2.8 - Common framework about best practices, documents and EU projects in relation with the type of CH asset.

PURPOSE	ASSET TYPE											
	Cultural Heritage	Ancient constructions	Post industrial revolution architecture	Industrial archaeology assets	20th century architectural heritage	Archaeological sites	Assets with signs of conflicts/natural hazards	Urban spaces/assets	Landscape and historical gardens	Water's heritage	Artefacts	Intangible heritage
VALORISATION												
Best Practices		BP_001; BP_007; BP_012; BP_019; BP_022; BP_026; BP_028; BP_030; BP_034; BP_035	BP_003; BP_029; BP_036; BP_037	BP_009; BP_025; BP_039	BP_008; BP_014; BP_015; BP_018; BP_032; BP_033	BP_002; BP_005; BP_010; BP_021; BP_022; BP_038; BP_040	BP_004; BP_013; BP_016	BP_006; BP_011; BP_024; BP_027; BP_031; BP_041	BP_017; BP_022			BP_042
Documents	VVAA_1931; SCAFA_1932; CE_1985; ICOMOS_1994; CEC_1996; ICOMOS_1999_a; UNESCO_2005; CE_2005; ICOMOS_2005; ICOMOS_2008_a; ICOMOS_2008_b; ICOMOS_2008_c; EC_2010; VVAA_2011; ICOMOS_2011_b; ICOMOS_2011_c; EU_2012_a; EU_2012_b; UNESCO_ICROM; ICOMOS_IUCN_2013_A; ICOMOS_2013; VVAA_2014_a; VVAA_2014_b; EU_2014_a; CEU_2014; EU_2014_b; ICOMOS_2014; CHCE_2015; ICOMOS_2015; EC_2015; EU_2015; UN_2016; ICOMOS_2017_a; VVAA_2017; EC_2017_a; EC_2017_b; ICOMOS_2017_d; EC_2018_a; EC_2018_b; VVAA_2018; EU_2018; ICOMOS_2018; EUHeritage_2019; VVAA_2019; EC_2019; UNESCO_2019_b; ICOMOS_2020; EC_2021_b			ICOMOS_TICCIH_2003	VVAA_1991; ICOMOS_ISC 20C_2011; ICOMOS_ISC 20C_2014; ICOMOS_ISC 20C_2017	ICOMOS_2017_b	UNESCO_1954; VVAA_2010; UNESCO_2018	VVAA_1960; UNESCO_2011_b; VVAA_2016; ICOMOS_IF LA_2017_a; ICOMOS_IF LA_2017_b	UNESCO_2001	UNESCO_1970; UNIDROIT_1995	UNESCO_2003; UNESCO_2011_a	
EU - Projects	EP_001; EP_005; EP_006; EP_008; EP_014; EP_017; EP_021; EP_034; EP_036; EP_037; EP_038; EP_039; EP_040; EP_046; EP_050; EP_052; EP_053; EP_054; EP_062; EP_064; EP_067; EP_068; EP_070; EP_071; EP_085; EP_095; EP_096; EP_097; EP_100; EP_103; EP_104; EP_106; EP_108; EP_110; EP_112; EP_113; EP_114; EP_118; EP_119; EP_120; EP_121; EP_122; EP_123; EP_124; EP_129; EP_131; EP_134; EP_140; EP_145; EP_146; EP_152; EP_153	EP_011		EP_012; EP_102		EP_022; EP_074		EP_058	EP_044; EP_045; EP_094	EP_019; EP_063; EP_141	EP_023; EP_025; EP_027; EP_047; EP_072; EP_111	EP_011; EP_021; EP_150

Figure 2.9 - Common framework about best practices, documents and EU projects in relation with the type of CH asset.

2.5.3 Final remarks

The goal of T1.1 is the collection and analysis of experiences, skills and best practices in the field of Conservation, Preservation and Valorisation of monuments and sites. The research activity was carried out in an integrated way with the other WP1 tasks in order to build a common framework and provide a knowledge base (KB) to support the work of the rest of the WPs of the 4CH project (according with Project Objective 1 _ Establishing the methodological framework for the Competence Centre focusing on advanced digitization for preservation and conservation of Monuments and Sites).

Given the extremely broadness and variety of the field of inquiry, the T1.1 carried out the research on different types of sources: documents about the safeguarding of CH, EU funded projects, innovative EU and extra EU Safeguarding programmes and a selection of significant EU and extra EU best practices, i.e. actual interventions of Conservation, Preservation and Valorisation of CH.

Thus, a crucial part of the survey involved the design of a methodology that served to guide and to give a structure to the investigation. A dedicated mapping strategy was developed to delimit and define the objects of the investigation and to set the criteria of selection of the KB sources. This work framed the principal aspects of interest and comparison and enabled the analysis and survey of skills, experiences and best practices.

The results of the analysis on the documental sources allowed to highlight the main developments of the concept of CH, as well as of the indications and regulations related to its Safeguarding. The parallel investigation about the European projects allowed not only the construction of a common database (see the Data Browser developed by T1.3), but also to examine how they substantially contributed to the implementation and development of the practices involving CH.

Finally, the analysis of the best practices was included into the research process. In particular, their collection, organization and critical reading constitutes the distinctive part of T1.1 research. Relevant and virtuous EU and extra EU case studies related to interventions of Conservation, Preservation and Valorisation of different types of CH assets have been catalogued in 42 factsheets (see the Appendices). The main objective of the best practices analysis was to identify and point out the skills that determine the innovation potential of the interventions and that emerge as pivotal for the future development of the practices on CH. Such skills have been examined on the basis of a preliminary study about regulations and recommendations for the improvement/development of skills in the CH framework, such as the Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning (Text with EEA relevance) (2008/C111/01) intersected with a study about the skills trained by the main schools for CH practitioners. The skills identified by the analysis of documents and best practices are relevant to be taken into consideration for the design of the training services that the 4CHCC will offer.

The results of the analyses highlighted the mostly consolidated trends about traditional skills in the field of the practices for CH Safeguarding, and the emerging ones. Among the latter, the transversal and critical reading of the best practices in relation to the general framework

showed a progressive increase over time in the exertion of skills related to the users engagement and participation practices, and the innovative support which can be provided by the technological/digital skills, as it is also confirmed by the recent EU digital strategy that recommends Member States to accelerate the digitisation of CH monuments and sites (see, for example, the 2021 *Commission Recommendation on a common European data space for cultural heritage* by the European Commission), even if always bearing in mind the fundamental importance of the materiality of heritage as a stratified palimpsest.

What is certain is that traditional skills and emerging ones are shaping an evolving kind of professional figure, which has not only competence about Conservation and Preservation of CH, but also managing ones. Dealing with CH demonstrate an increasing complexity, due to many different reasons, certainly to the fact that the discipline is in constant evolution as the assets to be safeguarded: that, on the one hand, shows the importance of specialists in specific fields, but at the same time implies the necessity of cooperation and linkage figures, as well as the need to provide a hub, as the Competence Centre is supposed to be, able to link the solid basis of the discipline and to detect, interpretate and address new issues and evolving features.

2.6 Appendices list

- Appendix 1 - Index - all sources
- Appendix 2 – Best practices sheets
- Appendix 3 – Common framework – Best practices
- Appendix 4 – Common framework – All sources

All the appendices are attached at the end of the present document.

They are also available with high-resolution images on the 4CH community on Zenodo at <https://doi.org/10.5281/zenodo.6419691>

3. State of the Art, including via Market Watch, of the technology in the fields in which the Competence Centre will operate (Task T1.3)

3.1 Technologies Framework

The 4CH project aims to promote hi-tech solutions for the documentation, preservation, conservation, and promotion of CH assets. One of the envisaged solutions is the “Heritage Digital Twin” (the concept of digital twin for complex systems has been defined by Grieves^{124,125}), a digital replica of the asset used to support management, conservation, and access to the asset itself. The HDT consists of accurate 3D documentation of the shape and appearance of the object linked to relevant data, ranging from its location and history to photographs, records of its structural behaviour, material characterisation, past interventions, state of conservation, and risk monitoring reports.

Technology plays a fundamental role in many aspects regarding the care of CH, where it allows, for example, for:

- Detailed recording of buildings, monuments, and artefacts, from 3D survey, photography, description and so on.
- Monitoring the conservation state of monuments, sites, and artefacts at different scales, from condition reports of the whole object to in-depth analysis of its constituent parts, materials, and possible degradation products.
- Providing protection and consolidation materials and nanomaterials able to prevent or minimise deterioration and damage of the constituents of cultural objects.
- Management of monuments, and other cultural assets, including managing visitor access, the provision of services, and so on.
- On-site kiosks, virtual exhibitions, online access, games, and other applications.

¹²⁴ Grieves, M. Digital Twin: Manufacturing Excellence through Virtual Factory Replication; White Paper; Dassault Systèmes: Vélizy-Villacoublay, France, 2015; pp. 1–7.

¹²⁵ Grieves, Michael, and John Vickers. 2017. 'Digital Twin: Mitigating Unpredictable, Undesirable Emergent Behavior in Complex Systems'. In *Transdisciplinary Perspectives on Complex Systems: New Findings and Approaches*, edited by Franz-Josef Kahlen, Shannon Flumerfelt, and Anabela Alves, 85–113. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-38756-7_4.

3.1.1 Technology classification and fields of application

Most of the technologies applied to CH have been developed for other applications and then modified to suit CH needs; in just a few cases they have been specifically developed for CH in laboratories, often of research institutions.

Producing solutions for specific application environments (such as cultural heritage) involves understanding the needs of users and the sector, and the existing products. Manufacturers often collaborate with research institutions to develop short- or medium-term solutions, with the aim of launching new commercial products to the market. Some of these products have a broad appeal beyond the original application environment and cross-over to new markets.

This relationship among manufacturers, research institutions and users (see Fig. 3.1) is at the basis of the 4CH CC itself.

The Competence Centre will operate in the fields: Digitization and 3D modelling, Conservation and Preservation, and Valorisation of CH assets.

The state of the art of the technology reported here has been organised following this classification. Techniques do not necessarily have a unique field of application, and some are relevant for more than one of the CC fields.

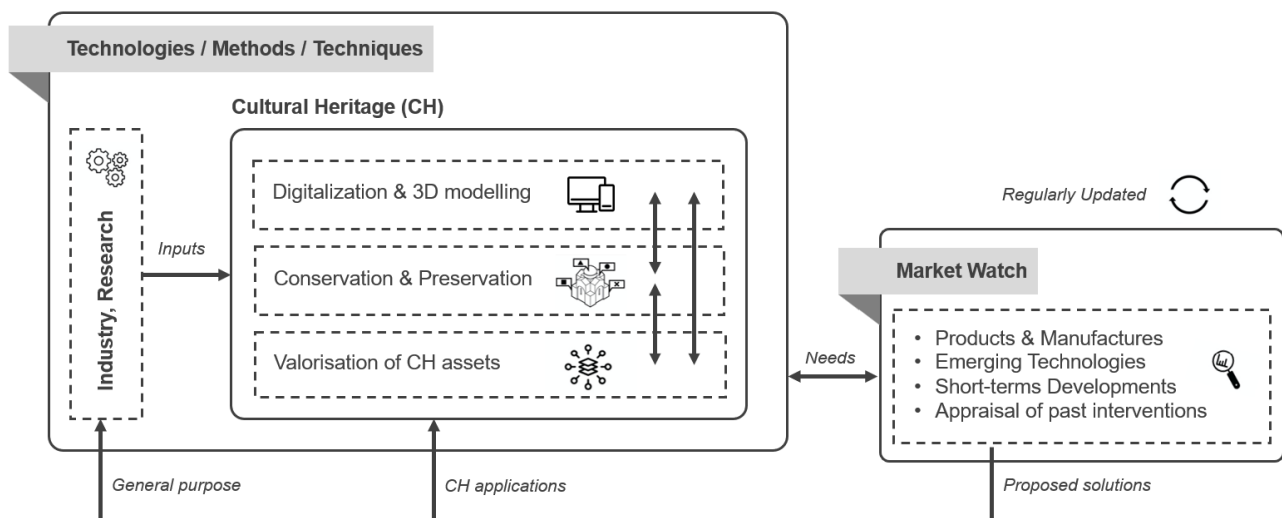


Figure 3.1 - flow scheme of the interaction among Industry, Research and CH professionals

An in-depth knowledge of the state of the art of the technology in these three fields of application, as well as of the results and possible negative consequences of past interventions is the basis for the counselling activity envisaged by the Competence Centre.

3.1.2 Working Methodology

The task carried out extensive desk research of the available literature, EU-funded projects, and industry manufacturers, to offer a broad overview of emerging technologies. This included a review of academic literature, journals/proceedings (Scopus, Web of Science, IEEE Xplorer, ACM Digital Library, ScienceDirect and ISPRS Archives); and papers published on Google Scholar, ResearchGate and Academia.

For the digitisation and 3D modelling, the authors performed a keyword-based search within conference papers from recent CAA, CIPA, 3D-Arch, VAST and EUROMED conferences and workshops.

With regards to CH valorisation (see Paragraph 3.4), the desk research focused on immersive technologies, the development of specific applications and web-platforms (e.g., 3D viewer and repositories) for scholars and museum visitors to experience 3D representation of CH.

Concerning technology for conservation and preservation (see Paragraph 3.3), the desk research was based on analysis of EU-funded projects by searching for the keywords “conservation, preservation, cultural heritage”. Among the >100 found items, the ones referring to buildings and monuments were selected¹²⁶ and the related documentation examined. The task is now complementing the results by checking the proceedings of international thematic conferences. The Florence 2020 Heri-tech proceedings¹²⁷ are included in this survey. The forthcoming version of this deliverable will be updated with further results from other relevant papers.

The task focused in more detail on 3D and digitisation techniques, which are the core of the project; for these techniques a description of available instrumentation (hardware and software) is provided. This way, users are guided in the selection of the technology suitable to their needs, through analysis of the different parameters and technical specifications to be considered.

The breadth of the Conservation and Preservation field forced the task to focus on an overview of the main methods used to characterise structural properties and materials constituting monuments and buildings, and the possible degradation products.

This study does not claim to be exhaustive and certainly does not embrace all the possible technology and techniques adopted in CH domain but is intended to represent an analysis and identification of cutting-edge technologies, with a focus on 3D digitization, and with a positive impact on preservation and conservation.

¹²⁶ ABIOS, APACHE, EU CHIC, HERACLES, INCEPTION, IPERION CH, IPERION HS, NANO-CATHEDRAL, PROMETHEUS, RESEARCH, SHELTER, STORM, TEACH, WARMEST, 3D-MURALE, C.H.E.R.M., CHARISMA, CULT-STRAT, ESDCON, HEROMAT, INSIDDE, NOAHS ARK, PERPETUATE, REINHERIT, SASMAP, SCAN4RECO, SYDDARTA, TECTONIC, FRIENDLY HEATING, NET - HERITAGE, PROHITECH, EHERITAGE, MENCAWAR
¹²⁷ <https://www.florenceheritech.com/past-editions-proceedings/>

3.2 Digitisation and 3D Modelling

Digitisation of the cultural heritage have been recognized as effective supporting tools for preservation, conservation and to enable access, and is part of the EU's digital strategy. For many cultural institutions (public and private) today digitisation and digital technologies play a key role in the management, monitoring, preservation, conservation, and promotion of Cultural Heritage, and in planning related activities. The COVID-19 pandemic increased the importance of digitization as the cultural heritage sector turned online to offer services to their audiences in times when in person visits were not possible. The importance of building capacity for digital transformation became clearer as a result of COVID-19¹²⁸.

“Digital transformation” refers to the change brought about by the widespread adoption of digital technologies¹²⁹. ‘Digitisation’ is defined as:

“the process of converting analogue to digital data, with the purpose of enabling data processing, storage, and transmission through digital circuits, equipment, and networks. Digitisation is enabled by different electronic devices such as scanners, cameras, and 3D technology¹³⁰”.

Digitised information can be processed, stored and shared, and can facilitate access and enable re-use (subject to rights and permissions). Resources which are "born digital", where there is no analogue only the digital original, can also be reused for different purposes (again subject to rights and permissions).

With regard to historic buildings, archaeological monuments and sites, digitization and 3D modelling may involve both reality-based modelling (RBM)¹³¹, based on the digital acquisition through 3D survey of the surviving fabric, and source-based modelling (SBM)¹³², where historical sources are used for virtual reconstruction.

Recently, significant research has demonstrated the potential of Heritage Building Information Modelling (HBIM) for the collaborative data management in conjunction with conservation projects. The recent development of HBIM web platforms illustrates the value

¹²⁸ Europeana Pro. ‘Europeana Pro. Organisational Approaches’. Accessed 18 March 2022.

<https://pro.europeana.eu/page/organisational-approaches>.

¹²⁹ Europeana Pro. ‘Defining Digital Transformation for the Cultural Heritage Sector’. Accessed 14 February 2022.

<https://pro.europeana.eu/post/defining-digital-transformation-for-the-cultural-heritage-sector>.

¹³⁰ Campreciós, Núria, Marc Aguilar, Sergi Fernández, and Artur Serra. 2015. ‘CH Definitions and Taxonomy’. Deliverable 2.1. RICHERS. https://resources.richers-project.eu/wp-content/uploads/2015/08/RICHES-D2.1-CH-Definitions-and-Taxonomy_public.pdf.

¹³¹ Guidi, Gabriele, and Michele Russo. 2011. ‘Reality-Based and Reconstructive Models: Digital Media for Cultural Heritage Valorization’. *SCIRES-IT - SCientific REsearch and Information Technology* 1 (2): 71–86.

<https://doi.org/10.2423/i22394303v1n2p71>.

¹³² Apollonio, Fabrizio I. 2018. ‘The Production of 3D Digital Archives and the Methodologies for Digitally Supporting Research in Architectural and Urban Cultural Heritage’. In *Digital Research and Education in Architectural Heritage*, edited by Sander Münster, Kristina Friedrichs, Florian Niebling, and Agnieszka Seidel-Grześnińska, 139–58. Communications in Computer and Information Science. Cham: Springer International Publishing.

https://doi.org/10.1007/978-3-319-76992-9_9.

of strengthening the link between the digital model and the physical realm of heritage assets¹³³¹³⁴.

Three-dimensional technologies for cultural heritage are constantly developing, with new or improved active and passive sensors, data acquisition techniques, processing algorithms and computational systems becoming available. Some of these developments are dedicated to improving automation and processing times, some to increasing accuracy and precision. New devices and digital tools, such as handheld scanners and image-based modelling automated or semi-automated software, provide powerful 3D digitization solutions for both experts and other users.

Preservation of “born-digital” (and digitised) material is another key issue. The nature of this material means that it can easily be altered or destroyed. It is affected by hardware and software (including operating systems and browsers) used for creation, visualisation and storage and is sensitive to mechanical and incompatibility obsolescence, and interoperability obsolescence of both software and hardware.

On the submission date of the present deliverable an extensive *Study on quality in 3D digitisation of tangible cultural heritage* has been published. Such study requires a thorough analysis which is impossible due to the short time available before the deadline for delivering the present report. Such analysis will therefore be included in Deliverable D1.3.

¹³³ Bonsma, Peter, Iveta Bonsma, Anna Elisabetta Ziri, Silvia Parenti, Pedro Martín Lerones, José Luis Hernández, Federica Maietti, Marco Medici, Beatrice Turillazzi, and Ernesto Iadanza. ‘INCEPTION Standard for Heritage BIM Models’. In *Digital Heritage. Progress in Cultural Heritage: Documentation, Preservation, and Protection*, edited by Marinos Ioannides, Eleanor Fink, Antonia Moropoulou, Monika Hagedorn-Saupe, Antonella Fresa, Gunnar Liestøl, Vlatka Rajcic, and Pierre Grussenmeyer, 590–99. Cham: Springer International Publishing, 2016. https://doi.org/10.1007/978-3-319-48496-9_47.

¹³⁴ Palomar, Isabel Jordán, Jorge L. García Valldecabres, Patricia Tzortzopoulos, and Eugenio Pellicer. ‘An Online Platform to Unify and Synchronise Heritage Architecture Information’. *Automation in Construction* 110 (1 February 2020): 103008. <https://doi.org/10.1016/j.autcon.2019.103008>.

3.2.1 Digital Recording Techniques

3D data acquisition technology can be differentiated as contact and non-contact based on the type of sensor and method of data capture¹³⁵ (see Figure 3.2 below).

Contact sensors require a probe to touch the surface of the object during the data acquisition. This technique has disadvantages: it is time-consuming, requires a highly specialised operator and contact with the probe may damage the surface of the CH asset.

Non-contact sensors can be subdivided into optical and non-optical. **Optical sensors** include imaging sensors mounted on satellite, aerial and UAV/RPAS platforms, and hand-held and ranging sensors like laser scanners or structured light instruments. **Non optical sensors** include Synthetic Aperture Radar (SAR)¹³⁶ systems and technologies used in medical applications to visualise internal structures of human organisms, such as positron emission tomography (PET), magnetic resonance imaging (MRI)¹³⁷, also called magnetic resonance tomography (MRT), and X-ray-based computed tomography (CT)¹³⁸.

In this study we will focus on survey techniques, such as active and passive sensors, data acquisition techniques, implemented processing algorithms and employed computational systems.

The choice of technique and methodology is guided by the size of the object to be scanned, its complexity (Figure 3.3) and its accessibility. But other factors (such as reflectance, transmittance and absorbance of light, shape, dimension, and colour, time and costs) also influence the choice.

According to a 2019 survey conducted by Sketchfab¹³⁹ the top three barriers to producing more 3D content are lack of time, lack of funding, and lack of trained staff. Funding can provide the needed equipment and trained personnel for the project, but the timeframe of the project and the output of 3D models are also important.

Given that some 3D digitization technologies are more suitable for capturing certain types of objects, architecture, and archaeological sites over others, some techniques are used

¹³⁵ Sansoni, Giovanna, Marco Trebeschi, and Franco Docchio. 2009. 'State-of-The-Art and Applications of 3D Imaging Sensors in Industry, Cultural Heritage, Medicine, and Criminal Investigation'. *Sensors* 9 (1): 568–601. <https://doi.org/10.3390/s90100568>.

¹³⁶ Remondino, Fabio. 'Heritage Recording and 3D Modeling with Photogrammetry and 3D Scanning'. *Remote Sensing* 3, no. 6 (June 2011): 1104–38. <https://doi.org/10.3390/rs3061104>.

¹³⁷ Capitani, Donatella, Valeria Di Tullio, and Noemi Proietti. 2012. 'Nuclear Magnetic Resonance to Characterize and Monitor Cultural Heritage'. *Progress in Nuclear Magnetic Resonance Spectroscopy* 64 (July): 29–69. <https://doi.org/10.1016/j.pnmrs.2011.11.001>.

¹³⁸ Yatsishina, E. B., M. V. Kovalchuk, M. D. Loshak, S. V. Vasilyev, O. A. Vasilieva, O. P. Dyuzheva, V. M. Pojidaev, and V. L. Ushakov. 2018. 'Interdisciplinary Study of Egyptian Mummies from the Pushkin State Museum of Fine Arts Collection at the National Research Centre "Kurchatov Institute"'. *Crystallography Reports* 63 (3): 500–511. <https://doi.org/10.1134/S1063774518030343>.

¹³⁹ Flynn, Thomas. 'Sketchfab Cultural Heritage User Survey 2019 Results'. 2019. <https://docs.google.com/presentation/d/1XNwdeKAZCOgkAi8UdrpKy3vxuZKQwO8yoQDMWQ2BVno>.

more often than others. The Sketchfab survey found 64.0% used photogrammetry, followed by LiDAR/laser scanning (15.6%) and handheld or structured light scanning (20.5%)¹⁴⁰.

Currently the digitization of large and complex sites involves a combination of sensors and methodology¹⁴¹ in order to:

- achieve complete and accurate results,
- exploit the benefits of each technique,
- compensate weaknesses of each method,
- obtain different levels of detail.

¹⁴⁰ Flynn, Thomas. 'Sketchfab Cultural Heritage User Survey 2019 Results'. 2019.

<https://docs.google.com/presentation/d/1XNwdeKAZCOgkAi8UdrpKy3vxuZKQwO8yoQDMWQ2BVno>.

¹⁴¹ Remondino, Fabio, and Alessandro Rizzi. 'Reality-Based 3D Documentation of Natural and Cultural Heritage Sites—Techniques, Problems, and Examples'. *Applied Geomatics* 2, no. 3 (1 September 2010): 85–100.
<https://doi.org/10.1007/s12518-010-0025-x>.

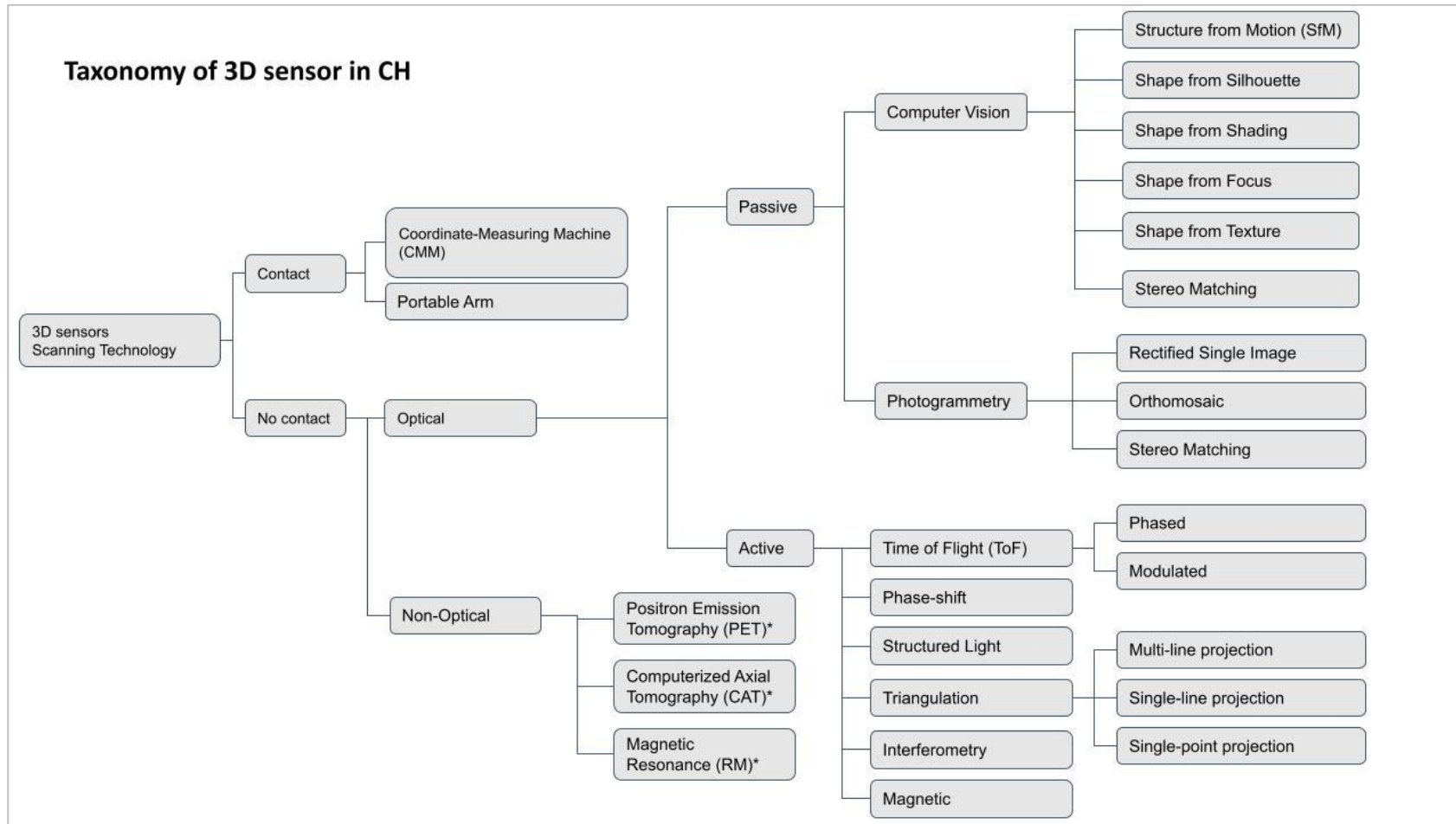


Figure 3.2 - Taxonomy of 3D sensors used in Cultural Heritage domain

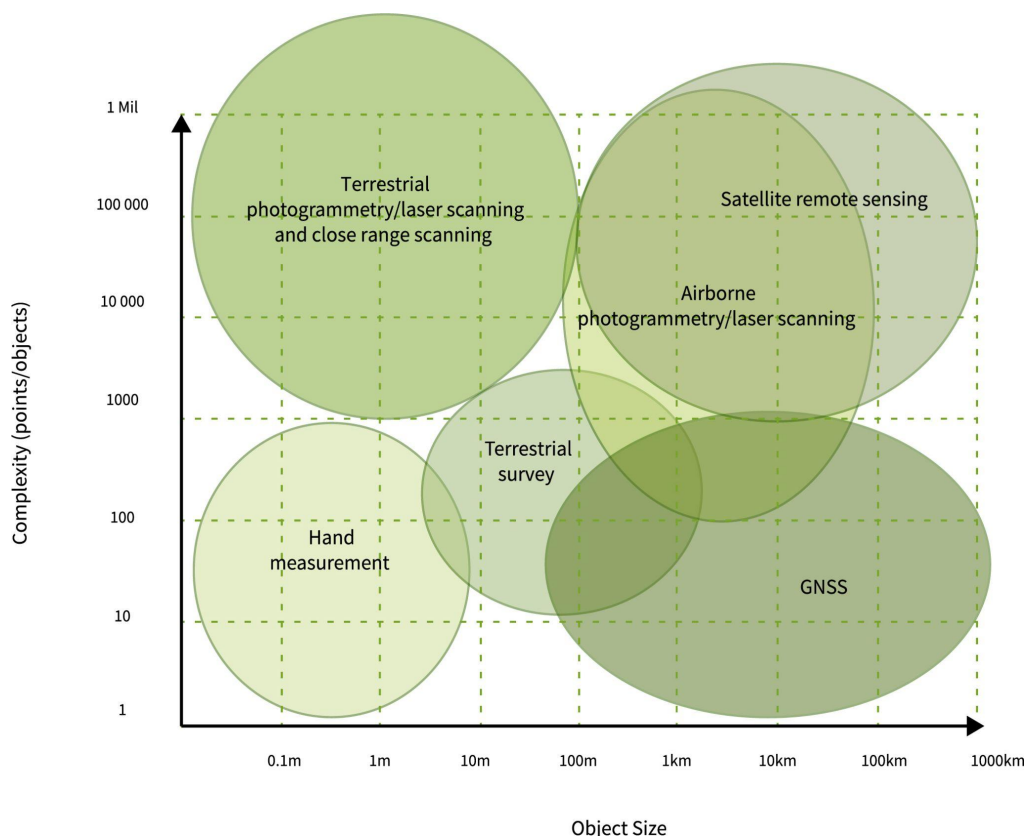


Figure 3.3 - 3D survey techniques described by object complexity and object size (derived from Böhler et al 2001) (English Heritage, 2011)

The Expert Group on Digital Cultural Heritage and Europeana (DCHE) with input from a large group of external experts recently published a set of Basic principles and tips for 3D digitisation of cultural heritage for cultural heritage professionals. The report consists of 10 basic principles with tips on how and when to use 3D to digitise cultural heritage¹⁴².

Other guidelines are discussed in section 3.2.5 below.

The fast pace of technological advancement and the proliferation of new devices and digital tools is providing powerful 3D digitization solutions for experts in 3D digitisation, cultural heritage professionals and citizens (members of the public with an interest in 3D digitisation). However, these solutions are vulnerable to obsolescence for both *mechanical reasons* (lack of performance, failure, or incompatibility of components) and *interoperability reasons* (incompatibility of software and/or hardware).

A variety of hardware and software were evaluated by 4CH (both commercial and open sourced), including equipment with various characteristics. The table below lists some of the survey techniques that are used in the Cultural Heritage domain.

¹⁴² 'Basic Principles and Tips for 3D Digitisation of Cultural Heritage | Shaping Europe's Digital Future'. Accessed 18 February 2022. <https://digital-strategy.ec.europa.eu/en/library/basic-principles-and-tips-3d-digitisation-cultural-heritage>.

Table 3.1 - Survey Techniques list

Technique	Application	Subject Size
Remote Sensing Satellite	Landscape mapping and monitoring.	1-1500 km ²
GNSS	Landscape mapping and monitoring	1-1500 km ²
OPS VNIR (Optical VNIR sensors)	Landscape mapping and monitoring	1-1500 km ²
MSS (Multispectral Sensors)	Landscape mapping and monitoring	1-1500 km ²
SAR (Synthetic Aperture Radar)	Monitoring; Landscape mapping	1-1500 km ²
LiDAR Aerial Laser Scanning	Landscape mapping and monitoring	1-1500 km ²
TLS Terrestrial Laser Scanning	3D modelling; Monitoring; Orthophoto; CAD drawing	5-500 m ³
CRLS Close Range Scanning	Monitoring; 3D modelling; 3D printing	1-5 m ³
AP Aerial Photogrammetry	Landscape mapping and monitoring	1-500km ²
CRP Close Range Photogrammetry	3D modelling; monitoring	0.1-2 m ³
GPS Global Positioning System	Landscape survey, orientation to Global Coordinate System	1-20Km ²
TS/EDM Total station/Electronic Distance Measurement	Topographic mapping, CAD drawing plans and sections	0.5-50m ³

Geospatial Technologies

Geospatial technologies, Remote Sensing (RS)¹⁴³ and Geographic Information Systems provide accurate estimation of locations for management, valorisation, monitoring, and preservation of CH.

Examples of application include:

- Land-use change maps
- Natural subsidence, ground motion detection
- Risk assessment maps
- Archaeological sites monitoring and identification (e.g., buried sites)
- Monitoring of the destruction or looting of sites
- Urban sprawl monitoring
- Climate Change indicators
- Air pollution monitoring
- Coastline monitoring (erosion)
- Bathymetry

An overview of past and current satellite earth observation optical sensors useful for land monitoring, with focus on cultural landscapes is provided by Cuca et al¹⁴⁴. In the literature there are several examples that have exploited the potential of earth observation for monitoring of cultural heritage and landscapes, using both radar and optical techniques. For example, the use of SAR in Archaeology and Cultural Landscape¹⁴⁵. Of particular interest for CH are SAR applications potentially able to detect and monitor destruction and looting of heritage in areas affected by armed conflicts with no or low possibility for site control on the ground¹⁴⁶.

The Copernicus programme is the most recent mission that provides imagery on the global scale and free of charge¹⁴⁷. It is composed of the space segment: sentinel satellites (infrastructure coordinated by ESA) and in-situ segment i.e., ground stations, airborne and sea-borne sensors and so forth (coordinated by European Environmental Agency and the Member States).

Several H2020 projects focus on the use of Copernicus data to support sustainable and cost-effective landscape monitoring: HERACLES (HERitage Resilience Against CLimate

¹⁴³ The definition of remote sensing used here, provided by the American Society for Photogrammetry and Remote Sensing (ASPRS), is: In the broadest sense, the measurement or acquisition of information of some property of an object or phenomena, by a recording device that is not in physical or intimate contact with the object or phenomenon under study; e.g., the utilisation at a distance (as from aircraft, spacecraft, or ship) of any device and its attendant display for gathering information pertinent to the environment, such as measurements of force fields, electromagnetic radiation, or acoustic energy. The technique employs such devices as the camera, lasers, and radio frequency receivers, radar systems, sonar, seismographs, magnetometers, and scintillation counters.

¹⁴⁴ Cuca, Branka, and Diofantos G. Hadjimitsis. 'Space Technology Meets Policy: An Overview of Earth Observation Sensors for Monitoring of Cultural Landscapes within Policy Framework for Cultural Heritage'. *Journal of Archaeological Science: Reports* 14 (Agosto 2017): 727–33. <https://doi.org/10.1016/j.jasrep.2017.05.001>.

¹⁴⁵ Lin, Shu-Kun. 'Optical Satellite Remote Sensing in Archaeology: An Overview'. In *Satellite Remote Sensing: A New Tool for Archaeology.*, Vol. 4. Multidisciplinary Digital Publishing Institute, 2012. <https://www.mdpi.com/2072-4292/4/10/3055>.

¹⁴⁶ Traviglia, Arianna, Lucio Milano, Cristina Tonghini, and Riccardo Giovanelli. 'Stolen Heritage Multidisciplinary Perspectives on Illicit Trafficking of Cultural Heritage in the EU and the MENA Region, 29:Book_483. Antichistica. Venice: Fondazione Università Ca' Foscari, 2021. <https://doi.org/10.30687/978-88-6969-517-9>.

¹⁴⁷ 'Copernicus'. Accessed 4 March 2022. <https://www.copernicus.eu/en/about-copernicus>.

Events on-Site)¹⁴⁸, HERCULES (Sustainable Futures for Europe's Heritage in Cultural Landscapes)¹⁴⁹ and PROTHEGO (PROtection of European Cultural HERitage from GeO-hazards). PROTHEGO¹⁵⁰ applies novel space technology based on radar interferometry (InSAR) to monitor monuments and sites in Europe which are potentially at-risk due to geo-hazards.

LiDAR

Airborne LiDAR (Light Detection And Ranging), also known as Airborne Laser Scanning (ALS) is an active scanning technique able to rapidly collect data from a large area on the surface of the earth. Laser scanners (only pulsed Time-of-Flight measurement systems) are used on airborne platforms (helicopter or fixed wing aircraft). It is integrated with GNSS/INS sensors to accurately measure the position and orientation of the system and the Inertial Measurement Unit (IMU) in the aircraft. This technology is applied for Digital Surface Models (DSM) generation, city modelling, forestry applications, structural monitoring and change detection, just to mention some applications. ALS is also often coupled with airborne imagery, increasing the quality of the representation of a landscape¹⁵¹.

Lightweight LiDAR sensors for UAV are recently developed and could mark a significant turning point in aerial survey techniques¹⁵²

Below some LiDAR producers:

Brand	Link
YellowScan	https://www.yellowscan-lidar.com/lidar-solutions/
Routescene	https://www.routescene.com/
Geodetics	https://geodetics.com/geo-mms-main-page/
Phoenixlidar	https://www.phoenixlidar.com/
Velodynelidar	https://velodynelidar.com/
Ouster	https://ouster.com/products/
Quanergy	https://quanergy.com/products/

¹⁴⁸ 'HERACLES'. Accessed 6 March 2022. <http://www.heracles-project.eu/>.

¹⁴⁹ 'HERCULES'. Accessed 6 March 2022. <http://www.hercules-landscapes.eu/>.

¹⁵⁰ 'PROTHEGO'. Accessed 6 March 2022. <http://www.prothego.eu/>.

¹⁵¹ Vosselman, George, and Hans-Gerd Maas, eds. *Airborne and Terrestrial Laser Scanning*. Repr. Caithness: Whittles Publ, 2011.

¹⁵² Campana, Stefano. 'Drones in Archaeology. State-of-the-Art and Future Perspectives'. *Archaeological Prospection* 24, no. 4 (2017): 275–96. <https://doi.org/10.1002/arp.1569>.

Laser Scanning (LS)

Grussenmeyer et al defined laser scanning as “an active, fast and automatic acquisition technique using laser light for measuring, without any contact and in a dense regular pattern, 3D coordinates of points on surfaces”¹⁵³

Three-Dimensional Scanning is used to measure surfaces and objects within a space. The data collected by the scanner are in the form of point clouds, which can consist of millions of 3D coordinates representing the geometry of the object, from which a mesh is generated to create a 3D model¹⁵⁴.

There are several typologies of 3D sensor widely used for cultural heritage documentation, operating on different recording principles with different levels of precision and accuracy¹⁵⁵¹⁵⁶.

- Phase Based scanners: emit a continuous light with known frequency, and the shift between sending and returning phases is compared.
- Time of Flight (ToF) scanners: the time of light travel emitted by the device, between the device and the object is measured.
- Triangulation scanners (small/medium object): with a known width between a laser emitter and detector, the angles of sent and returned light provide the distance.

Several 3D Scanners integrated cameras is to assist in the interpretation of the point cloud. The images can be used to extract colour information for the individual points in the 3D cloud, but even the best scanner camera systems can only achieve medium resolution for the area. To improve the image resolution a DSLR can be mounted on the scanner¹⁵⁷.

Mobile Laser Scanning system (MMS) records a growing interest in the latest years, in CH domain, because of great advantage to be time efficient¹⁵⁸.

Together with the aforementioned ALS, MLS are usually categorised according to the mobile platform used. According to a recent publication¹⁵⁹, the mobile terrestrial platforms are divided in:

¹⁵³ Grussenmeyer, Pierre, Tania Landes, M. Doneus, and J-L Lermat. ‘Basics of Range-Based Modelling Techniques in Cultural Heritage’. In *3D Recording, Documentation and Management of Cultural Heritage*, 305–68. Whittles Publishing, 2018. <https://hal.archives-ouvertes.fr/hal-02319427>.

¹⁵⁴ Muralikrishnan, Bala. ‘Performance Evaluation of Terrestrial Laser Scanners – a Review’. *Measurement Science and Technology*, 12 January 2021. <https://doi.org/10.1088/1361-6501/abd3>.

¹⁵⁵ Remondino, Fabio, and Alessandro Rizzi. ‘Reality-Based 3D Documentation of Natural and Cultural Heritage Sites—Techniques, Problems, and Examples’. *Applied Geomatics* 2, no. 3 (1 September 2010): 85–100. <https://doi.org/10.1007/s12518-010-0025-x>.

¹⁵⁶ *3D Laser Scanning for Heritage. Advice and Guidance on the Use of Laser Scanning in Archaeology and Architecture*. 3rd ed. Swindon: Historic England, 2018. <http://historicengland.org.uk/images-books/publications/3d-laser-scanning-heritage/>.

¹⁵⁷ *3D Laser Scanning for Heritage. Advice and Guidance on the Use of Laser Scanning in Archaeology and Architecture*. 3rd ed. Swindon: Historic England, 2018. <http://historicengland.org.uk/images-books/publications/3d-laser-scanning-heritage/>.

¹⁵⁸ Rodríguez-González, Pablo, Belén Jiménez Fernández-Palacios, Ángel Luis Muñoz-Nieto, Pedro Arias-Sanchez, and Diego Gonzalez-Aguilera. ‘Mobile LiDAR System: New Possibilities for the Documentation and Dissemination of Large Cultural Heritage Sites’. *Remote Sensing* 9, no. 3 (March 2017): 189. <https://doi.org/10.3390/rs9030189>.

¹⁵⁹ Di Stefano, Francesco, Stefano Chiappini, Alban Gorreja, Mattia Balestra, and Roberto Pierdicca. ‘Mobile 3D Scan LiDAR: A Literature Review’. *Geomatics, Natural Hazards and Risk* 12, no. 1 (1 January 2021): 2387–2429. <https://doi.org/10.1080/19475705.2021.1964617>.

- human-based, referred to Personal/Portable Laser Scanner (PLS) or Wearable Laser Scanner (WLS), e.g. backpack LS or hand-held LS;
- wheel-based, e.g. trolleys, vehicles on rails, motorbikes, bikes and vehicles; This category include the Unmanned Ground Vehicles (UGV). employed in inaccessible places or used to overcome difficult terrains.
- sledge-based¹⁶⁰ and boat-based¹⁶¹¹⁶² are used only in certain domains or conditions.

An example of UGV application is the development of an Autonomous Mobile Robot (AMR) recently employed in archaeological research for monitoring and inspecting the site of Pompeii¹⁶³. The AMR of Pompeii, a quadruped robot named SPOT developed by Boston Dynamics, utilises the Leica BLK2FLY, a laser scanner able to autonomously perform 3D scans¹⁶⁴.

Photogrammetry

Photogrammetry is defined by the American Society for Photogrammetry and Remote Sensing (ASPRS) as “The art, science, and technology of obtaining reliable information about physical objects and the environment, through processes of recording, measuring, and interpreting imagery and digital representations of energy patterns derived from non-contact sensor systems”¹⁶⁵.

Instrumentation used for photogrammetry, such as large format cameras and processing equipment, developed rapidly through the latter half of the twentieth century¹⁶⁶. It progressed from purely optical/mechanical instruments, designed to reproduce the position and orientation of the images, through to computer vision-derived technique Structure from Motion (SfM)¹⁶⁷¹⁶⁸¹⁶⁹.

¹⁶⁰ Kaasalainen, S., H. Kaartinen, A. Kukko, K. Anttila, and A. Krooks. ‘Brief Communication “Application of Mobile Laser Scanning in Snow Cover Profiling”’. *The Cryosphere* 5, no. 1 (1 March 2011): 135–38. <https://doi.org/10.5194/tc-5-135-2011>.

¹⁶¹ Alho, P., A. Kukko, H. Hyypä, H. Kaartinen, J. Hyypä, and A. Jaakkola. ‘Application of Boat-Based Laser Scanning for River Survey’. *Earth Surface Processes and Landforms* 34, no. 13 (2009): 1831–38.

¹⁶² Vaaja, Matti, Juha Hyypä, Antero Kukko, Harri Kaartinen, Hannu Hyypä, and Petteri Alho. ‘Mapping Topography Changes Using a Mobile Laser Scanner’. *Remote Sensing* 3 (1 December 2011). <https://doi.org/10.3390/rs3030587>.

¹⁶³ <http://pompeiiisites.org/en/comunicati/spot-a-quadruped-robot-at-the-service-of-archaeology-to-inspect-archaeological-areas-and-structures-in-safety/>

¹⁶⁴ ‘Leica BLK2FLY Autonomous Flying Laser Scanner’. Accessed 4 April 2022. <https://leica-geosystems.com/it-IT/products/laser-scanners/autonomous-reality-capture/blk2fly>.

¹⁶⁵ Colwell, R. N. ‘History and Place of Photographic Interpretation’. In *Manual of Photographic Interpretation*, 2nd ed., 33–48. Bethesda: American Society for Photogrammetry and Remote Sensing (ARPRS), 1997.

¹⁶⁶ Gruen, Armin. ‘Everything Moves: The Rapid Changes in Photogrammetry and Remote Sensing’. *Geo-Spatial Information Science*, 2 February 2021, 1–17. <https://doi.org/10.1080/10095020.2020.1868275>.

¹⁶⁷ Aicardi, Irene, Filiberto Chiabrande, Andrea Maria Lingua, and Francesca Noardo. ‘Recent Trends in Cultural Heritage 3D Survey: The Photogrammetric Computer Vision Approach’. *Journal of Cultural Heritage* 32 (Luglio 2018): 257–66. <https://doi.org/10.1016/j.culher.2017.11.006>.

¹⁶⁸ Dhanda, A., M. Reina Ortiz, A. Weigert, A. Paladini, A. Min, M. Gyi, S. Su, S. Fai, and M. Santana Quintero. ‘Recreating Cultural Heritage Environments for VR Using Photogrammetry’. In *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLII-2-W9:305–10. Copernicus GmbH, 2019. <https://doi.org/10.5194/isprs-archives-XLII-2-W9-305-2019>.

¹⁶⁹ Anderson, Eike Falk, David John, Richard Mikulski, Adam Redford, and Mario Romero. ‘Preserving and Presenting Cultural Heritage Using Off-the-Shelf Software’. In *Visual Computing for Cultural Heritage*, edited by Fotis Liarokapis, Athanasios Voulodimos, Nikolaos Doulamis, and Anastasios Doulamis, 423–44. Springer Series on Cultural Computing. Cham: Springer International Publishing, 2020. https://doi.org/10.1007/978-3-030-37191-3_22.

Developments include the incorporation of computer vision algorithms; improved workflows; the relative affordability of good quality cameras, computers, and storage media; and the increased use of Unmanned Aircraft Vehicle (UAV)¹⁷⁰¹⁷¹¹⁷² capable of carrying lightweight cameras; SfM software, convergent or multi-photo systems. The latest developments have seen more fully automated user-friendly software at a lower cost, accessible to a wider range of customers including citizens.

End products, which can be produced automatically or semi-automatically, consist of dense point clouds, triangular meshes, image rendered surfaces (3D models) and orthophotography (image maps).

Vectorisation (feature collection) remains a largely manual process, requiring the photogrammetrist's knowledge and experience to identify and plot features relevant to a project accurately and efficiently. For example, archaeological sites visible as crop marks, architectural features for a building survey or housing and roads for a large-scale topographic map.

Photogrammetry is the technique that in case of emergency, such as war or natural disaster¹⁷³, allows to quickly digitise objects, sites, monuments in 3D, with good results, even with non-professional photos.

In case of emergency, also smartphones can acquire good pictures, for making 3D models later on.

Artificial Intelligence and computer vision can help to solve digitization in such conditions. Recently, a technique called "NeRF in the Wild" or "NeRF-W", developed by a team of researchers at Google, can combine thousands of tourist photos "unstructured and uncontrolled photo collections" into detailed 3D renderings. It consists in an advanced, neural network-driven interpolation that manages to include geometric info about the scene while removing 'transient occluders' like people or cars and corrects changes in lighting¹⁷⁴.

Below is a non-exhaustive list of applications of 3D Scanning and Photogrammetry:

- Topographic mapping (at all scales)
- Urban and route planning
- Asset management
- Vegetation and land use mapping

¹⁷⁰ Campana, Stefano. 'Drones in Archaeology. State-of-the-Art and Future Perspectives'. *Archaeological Prospection* 24, no. 4 (2017): 275–96. <https://doi.org/10.1002/arp.1569>.

¹⁷¹ Vacca, Giuseppina, Andrea Dessì, and Alessandro Sacco. 'The Use of Nadir and Oblique UAV Images for Building Knowledge'. *ISPRS International Journal of Geo-Information* 6, no. 12 (December 2017): 393. <https://doi.org/10.3390/ijgi6120393>.

¹⁷² Tannant, Dwayne D. 'Review of Photogrammetry-Based Techniques for Characterization and Hazard Assessment of Rock Faces'. *International Journal of Georesources and Environment - IJGE (Formerly Int'l J of Geohazards and Environment)* 1, no. 2 (20 July 2015): 76–87. <https://doi.org/10.15273/ijge.2015.02.009>.

¹⁷³ Pezzica, C., A. Piemonte, C. Bleil de Souza, e V. Cutini. «Photogrammetry as a Participatory Recovery Tool after Disasters: A Grounded Framework for Future Guidelines.» *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences XLII-2/W15* (23 agosto 2019): 921–28. <https://doi.org/10.5194/isprs-archives-XLII-2-W15-921-2019>.

¹⁷⁴ Martin-Brualla, Ricardo, Noha Radwan, Mehdi S. M. Sajjadi, Jonathan T. Barron, Alexey Dosovitskiy, e Daniel Duckworth. «NeRF in the Wild: Neural Radiance Fields for Unconstrained Photo Collections», 5 agosto 2020. <https://doi.org/10.48550/arXiv.2008.02268>.

- Change detection
- Length, area and volume measurements
- Architectural survey
- Archaeological survey
- Engineering and building analysis
- 3D modelling and printing
- Animation
- Insurance and archival recording
- Orthophotography
- Flood Mapping
- Emergency response
- Surveillance

3.2.2 Digitisation Workflow

The complex and heterogeneous nature of digitization and 3D modelling in Cultural Heritage has resulted in a wide range workflow and guidelines, including those by ADS¹⁷⁵, Historic England¹⁷⁶, Europe Digital Strategy¹⁷⁷. Numerous projects and documents have produced guidelines and good practices including European projects such as 3D COFORM¹⁷⁸, 3D ICONS¹⁷⁹, CARARE¹⁸⁰, INCEPTION¹⁸¹ and Share3D¹⁸² to name a few. The London Charter¹⁸³ is an internationally recognized set of principles that aim to ensure methodological rigour of computer-based visualisation as a means of researching and communicating cultural heritage. The London Charter is the theoretical framework of The Seville Principles¹⁸⁴ that marks the best practices in computer based archaeological visualisation.

Despite these efforts to define principles and guidelines in 3D reconstruction and visualisation, we are still far from their full application across the Cultural Heritage field. In particular, the development of a common accepted workflow is lacking. Although there is no universal workflow for capturing cultural resources in 3D, there are similarities among the different methods and workflows¹⁸⁵:

- preparation,
- data collection,
- data processing and
- publication (Figure 3. 5).

¹⁷⁵ 'Archaeology Data Service / Digital Antiquity. Guides to Good Practice'. n.d. Accessed 22 April 2021. <https://guides.archaeologydataservice.ac.uk/g2gp/GuideAim>.

¹⁷⁶ 'Surveying and Recording Heritage'. n.d. Historic England. Accessed 21 October 2021. <https://historicengland.org.uk/advice/technical-advice/recording-heritage/>

¹⁷⁷ 'Basic Principles and Tips for 3D Digitisation of Cultural Heritage'. 2020. 12 August 2020. <https://digital-strategy.ec.europa.eu/en/library/basic-principles-and-tips-3d-digitisation-cultural-heritage>

¹⁷⁸ '3D-COFORM: Tools and Expertise for 3D Collection Formation'. Accessed 28 October 2021. <https://cordis.europa.eu/project/id/231809/it>.

¹⁷⁹ '3D-ICONS: 3D Digitisation of Icons of European Architectural and Archaeological Heritage'. Accessed 8 April 2021. <http://3dicons-project.eu/>.

¹⁸⁰ 'CARARE'. Accessed 19 February 2022. <https://www.carare.eu/it/>.

¹⁸¹ 'Inclusive Cultural Heritage in Europe through 3D Semantic Modelling (INCEPTION)'. <https://cordis.europa.eu/project/id/665220/it>.

¹⁸² 'Share 3D Guidelines'. Accessed 18 February 2022. <https://carare.gitbook.io/share-3d-guidelines/>.

¹⁸³ 'London Charter'. Accessed 22 March 2021. <https://www.london-charter.org/>.

¹⁸⁴ Lopez-Mencheró, Victor Manuel, and Alfredo Grande. 2011. 'The Principles of the Seville Charter'. In, 2–6. Prague, Czech Republic. <https://www.cipaheritagedocumentation.org/wp-content/uploads/2018/12/L%C3%B3pez-Mencheró-Grande-The-principles-of-the-Seville-Charter.pdf>.

¹⁸⁵ Pfarr-Harfst, Mieke. 2016. 'Typical Workflows, Documentation Approaches and Principles of 3D Digital Reconstruction of Cultural Heritage'. In *3D Research Challenges in Cultural Heritage II*, edited by Sander Münster, Mieke Pfarr-Harfst, Piotr Kuroczyński, and Marinos Ioannides, 32–46. Lecture Notes in Computer Science. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-47647-6_2.

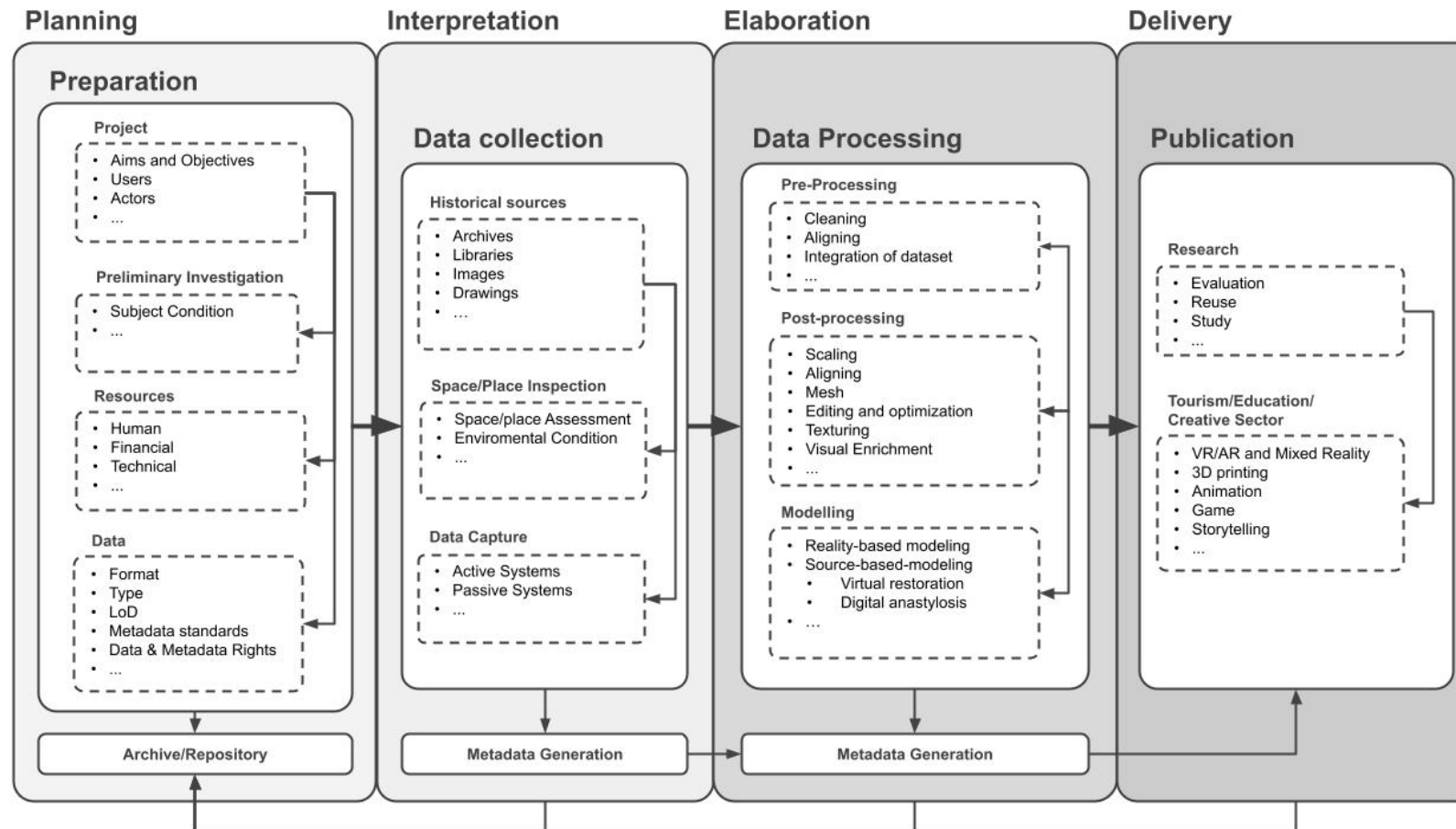


Figure 3.4 - Example of digital workflow

(N. Amico, and A. Felicetti. 'Ontological Entities for Planning and Describing Cultural Heritage 3D Models Creation'. ArXiv, 2021.)

The planning phase is crucial to identify aims and objectives of digitization, to address all the human and financial resources, technical infrastructure etc., essential to achieve the desired results.

This stage determines furthermore the creation of a repository, with the definition of the file naming, file formats, versioning, metadata and paradata, as well as storage and backup strategies. The Data Management Plan usually contains all this information along with data accessibility, data license for re-use and so forth.

The data collecting phase involves the quantitative and qualitative data retrieval. Beyond the creation of a 3D model a large amount of documentation is collected, coming from different research fields. Textual and iconographic sources must be analysed and interpreted before starting the data capture and 3D modelling.

The data capture and the selection of devices and techniques start based on information obtained from the documentation and from the inspection of the space/place where the digitization will be performed.

Within the reality-based modelling phase (after digitization of the object and before starting 3D modelling), the first step of data processing involves the 3D raw data errors and noise removal (pre-processing) and data registration into a unique reference system to generate a single point cloud of the surveyed scene or object.

Data registration refers also to the integration between different datasets created during the data collection (e.g., photogrammetric and laser scanner data). For each dataset (created with diverse devices or techniques) different processing procedures are performed (e.g., cleaning the range maps from noisy data) to avoid redundant and noisy outputs. The results of the registration process are used as a point cloud to generate different outcomes and may be processed with different software to generate different outcomes.

After registration, the point cloud is converted into a polygonal model (mesh). The accuracy of the outcome is affected by the parameters defined by the operator during data capture and also during the processing phase.

Visual enrichment is the final step of the modelling workflow and may be used in producing either a photorealistic 3D model or a virtual reconstruction. This step is the result procedure that ends with a scientific validation of the outcome¹⁸⁶.

Source Based Models (SBM) are visually enriched models which rely on the analysis and interpretation of documentation and historical records available in archives and libraries to produce a virtual reconstruction.

¹⁸⁶ Alaoui M'Darhri, Anas, Vincent Baillet, Bastien Bourineau, Alessio Calantropio, Gabriella Carpentiero, Medhi Chayani, Livio De Luca, et al. *Share - Publish - Store - Preserve. Methodologies, Tools and Challenges for 3D Use in Social Sciences and Humanities*. Edited by PARTHENOS. Marseille, France: PARTHENOS and consortium 3D-SHS and LIA MAP-ISTI, 2019. <https://hal.archives-ouvertes.fr/hal-02155055>.

Source Based Models (SBM) are visually enriched models which rely on the analysis and interpretation of documentation and historical records available in archives and libraries to produce a virtual reconstruction.

The two approaches (reality-based and source-based) may be carried out on the same raw 3D data, producing multiple 3D models for different purposes. For example, to develop an interpretative study (e.g., reconstructing the CH asset at different moments in its history) or a comparative analysis of the data collected from the reality and from historical and iconographic documents¹⁸⁷.

¹⁸⁷ Apollonio, Fabrizio I. 2018. 'The Production of 3D Digital Archives and the Methodologies for Digitally Supporting Research in Architectural and Urban Cultural Heritage'. In *Digital Research and Education in Architectural Heritage*, edited by Sander Münster, Kristina Friedrichs, Florian Niebling, and Agnieszka Seidel-Grzesińska, 139–58. Communications in Computer and Information Science. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-76992-9_9.

3.2.3 File Formats and Metadata Standard

Definition of Metadata

'Metadata' refers to 'data about data'. Metadata records include a set of attributes used to describe context-specific resources (data), often according to metadata standards which are context or discipline-specific. One of the purposes of creating metadata is to enable resource discovery. Discovery is more difficult in contexts where there are large numbers of digital collections and archives having metadata created by organisations in different countries and operating environments, especially for portals where the aim is to achieve retrieval across multiple collections.

Metadata harvesting enables metadata to be aggregated from multiple collections into a common repository and thus enabling information retrieval across those collections. To facilitate metadata harvesting protocols have been developed to enable metadata retrieval from multiple repositories and its aggregation. The Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH)¹⁸⁸, is widely used nowadays to facilitate remote harvesting of metadata from various archives. The process results in a registry or repository of metadata records aggregated from multiple archives or collections which is used to develop services (e.g., a portal).

Metadata Interoperability

Metadata that has been created by different organisations using different systems and in different languages can lack semantic interoperability which is a barrier to resource discovery and information retrieval. The adoption of common metadata models and data standards for describing digital resources is central to achieving interoperability. This requires agreement on the elements of the metadata records and how to complete them, including for example the use of Linked Open Data (e.g., internationally recognised controlled vocabularies) to ensure consistency across different metadata collections.

There are various metadata standards in use in the cultural heritage domain. Metadata standards for 3D have been reviewed by various projects including 3D COFORM, 3D ICONS, CARARE, ARIADNEplus¹⁸⁹ and by the Europeana task force on 3D content¹⁹⁰. The task force report discusses the aspects of metadata useful to record for 3D projects when taking into account archiving, discovery and reuse of the various datasets produced by 3D projects. As well as end-products (i.e., 3D models in various formats for use in printing, online, offline or in applications), it is important to create metadata to describe the 'raw' source data from which 3D models are derived. It is also important to document the project, intellectual and technical processes going into data capture, processing, and model creation).

¹⁸⁸ 'Open Archives Initiative Protocol for Metadata Harvesting'. Accessed 17 February 2022.

<http://www.openarchives.org/pmh/>.

¹⁸⁹ ARIADNE PLUS. 'ARIADNEplus'. Accessed 11 March 2022. <https://ariadne-infrastructure.eu/>.

¹⁹⁰ Europeana Pro. '3D Content in Europeana'. Accessed 17 February 2022. <https://pro.europeana.eu/project/3d-content-in-europeana>.

File Formats

3D formats have been developed for different applications and various different fields of research and use¹⁹¹. They include:

- Point cloud captures (sets of data points in three-dimensional space) of buildings, archaeological sites, and historical structures.
- Surface models and scenes created for visual effects, video games, and animation.
- Models for 3D printed objects.
- Immersive technology files or systems.
- Digital artworks.

There are literally **hundreds of 3D file formats** in use in 3D games, printing, computer-aided design, manufacturing, academia, engineering and more. These formats can be licensed or free, proprietary, or open source. Many formats are industry standards and have been widely adopted for use in application environments (e.g., CAD and BIM).

It is important to understand the difference between proprietary and open formats. Depending on the audience for the content, proprietary 3D file formats may be an excellent investment particularly where they have become industry standards and are widely supported. However, proprietary formats can limit content portability to other platforms and may increase costs. Some formats are more widely accessible than others, i.e. they are supported in a large number of software platforms.

Vendor-neutral formats have been developed to solve interoperability issues and, while crucial in a collaborative environment, they are subject to some level of detail loss when used as intermediate formats between two proprietary formats¹⁹².

When choosing the right format for the project aim for well supported industry standards. This will make it easier to edit, read, and get the most out of your 3D models over time.

3D file formats are used to store information about 3D models usually as plain text or binary data.

The four key features of a 3D file include:

- geometry (shape),
- appearance (colour, texture, and/or materials),
- scene (position of camera, light sources, or other objects) and
- animations (3D object movement, including skeletal information, rigging and morphs).

Lists of formats used in CH domain were provided by Europeana task force, which recommended a set of industry standard formats for cultural heritage¹⁹³; ADS; the Digital

¹⁹¹ 'Preserving 3D: Artefactual Systems and the Digital Preservation Coalition'. Data Type Guidance. Data Types Series. Digital Preservation Coalition, 26 July 2021. <https://doi.org/10.7207/twgn21-14>.

¹⁹² *Ibidem*

¹⁹³ 'Basic Principles and Tips for 3D Digitisation of Cultural Heritage'. Accessed 9 March 2022. <https://digital-strategy.ec.europa.eu/en/library/basic-principles-and-tips-3d-digitisation-cultural-heritage>.

Preservation Coalition¹⁹⁴; Community Standards for 3D Data Preservation¹⁹⁵. The Library of Congress (US) has recently started evaluating sustainability for a growing list of 3D file formats¹⁹⁶. An overview of the latest and extensive list of current formats, could be found in Edutech Wiki¹⁹⁷ and File Format Guide¹⁹⁸.

The work of the 3D Technical Specification Group (TSG)¹⁹⁹, which is developing a new 3D format, is interesting. This focuses on:

- annotate 3D media of various types into a shared canvas space
- annotate 3D media with commentary
- combine 3D media with images and AV content within a shared space
- specify the presentation (placement, orientation, and contextualization) of 3D media

Data exchange formats have been designed to enable the transfer of information between different software.

Most software packages export and import diverse file format, also simple text files containing x,y,z coordinates, intensity data and colour (RGB) information.

Recently two widely used formats that have originated independently of manufacturers that provide an exchange service for point cloud data and also retain more information than the simple text format.

LAS format that has been developed by the American Society for Photogrammetry and Remote Sensing (ASPRS), designed primarily for aerial lidar data, it can also be used for terrestrial scans.

The other format, known as E57, has been developed by the American Society for Testing and Materials (ASTM). This is a more universal and flexible system than LAS and allows for the inclusion of, for example, image data, gridded data and different coordinate systems.

Below is a list of the most common data exchange formats.

¹⁹⁴ 'Preserving 3D: Artefactual Systems and the Digital Preservation Coalition'. Data Type Guidance. Data Types Series. Digital Preservation Coalition, 26 July 2021. <https://doi.org/10.7207/twgn21-14>.

¹⁹⁵ 'CS3DP – Community Standards for 3D Data Preservation'. Accessed 10 March 2022. <https://cs3dp.org/>.

¹⁹⁶ 'Format Descriptions for Design and 3D'. Webpage. Accessed 15 March 2022.

https://www.loc.gov/preservation/digital/formats/fdd/design3D_fdd.shtml.

¹⁹⁷ '3D File Format - EduTech Wiki'. Accessed 9 March 2022. http://edutechwiki.unige.ch/en/3D_file_format.

¹⁹⁸ Iqbal, Kashif. 'Learn about 3D File Formats and APIs That Can Open and Create 3D Files'. Accessed 10 March 2022. <https://docs.fileformat.com/3d/>.

¹⁹⁹ 'IIIF 3D Technical Specification Group'. Accessed 14 March 2022. <https://iiif.io/community/groups/3d/tsg/>.

Table 3.2 - File formats

File Formats Name	Extension	Characteristics
Wavefront OBJ	.obj	OBJ is a file format developed by Wavefront Technologies and used by multiple 3D technology software applications to represent 3D geometry as ASCII text. This is a popular format for storing 3D mesh data, but it does not support skeletons, skinning, or animation data (CLIR, 2019, p. 126). This format is used for storage and exchange between systems.
Polygon File Format	.ply	The Polygon File Format (PLY) was developed by Stanford University in 1994 and has been in use since then. PLY describes objects as polygonal models or point clouds.
COLLADA	.dae	COLLADA (COLLABorative Design Activity), also referred to as DAE, is an XML-based 3D file format used in interactive applications (e.g., animation and game engines) (CLIR, 2019, p. 126). This open format is standardised through ISO (ISO, 2019). COLLADA supports some metadata fields, can contain scale information, and can be read and exported by a number of 3D applications (CLIR, 2019, p.126).
ASTM E57 3D file format, Version 1.0	.e57	E57 is a non-proprietary format file specified by the ASTM, an international standards organisation, and it is documented in the ASTM E2807 standard. It is used as a storage format for point clouds, as well as for images and metadata produced by laser scanners and other 3D imaging systems. E57 is partially XML-based and can be extended to support new hardware or software environments.
LAS	.las .laz	The LAS file is intended to contain lidar (or other) point cloud data records. The data will generally be put into this format from software (e.g., provided by hardware vendors), which combines GPS, IMU, and laser pulse range data to produce X, Y, and Z point data. The intention of the data format is to provide an open format that allows different hardware and software tools to output data in a common format.
Extensible 3D (X3D)	.x3d .x3dv .x3db .x3dz .x3dbz .x3dvz	X3D is a family of file formats that evolved from the Virtual Reality Modelling Language (VRML). X3D is developed and maintained by the Web 3D consortium, which describes it as 'a royalty-free open standard for publishing, viewing, printing and archiving interactive 3D models on the Web' (Web 3D Consortium, 2020). X3D files include an associated run-time architecture for communicating the scenes and objects.

File Formats Name	Extension	Characteristics
STereoLithography	.stl	The STereoLithography (STL) file format is used to describe the surface of an object, with the data representing objects in the form of triangular meshes. STL is an openly documented proprietary format. Its developer, 3D Systems, encourages its use in multiple platforms. STL is a de facto industry standard for 3D printing and is widely supported as an export format in 3D modelling software.
GL Transmission Format	.gltf .glb .	glTF™ is a royalty-free specification for the efficient transmission and loading of 3D scenes and models by engines and applications. glTF minimises the size of 3D assets, and the runtime processing needed to unpack and use them. It was adopted for the efficient transmission and loading of 3D scenes and models by applications.
Industry Foundation Classes (IFC)	.ifc	IFC is a platform-neutral, open ISO 16739-1:2018 standard file format specification for the exchange of BIM data (ISO, 2018). IFC files are plain-text files, which may optionally be encoded in XML and/or compressed. IFC has wide support in modern BIM systems such as Revit and ArchiCAD. ifcOpenShell is an open-source tool for working with IFC.
Filmbox (FBX)	.fbx	FBX is now one of the main 3D exchange formats as used by many 3D tools. FBX is available in both binary and ASCII file format. The format was established to provide interoperability between digital content creation applications. There are many tools available for conversion from/to FBX file format.
Standard for the Exchange of Product Model Data (STEP)	.stp .step .p21	A 'STEP-file' is a platform-neutral, open ISO 10303 standard exchange format for product data, commonly used by designers to exchange CAD data between systems or as an archival format. STEP-files are plain-text files 'conforming to a schema in the EXPRESS data modelling language (ISO 10303-11)'. The STEP standard defines several 'application protocols' (APs) which are like file format versions for particular product data domains (ISO 10303-242, 2020).

File Formats Name	Extension	Characteristics
<p>Nexus*</p> <p><i>*Nexus is developed for the 3DHOP platform.</i></p>	.nxs	Nexus is an open-source multiresolution format developed by CNR-ISTI. The Nexus software package includes a format specification alongside tools for the conversion of .ply files to the multiresolution format and a visualisation library aimed at the interactive rendering of very large surface models. The format is used by 3DHOP, an open-source platform for web-based visualisation of large 3D meshes ²⁰⁰ .

3.2.4 Licensing and Intellectual Property Rights

The copyright status of 3D models from either laser scanning or photogrammetry may be layered with differing rights held, for example in original source materials, the captured data, processed data and any media incorporated into the end product²⁰¹. It is important to note that historic buildings and archaeological monuments of local, national and international importance may be in either private or public ownership. Organisations wishing to digitise monuments need to negotiate with the landowner to gain access for digitisation and the agreement that is reached may be reflected in the IPR and licencing of the results. In some countries the law allows for photographs to be taken from public land of monuments in private ownership; however, in several European countries there is no such right. The landowner (in some cases including the State) may claim the IPR of images of monuments on their land.

There is literature on 3D printing and intellectual property law²⁰²²⁰³. But studies have revealed there is a lack of practical guidance on copyright rules throughout the EU on legislation and jurisprudence. There is a need for guidance on which reproduction media might gain new intellectual property rights, from scans to photography to 3D data²⁰⁴. There has been analysis of copyright implications of three purposes of digitisation: identical copies, restoration, and creative purposes²⁰⁵.

²⁰⁰ 'NEXUS'. Accessed 9 March 2021. <http://vcg.isti.cnr.it/nexus/>.

²⁰¹ Spearman, Mike; Emslie, Sharyn; O'Sullivan, Paul 3D ICONS D7.2 Report on IPR Scheme, 2013: <https://zenodo.org/record/1311793>

²⁰² Thomas, Sean. '3D Printing and Beyond: Intellectual Property and Regulation, by Dinusha Mendis, Mark Lemley and Matthew Rimmer (Eds)'. *International Journal of Law and Information Technology* 28, no. 2 (1 March 2020): 185–88. <https://doi.org/10.1093/ijlit/eaaa007>.

²⁰³ Centre of Digital Entertainment and the National Museums Liverpool, UK, and David Gillespie. 'Copyright and Its Implications for 3D Created Datasets for Cultural Heritage Institutions'. *International Journal of Culture and History (EJournal)* 1, no. 2 (2015): 135–40. <https://doi.org/10.18178/ijch.2015.1.2.025>.

²⁰⁴ Wallace, Andrea, and Ellen Euler. 'Revisiting Access to Cultural Heritage in the Public Domain: EU and International Developments'. *IIC - International Review of Intellectual Property and Competition Law* 51, no. 7 (1 September 2020): 823–55. <https://doi.org/10.1007/s40319-020-00961-8>.

²⁰⁵ Oruç, Pinar. '3D Digitisation of Cultural Heritage: Copyright Implications of the Methods, Purposes and Collaboration'. *JIPITEC* 11, no. 2 (27 August 2020). <https://www.jipitec.eu/issues/jipitec-11-2-2020/5096>.

The complexity of the rights in 3D content can raise issues related to licencing, sharing and re-use. The 3D ICONS project recommended tackling rights early in the 3D project planning workflow.

In the context of Europeana the IPR in metadata and the digital content (described by the metadata) are treated separately. Europeana aggregates and releases its metadata under a CC0 licence. It calls on its data partners to clear the rights in the digital content being shared and for this to be made available in Europeana under one of 12 standard licences²⁰⁶. Europeana encourages Open Licencing of content to allow for re-use. It has published a Public Domain Charter, which promotes three important principles²⁰⁷:

- Copyright is temporary. It exists during the lifetime of the creator of a work and continues for a period after their death. The period varies from country to country and according to media type, but at some point, copyright expires.
- Works that are in the Public Domain in analogue form should stay in the Public Domain once digitised.
- Users of a digital copy of a Public Domain work should be free to re-use the work.

It is worth noting that The Public Domain Mark is used for works that are out of copyright worldwide. Creative Commons 0 dedication is used by the Copyright holder to waive their rights in the content and to make it available without restrictions on re-use. This means that anyone can use the data for any purpose without any restrictions²⁰⁸.

Many institutions have progressive open access policies, but some are still reluctant to release digital content under open licences or to allow the public to make their own digital replicas of objects. For this reason, digitization workflows should involve active communication with stakeholders, including discussions about copyright and licencing of the resultant content.

Sketchfab, one of the most popular sites for 3D models, has also launched an initiative for cultural heritage models in the Public Domain²⁰⁹.

²⁰⁶ Europeana, Available rights statements: <https://pro.europeana.eu/page/available-rights-statements>

²⁰⁷ Europeana Pro. 'The Europeana Public Domain Charter'. Accessed 21 March 2022.

<https://pro.europeana.eu/post/the-europeana-public-domain-charter>.

²⁰⁸ 'Creative Commons — CC0 1.0 Universal'. Accessed 1 March 2022.

<https://creativecommons.org/publicdomain/zero/1.0/>.

²⁰⁹ Sketchfab Community Blog. '1 Year of Public Domain 3D on Sketchfab', 25 February 2021.

<https://sketchfab.com/blogs/community/1-year-of-public-domain-3d-on-sketchfab/>.

3.2.5 Guidelines and Best Practises

DCHE Basic Principles and Tips for 3D Digitisation of Cultural Heritage

The European Commission's expert group on Digital Cultural Heritage and Europeana have published principles and guidelines for cultural heritage professionals and institutions, and other custodians of tangible cultural heritage, including local and regional authorities, to help them in achieving the best results in 3D digitisation projects.

'Basic Principles and Tips for 3D Digitisation of Cultural Heritage', 12 August 2020.
<https://digital-strategy.ec.europa.eu/en/library/basic-principles-and-tips-3d-digitisation-cultural-heritage>.

Historic England Technical advice

Historic England produces technical advice on how to survey historic places to the best standard possible. Technical advice is currently available on the following topics: metric survey specifications for cultural heritage, measuring and sensing, Building Information Modelling (BIM) for heritage, Landscape survey.

<https://historicengland.org.uk/advice/technical-advice/recording-heritage/>

Archaeology Data Service/Digital Antiquity Guides to Good Practice

The Archaeology Data Service and Digital Antiquity publishes a series of Guides to Good Practice providing information on the best way to create, manage, and document digital material produced during the course of archaeological projects with the aim of improving digital archiving. Various topics are covered including Aerial Survey, UAV Survey, Laser Scanning, Close-Range Photogrammetry, GIS, CAD and 3D models.

Guide to Good Practice. Archaeology Data Service / Digital Antiquity: Guides to Good Practice. <https://guides.archaeologydataservice.ac.uk/g2gp/GuideAim>.

Getty Conservation Institute Recording, Documentation, and Information Management for the Conservation of Heritage Places: Guiding Principles.

This publication provides an overview of the principles and guidelines for documenting cultural heritage places. It is aimed at heritage managers and decision makers with selected bibliography and glossary. It acknowledges the work by international organisations such as ICOMOS and the World Heritage Centre in this field and adds to their efforts by offering arguments and a framework for integrating documentation into the conservation process.

Letellier, Robin, Werner Schmid, and François LeBlanc. *Recording, Documentation, and Information Management for the Conservation of Heritage Places: Guiding Principles*. Los Angeles: Getty Conservation Institute, 2007.

https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/guiding_principles.pdf.

Bentkowska-Kafel & MacDonald, Digital Techniques for Documenting and Preserving Cultural Heritage

This guide introduces 2D+ and 3D digitization technique and links them to techniques utilised in different digitization case studies. The document analyses techniques used for

particular collections, including pottery and wall paintings with short introductions to different methods: Laser Scanning, Photogrammetry, RTI, and X-Ray.

Bentkowska-Kafel, A., & MacDonald, L. (Eds.). (2018). Digital techniques for documenting and preserving cultural heritage. ISD LLC. <https://www.jstor.org/stable/j.ctt1xp3w16>.

InDICES Project Guidelines for CHIs Digital Transformation

This document presents digital transformation guidelines for cultural heritage institutions centred around four themes: Digital Trends & Participatory Culture; IPR for Cultural Heritage; Strategic Skills, Collaborations and organisation growth; and Approaching Innovation and Digital Strategies.

Truyen, Fred, and Rasa Bočytė. 'Deliverable 3.2: Guidelines for CHIs Digital Transformation'. Zenodo, 15 August 2021. <https://doi.org/10.5281/zenodo.5666910>.

Engelberg Center GLAM3D project

GLAM3D is a project of the Engelberg Center on Innovation Law & Policy at NYU Law and an online publication designed to offer a guide to Open Access programmes for 3D digitisation of cultural resources institutions. This guide covers the process of planning an Open Access 3D digital content creation program and for the content's storage, preservation and access.

<https://glam3d.org/introduction.html>

Harvard University Building for Tomorrow

Building for Tomorrow is a white paper that includes recommendations for designers, architectural archivists, digital preservationists, and software vendors for effective long-term preservation of digital design files, all responding to intellectual property issues in collecting and archiving design records.

Whiteside, Ann, Stephen Abrams, Sara Rogers, Kathlyn Kao, and Hanan Kataw. 'Building for Tomorrow White Paper'. Institute of Museum and Library Services (IMLS), 16 June 2021. <https://projects.iq.harvard.edu/buildingtomorrow/home>.

3.3 Conservation and Preservation

In this section we will report techniques that focus on safeguarding the material structure of cultural objects and, in this way, play a role in conservation and preservation of cultural heritage assets.

For the sake of simplicity, techniques for documentation and remote sensing, which can also be applied to preservation and conservation of cultural objects are not dealt with here, as they have been already discussed above (see Paragraph 3.2).

The techniques discussed in this section allow, for example, for

- monitoring the structural health of buildings and monuments by measuring changes over time in the material and geometric properties of buildings and monuments,
- locating sub-soil features, by measuring physical phenomena of the earth, for example to assess hydrogeological risks,
- in-depth analysis of the constituent materials of a CH asset and possible degradation products.

Technology also provides protection and consolidation materials and nanomaterials able to prevent or minimise deterioration and damage of the constituents of cultural objects; however, this part has not yet been covered in this document.

3.3.1 Technology for Conservation and Preservation

This section reports on the state of the art of techniques for preservation and conservation of heritage assets.

To facilitate the reader, the techniques have been organised into categories and sub-categories, which are introduced by a brief description.

The investigation reported hereafter is a preliminary work and is still ongoing. It should be considered as a starting point and, notwithstanding the huge work done so far, not exhaustive. In particular, all those techniques, although promising, whose use has not been yet consolidated in the Cultural Heritage conservation field, have not been included in this review. As the domain is continuously improving with the introduction of new technologies, it will be necessary to monitor new applications, including them in the final version of this report. The application fields reported are limited to conservation/preservation issues, which are the focus of this section.

Case studies and best practices will be included in the project Knowledge Base where they can be more extensively described and more easily retrieved by users. Nevertheless, the indications included in the following tables already give an overall panorama of the vast domain of the analytical techniques used in conservation and restoration.

In-situ sensing

In-situ sensing consists in measuring local physical properties by instrumentation directly on the subject of interest. These methods are especially useful for analysing hazards and vulnerability since they also allow the investigation of sub-surface properties.

This category includes:

- Geophysical survey techniques used to locate sub-surface features by measuring physical phenomena such as the propagation of seismic waves, magnetism, soil resistivity, or electromagnetic waves. These techniques can be useful for risk assessment.
- Local monitoring sensors, which allow for structural health monitoring to gain knowledge useful for analysis of hazards/vulnerability.
- Meteorological/oceanographic sensors useful for monitoring hydro-meteorological risks.

The techniques are listed in table 3.3, including a brief description with application fields and a link (where available) to a controlled vocabulary term (Getty AAT or other). All these techniques are non-invasive and non-destructive.

Table 3.3 - In-situ sensing technologies

Technology	Brief description and use	Definition
Seismic Methods	A geophysical survey technique where a physical disturbance is produced in the soil (e.g. a small blast) originating elastic waves of variable speed which may be sensed through direct or reflected propagation to detect subsurface features.	No result
Magnetic Propection	A geophysical survey technique involving the measurement of distortions of the earth's normal magnetic field; used in archaeology specially to locate sub-surface features such as buried remains. Useful for subsoil surveys for risk assessment.	http://vocab.getty.edu/page/aat/300226146

Technology	Brief description and use	Definition
ERT Electrical Resistivity Tomography	<p>A geophysical survey technique involving the measurement of lateral and vertical variations in resistivity of the earth to an electric current passing between metal electrodes. Used in archaeology for 3D reconstruction of subsurface features.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Useful for subsoil surveys, to identify soil lithology composition, presence of groundwater, fracture zones, variations in soil salinity, used for landslides or seismic hazard assessment.</div>	http://vocab.getty.edu/page/aat/300380510
GPR (Ground Penetrating Radar)	<p>A geophysical survey technique based on radar allowing for accurate measurement of the depth of sub-surface features.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Useful for subsoil surveys and for detecting cracks and inhomogeneities in the inner structure of masonry structures (through a microwave tomographic imaging algorithm).</div>	http://vocab.getty.edu/page/aat/300252498
HR Holographic Radar	<p>Exploits the interference between the reference signal and the backscattered field to obtain the image of the geometrical features of the hidden object.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Useful for visualisation of the internal structure of artistic and architectural works.</div>	No result
Accelerometer	<p>Electromechanical devices measuring acceleration forces, by means of capacitive plates or piezoelectric materials.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Used for real-time vibration monitoring.</div>	http://vocab.getty.edu/page/aat/300195759 https://www.sti.nasa.gov/NASA/60510
Inclinometer/tilt sensor/clinometer/slope sensor	<p>Measures the angle of an object with respect to the direction of the force of gravity.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Used to monitor long-term inclination drifts.</div>	http://vocab.getty.edu/page/aat/300198639

Technology	Brief description and use	Definition
LVTD (Linear Variable Displacement Transducer) sensor	Measures the crack amplitude and its variation over time. <div style="border: 1px solid black; padding: 2px; width: fit-content;">Used to monitor crack amplitude.</div>	No result
Thermocouple	Temperature sensing and measuring device.	http://vocab.getty.edu/page/aat/300434625
Meteorological sensors	Sensors measuring meteorological parameters, such as: wind speed and wind direction sensors, rain collectors, temperature and humidity sensors, UV and solar sensors. <div style="border: 1px solid black; padding: 2px; width: fit-content;">Useful for site monitoring and risk assessment analysis.</div>	http://vocab.getty.edu/page/aat/300195712
Oceanographical sensors	Sensors measuring water level and sea temperature. <div style="border: 1px solid black; padding: 2px; width: fit-content;">Used for monitoring and risk assessment analysis of coastal cultural heritage.</div>	No result
Fibre Bragg Grating (FBG) Sensors	Sensors created by UV imprinting of a grating pattern onto an optical fibre core, which turns the fibre into a wavelength selective mirror, that is a narrow band filter. The reflected wavelength varies by applying strain or by varying the temperature. <div style="border: 1px solid black; padding: 2px; width: fit-content;">Used as a strain and temperature sensor.</div>	No result
Photometric techniques	Consist in the characterisation of light sources in terms of illuminance (lx), light intensity (cd) and luminance (cd/m ²) and are made by illuminometers and spectroradiometers. <div style="border: 1px solid black; padding: 2px; width: fit-content;">Used to characterise the emission spectrum of light sources, which must consider both the conservation needs and the visual comfort of visitors.</div>	http://vocab.getty.edu/page/aat/300379446

Material characterisation

A detailed characterisation of the material of which a cultural object is made, and its conservation state is often mandatory to assess the best procedures or treatments for preservation or conservation. Material characterisation can also help to identify degradation processes.

There are plenty of invasive and non-invasive techniques for analysing materials and their physical properties. These have been split into different categories taking into account their features.

Mechanical, thermo-physical characterisation

The measurement of mechanical and thermo-physical properties is useful to assess the conservation state of masonry and to test materials used for conservation treatments.

In some cases, it can be partially destructive.

The techniques are listed in table 3.4, which include: a brief description and application fields, availability for in situ instrumentation, invasiveness-destructiveness²¹⁰ (yes/no), a link (where available) to a controlled vocabulary term (Getty AAT or other), a normative reference (EN, UNI, BS, ASTM or other) for the techniques derived from building engineering or quality control with standard reference parameters.

When the terms in-situ, non-invasive, non-destructive are used, we intend that it is possible to perform analyses in that way and not that the technique is always performed in that way. Many of the in-situ techniques are also available ex-situ with instrumentation which may require sampling. In this report we have given the less invasive option (for example, when we report “in-situ” we mean that portable instrumentation is available, but it is also possible that the same measurement can be performed also in the lab with more performing fixed instrumentation).

²¹⁰ Invasive techniques are here meant as those techniques that need sampling, while destructive techniques as the invasive techniques in which the sample is destroyed. E.g. SEM is an invasive, non-destructive technique, while Gas chromatography is both invasive and destructive. However, at present, the definitions of invasive and destructive are still matter of discussion.

Table 3.4 - Mechanical, thermo-physical characterisation technologies

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Pachometer Test for rebar location	Measures the magnetic field near the concrete surface to locate metal rebars in reinforced concrete elements.	BS 1881:204	yes	yes	yes
Shmidt hammer test on concrete	Measures the hardness of concrete by measuring the rebound of a spring-loaded mass impacting on the surface of the sample. Used to test concrete buildings.	No result ASTM C805 CSN EN 12504-2 UNI EN 12504-2:2012	yes	yes (the surface needs to be polished; a small mark can be visible after the test)	yes
Ultrasonic test/Ultrasonic tomography	Measures the speed of ultrasonic waves, allowing for the detection of cracks and estimation of material strength. Through a dense configuration of transmitters and receivers, ultrasound tomography images can be acquired. Used to test masonry.	No result UNI EN 12504-4	yes	yes	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Flat jack test for masonry	Partially destructive: insertion of flat jacks within the masonry to measure the stress, deformability, and strength of the masonry. Used to test masonry.	ASTM D4729	yes	no	no
Instrumented hammer test/sonic test	Uses an instrumented hammer to apply a measurable dynamic impulse to a structural element, generating a sonic wave, the propagation of which is influenced by the geometry and the physical-mechanical characteristics of the material crossed. An accelerometer measures the response at different locations. Used to detect voids and cracks in masonry.	No result	yes	yes	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Rheometry	<p>Measures and quantifies the rheological parameters of fluid materials. Rheometers allow for understanding the flow/deformation properties of a material by measuring the stress-strain relationship.</p> <p>Used to test mortars/concrete for conservation treatments.</p>	http://vocab.getty.edu/page/aat/300429960	no	yes	yes
Drilling Resistance Measurement	<p>Evaluates the drilling resistance by measuring the drilling force versus depth.</p> <p>Used to evaluate the state of conservation of wood, stone, and clay materials, as well as to determine the effectiveness of conservation treatments.</p>	http://vocab.getty.edu/page/aat/300386431	yes	no	no
Compression test	<p>Evaluates the compressive behaviour of materials by measuring stress vs strain.</p> <p>Used to test masonry.</p>	http://vocab.getty.edu/page/aat/300220420	no	no	no

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Flexural tests	<p>Determines the resistance to flexing or stiffness of a material by measuring the force required to bend a beam under a specified loading condition. Typically, three-point bend test are performed.</p> <p>It allows determining:</p> <ul style="list-style-type: none"> • Flexural Strength • Maximum Flexural Stress • Maximum Strain • Stress at Strain • Flexural Secant Modulus of Elasticity • Flexural Chord Modulus of Elasticity • Failure Mode and Location <p>Used to test masonry.</p>	<p>http://vocab.getty.edu/page/aat/300379917</p> <p>The regulation reference (ASTM D790/ ISO 178) is for application on plastic material</p>	no	no	no

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Tensile test/tension testing	<p>A test in which a sample is subjected to a controlled tension until failure. This test measures directly: ultimate tensile strength, breaking strength, maximum elongation, and reduction in area, but permits to determine also: Young's modulus, Poisson's ratio, yield strength, and strain-hardening characteristics.</p> <p>Used to test masonry.</p>	<p>http://vocab.getty.edu/page/aat/300056206</p> <p>Tests for each material are ruled by specific regulations</p>	no	no	no
Ductility test	<p>Compressive tests with displacement control on samples used to determine the behaviour after the peak strength value.</p> <p>Used to test masonry.</p>	<p>http://vocab.getty.edu/page/aat/300056195</p> <p>Tests for each material are ruled by specific regulations</p>	no	no	no
Dynamic Mechanical Analysis	<p>Measures CTE (Coefficient of Thermal Expansion), by applying a sinusoidal force at a given temperature.</p> <p>Used to test mortars for conservation treatments.</p>	<p>http://vocab.getty.edu/page/aat/300391244</p>	no	no	no

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Slump/flow tests for workability	<p>Determines the workability or consistency of concrete composites. A cone mould is filled with fresh material and then is lifted vertically. The test measures the consistency of composites through the measurement of the subsidence (slump).</p> <p>Used to test concrete for conservation treatments.</p>	<p>ASTM C143</p> <p>EN 12350-2</p>	yes	yes	yes
Water/capillary absorption	<p>Performed by a gravimetric method either in situ by sponge contact test or ex-situ on cylinders of small section.</p> <p>Used to evaluate hydro insulation in stone and masonry.</p>	BS EN 15801	yes	yes	yes
Electrical tests (Electrical resistivity measurement of concrete)	<p>Current, voltage or resistance are measured, after embedding electrodes in the samples and applying a stabilised tension or current.</p> <p>Used to test the concrete resistance to the penetration of chloride ions.</p>	<p>No result</p> <p>ASTM Standard C1202-10</p>	no	no	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Hot-disk test/ Transient Plane Source (TPS)	Measures thermal conductivity, diffusivity, and specific heat by means of a Hot disk apparatus. Used to test the thermal performances of materials for conservation treatments.	No result ISO 22007-2	no	no	yes
Hot-plate test	Determines a more accurate value for thermal conductivity with respect to the hot-disk test. It is slower. Used to test the thermal performances of materials for conservation treatments.	No result ISO 8302 EN 12664 EN 12667	no	no	yes
Hot-box test	Measures the thermal transmittance/conductivity of large-scale samples. Used to characterise the thermal properties of a building envelope.	No result ISO 12567-1:2010 ISO 12567-2:2005	no	no	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Dilatometer	Measures the thermal expansibility of a material. Used e.g. to check whether conservation materials or replicas are compatible with the substrates into which they will be integrated.	http://vocab.getty.edu/page/aat/300196406	no	yes	
Environment chamber test	Allows to perform transient analyses within a climatic chamber for accelerated weathering tests (temperature-and-humidity controlled environment). Used to test the performance and durability of mortars for conservation treatments and organic conservation products or to test the stability of stone/metals.	No result	no	no	no
Solar spectrophotometer test	Allows to measure the solar reflectance of surfaces. Used to characterise concrete, mortars, binders, and stones.	No result ASTM E903	no	no	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Determination of Emittance of Materials	<p>Characterises the thermal emittance of materials near room temperature.</p> <p>Used to characterise concrete, mortars, binders, and stones.</p>	<p>No result</p> <p>ASTM C1371</p>	no	no	yes
Acoustic test (transmission loss/absorption)	<p>Evaluates acoustic performances: Sound Transmission Loss (STL) and absorption.</p> <p>Used to characterise the acoustic insulation capability.</p>	<p>http://vocab.getty.edu/page/aat/300056065</p> <p>ISO 10534-2</p>	no	no	yes
Test-room test	<p>Uses real-scale prototypes equipped with microclimate monitoring sensors.</p> <p>Used to analyse the thermal performance of building materials when applied to real-scale prototypes.</p>	<p>No result</p>	no	no	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
TGA (Thermal Gravimetric Analysis)	<p>TGA is a thermal analysis method that measures the variation of the mass of a sample as the temperature changes and provides information on physical phenomena (e.g., phase transitions, adsorption, and desorption) and chemical (e.g. chemisorptions, thermal decomposition, and solid-gas reactions).</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Applications concern the quality control of different materials such as cement mixtures, bitumen, rock wool, etc., or the study of different oxidation states of metals. May also be used to determine the carbonation of limes.</p> </div>	<p>No result</p> <p>Old regulation ASTM E914</p>	no	no	no

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
DTA (Differential Thermal Analysis)	<p>DTA is a thermoanalytical technique in which the material under study and a reference are subjected to identical thermal cycling. The recording of the temperature difference between the sample and the reference allows to observe the changes, whether exothermic or endothermic, in the sample providing data on the transformations that have taken place (e.g. glass transitions, crystallization, melting, and sublimation).</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Usually, applications of this method are the determination of phase diagrams, measurements of heat change, and decomposition in various atmospheres. The DTA can be used in cement chemistry, mineralogical research, environmental studies, to date bone remains, or to study archaeological materials.</p> </div>	<p>http://vocab.getty.edu/page/aat/300214739</p> <p>Tests for each material are ruled by specific regulations</p>	no	no	no

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
DSC (Differential Scanning Calorimetry)	<p>DCS is a thermoanalytical technique in which the difference in the amount of energy, in the form of heat, is absorbed or released by a sample with respect to a reference during controlled heating or cooling of the sample, or in isotherm, is measured. A graph is then drawn where the heat flux (expressed in milliwatts) is plotted as a function of the sample temperature DSC can be used to measure a number of characteristic properties of a sample such as fusion and crystallisation, oxidation, glass transition temperatures T_g, and other chemical reactions.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Usually, the DSC is used to estimate the purity of a material, as well as its stability and the presence of polymorphisms, and fields of application are cement chemistry, mineralogical research, metal, and ceramic characterization.</p> </div>	<p>http://vocab.getty.edu/page/aat/300389963</p> <p>The regulation reference (ISO 11357) is for application on plastic material</p>	no	no	no

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Porosimetry	<p>Gives the porosity (volume of the pores/total volume) by intruding a non-wetting liquid (e.g., mercury) at high pressure into the sample. High pressure is needed to overcome the liquid surface tension.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Used to characterise building materials such as mortar, concrete, and stones.</p> </div>	<p>http://vocab.getty.edu/page/aat/300379675</p> <p>ISO 15901-1:2016</p>	no	no	no
BET Surface Area Analyzer	<p>Gives the interior area of a porous material by layering it with a mono-layer of helium gas.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Used to characterise materials and detect forms of decay e.g. involving the deposition of zeolites in the porosity.</p> </div>	No result	no	no	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Helium picnometry	<p>Determination of the density of a solid sample by varying He gas pressure in a chamber of known volume.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>It allows for measuring the cell-wall density of dry woods and the basic density of wood samples soaked with water. Also used to characterise building materials such as mortar, concrete and stones.</p> </div>	No result	no	no	no
Peeling test/ Scotch Tape test	<p>Consists in making a piece of adhesive tape adhere to the surface to be evaluated, removing it, and then evaluating the quantity of material removed by the peeling.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used in conservation practice for assessing the consolidation efficiency of degraded stone.</p> </div>	<p>http://vocab.getty.edu/page/aat/300054127</p> <p>ASTM 4214-07 UNI EN ISO 4628-6:2011</p>	yes	no	no

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Electrochemical techniques	<p>Provide direct mechanistic and kinetic information of the corrosion process taking place on the metallic surface. Routinely used in corrosion laboratories and, more recently, also for in situ assessment (not routinely).</p> <div style="border: 1px solid black; padding: 5px;"> <p>Used for conservation treatments and, more recently, to study corrosion and protection treatments in metals.</p> </div>	No result	no	no	yes
Eddy current	<p>Induced currents in metals produced by a coil are used to study metal cultural objects.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Used to detect defects and marks in metals and to recover hallmarks on corroded objects.</p> </div>	No result	yes	yes	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Colorimetry	<p>Physical measure of the object colour and variations of colour, according to a defined space colour, usually CIE L*a*b*.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Used for example for wall paintings and stony materials treated with consolidants.</p> </div>	<p>http://vocab.getty.edu/page/aat/300053579</p> <p>UNI EN ISO 11664-4</p>	yes	yes	yes
Thermography	<p>Thermography is a non-destructive diagnostic analysis of the building structure that allows you to view and record the non-contact measurement of the temperature of an object.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Used to find the causes of degradation, since it allows: checking for detachments of the plaster or ceramic coatings; identifying the non-visible structures in the walls; checking for the presence of water inside the masonry (infiltration, capillary rise, condensation ...).</p> </div>	<p>http://vocab.getty.edu/aat/300379531</p>	yes	yes	yes

Compositional characterisation

The study of the material composition of cultural objects in their actual state enables the identification of historical preparation procedures and allows preservation strategies and conservation treatments to be suggested.

Many techniques are used, involving both invasive and non-invasive approaches.

In this section we included:

- Light-based techniques
- X-ray based techniques
- Chromatography techniques
- Mass spectrometry techniques
- Ion Beam Analysis techniques

As previously stated in 3.3.1, all those techniques whose use has not been yet consolidated in the Cultural Heritage conservation field have not been included in this review.

The techniques are listed in table 3.5, which include: a brief description and application fields, availability for in situ instrumentation, invasiveness-destructiveness (yes/no), a link (where available) to a controlled vocabulary term (Getty AAT or other).

When the terms in-situ, non-invasive, non-destructive are used, we intend that it is possible to perform analyses in that way and not that the technique is always performed in that way. Many of the in-situ techniques are also available ex-situ with instrumentation which may require sampling. In this report we have given the less invasive option (for example, when we report “in-situ” we mean that portable instrumentation is available, but it is also possible that the same measurement can be performed also in the lab with more performing fixed instrumentation).

Table 3.5 - Compositional technologies

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
RAMAN Spectroscopy	<p>Based on the inelastic scattering of monochromatic light, it probes vibrational, rotational, and other low-frequency modes in molecules and materials, providing both organic and inorganic material identification. Microscale instrumentation is available.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used to characterise degradation products in monuments, such as salt efflorescence, pollution crusts and biodegradation.</p> </div>	<p>http://vocab.getty.edu/page/aat/300266192</p>	yes	yes	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
FTIR (Fourier Transform Infrared) Spectroscopy	<p>IR spectroscopy is based on the vibrations of the atoms of a molecule, induced by the absorption of a primary IR beam by the sample. The wavenumber at which the peak in the absorption spectrum occurs corresponds to the vibration frequency of a molecule, useful to identify the molecule itself.</p> <p>In FT-IR, the raw signal is an interferogram, which must be Fourier-Transformed to obtain the IR spectrum (absorption vs IR wavenumber)</p> <p>FTIR Attenuated Total Reflectance (ATR) mode allows for in situ, non-invasive analysis.</p> <p>Microscale instrumentation is available.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used for molecular characterisation of constituent materials and degradation products; it can be also used to assess the performances of conservation materials.</p> </div>	<p>http://vocab.getty.edu/page/aat/300379403</p>	<p>yes</p>	<p>yes</p>	<p>yes</p>

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
LIBS (Laser Induced Breakdown Spectroscopy)/LIPS (Laser Induced Plasma Spectroscopy)	<p>Laser-based technique in which a high-power laser is focused on the studied material, producing a micro-plasma. The detection of the characteristic atomic emissions from the micro-plasma provides the elemental composition of the material.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used to obtain the elemental composition of different materials in pottery, glass, metal, frescoes, and oil paintings. Micro-destructive.</p> </div>	http://vocab.getty.edu/page/aat/300390528	yes	no	no
LIF (Laser Induced Fluorescence) spectroscopy	<p>Laser-based technique where the studied material is excited by a laser and the subsequent fluorescence is used to identify the organic and inorganic compounds constituting the material.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used for remote imaging of historical monuments, to characterise the constituent materials, identify and characterise biological attacks and restorations.</p> </div>	http://vocab.getty.edu/page/aat/300390529	yes	yes	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Spectrophotometry (UV-VIS-NIR Spectroscopy) and FORS	<p>Measures the reflection or absorbance of a sample in the range from the ultraviolet to the near infrared. With optical fibres (FORS) is totally non-invasive and non-destructive in-situ.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Used to characterise the constituent materials, identify, and characterise degradation</div>	http://vocab.getty.edu/page/aat/300223828	yes	yes	yes
Multispectral and Hyperspectral Imaging	<p>Analysis of the light backscattered from the object, providing spatial and spectral information about an artefact. The difference between the two techniques stands in the number and “thickness” of spectral bands: MSI have up to 10 bands, tens-hundreds of nm wide, while HSI have hundreds or thousands of bands, 10-20 nm wide.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Used to map and monitor weathering and degradation features</div>	http://vocab.getty.edu/page/aat/300380539	yes	yes	yes
UV fluorescence	<p>Fluorescence induced by UV radiation.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Used to map the presence of organic materials, restoration interventions, and degradation in mural paintings and in materials such as stone and wood.</div>	http://vocab.getty.edu/page/aat/300379552	yes	yes	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
EDX (Energy Dispersive X-ray)/EDS (Energy Dispersive Spectroscopy)	A surface analytical technique in which a primary beam (typically X-rays or electrons) ionises the inner shells of the sample atoms, inducing a de-excitation process via characteristic X-Ray emission.		no	no	yes
XRF (X-Ray Fluorescence)	A primary X-Ray beam ionises the inner shells of the sample atoms, inducing a de-excitation process via characteristic X-Ray emission. Microscale instrumentation also available. <div style="border: 1px solid black; padding: 5px; width: fit-content;">Used to obtain the elemental composition of both original and degradation material constituting CH assets</div>	http://vocab.getty.edu/page/aat/300224161	yes	yes	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
XRD (X-Ray Diffraction)	<p>Based on the elastic scattering of the primary X-Ray beam by the atoms of the studied material. When the atoms are placed in a periodic array, the scattered radiation undergoes destructive and constructive interference (diffraction), in agreement with Bragg's law. The diffraction pattern allows for the identification of the chemical composition and crystallographic structure of the material. Microscale instrumentation also available.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Used to characterise the crystalline phase composition of powdered and solid materials of CH assets.</p> </div>	<p>http://vocab.getty.edu/page/aat/300233218</p>	yes	yes	yes
XPS (X-ray Photoelectron Absorption)	<p>A primary X-Ray beam is sent to the sample, while measuring the kinetic energy of the emitted photoelectrons. Information about the electronic states of atoms in the first 10 nm from the surface is achieved. Microscale instrumentation is available.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Used for chemical analysis of the surface of a material.</p> </div>	<p>http://vocab.getty.edu/page/aat/300391193</p>	no	no	yes

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Ion Beam Analysis	<p>the object under investigation is used as a target for MeV-energy ion beams; by detecting the radiation emitted in the interactions of the beam ions with the target atoms or nuclei it is possible to characterise the target both qualitatively and quantitatively.</p> <p>Different techniques can be defined depending on the observed radiation: PIXE, PIGE, RBS, IL, DPAA, ...</p> <p>The analysis can be performed on the whole artwork if it is possible to move it to the laboratory.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used to obtain the elemental composition of both original and degradation material constituting CH assets</p> </div>	<p>http://vocab.getty.edu/page/aat/300389883</p>	no	yes	yes
Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS)	<p>A mass spectrometry technique (i.e., in which charged particles are discriminated based on their different trajectories in EM fields, indicating their mass-to-charge ratios) coupled with laser ablation.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used for elemental and isotopic analysis on solid samples, e.g. for a complete characterization in terms of trace elements of black crusts</p> </div>	No result	no	no	no

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Inductively Coupled Plasma Mass Spectrometry (ICP-MS)	<p>A mass spectrometry technique (i.e., in which charged particles are discriminated based on their different trajectories in EM fields, indicating their mass-to-charge ratios) in which the chemical compounds contained in the sample are ionised in a plasma.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used to determine minor and trace element composition of building materials, degradation products and PM10 in proximity of monuments to understand the pollution sources.</p> </div>	No result	no	no	no
Time-Of-Flight Mass Spectrometry	<p>A mass spectrometry technique based on the measurement of the time of flight of ions in an electric field, providing elemental and molecular information from the uppermost one or two monolayers of solid surfaces.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used for compositional analysis of surfaces.</p> </div>	http://vocab.getty.edu/page/aat/300390581	no	no	no

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Gas Chromatography	<p>It is a technique for separating and detecting the molecules constituting a sample. The sample is injected into a gas chromatographic system consisting of a capillary column (stationary phase) in a thermostated oven, crossed by a stream of inert gas (mobile phase or eluent). The chemical species composing the sample are separated as they travel through the column and the outlet of the column is inserted into the detector and recorded to produce a chromatogram.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used for qualitative and quantitative determination of organic compounds such as oils, waxes, resins, polysaccharides, and dyes present in the sample.</p> </div>	http://vocab.getty.edu/page/aat/300223948	no	no	no
GC-MS (Gas Chromatography-Mass Spectrometry)	<p>The chemical species composing the sample, separated by GC, are detected by a mass spectrometer.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Suitable for qualitative and quantitative determination of organic compounds in gaseous, liquid, or solid samples. Used to assess the effectiveness of cleaning procedures.</p> </div>	http://vocab.getty.edu/page/aat/300379418	no	no	no

Technology	Brief description and use	Definition and regulations	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
HPLC (High Performances Liquid Chromatography)	<p>It is a chromatographic technique in which the mobile phase is a liquid solvent that is forced at high-pressure by a pump through the column.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>HPLC allows qualitative and quantitative analysis of the organic compounds present in a liquid sample.</p> </div>	http://vocab.getty.edu/page/aat/300379487	no	no	no
Ionic Chromatography	<p>It is a liquid chromatography technique in which ions are separated on the basis of their interaction with a resin.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Used to analyse inorganic ions, organic compounds such as amino acids, nucleotides, sugars and proteins. Used to assess the effectiveness of consolidation treatments.</p> </div>	http://vocab.getty.edu/page/aat/300214723	no	no	no

Surface topography

Surface topography techniques allow for reconstructing the shape of the surfaces (details in the millimetre scale) and in some cases for height profiles, ranging from nanometres to a few centimetres. Application of these techniques, in combination with compositional techniques, is for example useful in depth-resolved analysis for stratigraphic studies of multi-layer structures.

The techniques are listed in table 3.6, which include: a brief description and application fields, availability for in situ instrumentation, invasiveness-destructiveness (yes/no), and a link (where available) to a controlled vocabulary term (Getty AAT or other).

When the terms **in-situ**, **non-invasive**, **non-destructive** are used, we intend that it is possible to perform analyses in that way and not that the technique is always performed in that way. Many of the in-situ techniques are also available ex-situ with instrumentation which may require sampling. In this report we have given the less invasive option (for example, when we report “in-situ” we mean that portable instrumentation is available, but it is also possible that the same measurement can be performed also in the lab with more performing fixed instrumentation).

Table 3.6 - Surface topography technologies

Technology	Brief description and use	Definition	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
Optical microscopy	Microscopy which employs visible light to view objects on the surface of sample at micrometric scale.	http://vocab.getty.edu/page/aat/300379532	no	no	yes
Stereo microscopy	Optical observation of the surface at micrometric scale with different imaging contrast modes: Brightfield (BF), Darkfield (DF), Interference Contrast (IC) and Polarized Light (PL).	http://vocab.getty.edu/page/aat/300443997	no	no	yes
Confocal Laser Scanning Microscopy	Uses laser light in a confocal configuration in order to capture defined optical sections of the sample and obtain 3D images.	http://vocab.getty.edu/page/aat/300391235	no	no	yes
Non-linear microscopy	Type of laser scanning microscopy. Through tightly focused femtosecond laser pulses, it is possible to obtain thickness determination and compositional identification as a function of thickness.	No result	no	no	yes
SEM (Scanning Electron Microscopy)	An electron beam is accelerated towards an anode and focused into a fine probe impinging on the specimen. Scanning coils allow for 2D analysis. Topographic information is obtained through secondary electrons, while other information is typically achieved by the observation of other results, such as backscattered electrons (atomic number contrast) and X-Rays	http://vocab.getty.edu/page/aat/300224957	no	no	yes

Technology	Brief description and use	Definition	Availability of in situ instrumentation	Possibility of non-invasive analysis	Possibility of non-destructive analysis
	(elemental analysis, EDX, see table 3.5). Used to obtain information on surface topography and composition.				
FIB (Focused Ion Beam)	Same as SEM, but with different primary ions. Dual beam systems with SEM and FIB available.		no	no	no
Spectral Interferometry	Analysis of the surface topology based on interferometry in the spectral domain. Used to analyse and monitor the surface topology.	http://vocab.getty.edu/page/aat/300391210	yes	yes	yes
White light scanning Interferometry	High-resolution analysis of the surface topology (sub-wavelength precision) based on interferometry with white light, no limits in surface height. Used to analyse and monitor the surface topology.	http://vocab.getty.edu/page/aat/300391210	yes	yes	yes
AFM (Atomic Force Microscopy)	A nanometric probe is approached to a surface and used to scan it for a morphological characterization. A detection system (commonly, light reflected by the probe to a position sensitive photodiode) combined with a feedback system allows to keep the probe-to-sample distance constant, while recording the changes. By applying a bias between tip and sample, it is possible to map sample conductivity.	http://vocab.getty.edu/page/aat/300380468	no	no	yes

3.4 Valorisation of CH assets

Advanced digital technologies are transforming the way cultural heritage is valorised and people's experience of CH. Technology is allowing for innovative environments to be created in which consumers can discover, experience and interpret the cultural heritage, participate in events and make their own creative re-use of digital content. Thus, promoting new value chains for cultural heritage, education and tourism through the digitisation of CH assets. The combined use of innovative digitisation technologies and affordable consumer electronic equipment is making innovative cultural heritage experiences accessible to all.

In 2019 European countries signed a Declaration of cooperation on advancing digitisation of cultural heritage²¹¹.

The declaration has three pillars of action:

- A pan-European initiative for 3D digitisation of cultural heritage artefacts, monuments and sites.
- Re-use of digitised cultural resources to foster citizen engagement, innovative use and spill-overs in other sectors.
- Enhancing cross-sector and cross-border cooperation and capacity building in the sector of digitised cultural heritage.

²¹¹ 'Cooperation on Advancing Digitisation Of cultural Heritage', 2019.

3.4.1 Enhancement Technologies

The wide-ranging impacts of the COVID-19 on the CH domain encouraged all areas of life, including the cultural sector to turn online²¹². The shift from a traditional model of engagement with citizen/visitors to innovative and creative modes of engagement supported by digital technologies was accelerated. Today, various technologies have been integrated into the cultural heritage sector for preservation, dissemination and engagement.

Digital and, in particular, mobile technologies are currently indispensable tools for cultural heritage institutions and their implementation of enhancement strategies. Technology offers possibilities for multimodal visits, inspiring self-motivated learning and promoting creativity and engagement.

Immersive Technologies

Advancements in Computer Graphics (CGs) have transformed the acquisition, recording, and visualisation of CH and it has enhanced how culture is experienced.

eXtended Reality (XR) is a concept generally referred to combined technological platforms, 3D digital content, where the user can view and interact with digital and/or physical objects in a real and/or digital environment²¹³. XR can also be seen as a generic term that includes immersive technologies such as Virtual Reality (VR), Augmented Reality (AR) and Mixed reality (MR)²¹⁴.

Several surveys of these emerging technologies have been conducted in the field of CH^{215,216,217,218}.

Organisations which are developing experiences using immersive technologies face challenges in designing interaction techniques that make the experience more 'natural'. Researchers have produced a myriad of interaction techniques for VR, such as selection, manipulation, and locomotion and other creative ways for visualising and interacting with content.

²¹² Silberman, Neil Asher. 'Good-Bye to All That: COVID-19 and the Transformations of Cultural Heritage'. *International Journal of Cultural Property* 27, no. 4 (November 2020): 467–75.

<https://doi.org/10.1017/S0940739120000314>.

²¹³ Fast-Berglund, Åsa, Liang Gong, and Dan Li. 'Testing and Validating Extended Reality (XR) Technologies in Manufacturing'. *Procedia Manufacturing*, Proceedings of the 8th Swedish Production Symposium (SPS 2018), 25 (1 January 2018): 31–38. <https://doi.org/10.1016/j.promfg.2018.06.054>.

²¹⁴ Gaugne, Ronan, Jean-Baptiste Barreau, Flavien Lécuyer, Théophane Nicolas, Jean-Marie Normand, and Valérie Gouranton. 'eXtended Reality for Cultural Heritage'. In *Handbook of Cultural Heritage Analysis*, edited by Sebastiano D'Amico and Valentina Venuti, 1405–37. Cham: Springer International Publishing, 2022. https://doi.org/10.1007/978-3-030-60016-7_48.

²¹⁵ Bekele, Mafkereseb Kassahun, Roberto Pierdicca, Emanuele Frontoni, Eva Savina Malinverni, and James Gain. 'A Survey of Augmented, Virtual, and Mixed Reality for Cultural Heritage'. *Journal on Computing and Cultural Heritage* 11, no. 2 (7 June 2018): 1–36. <https://doi.org/10.1145/3145534>.

²¹⁶ Korkut, Elif Hilal, and Elif Surer. 'Visualization in Virtual Reality: A Systematic Review', 2022. <https://arxiv.org/ftp/arxiv/papers/2203/2203.07616.pdf>

²¹⁷ Chong, Hwei Teeng, Chen Kim Lim, Minhaz Farid Ahmed, Kian Lam Tan, and Mazlin Bin Mokhtar. 'Virtual Reality Usability and Accessibility for Cultural Heritage Practices: Challenges Mapping and Recommendations'. *Electronics* 10, no. 12 (January 2021): 1430. <https://doi.org/10.3390/electronics10121430>.

²¹⁸ Chong, Hwei Teeng, Chen Kim Lim, Abdul Rafi, Kian Lam Tan, and Mazlin Mokhtar. 'Comprehensive Systematic Review on Virtual Reality for Cultural Heritage Practices: Coherent Taxonomy and Motivations'. *Multimedia Systems*, 29 November 2021. <https://doi.org/10.1007/s00530-021-00869-4>.

Bekele et al classified presentation devices into visual, auditory, and tactile presentation devices. In this study the authors also discussed five types of displays²¹⁹:

- **Desktop screens and table-top projectors** are display systems for non-immersive VR and AR applications with a limited interactivity.
- **Head Mounted Displays (HMDs)** - are immersive devices commonly utilised among all immersive reality categories. In AR and/or MR HMDs are usually either video or optical see-through devices, whereas for VR the headsets prevent users seeing the physical environment.
- **Spatial Augmented Reality (SAR)** - virtual information is projected directly on to the real environment through video-projectors.
- **Hand-Held Displays (HHDs)** – are non-immersive devices, such as mobile phones and tablets, that have become a popular platform for mobile AR.
- **CAVE** - is a projection-based display technology that allows multiple users to share fully immersive VR experiences.

Valorisation of cultural heritage will be extensively analysed in T3.6 – *Tools for storytelling* and reported in D3.3, as well as in the deliverable D4.4 *Pilots*, developed in T4.4. A summary analysis of the results of these tasks will be also reported in D1.3 - *Final survey of the experiences and technology state of the art*.

Virtual Reality (VR)

VR technology is used to provide a virtual representation of cultural heritage and for offering users with an enhanced experience/possibilities of interacting within a computer-generated environment.

VR systems may be categorized based on their hardware, from desktop equipment to wearable devices and spatially immersive systems.

Virtual reality hardware includes headsets and additional tools such as controllers, hand trackers, treadmills²²⁰.

A VR headset is a display that often includes sound, eye or head motion-tracking sensors or cameras.

²¹⁹ Bekele, Mafkereseb Kassahun, and Erik Champion. 'A Comparison of Immersive Realities and Interaction Methods: Cultural Learning in Virtual Heritage'. *Frontiers in Robotics and AI* 6 (2019).
<https://www.frontiersin.org/article/10.3389/frobt.2019.00091>.

²²⁰ Bardi, Joe. 'What Is Virtual Reality: Definitions, Devices, and Examples'. Marxent, <https://www.marxentlabs.com/what-is-virtual-reality/>.

Here some of the most popular HDMs:

VR HDMs²²¹

Table 3.6 - VR HDMs

Model	Brand	Characteristics
Vive Pro	HCT	PC-powered VR
Vive Focus	HCT	Standalone VR
Vive Flow	HCT	Standalone VR
Oculus GO	Oculus	Standalone VR
Oculus Quest	Oculus	Standalone VR
Oculus Rift	Oculus	PC-powered VR
PlayStation VR	Sony	Console-powered VR
Odyssey+	Samsung	PC-powered VR
Reverb	HP	PC-powered VR

CAVE

CAVEs have the advantage of offering users complete freedom of movement, which is one of the main limitations of virtual reality headsets. The users can also use accessories such as wands, joysticks, or other virtual objects to navigate the CAVE, which gives them an even more immersive experience. These virtual environments are still rather expensive and they need to have a specific space dedicated to them which means they cannot be moved easily. Below some examples of CAVEs:

Table 3.7 - CAVE

Model	Developer	Link
TORE	ST Engineering Antycip	Link
Igloo	Igloo CAVE	Link
Immersia*	IRISA and Inria	Link

**Immersia is a key node of the FP7 European Project Visionair which aims to create a European infrastructure that should be high-level visualisation facilities for Virtual Reality, Scientific Visualisation, Ultra High Definition, Augmented Reality and Virtual Services.*

²²¹ VRcompare. 'VRcompare - The Internet's Largest VR & AR Headset Database'. Accessed 14 January 2022. <https://vr-compare.com/>.

Augmented Reality (AR)

In the past decade, the definitions of AR were expanded and integrated several times from the first definition coined by Milgram and Kishino in 1994²²². AR is placed within a well-known spatial interval (continuum) between real and virtual, named eXtended Reality (XR), which contains Real Environment (RE), AR, Augmented Virtuality (AV), and VR. AR is a system capable of improving the understanding of the world through the integration of virtual information, enlarging immersion and environmental knowledge²²³.

Below some of the most popular AR glasses:

AR HMDs²²⁴

Table 3.8 - AR Glasses

Model	Brand	Characteristics
Vive Pro	HCT	PC-powered VR
Vive Focus	HCT	Standalone VR
Hololens	Microsoft	Standalone AR
Magic Leap 2	Magic Leap	PC-powered AR
ThinkReality A3	Lenovo	PC-powered AR

Mixed reality (MR)

MR describes the domain between AR and VR. It provides hybrid environments, where virtual and the real world coexist, interact, and can be manipulated by users. This integration can be additive, layering information that does not exist, or subtractive, covering or deleting parts of the real world²²⁵.

Spatial augmented reality (SAR)

SAR, better known as 3D Video Mapping²²⁶, consists of simple projection of images on small and large surfaces, regular or not, transforming the object into screens on which storytelling content or artistic performances can be reproduced. Wall projections are part of the MR. This technology allows any multimedia content to be adapted to any type of surface.

This technology uses a projector to dress the surfaces with “textures” giving the optical illusion that a building or an object is wrapped in a new animated skin. The high potential of

²²² Milgram, Paul, and Fumio Kishino. 'A Taxonomy of Mixed Reality Visual Displays'. *IEICE Transactions on Information Systems* E77-D, no. 12 (December 1994): 1321–29.

²²³ Skarbez, Richard, Missie Smith, and Mary C. Whitton. 'Revisiting Milgram and Kishino's Reality-Virtuality Continuum'. *Frontiers in Virtual Reality* 2 (2021). <https://www.frontiersin.org/article/10.3389/frvir.2021.647997>.

²²⁴ VRcompare. 'VRcompare - The Internet's Largest VR & AR Headset Database'. Accessed 14 January 2022. <https://vr-compare.com/>.

²²⁵ Skarbez, Richard, Missie Smith, and Mary C. Whitton. 'Revisiting Milgram and Kishino's Reality-Virtuality Continuum'. *Frontiers in Virtual Reality* 2 (2021). <https://www.frontiersin.org/article/10.3389/frvir.2021.647997>.

²²⁶ Bimber, Oliver, and Ramesh Raskar. *Spatial Augmented Reality: Merging Real and Virtual Worlds*. New York: A K Peters/CRC Press, 2011. <https://doi.org/10.1201/b10624>.

video mapping has made it an extremely versatile tool whose applicability has in a short time spanned various fields (scenographic, marketing and advertising, at parties, events, shows, artistic and cultural events, etc.).

3.4.2 3D on-line

The release of the WebGL application programming interface (API) brought a rapid growth of Web3D solutions standardized, plugin-free, and able to transform 3D content in a standard component of any webpage.

A wide number of platforms have been developed with different functionality related to the technology used and to the outcomes: point cloud, textured model, animated models and files for 3D printing. A recent study of the 3D viewers was carried out by IICP 3D Community Group. Recently a new 3D Technical Specification Group (TSG) was formally approved. The TSG will work collaboratively with other standards bodies and 3D image viewer developers, to specify common interoperable frameworks for the 3D data domain. This will include ways to:

- annotate 3D media of various types into a shared canvas space,
- annotate 3D media with commentary,
- combine 3D media with images and AV content within a shared space,
- specify the presentation (placement, orientation, and contextualization) of 3D media.

The study of Champions and Rahman provide 13 features that would be useful additions for the 3D viewers that have been analysed. Choosing the right platform or developing a new one, with different tools, depends on the project aims. Below some of the most popular platforms:

Table 3.9 - 3D online viewers

Name	Developer	Link
Sketchfab		https://sketchfab.com/ .
3DHOP	CNR-ISTI	https://github.com/cnr-isti-vclab/3DHOP
Visual Media Service (powered by 3DHOP)	CNR-ISTI	https://visual.ariadne-infrastructure.eu/
Voyager	Smithsonian	https://smithsonian.github.io/dpo-voyager/
potree	Potree	https://github.com/potree/potree
<model-viewer>	Google	https://modelviewer.dev/
MyMiniFactory		https://www.myminifactory.com/
ThinkinVerse	MakerBot	https://www.thingiverse.com/

3.4.3 Additive Manufacturing

Additive Manufacturing is increasingly interesting for the consumer market due to a decrease in costs and enhanced capabilities (enhanced precisions, finer resolutions, and higher printing speeds). 3D Printing is in a phase of rapid technological changes and the future is promising for the field of cultural heritage²²⁷.

Digital fabrication techniques can be divided into two macro groups:

- “subtractive” techniques involve the removal of material to generate the physical model, applying processes similar to those of sculpture;
- “additive” techniques add layers of material²²⁸.

Special attention should be given to all types of CH reproductions: archaeological finds, sculptures, architectural elements, paintings, and artworks in general.

Reproductions can be used in many ways:

- Research
- Accessibility (e.g., for people with visually impairments, learning difficulties and physical disabilities)
- Temporary or permanent replacement of original artefacts in Museums
- Production of tailored packaging for shipping or displaying cultural objects

²²⁷ Balletti, Caterina, Martina Ballarin, and Francesco Guerra. ‘3D Printing: State of the Art and Future Perspectives’. *Journal of Cultural Heritage* 26 (1 July 2017): 172–82. <https://doi.org/10.1016/j.culher.2017.02.010>.

²²⁸ Scopigno, R., P. Cignoni, N. Pietroni, M. Callieri, and M. Dellepiane. ‘Digital Fabrication Techniques for Cultural Heritage: A Survey’. *Computer Graphics Forum* 36, no. 1 (2017): 6–21. <https://doi.org/10.1111/cgf.12781>.

- Re-creating missing portions of an object
- Education
- Merchandising (e.g., producing accurate small-scale replicas of museum artefact)
- Internet of Things (IoT) (e.g., sensorised replicas)

The level of maturity of 3D printing depends on the materials used, with 3D printing using plastic being applied at more advanced levels, particularly for prototyping and visual design in the automotive and aerospace industries. 3D printing using metals or ceramics is at low to intermediate levels of maturity - more fine-tuning is necessary to meet quality standards for these materials.

The evolution and uptake of 3D printing depends partly on innovations in materials engineering, which is opening new avenues for the use of novel materials in 3D printing. Metal powders used for metal 3D printing are still expensive, the technology will continue to be unaffordable for many businesses.

4. Conclusions

The report covered the results of **Task T1.1** concerning European experiences and best practices in Conservation, Preservation and Valorisation of monuments and sites, and of **Task T1.3** concerning the state of the art in relevant technologies.

Task T1.1 dealt with the analysis of experiences, skills, and best practices in the field of Conservation, Preservation and Valorisation of monuments and sites, while T1.3 dealt with the State of the Art of technologies in the fields in which the Competence Centre will operate, with a particular focus on Digitisation and 3D Modelling.

The document, despite the complexity and detail achieved, can be considered as a preliminary analysis since some aspects will be continuously updated from now until the end of the project with the Deliverable D1.3: “**Final survey of experiences and state-of-the-art technology**” (month 34) that will include the updates of D1.1 and it will be the starting point for future activities of the Competence Centre.

The report collects and explores in extension a very wide set of approaches, results, and experiences, providing content to the forthcoming project Knowledge Base. They will be compared with the analysis of user needs separately provided in D1.2, which also includes the description of hazards and risks for heritage considered in T1.2. Such comparison will produce an integrated set of risks – mitigating measures through monitoring and preventive maintenance, or targeted repairs after the damages – related techniques and technologies, as well as a thorough study of valorisation technologies. Such results will be available through the project Knowledge Base and the final reports D1.3 and D1.4. Examples, selected best practices, case studies and pilots carried out within the 4CH project will find there an update and an organic collocation.

An initial – but extensive – set of such applications is listed in the Appendix to the present report, also to enable a better understanding by the reader with examples. This set will be thoroughly revised, updated and if necessary extended in the final report. On the other hand, the Knowledge Base will provide an easily accessible and continuously updated repository of knowledge concerning the topics introduced in the present deliverable.

As already noted the extensive *Study on quality in 3D digitisation of tangible cultural heritage* published close to the submission date of the present deliverable would require a thorough analysis which is impossible due to the short time available before the deadline for delivering the present report. Such analysis will therefore be included in Deliverable D1.3.



Appendices

Appendices

Appendix 1 - Index - all sources

Appendix 2 – Best practices sheets

Appendix 3 – Common framework – Best practices

Appendix 4 – Common framework – All sources

Appendix 1 - Index - all sources

Best-Practices			
<i>Code</i>	<i>Title</i>	<i>Country</i>	<i>EU / outside the EU</i>
BP_001	Altenburg Abbey, Altenburg	Austria	European Union
BP_002	Ename Abbey, Ename	Belgium	European Union
BP_003	Horta Museum, Brussels	Belgium	European Union
BP_004	Mostar Bridge, Mostar	Bosnia and Herzegovina	Outside the European Union
BP_005	Choirokoitia Archaeological Site, Choirokoitia	Cyprus	European Union
BP_006	Pafos Gate, Nicosia	Czech Republic	European Union
BP_007	Troodos Churches, Troodos	France	European Union
BP_008	Villa Tugendhat, Brno	France	European Union
BP_009	Luma, Arles	France	European Union
BP_010	Jardin des Vestiges, Marseilles	France	European Union
BP_011	Festival of Lights, Lyon	France	European Union
BP_012	Palace of the Popes, Avignon	France	European Union
BP_013	Bagrati Cathedral, Kutaisi	Georgia	Outside the European Union
BP_014	Bauhaus building, Dessau	Germany	European Union
BP_015	Congress Hall, Nuremberg	Germany	European Union
BP_016	Neues Museum, Berlin	Germany	European Union
BP_017	Park of the Varus Battle, Kalkriese, Bramsche	Germany	European Union
BP_018	Topography of Terror, Berlin	Germany	European Union
BP_019	Basilica Palladiana, Vicenza	Italy	European Union
BP_020	Cestia Pyramid, Rome	Italy	European Union
BP_021	Forum of Augustus, Rome	Italy	European Union
BP_022	Great Pompeii Project	Italy	European Union
BP_023	Malatestiana Library, Cesena	Italy	European Union
BP_024	MUBIG, Milan	Italy	European Union
BP_025	Officine Grandi Riparazioni, Turin	Italy	European Union
BP_026	Ospedale degli Innocenti, Florence	Italy	European Union
BP_027	Piazza Rossini, Bologna	Italy	European Union
BP_028	San Saba Oratory, Rome	Italy	European Union
BP_029	Santa Marta Barracks, Verona	Italy	European Union
BP_030	Temple Cathedral, Pozzuoli	Italy	European Union
BP_031	Trevi Fountain, Rome	Italy	European Union
BP_032	Troisi Cinema, Rome	Italy	European Union
BP_033	Urbino Colleges, Urbino	Italy	European Union
BP_034	Villa Contarini, Piazzola sul Brenta (PD)	Italy	European Union
BP_035	São Roque Chapel, Lisbon	Portugal	European Union
BP_036	Celica Hostel, Ljubljana	Slovenia	European Union
BP_037	Casa Batlló, Barcelona	Spain	European Union
BP_038	Galera, Granada	Spain	European Union
BP_039	Matadero, Madrid	Spain	European Union
BP_040	Shelter for Roman Ruins, Chur	Switzerland	Outside the European Union
BP_041	Streetmuseum, London	United Kingdom	Outside the European Union
BP_042	The Lost Palace, London	United Kingdom	Outside the European Union

Documents	
Code	Title
A_ICOMOS_1979	Australia ICOMOS, <i>Australia ICOMOS Guidelines for the Conservation of Places of Cultural Significance</i> , Burra Charter, 1979, https://australia.icomos.org/wp-content/uploads/Burra-Charter_1979.pdf .
A_ICOMOS_1981	Australia ICOMOS, <i>Australia ICOMOS Charter for the Conservation of Places of Cultural Significance</i> , Burra Charter, 1981, https://australia.icomos.org/wp-content/uploads/Burra-Charter_1981.pdf .
A_ICOMOS_1987	Australia ICOMOS, <i>Australia ICOMOS Charter for the Conservation of Places of Cultural Significance</i> , Burra Charter, 1987, https://australia.icomos.org/wp-content/uploads/Burra-Charter-1981_1987-reprint.pdf .
A_ICOMOS_1988_a	Australia ICOMOS, <i>Australia ICOMOS Charter for the Conservation of Places of Cultural Significance</i> , Burra Charter, 1988, https://australia.icomos.org/wp-content/uploads/Burra-Charter_1988.pdf .
A_ICOMOS_1988_b	Australia ICOMOS, <i>Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports</i> , 1988, https://australia.icomos.org/wp-content/uploads/Guidelines-to-the-Burra-Charter_-_Procedures.pdf .
A_ICOMOS_1988_c	Australia ICOMOS, <i>Guidelines to the Burra Charter: Cultural Significance</i> , 1988, https://australia.icomos.org/wp-content/uploads/Guidelines-to-the-Burra-Charter_-_Cultural-Significance.pdf .
A_ICOMOS_1988_d	Australia ICOMOS, <i>Guidelines to the Burra Charter: Conservation Policy</i> , 1988, https://australia.icomos.org/wp-content/uploads/Guidelines-to-the-Burra-Charter_-_Conservation-Policy.pdf .
A_ICOMOS_1998	Australia ICOMOS, <i>Code on the Ethics of Co-existence in Conserving Significant Places</i> , 1998, https://australia.icomos.org/wp-content/uploads/Code-on-the-Ethics-of-Co-existence.pdf .
A_ICOMOS_1999	Australia ICOMOS, <i>Australia ICOMOS Charter for the Conservation of Places of Cultural Significance</i> , Burra Charter, 1999, https://australia.icomos.org/wp-content/uploads/BURRA_CHARTER.pdf .
A_ICOMOS_2013	Australia ICOMOS, <i>The Australia ICOMOS Charter for Places of Cultural Significance</i> , Burra Charter, 2013, https://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf .
CE_1985	Council of Europe, <i>Convention for the Protection of the Architectural Heritage of Europe</i> , 1985, https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=090000168007a087 .
CE_1992	Council of Europe, <i>Convention for the Protection of the Archaeological Heritage of Europe</i> , The Valletta Convention, 1992, https://www.coe.int/en/web/culture-and-heritage/valletta-convention .
CE_2000	Council of Europe, <i>European Landscape Convention</i> , 2000, https://rm.coe.int/1680080621 .

Documents	
Code	Title
CE_2005	Council of Europe, <i>Council of Europe Framework Convention on the Value of Cultural Heritage for Society</i> , 2005, https://rm.coe.int/1680083746 .
CEC_1998	Commission of the European Communities, <i>First European Community Framework Programme in Support of Culture (2000-2004)</i> , 1998, http://aei.pitt.edu/12783/1/12783.pdf .
CEU_2014	Council of the European Union, <i>Conclusions on cultural heritage as a strategic resource for a sustainable Europe</i> , 2014, https://www.consilium.europa.eu/uedocs/cms_data/docs/press_data/en/educ/142705.pdf .
CHCfE_2015_a	CHCfE Consortium, <i>Cultural Heritage Counts for Europe. Full Report</i> , 2015, https://www.europanostra.org/our-work/policy/cultural-heritage-counts-europe/ .
CHCfE_2015_b	CHCfE Consortium, <i>Cultural Heritage Counts for Europe. Executive Summary and Strategic Recommendations</i> , 2015, https://www.europanostra.org/our-work/policy/cultural-heritage-counts-europe/ .
CNR_1987	CNR, <i>Charter of Conservation and Restoration of Objects of Art and Culture</i> , 1987, https://www.inforestauro.org/carta-del-restauro-1987/#Paragrafo II - Le definizioni .
EC_2010	European Commission, <i>Communication from the Commission. Europe 2020. A strategy for smart, sustainable and inclusive growth</i> , 2010, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52010DC2020&from=EN .
EC_2015	European Commission, <i>Getting cultural heritage to work for Europe. Report of the Horizon 2020 Expert Group on Cultural Heritage</i> , 2015, https://op.europa.eu/it/publication-detail/-/publication/b01a0d0a-2a4f-4de0-88f7-85bf2dc6e004 .
EC_2017_a	European Commission, <i>Mapping of Cultural Heritage actions in European Union: policies, programmes and activities</i> , 2017, https://ec.europa.eu/assets/eac/culture/library/reports/2014-heritage-mapping_en.pdf .
EC_2017_b	European Commission, <i>Horizon 2020. Work Programme 2016-2017. 12: Climate action, environment, resource efficiency and raw materials</i> , 2017, https://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-climate_en.pdf .
EC_2018_a	European Commission, <i>Innovation in Cultural Heritage Research - For an integrated European Research Policy</i> , 2018, http://openarchive.icomos.org/id/eprint/2323/1/KI0118044ENN_en%20%281%29.pdf .
EC_2018_b	European Commission, <i>A New European Agenda for Culture</i> , 2018, https://culture.ec.europa.eu/sites/default/files/2020-08/swd-2018-167-new-european-agenda-for-culture_en.pdf .
EC_2019	European Commission, <i>European framework for action on cultural heritage</i> , 2019, https://op.europa.eu/en/publication-detail/-/publication/5a9c3144-80f1-11e9-9f05-01aa75ed71a1 .
EC_2021_a	European Commission, <i>Commission Recommendation on a common European data space for cultural heritage</i> , 2021,

Documents	
Code	Title
	https://digital-strategy.ec.europa.eu/en/news/commission-proposes-common-european-data-space-cultural-heritage .
EC_2021_b	European Commission, <i>Horizon Europe Work Programme 2021-2022</i> , 2021, https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-5-culture-creativity-and-inclusive-society_horizon-2021-2022_en.pdf .
ECCO_2002	ECCO, <i>ECCO Professional Guidelines</i> , 2002, https://www.ecco-eu.org/wp-content/uploads/2021/03/ECCO_professional_guidelines_I.pdf .
ENCRE_1997	European Network for Conservation-Restoration Education, <i>The document of Pavia</i> , 1997, https://www.ecco-eu.org/wp-content/uploads/2021/01/Document_of_Pavia.pdf .
EU_2012_a	European Union, <i>Treaty on the Functioning of the European Union</i> , 2012, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=IT .
EU_2012_b	European Union, <i>Consolidated version of the Treaty on European Union</i> , 2012, https://eur-lex.europa.eu/resource.html?uri=cellar:2bf140bf-a3f8-4ab2-b506-fd71826e6da6.0023.02/DOC_1&format=PDF .
EU_2014_a	European Union, <i>Council conclusions on participatory governance of cultural heritage</i> , 2014, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XG1223(01)&from=EN .
EU_2014_b	European Union, <i>Conclusions of the Council and of the Representatives of the Governments of the Member States, meeting within the Council, on a Work Plan for Culture (2015-2018)</i> , 2014, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XG1223(02)&from=EN .
EU_2015	European Union, <i>Towards an integrated approach to cultural heritage for Europe</i> , 2015, http://www.europanostra.org/wp-content/uploads/2016/11/20150226-CommitteeRegions-Opinion-CulturalHeritage.pdf .
EU_2018	European Union, <i>Council conclusions on the Work Plan for Culture 2019-2022</i> , 2018, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018XG1221(01) .
EUHeritage_2019	EUHeritage, <i>Report sul profilo delle competenze professionali nei settori del patrimonio culturale</i> , 2019, https://www.euheritage.eu/wp-content/uploads/2020/07/euheritage_exSummary_IT.pdf .
GCI_2013	The Getty Conservation Institute, <i>A Colloquium to Advance the Practice of Conserving Modern Heritage</i> , 2013, https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/colloquium_report.pdf .
ICOMOS_1964	ICOMOS, <i>International Charter on the Conservation and Restoration of Monuments and Sites</i> , Venice Charter, 1964, https://www.icomos.org/en/participer/179-articles-en-

Documents	
Code	Title
	francais/ressources/charters-and-standards/157-the-venice-charter.
ICOMOS_1975_a	ICOMOS, <i>European Charter of the Architectural Heritage</i> , 1975, https://www.icomos.org/en/charters-and-texts/179-articles-en-francais/ressources/charters-and-standards/170-european-charter-of-the-architectural-heritage .
ICOMOS_1975_b	ICOMOS, <i>Declaration of Amsterdam</i> , 1975, https://www.icomos.org/en/and/169-the-declaration-of-amsterdam .
ICOMOS_1981	ICOMOS, <i>Florence Charter</i> , 1981, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_baf8432e213a404dbdadef5171b7df90.pdf .
ICOMOS_1987	ICOMOS, <i>Charter for the Conservation of Historic Towns and Urban Areas</i> , Washington Charter, 1987, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_012ee3b47bea4183b8a7d344d1bcd340.pdf .
ICOMOS_1990	ICOMOS, <i>Charter for the Protection and Management of the Archaeological Heritage</i> , 1990, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_fdf09c5b303f4fa09a283992ae16bcb8.pdf .
ICOMOS_1994	ICOMOS, <i>The Nara Document on Authenticity</i> , 1994, https://www.icomos.org/charters/nara-e.pdf .
ICOMOS_1996	ICOMOS, <i>Charter on the Protection and Management of Underwater Cultural Heritage</i> , 1996, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_13e5d780e52a40dd8f168e08c63a0365.pdf .
ICOMOS_1999_a	ICOMOS, <i>International Cultural Tourism Charter Managing Tourism at Places of Heritage Significance</i> , 1999, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_aee47329a3e34675b6ed97e5cc0bdd4e.pdf .
ICOMOS_1999_b	ICOMOS, <i>Principles for the Preservation of Historic Timber Structures</i> , 1999, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_7407be5840354e808bbcabf4bb74a9cd.pdf .
ICOMOS_1999_c	Australia ICOMOS, <i>Australia ICOMOS Charter for the Conservation of Places of Cultural Significance</i> , Burra Charter, 1999, https://australia.icomos.org/wp-content/uploads/BURRA_CHARTER.pdf .
ICOMOS_2003_a	ICOMOS, <i>Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage</i> , ICOMOS Charter, 2003, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_9ba4ae0879f24300855d751ab8c1449f.pdf .
ICOMOS_2003_b	UNESCO, <i>Convention for the Safeguarding of the Intangible Cultural Heritage</i> , 2003, http://unesdoc.unesco.org/images/0013/001325/132540e.pdf .

Documents	
Code	Title
ICOMOS_2005	ICOMOS, <i>Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas</i> , 2005, https://www.icomositalia.com/files/ugd/57365b_98303295fc174ff08460949fe8448be9.pdf .
ICOMOS_2008_a	ICOMOS, <i>ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites</i> , 2008, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_4ab285a463404c0c8af194ae65fc9f4d.pdf .
ICOMOS_2008_b	ICOMOS, <i>ICOMOS Charter on Cultural Routes</i> , 2008, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_d8d00a05c0da4f5f83d87b5771796fd7.pdf .
ICOMOS_2008_c	ICOMOS, <i>Québec Declaration on the Preservation of the Spirit of Place</i> , 2008, https://www.icomositalia.com/files/ugd/57365b_b5592ff6461647b8ab2691fcbe30972d.pdf .
ICOMOS_2011_a	ICOMOS, <i>The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas</i> , 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_b4260164b6a74386a9bc53253775bb98.pdf .
ICOMOS_2011_b	European Union, <i>Treaty on the Functioning of the European Union</i> , 2012, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=IT .
ICOMOS_2011_c	European Union, <i>Treaty on the Functioning of the European Union</i> , 2012, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=IT .
ICOMOS_2014	ICOMOS, <i>The Florence Declaration on Heritage and Landscape as Human Values</i> , 2014, https://www.icomositalia.com/files/ugd/57365b_82e67406c79a4c879439591a0b7c03e3.pdf .
ICOMOS_2015	ICOMOS, <i>Cultural Heritage, the UN Sustainable Development Goals, and the New Urban Agenda</i> , 2015, https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/international/habitat/pdf/culturalheritage.pdf .
ICOMOS_2017_a	ICOMOS, <i>Delhi Declaration on Heritage and Democracy</i> , 2017, https://www.icomositalia.com/files/ugd/57365b_6b35812029b04c56a5b6127c89ae5065.pdf .
ICOMOS_2017_b	ICOMOS, <i>Delhi Declaration on Heritage and Democracy</i> , 2017, https://www.icomositalia.com/files/ugd/57365b_6b35812029b04c56a5b6127c89ae5065.pdf .
ICOMOS_2017_c	ICOMOS, <i>Principles for the Conservation of Wooden Built Heritage</i> , 2017, https://www.icomos.org/images/DOCUMENTS/General_Assemblies/19th_Delhi_2017/Working_Documents-First_Batch-August_2017/GA2017_6-3-4_WoodPrinciples_EN_final20170730.pdf .

Documents	
Code	Title
ICOMOS_2017_d	ICOMOS, <i>Delhi Declaration on Heritage and Democracy</i> , 2017, https://www.icomositalia.com/files/ugd/57365b_6b35812029b04c56a5b6127c89ae5065.pdf .
ICOMOS_2018	ICOMOS, <i>Buenos Aires Declaration marking the 70th anniversary of the Universal Declaration of Human Rights</i> , 2018, https://www.icomositalia.com/files/ugd/57365b_f1366c57ea3541598a60621233ece14c.pdf .
ICOMOS_2020	European Commission, <i>Commission Recommendation on a common European data space for cultural heritage</i> , 2021, https://digital-strategy.ec.europa.eu/en/news/commission-proposes-common-european-data-space-cultural-heritage .
ICOMOS_IFLA_2017_a	ICOMOS-IFLA, <i>ICOMOS-IFLA Principles Concerning Rural Landscapes as Heritage</i> , 2017, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_cd7200d8a8b04613b4456f230c433a15.pdf .
ICOMOS_IFLA_2017_b	ICOMOS-IFLA, <i>ICOMOS-IFLA Document on Historic Urban Public Parks</i> , 2017, https://www.icomositalia.com/files/ugd/57365b_35cc0006820a47298626dc214cedb11b.pdf .
ICOMOS_ISC20C_2011	ICOMOS, <i>The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas</i> , 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_b4260164b6a74386a9bc53253775bb98.pdf .
ICOMOS_ISC20C_2014	ICOMOS ISC20C, <i>Approaches for the Conservation of Twentieth-Century Architectural Heritage</i> , Madrid Document, 2014, http://www.icomos-isc20c.org/pdf/madrid_doc_10.26.pdf .
ICOMOS_ISC20C_2017	ICOMOS ISC20C, <i>Approaches to the Conservation of Twentieth-Century Cultural Heritage</i> , Madrid-New Delhi Document, 2017, http://www.icomos-isc20c.org/pdf/madrid-new-delhi-document-2017.pdf .
ICOMOS_ISCS_2008	ICOMOS-ISCS, <i>Illustrated glossary on stone deterioration patterns</i> , 2008, https://www.icomos.org/publications/monuments_and_sites/15/pdf/Monuments_and_Sites_15_ISCS_Glossary_Stone.pdf .
ICOMOS_TICCIH_2003	ICOMOS-TICCIH, <i>The Nizhny Tagil Charter for the Industrial Heritage</i> , 2003, https://www.icomos.org/18thapril/2006/nizhny-tagil-charter-e.pdf .
ICOMOS_TICCIH_2011	ICOMOS-TICCIH, <i>Joint ICOMOS-TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes</i> , Dublin Principles, 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_d251c1dbc22a4210a5d893cf058f8c41.pdf .
MPE_1972	Ministry of Public Education, <i>Italian Restoration Charter</i> , 1972, https://soprintendenzapisa.livorno.beniculturali.it/wp-

Documents	
Code	Title
	content/uploads/2019/08/circ-117-del-1972-Carta-del-restauro.pdf .
SCAFA_1932	Superior Council for Antiquities and Fine Arts, <i>Italian Restoration Charter</i> , 1932, http://www.brescianisrl.it/newsite/public/link/Carta_restauero%20_1932.pdf .
UN_2016	UN, <i>New Urban Agenda</i> , 2016, https://uploads.habitat3.org/hb3/NUA-English.pdf .
UNESCO_1954	UNESCO, <i>Final act of the Intergovernmental Conference on the Protection of Cultural Property in the Event of Armed Conflict</i> , 1954, https://unesdoc.unesco.org/ark:/48223/pf0000082464 .
UNESCO_1970	UNESCO, <i>Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property</i> , 1970, https://www.icomositalia.com/files/ugd/57365b_60f0820194f1438dbf6c804eeca60f06.pdf .
UNESCO_1972	UNESCO, <i>Convention Concerning the Protection of the World Cultural and Natural Heritage</i> , 1972, https://whc.unesco.org/archive/convention-en.pdf .
UNESCO_2001	UNESCO, <i>Convention on the Protection of the Underwater Cultural Heritage</i> , 2001, https://www.icomositalia.com/files/ugd/57365b_8661d7db97624027969c942246175db1.pdf .
UNESCO_2003	UNESCO, <i>Convention for the Safeguarding of the Intangible Cultural Heritage</i> , 2003, http://unesdoc.unesco.org/images/0013/001325/132540e.pdf .
UNESCO_2005	UNESCO, <i>Convention on the Protection and Promotion of the Diversity of Cultural Expressions</i> , 2005, https://en.unesco.org/creativity/sites/creativity/files/passeport-convention2005-web2.pdf .
UNESCO_2011_a	UNESCO, <i>Convention for the Safeguarding of the Intangible Cultural Heritage</i> , 2011, https://ich.unesco.org/doc/src/15164-EN.pdf .
UNESCO_2011_b	UNESCO, <i>Recommendation on the Historic Urban Landscape</i> , 2011, https://whc.unesco.org/uploads/activities/documents/activity-638-98.pdf .
UNESCO_2018	UNESCO, <i>Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage</i> , 2018, https://whc.unesco.org/en/news/1826 .
UNESCO_2019_a	UNESCO, <i>The UNESCO Recommendation on the Historic Urban Landscape</i> , 2019, https://whc.unesco.org/en/hul/ .
UNESCO_2019_b	UNESCO, <i>Operational Guidelines for the Implementation of the World Heritage Convention</i> , 2019, https://www.icomositalia.com/files/ugd/57365b_8afd1ec7d6e245ca86d35fe483bf0c8a.pdf .
UNESCO_ICCROM_ICOMOS_IUCN_2013	UNESCO, ICCROM, ICOMOS, IUCN, <i>Managing Cultural World Heritage</i> , 2013, https://whc.unesco.org/en/managing-cultural-world-heritage/ .

Documents	
Code	Title
UNIDROIT_1995	UNIDROIT, <i>UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects</i> , 1995, https://www.unidroit.org/instruments/cultural-property/1995-convention/ .
VVAA_1883	Vv.Aa., <i>Resolution of the Third Congress of Engineers and Architects</i> , 1883, https://denkmalpflege.tuwien.ac.at/wp-content/uploads/2014/11/Boito-Carta-del-restauro-1883-ital.-u.-engl..pdf .
VVAA_1931	Vv.Aa., <i>The Athens Charter for the Restoration of Historic Monuments</i> , 1931, https://www.icomos.org/en/167-the-athens-charter-for-the-restoration-of-historic-monuments .
VVAA_1960	Vv.Aa., <i>Gubbio Charter</i> , 1960, https://www.italianostra.org/la-carta-di-gubbio-del-1960/ .
VVAA_1978	Vv.Aa., <i>Charter of Machu Picchu</i> , 1978, http://orcp.hustoj.com/wp-content/uploads/2015/12/1977-The-Charter-of-Machu-Picchu.pdf .
VVAA_1986	Vv.Aa., <i>Noto Charter</i> , 1986, https://ipce.culturaydeporte.gob.es/dam/jcr:c985ba29-4817-442b-8cde-e2a490140936/1986-carta-de-noto.pdf .
VVAA_1991	Vv.Aa., <i>I dieci punti del comitato dei monumenti moderni</i> , in F. Perego, <i>Monumenti moderni, un'emergenza nuova</i> , in "Edilizia Popolare", 216-217, 1991, p. 48.
VVAA_2000	Vv.Aa., <i>Principles for Conservation and Restoration of Built Heritage</i> , Charter of Krakow, 2000, http://smartheritage.com/wp-content/uploads/2015/03/KRAKOV-CHARTER-2000.pdf .
VVAA_2010	Vv.Aa., <i>Lima Declaration for Disaster Risk Management of Cultural Heritage</i> , 2010, https://www.icomositalia.com/files/ugd/57365b_452c480e9ba54686ba2f6c22b0d52b9e.pdf .
VVAA_2011	Vv.Aa., <i>European Heritage Alliance 3.3. Towards an EU Strategy for Cultural Heritage - The Case for Research</i> , 2011, http://europeanheritagealliance.eu/wp-content/uploads/2017/09/Towards-an-EU-Strategy-for-Cultural-Heritage_final.pdf .
VVAA_2014_a	Vv.Aa., <i>Nara + 20: on Heritage Practices, Cultural Values, and the Concept of Authenticity</i> , 2014, http://www.japan-icomos.org/pdf/nara20_final_eng.pdf .
VVAA_2014_b	Vv.Aa., <i>The Himeji Recommendations</i> , 2014, https://www.google.com/url?esrc=s&q=&rct=j&sa=U&url=https://whc.unesco.org/document/123338&ved=2ahUKEwjUkNjX-sD2AhXOR_EDHWvfD8sQFnoECAoQAq&usq=AOvVaw1u6gHo1ZWyy8nmQB0npdVU .
VVAA_2016	Vv.Aa., <i>Urban Agenda for the EU</i> , Pact of Amsterdam, 2016, https://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf .
VVAA_2017	European Commission, <i>Mapping of Cultural Heritage actions in European Union: policies, programmes and activities</i> , 2017, https://ec.europa.eu/assets/eac/culture/library/reports/2014-heritage-mapping_en.pdf .

Documents	
Code	Title
VVAA_2018	Vv.Aa., <i>Adaptive Re-Use of the Built Heritage: Preserving and Enhancing the Values of our Built Heritage for Future Generations</i> , Leeuwarden Declaration, 2018, https://www.ace-cae.eu/fileadmin/New_Upload/15_EU_Project/Creative_Europe/Conference_Built_Heritage/LEEWARDEN_STATEMENT_FINAL_EN-NEW.pdf .
VVAA_2019	Vv.Aa., <i>Declaration. Cooperation on advancing digitalisation of cultural heritage</i> , 2019, https://www.vi-mm.eu/wp-content/uploads/2016/12/scannedsignedDeclaration090419pdf.pdf .

European Projects		
Code	Acronym	Title
EP_001	4CH	Competence Centre for the Conservation of Cultural Heritage
EP_002	ACTECH	Ancient ConstructionTECHniques between East and West. Building traditions, technological innovations and workmanship circulation: from Roman Arabia to Medieval Europe.
EP_003	APACHE	Active & intelligent PAcKaging materials and display cases as a tool for preventive conservation of Cultural Heritage.
EP_004	ARCH	Advancing Resilience of Historic Areas against Climate-related and other Hazards
EP_005	ARCHES	Accessible Resources for Cultural Heritage EcoSystems
EP_006	ATHENA	Remote Sensing Science Center for Cultural Heritage
EP_007	AVATAR	Application of Virtual Anastylis Techniques for Architectural Research
EP_008	Be.CULTOUR	Beyond CULTural TOURism: human-centred innovations for sustainable and circular cultural tourism
EP_009	BIONA4ART	BIO-inspired NAcree-like materials FOR the next generation of conservation treatments in stone ART works
EP_010	CALI	The Cambodian Archaeological Lidar Initiative: Exploring Resilience in the Engineered Landscapes of Early SE Asia
EP_011	CATHEDRAL ACOUSTICS	Sound as Intangible Heritage: Preserving the Acoustics of Cathedrals in the United Kingdom
EP_012	CENTRINNO	New CENTRALities in INdustrial areas as engines for inNOvation and urban transformation
EP_013	CHANGE	Cultural Heritage Analysis for New GEnerationS
EP_014	CHEurope	Critical Heritage Studies and the Future of Europe_Towards an integrated, interdisciplinary and transnational training model in cultural heritage research and management
EP_015	CHICC	Culture, Heritage and Identities: Impacts of Climate Change in North West Europe
EP_016	CLEA	Reviewing and integrating methods for the Conservation of European architectural finishes in urban hERitage townscApes
EP_017	CLIC	Circular models Leveraging Investments in Cultural heritage adaptive reuse
EP_018	COASTAL	Collaborative lAnd Sea inTEgration pLatform
EP_019	CONCHA	The construction of early modern global Cities and oceanic networks in the Atlantic: An approach via Ocean's Cultural HeritAge
EP_020	conFiRMa	Strengthening of existing masonry buildings with Fibre-Reinforced Mortar: calibration of a reliable numerical model to assess the structural performances
EP_021	CONQUES	Conques in the Global World. Transferring Knowledge: from Material to Immaterial Heritage
EP_022	Constr-HaVi	Construction techniques, experimentation and innovative architectural solutions at Hadrian's Villa (Tivoli, Italy)
EP_023	CRAFT	Cartonnage Regionalism in the Ateliers of the Fayum Territory
EP_024	DaphNet	Dynamic Preservation of Interactive Art: The next frontier of Multimedia Cultural Heritage
EP_025	DEPART	Digging in Early Picasso's Artworks: Making and Meaning Research Forum
EP_026	DFitHH	Digital Forensics in the Historical Humanities: Hanif Kureishi, The Mass Observation Archive, Glyn Moody

European Projects		
Code	Acronym	Title
EP_027	DigiArt	The Internet Of Historical Things And Building New 3D Cultural Worlds
EP_028	DUEL	Fighting with Words: Poetic Duelling and its Performance across the Mediterranean
EP_029	DURARE	DYNAMICS OF THE DURABLE. A History of Making Things Last in the Visual and Decorative Arts.
EP_030	ECOPOTENTIAL	ECOPOTENTIAL: Improving Future Ecosystem Benefits Through Earth Observations
EP_031	ED-ARCHMAT	European Doctorate in ARchaeological and Cultural Heritage MATerials science
EP_032	EGYPTOMICS	Paleoproteomics for cultural heritage conservation: biomolecular analysis of ancient Egyptian paint binders
EP_033	eHERITAGE	Expanding the Research and Innovation Capacity in Cultural Heritage Virtual Reality Applications
EP_034	EMOTIVE	Emotive Virtual cultural Experiences through personalized storytelling
EP_035	ENGHUM	Engaged humanities in Europe: Capacity building for participatory research in linguistic-cultural heritage
EP_036	E-RIHS PP	The European Research Infrastructure for Heritage Science Preparatory Phase
EP_037	ERN-Apulia	European Researchers' Night Apulia 2018-2019 - Discovering the fascinating world of research
EP_038	ERN-Apulia2	European Researchers' Night Apulia 2020 - Discovering the fascinating world of research
EP_039	EU-LAC-MUSEUMS	Museums and Community: Concepts, Experiences, and Sustainability in Europe, Latin America and the Caribbean
EP_040	FAWORIT 2018-2019	Fascinating World of Researchers in the Age of Technology – Cultural Heritage & the New Generation of Innovators
EP_041	FLOS	Florilegia Syriaca. The Intercultural Dissemination of Greek Christian Thought in Syriac and Arabic in the First Millennium CE
EP_042	FORPRAL	Forbidden Prayers Library. Shaping Private Piety in Counter-Reformation Europe (16th-18th)
EP_043	FRAMAB	Flood Risk Assessment and mitigation for Masonry Arch Bridges
EP_044	FUTURES	Forefront UAV Technology for Underpinning Rainforest Environmental Sustainability
EP_045	Geopark	Geoparks: Heritage, Education and Sustainable Development - an Innovative Methodology for Southern Countries. Case Study in Morocco (Atlas Mountains, Marrakech)
EP_046	GIFT	Meaningful Personalization of Hybrid Virtual Museum Experiences Through Gifting and Appropriation
EP_047	GRAVITATE	Geometric Reconstruction And novel semantic reunification of cultural heritage objects
EP_048	HAP4MARBLE	Multi-functionalization of hydroxyapatite for restoration and preventive conservation of marble artworks
EP_049	HeLlo	Heritage energy Living Lab onsite
EP_050	HERACLES	HERitage Resilience Against CLimate Events on Site
EP_051	HeriCare	2D Materials/Polyoxometalate Hybrids for Heritage Conservation
EP_052	HERILAND	Cultural HERItage and the planning of European LANDscapes
EP_053	HERITAGE	Cultural Heritage and Economic Development in International and European Law

European Projects		
Code	Acronym	Title
EP_054	HERitage	The role of cultural heritage in socio-economic development and preservation of democratic values
EP_055	HiLSS	Historic Landscape and Soil Sustainability
EP_056	HISMACITY-pro	Historical Small Smart City Protocol for integrated interventions.
EP_057	HOLAHERIS	A holistic structural analysis method for cultural heritage structures conservation
EP_058	HUB-IN	Hubs of Innovation and Entrepreneurship for the Transformation of Historic Urban Areas
EP_059	HYPERION	Development of a Decision Support System for Improved Resilience & Sustainable Reconstruction of historic areas to cope with Climate Change & Extreme Events based on Novel Sensors and Modelling Tools
EP_060	HYSOTIB	Global dynamics of hydro-sociality in river heritage landscapes of the Qinghai Tibetan Plateau.
EP_061	ILLR	Intellectual Life and Learning on Rhodes (168BC-AD44)
EP_062	ILUCIDARE	International network for Leveraging sUccessful Cultural heritage Innovations and Diplomacy, cApacity building and awaREness raising
EP_063	iMARECULTURE	Advanced VR, iMmersive serious games and Augmented REality as tools to raise awareness and access to European underwater CULTURAL heritageE.
EP_064	INCEPTION	Inclusive Cultural Heritage in Europe through 3D semantic modelling
EP_065	InnovaConcrete	Innovative materials and techniques for the conservation of 20th century concrete-based cultural heritage
EP_066	INTERFACE	paINTed mEtal aRteFActs ConsERvation
EP_067	IPERION CH	Integrated Platform for the European Research Infrastructure ON Cultural Heritage
EP_068	IPERION HS	Integrating Platforms for the European Research Infrastructure ON Heritage Science
EP_069	ISLAPAP	Understanding the Material Culture of Islamic Paper and Inks
EP_070	iv4XR	Intelligent Verification/Validation for Extended Reality Based Systems
EP_071	K-TRIO 3	Researchers in the knowledge triangle
EP_072	LArchHer	Breaking barriers between Science and Heritage approaches to Levantine Rock Art through Archaeology, Heritage Science and IT
EP_073	LAWHA	Lebanon's Art World at Home and Abroad: Trajectories of artists and artworks in/from Lebanon since 1943
EP_074	LEAP	LEarning of Archaeology through Presence
EP_075	LightFasTR	Understanding the light-fastness of heritage Turkey Red textiles through modern dye chemistry and historical dyeing technology to inform sustainable display and access
EP_076	LUDEME	The Digital Ludeme Project: Modelling the Evolution of Traditional Games
EP_077	MAPS	A Multifactorial Analysis of Possessive Structures: Mapping the Interaction of Language, Culture, and Cognition
EP_078	MarginScapes	Long-term land use and water management strategies in arid margin landscapes
EP_079	MEDICINE	MEDICINE. Indigenous concepts of health and healing in Andean populations: understanding the relevance of traditional MEDICINE in a changing world.

European Projects		
Code	Acronym	Title
EP_080	MEDLAND_HORN.AFRICA	Medieval landscapes in the Horn of Africa. State, territory and materiality of the Adal Sultanate (15th-16th centuries AD)
EP_081	MendTheGap	Smart Integration of Genetics with Sciences of the Past in Croatia: Minding and Mending the Gap
EP_082	METAPHOR	People, Space and Time: Understanding metaphors in sustaining cultural landscapes
EP_083	MEXRES	Restoration and Faith: practicing religion and conservation in Mexico's historic churches
EP_084	Mingei	Representation and Preservation of Heritage Crafts
EP_085	MuMoSiSt	Multidisciplinary approach to multilayer monumental sites studies: the case of the Quirinal Hill in Rome
EP_086	NACCA	New Approaches in the Conservation of Contemporary Art
EP_087	NANO-CATHEDRAL	Nanomaterials for conservation of European architectural heritage developed by research on characteristic lithotypes
EP_088	NANOMORT	Development of a novel and ecologic mortar based on nanoparticles of lime and organic additives for the repair of Built Heritage and new construction
EP_089	NANORESTART	NANomaterials for the REStoration of works of ART
EP_090	NEGOTIA	Negotiating Religion: Coptic Orthodox diaspora communities. Shifting identities, needs, and relations from Egypt to Europe and back
EP_091	NEMOSINE	Innovative packaging solutions for storage and conservation of 20th century cultural heritage of artefacts based on cellulose derivate
EP_092	NeopIAT	Neoplatonism and Abrahamic Traditions. A Comparative Analysis of the Middle East, Byzantium and the Latin West (9th-16th Centuries)
EP_093	NewsEye	NewsEye: A Digital Investigator for Historical Newspapers
EP_094	OCHER	Owners of a Common Heritage. Commons, Environment and Rights in European Mountains (18th - 20th century)
EP_095	ODEUROPA	ODEUROPA: Negotiating Olfactory and Sensory Experiences in Cultural Heritage Practice and Research
EP_096	OpenHeritage	Organizing, Promoting and ENabling HEritage Re-use through Inclusion, Technology, Access, Governance and Empowerment
EP_097	PALAMUSTO	Research and Training for the Palace Museum of Tomorrow
EP_098	PAPHOS	Parallel photogrammetry system for object panoramas
EP_099	PARCA	Advance in Proteomics and Analysis of dyes and Recovery of Charred and Aged textiles
EP_100	PARTHENOS	Pooling Activities, Resources and Tools for Heritage E-research Networking, Optimization and Synergies
EP_101	PERICLES	PrEseRvIng and sustainably governing Cultural heritage and Landscapes in European coastal and maritime regionS
EP_102	PICTURING	Post-Industrial Chimneys seen Through Urban Regeneration Imaginaries: toward a Networked GeoHumanities
EP_103	PLUGGY	Pluggable Social Platform for Heritage Awareness and Participation
EP_104	POCITYF	A POSitive Energy CITY Transformation Framework
EP_105	Polifonia	Polifonia: a digital harmoniser for musical heritage knowledge




European Projects		
Code	Acronym	Title
EP_106	PRESIOUS	PREdictive digitization, reStoration and degradatiOn assessment of cultUral heritage objectS
EP_107	PRO-Heritage	PROtect traditional built HERITAGE Skills – PRO-Heritage
EP_108	PROMETHEUS	PROtocols for information Models librariEs Tested on HEritage of Upper Kama Sites
EP_109	RAMBEA	Realistic Assessment of Historical Masonry Bridges under Extreme Environmental Actions
EP_110	REACH	Re-designing access to CH for a wider participation in preservation, (re)use and management of European culture
EP_111	READ	Recognition and Enrichment of Archival Documents
EP_112	ReFocuS 2.0	Road to Friday of Science 2.0
EP_113	ReInHerit	Redefining the future of cultural heritage, through a disruptive model of sustainability
EP_114	ReMIND	Reactivating Neglected Heritages, Reweaving Unspoken Memories. A Study on the Adaptive Reuse of Former Asylums into “mind museums”.
EP_115	ReMTW	Re-making the World: Women, Humanitarian Agencies and Handicrafts Programmes
EP_116	RESALVE	The Revival of Salve Regina. Medieval Marian chants from Aveiro: musical sources, gender specific context and performance
EP_117	RESEARCH	REmote SEnsing techniques for ARCHaeology
EP_118	REVEAL	Realising Education through Virtual Environments and Augmented Locations
EP_119	ROCK	Regeneration and Optimisation of Cultural heritage in creative and Knowledge cities
EP_120	ruALLURE	Promotion of rural museums and heritage sites in the vicinity of European pilgrimage routes
EP_121	Scan4Reco	Multimodal Scanning of Cultural Heritage Assets for their multilayered digitization and preventive conservation via spatiotemporal 4D Reconstruction and 3D Printing
EP_122	SCICITY	Science in the City
EP_123	SCIMFONICO M2018-19	SCIENCE IN MOTION FOR FRIDAY NIGHT COMMOTION
EP_124	SCINAT	Science and Nature
EP_125	SCORE	Sustainable COnservation and REstoration of built cultural heritage
EP_126	SEMICOMPLE X	Divide and conquer ab initio semiclassical molecular dynamics for spectroscopic calculations of complex systems
EP_127	SensMat	Preventive solutions for Sensitive Materials of Cultural Heritage
EP_128	SHELTER	Sustainable Historic Environments hoListic reconstruction through Technological Enhancement and community based Resilience
EP_129	SHERIF	reSearch is sERious Fun
EP_130	SILKNOW	Silk heritage in the Knowledge Society: from punched cards to big data, deep learning and visual / tangible simulations
EP_131	SMARTCULTURE	SMART CULTURE
EP_132	SmARTS	Smart technology for analysis and monitoring of Cultural Heritage materials
EP_133	SMOOLS	Smart Monitoring of Historic Structures

European Projects		
<i>Code</i>	<i>Acronym</i>	<i>Title</i>
EP_134	SOCIETY	How do you spell RESEARCH? SOCIETY - Science, histOry, Culture, muslc, Environment, arT, technologY
EP_135	SoPHIA	SOCIAL PLATFORM FOR HOLISTIC HERITAGE IMPACT ASSESSMENT
EP_136	STABLE	STructural stABiLity risk assEssment
EP_137	STORM	Safeguarding Cultural Heritage through Technical and Organisational Resources Management
EP_138	SWORM	Stone-working across the ancient Mediterranean. Building techniques, artisans and cultural identities: a view from North Africa
EP_139	SYDDARTA	SYstem for Digitization and Diagnosis in ART Applications
EP_140	T4C	PhD Technology Driven Sciences: Technologies for Cultural Heritage
EP_141	TECTONIC	TEchnological Consortium TO develop sustaiNablility of underwater Cultural heritage
EP_142	TEMPERA	Teaching Emerging Methods in Palaeoproteomics for the European Research Area
EP_143	Terpsichore	Transforming Intangible Folkloric Performing Arts into Tangible Choreographic Digital Objects
EP_144	TexMeroe	Archaeology of Textile Production in the Kingdom of Meroe New approaches to cultural identity and economics in ancient Sudan and Nubia
EP_145	T-Factor	Unleashing future-facing urban hubs through culture and creativity-led strategies of transformative time
EP_146	ThinkNature	Development of a multi-stakeholder dialogue platform and Think tank to promote innovation with Nature based solutions
EP_147	Time Machine	Time Machine : Big Data of the Past for the Future of Europe
EP_148	TISCH	Terahertz Imaging and Spectroscopy for Cultural Heritage
EP_149	TITANIUM	Software Components for Robust Geometry Processing
EP_150	TRACTION	Opera co-creation for a social transformation
EP_151	TROMPA	Towards Richer Online Music Public-domain Archives
EP_152	UNCHARTED	UNCHARTED: Understanding, Capturing and Fostering the Societal Value of Culture
EP_153	V4Design	Visual and textual content re-purposing FOR(4) architecture, Design and video virtual reality games
EP_154	VHH	Visual History of the Holocaust: Rethinking Curation in the Digital Age
EP_155	Warmest	loW Altitude Remote sensing for the Monitoring of the state of Cultural hEritage Sites: building an inTegrated model for maintenance.
EP_156	XPECAM	A New Portable Spectral Camera System for the Cultural Heritage Conservation Market




Appendix 2 – Best practices sheets

1. CASE STUDY (INTRODUCTION)		BP_001
Best practice ref. <i>identification code (add text)</i>	BP_001	
Object <i>object of the case study (add text)</i>	ALTENBURG ABBEY, ALTENBURG, AUSTRIA	
Intervention <i>subject of the case study (add text)</i>	Reinterpretation of the open spaces and relationship between old and new in a Medieval abbey	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2002
	End date	2012
Actors <i>main actors involved (add text)</i>	Jabornegg & Pálffy Architects, Claudia Riff-Podgorschek (freelance restorer/conservator of wallpaintings and architectural surfaces), Vasko & Partner and Karlheinz Wagner (structural engineers), DI Walter Prause (for the building physics), Vasko & Partner (for the building services), Kittenberg Erlebnispärten (for landscaping), Franz Hofstätter (for the site supervision)	
Description of the best practice <i>Brief abstract (add text)</i>	<p>After the competition won by Jabornegg & Pálffy Architects in 2012, the design phase of the Altenburg Abbey restoration was carried out between 2002 and 2012, accompanied by the construction phase between 2004 and 2012. Winner of the International Architecture Restoration Prize 2012 "Fassa Bortolo Domus Restoration and Preservation", the restoration project of the Altenburg Abbey focused on the open spaces and the monastic building for its reconversion into a museum. The abbey's main prospect was balanced by extensive open spaces, with a terrace which offered a pleasant view of the surrounding countryside and a good vantage point from which to observe the abbey's impressive façades. Its structural foundation was an embankment, raised above part of the Medieval abbey, whose weight, in the 1990s, increasingly threatened the stability of the terrace's supporting walls. To relieve the pressure on existing structures and ensure building safety, the embankment was hallowed out in 2000. Various layers of medieval remains came to light. These medieval areas are now used as museum spaces, forming coherent extension of the exhibition areas already established in the main complex. To shelter the remains, a terrace was once again installed at the same level as the adjoining Baroque-era courtyards. While giving the excavation area a clear profile, the terrace also serves as a spacious thoroughfare, translating the architectural idiom of the Baroque into modern terms. Each phase in the abbey's architectural history stands out clearly in the individual sections of the building. The new museum complex's lobby is the only place where the Baroque idiom effectively overwrote the Medieval origin, with the new Baroque design blanking out the medieval church interior. The decision made about how to restore the components of the asset were based on the notion that they form an integral part of a long history of changes the building has gone through: a balance needed to be maintained.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://www.premiorestauro.it/documents/69803/89009/Jabornegg+board_s_.pdf/a7feed2-3d5b-4259-9e08-3a0456002a12 • https://it.wikipedia.org/wiki/Abbazia_di_Altenburg 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
Keywords	Ancient constructions	

<p><i>transversal tags among different fields of research</i> <i>(add text)</i></p>	<p>Conservation Preservation Valorisation</p>
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>	<div>  </div> <div> <p>https://www.premior-estauro.it/documents/69803/89009/Jabor-negg+boards_.pdf/a7ffeed2-3d5b-4259-9e08-3a0456002a12</p> </div> <div>  </div> <div> <p>https://www.premior-estauro.it/documents/69803/89009/Jabor-negg+boards_.pdf/a7ffeed2-3d5b-4259-9e08-3a0456002a12</p> </div> <div>  </div> <div> <p>https://www.premior-estauro.it/documents/69803/89009/Jabor-negg+boards_.pdf/a7ffeed2-3d5b-4259-9e08-3a0456002a12</p> </div>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_001

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Altenburg Abbey</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.premiorestauro.it/documents/69803/89009/Jabornegg+boards_.pdf/a7ffeed2-3d5b-4259-9e08-3a0456002a12</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Altenburg
		Address	Abt-Placidus-Much-Straße 1
		Country	Austria
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
		Type B (of the heritage asset) <i>(select from list)</i>	Agricultural
	Burial		<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
	Commercial		<i>(passages, markets, etc.)</i>
	Cultural		<i>(libraries, archives, etc.)</i>
	Cultural Landscape		
	Dwellings		<i>(villas, palaces, houses, etc.)</i>
	Educational		
	Expositive		<i>(museums, galleries, etc.)</i>
	Gardens and Parks		
	Health and Welfare		<i>(hospitals, spas, etc.)</i>
	Industrial and Technological		<i>(factories, power plants, etc.)</i>
	Infrastructure and Maritime		<i>(stations, ports, canals, roads, railways, etc.)</i>
	Military and defensive		<i>(castles, forts, battlefields, etc.)</i>
	Mining		<i>(mines, etc.)</i>
	Other, Public		<i>(law courts, city hall, etc.)</i>
	Performing		<i>(theatres, etc.)</i>
	Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>	
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Benedictine monastery
		Century	12th-20th century
		Start year	1144
		End year	1940
		Function	Housing
		Century	20th century
		Start year	1945
		End year	
		Function	Monastery
		Century	20th century
		Start year	1947-1968
		End year	
		Function	Museum
	Century	21st century	
	Start year	2012	
	End year		
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Foundation
		Actor	Countess Hildeburg of Poigen-Rebgau
		Century	12th century
		Start year	1144
		End year	1144
		Event	Destruction
		Actor	Swedes
		Century	17th century
		Start year	1645
End year		1645	
Event		Reconstruction	
Actor		Architect Joseph Munggenast	
Century		17th-18th century	
Start year			
End year			
Event	Occupation		
Actor	Nazi party assault teams		
Century	20th century		
Start year	1938		
End year	1940		
Event	Closure and dissolution		
Actor	Nazis		
Century	20th century		
Start year	1940		
End year	1941		
Event	Occupation		
Actor	Soviet troupes		
Century	20th century		
Start year	1945		
End year			

	Temporal significant events in the history of the heritage asset <i>(add text)</i>	Event Actor Century Start year End year	Restoration and re-establishment of the monastic community Abate Maurus Knappek 20th century 1947 1968
	Investigation status <i>(select from list)</i>	Un-documented Archived Studied	
OTHER	Immaterial aspects connection to immaterial aspects <i>(select from list)</i> <i>(add text)</i>	Architectural typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Spiritual value	

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features Art works Eco-facts Ethnographic Historic replica Utilitarian Written evidences		
		Immovable	Carved Frescoes Graffiti Mosaics		
		Digital	Art Virtual reality		
		Time period <i>(select from list)</i>	Ancient period Post industrial revolution period		
		Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event		
			Actor		
			Century		
			Start year End year		
		OTHER	Investigation status <i>(select from list)</i>	Un-documented Archived Studied Exhibited Preserved Recorded	
				Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology Artisanship Authorship Knowledge/ideas

OTHER	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_001

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	Open Spaces Whole complex	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Bricks, tiles
	Concrete	Concrete
	Concrete derivatives	
	Glass materials	Glass
	Metal materials	Steel
	Paints, varnishes and enamels	
	Plasters	Plaster, stucco
	Polymeric materials	
	Marbles, travertines, stones and granites	Stones
	Vegetable, mineral and animal fibres	
	Wood	
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological) Anthropic risks (heritage management)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	—	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>

		<i>standards, replicable strategies)</i>	Reinforcement of CH buildings; Project of restoration; Adaptive re-use of CH; Accessibility
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	



Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_001

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation					
•	•		Diagnostic activities			Skills on taking care of Cultural Heritage materials		
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
•	•		Reinforcement of CH buildings			Skills on organisation and logistics of complex situations (management of means and resources)		
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration			Skills on organisation and logistics of complex situations (management of means and resources)		
•			Reconstruction					
	•	•	Adaptive re-use of CH			Skills on implementing measures to encourage people to practice heritage		
	•	•	Accessibility			Skills on implementing measures to encourage people to practice heritage		
		•	Dissemination through publications					
		•	Organisation of events and festivals					
		•	Encounters with communities					
		•	Educational activities and programmes					
		•	Creation of partnership and networking					
		•	Advertisements with CH					
		•	Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_002
Best practice ref. <i>identification code (add text)</i>	BP_002	
Object <i>object of the case study (add text)</i>	ENAME ABBEY, ENAME, BELGIUM	
Intervention <i>subject of the case study (add text)</i>	Virtual reconstruction of a village and its abbey	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2015
	End date	–
Actors <i>main actors involved (add text)</i>	Visual Dimension bvba	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The Ename Abbey became the object of Ename 1290, which is a real time 3D application that shows the village of Ename and its abbey in 1290. Ename 1290, that is located in the Provincial Archaeological Museum of Ename, was awarded for the prestigious Heritage in Motion 2016 Award in the category “Games and Interactive Experiences”. It was evaluated as “an interesting and user-friendly interpretation of an archaeological site, encouraging individual exploration and linking space and objects in a very engaging way”. The nomination for this award stimulated to continue producing effective and exciting ways to experience cultural heritage and the past through Ename 1665. The period that has been chosen for Ename 1290 is linked to Martijn van Torhout, a medieval monk working in the abbey of Ename who was one of the first to write in ancient Dutch, the language of the common people. His figure allowed to emphasise the role of the scriptorium in medieval abbeys. Ename 1290 has been implemented on the TimeGate system that consists of games PC, a Kinect2 camera and a short-throw projector. It allows to navigate through and interact with the reconstructed virtual world through arm gestures, with the user standing at a about 5 m distance of the projection screen in front of the Kinect2 camera. The software has been created on the Unity3D platform with the interface to the Kinect2 camera as an internal script. The gestures are recorded and fine-tuned in a gesture editor. The gestures include walking forward, looking around (left, right, up, down), selecting an object and manipulating it (rotating it in all directions, putting it back or taking it). The navigation through the virtual world is limited to a path (which is indicated as a white line in the 3D scene) to improve the efficiency of the exploration of the vast reconstructed area. The virtual reconstruction of Ename 1290 application has two main uses: on one hand, it provides a virtual walk through the reconstructed abbey under the direction of a museum guide, on the other hand it can act as an educational game, where every object will reveal a small part of the game story through a short narrative when selected. Both uses are integrated into one system with minimal effort (turning the object stories on or off). In both cases, it is a social activity in which the group is involved and discussion and interaction is stimulated, although only one person at the time interacts with the 3D. Moreover, the virtual reconstruction has a rich 3D soundscape as many objects and animals have associated sounds, creating a strong feeling of presence.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Bentkowska-Kafel A., Denard H., Baker D., <i>Paradata and Transparency in Virtual Heritage</i>, Routledge, London and New York 2012. • https://enameabbey.wordpress.com/2016/06/02/heritage-in-motion-2016-award/ 	


	<ul style="list-style-type: none"> • https://enameabbey.wordpress.com/1290-game/ • https://heritageinmotion.eu/himentry/ename-1290 • https://worldwidemuseum.wordpress.com/2016/10/10/ename-1290-backstage-reconstructing-saint-salvator-abbey/ • https://www.4ch-project.eu/using-3d-reconstruction-and-story-telling-to-bring-the-past-to-life/
<p>Documental references <i>(add text)</i></p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>ICOMOS, <i>Charter for the Protection and Management of the Archaeological Heritage</i>, 1990, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_fdf09c5b303f4fa09a283992ae16bcb8.pdf.</p> <p>Council of Europe, <i>Convention for the Protection of the Archaeological Heritage of Europe</i>, The Valletta Convention, 1992, https://www.coe.int/en/web/culture-and-heritage/valletta-convention.</p> <p>ICOMOS, <i>Salalah Guidelines for the Management of Public Archaeological Sites</i>, 2017, https://www.icomositalia.com/_files/ugd/57365b_36589194d828402e9380a363f8c4662b.pdf.</p>
<p>Keywords <i>transversal tags among different fields of research (add text)</i></p>	<p>Archaeological sites</p> <p>Valorisation</p>
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>	<div>  </div> <div> <p>https://enameabbey.wordpress.com/1290-game/</p> </div> <div>  </div> <div> <p>https://www.4ch-project.eu/using-3d-reconstruction-and-story-telling-to-bring-the-past-to-life/</p> </div>



<https://www.4ch-project.eu/using-3d-reconstruction-and-story-telling-to-bring-the-past-to-life/>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_002

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Ename Abbey</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Saint Saviour Abbey</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://worldwidemuseum.wordpress.com/2016/10/10/ename-1290-backstage-reconstructing-saint-salvator-abbey/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Ename
		Address	
		Country	Belgium
	Environment <i>(select from list)</i>	Continent	Europe (European Union)
		Urban	
		Rural	
		Coastal	
	Location <i>(select from list)</i>	Natural	
		On ground	
		Underwater/maritime	
Underground			
Cave			
	Find spot		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
	Type B (of the heritage asset) <i>(select from list)</i>	Open surface	
		Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Benedictine abbey	
		Century	11st-18th century	
		Start year	1063	
		End year	1795	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Construction	
		Actor	Count of Flanders	
		Century	11st century	
		Start year	1063	
End year		1063		
Event		Abolished in the French Revolution		
Actor				
Century		18th century		
Start year		1795		
End year	1795			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		Writings of a medieval monk, Martijn van Torhout, working in the abbey who was one of the first to write in ancient Dutch
		Traditional construction systems		
Traditional craftsmanship				
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		Use as a benedectine abbey		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
			Digital
			Virtual reality
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		

	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	Use of objects and writing of texts
		Actor	Monks of the abbey
		Century	13th century
		Start year	1290
		End year	1290
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
Traditional craftsmanship			
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

3. CHARACTERISATION OF THE BEST PRACTICE

BP_002

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	Ename Abbey Village of Ename		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites		
	Vegetable, mineral and animal fibres		
	Wood		
	Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	—		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	TimeGate system (games PC, Kinect2 camera and short-throw projector) Unity3D platform Gesture editor		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists Companies from the creative industry producing heritage-based content, apps, games, education and tourism services		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Documentation of CH; Reconstruction; Gamings with CH
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>	

	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET BP_002

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			• Historic and bibliographic research					
			• Studies on CH					
			• Documentation of CH	Skills on digitalisation				
			• Communication of CH					
			• Preventive conservation					
			• Diagnostic activities					
			• Identification of the risks and deterioration patterns					
			• Materials conservation tests					
			• Pre-consolidation, cleaning, consolidation and protection of CH materials					
			• Reinforcement of CH buildings					
			• Monitoring					
			• Maintenance practices					
			• Management and administration practices					
			• Promotion and support of interventions for conservation					
			• Project of restoration					
			• Reconstruction	Skills on digitalisation				
			• Adaptive re-use of CH					
			• Accessibility					
			• Dissemination through publications					
			• Organisation of events and festivals					
			• Encounters with communities					
			• Educational activities and programmes					
			• Creation of partnership and networking					
			• Advertisements with CH					
			• Gaming with CH	Skills on digitalisation				

1. CASE STUDY (INTRODUCTION)		BP_003
Best practice ref. <i>identification code (add text)</i>	BP_003	
Object <i>object of the case study (add text)</i>	MUSEUM, BRUSSELS, BELGIUM	
Intervention <i>subject of the case study (add text)</i>	Safeguarding of a post industrial revolution architecture	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	20th-21st century
	Start date	1989
	End date	2014
Actors <i>main actors involved (add text)</i>	Barbara Van der Wee (architect), Françoise Aubry (museum's curator)	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The Horta Museum is housed in the private house and studio of architect Victor Horta composed of two buildings. The Horta Museum was established in 1969 by the Municipality of Saint-Gilles, with the aim of preserving Victor Horta's home and studio and of opening them to the general public. During a process that lasted 25 years, the architecture and interior decoration, which are masterpieces of European Art Nouveau, were gradually preserved thanks to the collaborative work of many craftsmen. The house has retained much of its interior decoration: mosaics, stained glass, furniture and wall paintings make up a harmonious whole that is refined to the smallest detail. The museum is also a research centre on Victor Horta and Art Nouveau. The architect's personal archives, a collection of his building projects and the library are accessible to the public. The Museum is regularly visited by students and researchers from all over the world. Moreover, thanks to the support of the Brussels-Capital Region, the Museum has held creative workshops for children. During these events, they can experience the arts and crafts used by Horta in his designs, such as mosaic-work, stained glass and decorative wallpaper, and are also shown how to use their observations of the natural world to create ornamental designs. The outstanding conservation of the Horta Museum, led by architect Barbara Van der Wee, in collaboration with Françoise Aubry, the museum's curator, received the European Union Prize for Cultural Heritage - Europa Nostra Award in 2014.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://it.qiq.wiki/wiki/Maison_%26_Atelier_Horta • https://visit.brussels/it/place/Museo-Horta • http://www.fedoa.unina.it/3299/1/Palomba_Daniela.pdf • https://www.europanostra.org/belgium-horta-museum-becomes-member-europa-nostra/ • https://www.europeanheritageawards.eu/winners/horta-museum/ • http://www.hortamuseum.be/en/Welcome • https://whc.unesco.org/en/list/1005/ 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
Keywords <i>transversal tags among different fields of research (add text)</i>	Post industrial revolution architecture	
	Conservation	
	Preservation	
	Valorisation	

Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



<https://www.european-ostrea.org/belgium-horta-museum-becomes-member-europa-nostra/>




http://www.hortamuseum.be/uploads/pdf/2022-02_Salle_Restaurati on_Press_EN.pdf



http://www.hortamuseum.be/uploads/pdf/2022-02_Salle_Restaurati on_Press_EN.pdf

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_003

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Horta Museum</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Maison and Atelier Horta</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>1005</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.europeanheritageawards.eu/winners/horta</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Brussels
		Address	Rue Américaine 27
		Country	Belgium
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
		Symbolic and Memorial	<i>(monuments, plates, etc.)</i>
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Victor Horta maison and atelier	
		Century	20th century	
		Start year	1901	
		End year	1919	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
		Actor	Victor Horta	
		Century	19th-20th century	
		Start year	1898	
		End year	1901	
		Event	Modifications	
		Actor	Victor Horta	
		Century	20th century	
		Start year	1906	
		End year	1911	
Event	Establishment of the Horta Museum			
Actor	Municipality of Saint-Gilles			
Century	20th-21st century			
Start year	1969			
End year	-			
Event	Restoration and re-establishment of the monastic community			
Actor	Abate Maurus Knappek			
Century	20th century			
Start year	1947			
End year	1968			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		Victor Horta
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		Art Nouveau masterpiece	

Cultural Heritage Type			
ARTEFACTS (particular consideration for, if relevant)			
CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
Traditional construction systems			
Traditional craftsmanship			
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_003

Type of best practice <i>(select from list)</i>	Conservation Preservation Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Two buildings composing Horta Museum	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	
	Concrete	
	Concrete derivatives	
	Glass materials	Stained glass
	Metal materials	Metal
	Paints, varnishes and enamels	Wall paintings
	Plasters	Plasters
	Polymeric materials	
	Marbles, travertines, stones and granites	
	Vegetable, mineral and animal fibres	Decorative wallpapers
Wood		
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2 (add text)</i>	Natural risks (biological)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3 (add text)</i>	—	
Users need <i>response by the best practice, if relevant - link to T1.4 (add text)</i>	General and educational users and visitors, tourists Professional researchers	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>

	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Educational activities and programmes

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_003

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•	•	Preventive conservation					
•	•	•	Diagnostic activities					
•	•	•	Identification of the risks and deterioration patterns					
•	•	•	Materials conservation tests					
•	•	•	Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
•	•	•	Reinforcement of CH buildings					
•	•	•	Monitoring					
•	•	•	Maintenance practices					
•	•	•	Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•	•	•	Reconstruction					
•	•	•	Adaptive re-use of CH					
•	•	•	Accessibility					
•	•	•	Dissemination through publications					
•	•	•	Organisation of events and festivals					
•	•	•	Encounters with communities					
•	•	•	Educational activities and programmes					Skills on training and educational activities
•	•	•	Creation of partnership and networking					
•	•	•	Advertisements with CH					
•	•	•	Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_004
Best practice ref. <i>identification code (add text)</i>	BP_004	
Object <i>object of the case study (add text)</i>	MOSTAR BRIDGE, MOSTAR, BOSNIA AND HERZEGOVINA	
Intervention <i>subject of the case study (add text)</i>	Distinguishable reconstruction of an old bridge	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2001
	End date	2014
Actors <i>main actors involved (add text)</i>	UNESCO, World Bank, Mostar City, World Monuments Fund, Aga Khan Trust for Culture	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The Mostar Bridge is a symbol of the city of Mostar. Mostar "coincides" with the bridge: the name itself derives from the word "most" meaning bridge. Flanked by two fortified towers, the Halebija Tower on the right bank and the Tara Tower on the left, the bridge has a single mule span which is four metres wide and thirty metres long. In 1993, the bridge was destroyed as a symbol of the coexistence of different ethnic groups, and for the same reason UNESCO supported its reconstruction. The Dayton Accords, signed in 1995, not only established guidelines for peace in Bosnia and Herzegovina, but also established the creation of a commission for the preservation of the national monuments and entrusted it to the General Director of UNESCO. In 1998, UNESCO, the World Bank and the municipal authorities launched an appeal for the reconstruction of the old bridge. In 2001, after two years of scientific and archaeological research, the reconstruction of the bridge started. It was reconstructed respecting the principle of distinguishability, using local materials (the Tenelija and Bretcha stones, found in nearby quarries) and according to traditional methods with formwork, clamps and pins. Moreover, a lighting design contributes to the enhancement of the bridge. It was inaugurated in 2004 in the presence of about 10 heads of state, the President of Bosnia and Herzegovina and the General Director of UNESCO. Rebuilt after 11 years, this bridge has become a symbol of reconciliation, solidarity and of a plural identity based on mutual trust, as well as a sign of exchange and recognition. The project, with a total cost of \$ 15,4 million was financed by a loan from the World Bank (\$ 4 million) with contributions from Italy, the Netherlands, Croatia and Turkey. The European Union and the government of France provided technical assistance. The city of Mostar provided \$ 2 million.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • I. Čolak, <i>The Reconstruction of the Old Bridge in Mostar</i>, in B. Katalinic (ed.), <i>DAAAM International Scientific Book</i>, DAAAM International, Vienna 2016, pp. 151-162. • https://whc.unesco.org/en/list/946/ • https://news.un.org/en/story/2004/07/109742-destroyed-mostar-bridge-rebuilt-un-aid-symbol-balkan-reconciliation • https://www.iguzzini.com/it/progetti/light-is-back/il-ponte-di-mostar/ • http://globalheritagefund.org/images/uploads/docs/GHFBSECistanbul22006HANNAH.pdf 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
	UNESCO, <i>Final act of the Intergovernmental Conference on the Protection of Cultural Property in the Event of Armed Conflict</i> , 1954, https://unesdoc.unesco.org/ark:/48223/pf0000082464 .	

	<p>Vv.Aa., <i>Lima Declaration for Disaster Risk Management of Cultural Heritage</i>, 2010, https://www.icomositalia.com/_files/ugd/57365b_452c480e9ba54686ba2f6c22b0d52b9e.pdf.</p> <p>UNESCO, <i>Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage</i>, 2018, https://whc.unesco.org/en/news/1826.</p>
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<p>Keywords transversal tags among different fields of research (add text)</p>	Assets with signs of conflicts/natural hazards
	Conservation
	Preservation
	Valorisation

Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



<https://www.bbc.co.uk/programmes/p02c4yh7>



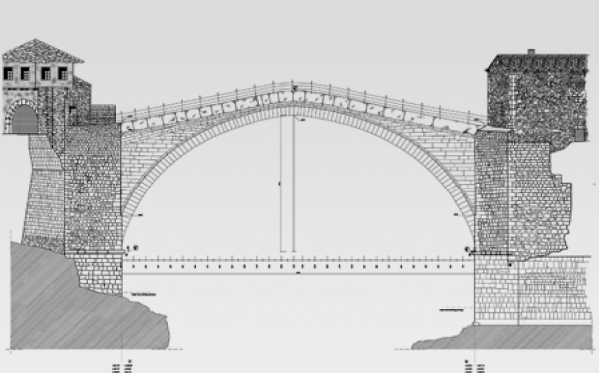
<https://www.iguzzini.com/it/progetti/light-is-back/il-ponte-di-mostar/>



<https://www.iguzzini.com/it/progetti/light-is-back/il-ponte-di-mostar/>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_004

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Mostar Bridge</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Mostar Old Bridge</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>946</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>I. Čolak, op. cit., p. 157.</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Mostar
		Address	Stari Most
		Country	Bosnia and Herzegovina
		Continent	Europe (outside the European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			
CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
Health and Welfare		<i>(hospitals, spas, etc.)</i>	
Industrial and Technological		<i>(factories, power plants, etc.)</i>	
Infrastructure and Maritime		<i>(stations, ports, canals, roads, railways, etc.)</i>	
Military and defensive		<i>(castles, forts, battlefields, etc.)</i>	
Mining		<i>(mines, etc.)</i>	
Other, Public	<i>(law courts, city hall, etc.)</i>		
Performing	<i>(theatres, etc.)</i>		
Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>		
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Bridge	
		Century	16th-20th century	
		Start year	1566	
		End year	1993	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Construction	
		Actor	Mimar Hajruddin	
		Century	16th century	
		Start year	1557	
End year		1566		
Event		Destroyed by grenades during the war in Bosnia and Herzegovina		
Actor				
Century		20th century		
Start year		1993		
End year		1993		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
Traditional arts				
Traditional communication means				
Traditional construction systems				
Traditional craftsmanship				
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Symbol of Mostar and Balkan reconciliation		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
Digital	Art		
	Virtual reality		
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal	Event		
	Actor		

	<i>significant events in the history of the heritage artefact</i>	Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects <i>connection to immaterial aspects (select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
Traditional craftsmanship			
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)			

3. CHARACTERISATION OF THE BEST PRACTICE

BP_004

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	Bridge and towers		
	Public infrastructure in the old city		
	Neighborhood improvements		
	Monuments/community buildings for ethnic groups		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites	Tenelija and Bretcha stone	
	Vegetable, mineral and animal fibres		
Wood			
Wood derivatives			
Type of risk <i>the reason for the intervention, if relevant - link to T1.2 (add text)</i>	Anthropic risks (heritage crimes)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3 (add text)</i>	Lighting design		
Users need <i>response by the best practice, if relevant - link to T1.4 (add text)</i>	Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Management and administration practices; Promotion and support of interventions for conservation
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>	Reconstruction; Creation of partnership and networking

	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Promotion and support of interventions for conservation; Reconstruction; Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	




Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET

BP_004


			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	
			<ul style="list-style-type: none"> Historic and bibliographic research Studies on CH Documentation of CH Communication of CH Preventive conservation Diagnostic activities Identification of the risks and deterioration patterns Materials conservation tests Pre-consolidation, cleaning, consolidation and protection of CH materials Reinforcement of CH buildings Monitoring Maintenance practices 					
			Management and administration practices	Skills on sustainable management of Cultural Heritage				
			Promotion and support of interventions for conservation	Skills on application of new technologies		Skills on encouraging and supporting the development of networks		
			Project of restoration					
			Reconstruction		Skills on organisation and logistics of complex situations (management of means and resources)	Skills on organisation and logistics of complex situations (management of means and resources)		
			<ul style="list-style-type: none"> Adaptive re-use of CH Accessibility Dissemination through publications Organisation of events and festivals Encounters with communities Educational activities and programmes 					
			Creation of partnership and networking		Skills on encouraging and supporting the development of networks	Skills on encouraging and supporting the development of networks		
			<ul style="list-style-type: none"> Advertisements with CH Gaming with CH 					

1. CASE STUDY (INTRODUCTION)		BP_005
Best practice ref. <i>identification code (add text)</i>	BP_005	
Object <i>object of the case study (add text)</i>	CHOIROKOITIA ARCHAEOLOGICAL SITE, CHOIROKOITIA, CYPRUS	
Intervention <i>subject of the case study (add text)</i>	3D documentation of an archaeological site	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2018
	End date	On-going
Actors <i>main actors involved (add text)</i>	The Cyprus Institute - research, technology, innovation	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The Cyprus Institute (Cyl) has launched in 2018 an ambitious programme for the 3D documentation of the Choirokoitia archaeological site and the creation of a virtual environment, in close collaboration with the French archaeological mission at the site. Following an extensive campaign of 3D documentation of the exposed architectural features of the site and one of the reconstructed house, using aerial and terrestrial photogrammetry and terrestrial laser scanning, a virtual environment was created. The user is able to visit the site in two distinct moments of its life. It allows visitors to walk around the site, enter reconstructed houses, explore ancient building techniques and investigate some of the ancient tools the inhabitants of the site used in their daily lives. The 3D model, along with the reconstructed habitations (building materials and techniques of construction) and the extensive archaeological data which includes information on the palaeo-environment of the site, animal and plant resources exploited by the inhabitants, are extremely useful for the conservation and preservation of the archaeological site, within its natural environment. Consequently, such information is essential in planning the correct “musealisation” of the site, considering the paths visitors should take in order to fully explore its extent, while at the same time, keeping to a minimum the risks related to such visits. Not only do the models provide a detailed visual record, they can also be used to make comparisons over time and hence used as a tool for monitoring the state of the complete site, enabling interventions to be made quickly when needed.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://www.4ch-project.eu/case-study-2-preservation-and-conservation-of-choirokoitia-a-neolithic-settlement/ • https://www.cyi.ac.cy/index.php/in-focus/management-plan-for-choirokoitia-presented-at-colloquium-hosted-by-cyi.html • https://whc.unesco.org/en/list/848/ 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
	ICOMOS, <i>Charter for the Protection and Management of the Archaeological Heritage</i> , 1990, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_fdf09c5b303f4fa09a283992ae16bcb8.pdf .	
	Council of Europe, <i>Convention for the Protection of the Archaeological Heritage of Europe</i> , The Valletta Convention, 1992, https://www.coe.int/en/web/culture-and-heritage/valletta-convention .	
	ICOMOS, <i>Salalah Guidelines for the Management of Public Archaeological Sites</i> , 2017,	

	https://www.icomositalia.com/_files/ugd/57365b_36589194d828402e9380a363f8c4662b.pdf	
<p>Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i></p>	<p>Archaeological sites Conservation Preservation Valorisation</p>	
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>		<p>https://www.4ch-project.eu/case-study-2-preservation-and-conservation-of-choirokoitia-a-neolithic-settlement/</p>
		<p>https://whc.unesco.org/en/list/848/</p>
		<p>https://www.4ch-project.eu/case-study-2-preservation-and-conservation-of-choirokoitia-a-neolithic-settlement/</p>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_005

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Choirokoitia Archaeological Site</p>	
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>		
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>	
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>	
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>848</p>	
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>		<p>https://www.cyi.ac.cy/index.php/in-focus/management-plan-for-choirokoitia-presented-at-colloquium-hosted-by-cyi.html</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Choirokoitia
		Address	
		Country	Cyprus
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
Symbolic and Memorial		<i>(monuments, plates, etc.)</i>	
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Settlement	
		Century	Neolithic age	
		Start year		
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Occupied during the Late Aceramic Neolithic of Cyprus	
		Actor		
		Century	7-6 million years BC	
		Start year		
		End year		
		Event	Reoccupied during the Ceramic Neolithic	
		Actor		
		Century	5 million years BC	
Start year				
End year				
	Event	Discovered		
	Actor			
	Century	20th century		
	Start year	1936		
	End year	1936		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		Archaeological site
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)				

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type <i>(of the artefact asset)</i> <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
			Virtual reality

	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
	OTHER	Investigation status <i>(select from list)</i>	Un-documented
			Archived
			Studied
Exhibited			
Preserved			
Recorded			
Immaterial aspects connection to immaterial aspects <i>(select from list)</i>		Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_005

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	Choirokoitia Archaeological Site	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	
	Concrete	
	Concrete derivatives	
	Glass materials	
	Metal materials	
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	
	Marbles, travertines, stones and granites	
	Vegetable, mineral and animal fibres	
	Wood	
	Wood derivatives	
Type of risk <i>the reason for the intervention, if relevant - link to T1.2 (add text)</i>	Anthropic risks (heritage management)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3 (add text)</i>	3D model	
Users need <i>response by the best practice, if relevant - link to T1.4 (add text)</i>	General and educational users and visitors, tourists Companies from the creative industry producing heritage-based content, apps, games, education and tourism services	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>
		Documentation of CH; Communication of CH; Management and administration practices

	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	


Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET

BP_005


			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH	Skills on digitalisation				
•	•	•	Communication of CH	Skills on digitalisation				
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices	Skills on digitalisation				
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•			Reconstruction					
	•	•	Adaptive re-use of CH					
	•	•	Accessibility					
		•	Dissemination through publications					
		•	Organisation of events and festivals					
		•	Encounters with communities					
		•	Educational activities and programmes					
		•	Creation of partnership and networking				Skills on encouraging and supporting the development of networks	
	•		Advertisements with CH					
	•		Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_006
Best practice ref. <i>identification code (add text)</i>	BP_006	
Object <i>object of the case study (add text)</i>	PAFOS GATE, NICOSIA, CYPRUS	
Intervention <i>subject of the case study (add text)</i>	Management of an open public spaces	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2019
	End date	On-going
Actors <i>main actors involved (add text)</i>	The Cyprus Institute - research, technology, innovation	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The research about Pafos Gate, located in the moat of the medieval walls of Nicosia, carried out by The Cyprus Institute (Cyl)'s Virtual Environments Lab has been selected among the best international practices of public space co-creation. As a matter of fact, this research on the use of interactive spatial data visualisation for stakeholder engagement in public space co-creation and co-management of historic sites, developed by Cyl and led by Assistant Professor G. Artopoulos, was selected as one of the two best projects in the Open Call of Public Play Space (PPS) Initiatives. PPS is a project co-funded by the Creative Europe programme of the European Union whose main goal is to foster the co-production of inclusive, cohesive and sustainable public space. The project aims to establish a transdisciplinary platform to explore how play and gamification tools in combination with advanced digital technologies can be used to foster the process of public space co-design and place-making, enhancing the understanding of the relationship between the space and its users. The State of the Art Catalogue collects and analyses 30 best-practice case studies, offering an international panorama of the emerging methodologies and strategies for the public space co-design through digital technologies. The best practices featured in the Catalogue were first selected from the results of an International Open Call launched in December 2019, and later evaluated for the announcement of the two winning methodologies. Especially, the research about Pafos Gate proposes a methodology for the cross-disciplinary study and analysis of complex urban realities, such as historic Mediterranean cities, with the use of advanced digital tools for the creation and development of real-time virtual environments for research and collaboration that capture data of users' behaviour in space. The objective of this research is a digital platform, which through immersion, urban data modeling and interactive visualisation enables the evaluation of alternative planning scenarios and design interventions in the context of the management plan of open public spaces that used to be popular within the urban fabric of European cities, but are now forgotten or in limbo due to political, economic, or social pressures. This research on the reintegration of the archaeological site of the Pafos Gate in the network of public spaces of the contemporary city was developed in the context of the COST Action TU1306, with the support of the Department of Antiquities, Nicosia Municipality, and in collaboration with NCSA at the University of Illinois at Urbana-Champaign.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://www.cyi.ac.cy/index.php/in-focus/cyi's-virtual-environments-lab-research-selected-among-the-best-international-practices-of-public-space-co-creation.html • https://www.cyprusisland.net/attractions/paphos-gate 	

	<ul style="list-style-type: none"> https://whc.unesco.org/en/list/79/
<p>Documental references <i>(add text)</i></p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>Vv.Aa., <i>Gubbio Charter</i>, 1960, https://www.italianostra.org/la-carta-di-gubbio-del-1960/.</p> <p>Vv.Aa., <i>Noto Charter</i>, 1986, https://ipce.culturaydeporte.gob.es/dam/jcr:c985ba29-4817-442b-8cde-e2a490140936/1986-carta-de-noto.pdf.</p> <p>ICOMOS, <i>Charter for the Conservation of Historic Towns and Urban Areas</i>, Washington Charter, 1987, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_012ee3b47bea4183b8a7d344d1bcd340.pdf.</p> <p>ICOMOS, <i>The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas</i>, 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_b4260164b6a74386a9bc53253775bb98.pdf.</p> <p>UNESCO, <i>Recommendation on the Historic Urban Landscape</i>, 2011, https://whc.unesco.org/uploads/activities/documents/activity-638-98.pdf.</p> <p>Vv.Aa., <i>Urban Agenda for the EU</i>, Pact of Amsterdam, 2016, https://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf.</p> <p>UNESCO, <i>The UNESCO Recommendation on the Historic Urban Landscape</i>, 2019, https://whc.unesco.org/en/hull/.</p>
<p>Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i></p>	<p>Urban spaces/assets</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>	 <p>https://www.cyi.ac.cy/index.php/in-focus/cyi's-virtual-environments-lab-research-selected-among-the-best-international-practices-of-public-space-co-creation.html</p>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_006

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Pafos Gate</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>San Domenico Gate</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>79</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.cyprusisland.net/attractions/pafos-gate#google_vignette</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Nicosia
		Address	Paphos
		Country	Cyprus
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
	Type B (of the heritage asset) <i>(select from list)</i>	Open surface	
		Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
Religious and ritual		<i>(churches, monasteries, temples, etc.)</i>	
Routes		<i>(trading, pilgrimage, etc.)</i>	
Settlement		<i>(towns, town centres, villages, etc.)</i>	
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Entrance to the Venetian walls built around Nicosia	
		Century	Middle ages - 21st century	
		Start year	1144	
		End year	1940	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Construction	
		Actor		
		Century	Middle ages	
		Start year		
End year				
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	Entrance to defensive walls	
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event		
	Actor		
	Century		
	Start year		
	End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	

		Preserved
		Recorded
OTHER	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_006

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	Pafos Gate		
	Venetian walls		
	Surrounding open public space		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials	Brick	
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites	Stone	
	Vegetable, mineral and animal fibres		
Wood			
Wood derivatives			
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	Digital platform		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Public and private heritage institutions responsible for managing monuments and sites		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Monitoring; Management and administration practices; Encounters with communities
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and</i>	

		<i>storage, catalogue of standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Encounters with communities

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET BP_006

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			• Historic and bibliographic research					
			• Studies on CH					
			• Documentation of CH					
			• Communication of CH					
			• Preventive conservation					
			• Diagnostic activities					
			• Identification of the risks and deterioration patterns					
			• Materials conservation tests					
			• Pre-consolidation, cleaning, consolidation and protection of CH materials					
			• Reinforcement of CH buildings					
			• Monitoring	Skills on digitalisation				
			• Maintenance practices					
			• Management and administration practices	Skills on digitalisation				
			• Promotion and support of interventions for conservation					
			• Project of restoration					
			• Reconstruction					
			• Adaptive re-use of CH					
			• Accessibility					
			• Dissemination through publications					
			• Organisation of events and festivals					
			• Encounters with communities	Skills on mapping and analysis of users' needs and requirements				Skills on mapping and analysis of users' needs and requirements
			• Educational activities and programmes					
			• Creation of partnership and networking				Skills on encouraging and supporting the development of networks	
			• Advertisements with CH					
			• Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_007
Best practice ref. <i>identification code (add text)</i>	BP_007	
Object <i>object of the case study (add text)</i>	TROODOS CHURCHES, TROODOS, CYPRUS	
Intervention <i>subject of the case study (add text)</i>	Analysis, documentation and visualisation of ancient churches	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2018
	End date	On-going
Actors <i>main actors involved (add text)</i>	The Cyprus Institute, Department of Antiquities Cyprus, Staffordshire University, Research and Innovation Foundation (Cyprus)	
Description of the best practice <i>Brief abstract (add text)</i>	<p>In an era of rapid technological improvements, state-of-the-art methodologies and tools dedicated to the protection and promotion of cultural heritage should be developed and extensively employed to expand and enrich historical and archaeological research and possibly revise or add new information to established theories. The IH-AT (Invisible Heritage Analysis and Technology) project aims to design and develop an innovative portal comprised of reliable and efficient technology-ready tools for the visualisation, documentation and analysis of the UNESCO listed churches in the Troodos area. The project aims at applying Non-Destructive-Techniques (NDT), geophysics, 3D modelling and visualisation methods, supported by art-historical and archaeological research, to investigate a cluster of selected churches in Cyprus. The main aims are to preserve by way of record the existing structural remains and to identify lost and invisible features, as well as assess the conservation conditions of their structures. The portal will be exploited by a variety of stakeholders and is targeted to multiple economical actors such as public authorities, universities and individuals. This pilot application enables the generation of an online platform and database from which information and data can be extracted. This can be used to inform further research and conservation projects at the specific UNESCO churches. In addition, the platform acts as a methodological example of best practice with a view to expanding these to other heritage sites. Through the integration of expertise from different disciplines, the project forges essential links and synergies for the delivery of innovative tools to tackle challenges related to the conservation, restoration and knowledge of heritage sites. This is in the framework of the Project EXCELLENCE/0918/0144, which is co-financed by the European Regional Development Fund and the Republic of Cyprus through the Research and Innovation Foundation.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • http://ihat.cyi.ac.cy • https://www.cyi.ac.cy/index.php/cyi-news/cyi's-'cyprus-dendrochronology-lab'-cdl-studies-famous-byzantine-and-medieval-troodos-churches-included-in-unesco-world-heritage-sites-list.html • https://whc.unesco.org/en/list/351/ • https://it.wikipedia.org/wiki/Chiese_dipinte_nella_regione_dei_monti_Troodos 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
Keywords	Ancient constructions	
	Conservation	

transversal tags among different fields of research

Preservation
Valorisation

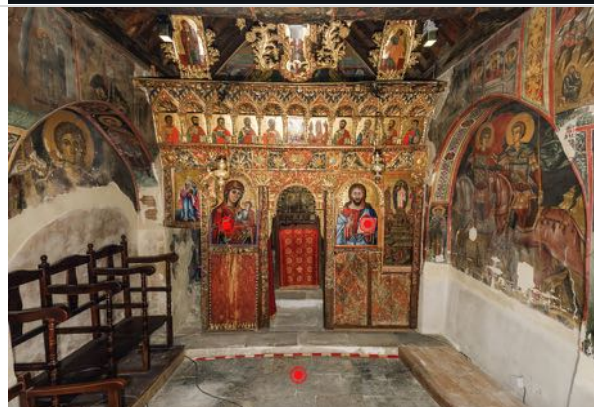
Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



<http://ihat.cyi.ac.cy>




<https://modelier.us.al/dryn.io/models/17986591-5b41-4acb-9d18-ebca1f2f893a/v2/embed/>



<https://apac.cyi.ac.cy/sites/object/object/360/transfiguration-saviour/>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_007

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Troodos Churches</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>351</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>http://ihat.cyi.ac.cy/?q=Collection</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Troodos
		Address	Troodos Mountains
		Country	Cyprus
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Churches	
		Century	11th-21st century	
		Start year		
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Construction	
		Actor		
		Century	11th-16th century	
		Start year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
Traditional craftsmanship				
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Sacred value		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event		
	Actor		
	Century		
	Start year		
	End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	

		Preserved
		Recorded
OTHER	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_007

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	10 churches		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels	Painted surfaces	
	Plasters	Plaster	
	Polymeric materials		
	Marbles, travertines, stones and granites	Stone	
	Vegetable, mineral and animal fibres		
Wood	Wood		
Wood derivatives			
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	3D modelling		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization Professional researchers General and educational users and visitors, tourists		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Historic and bibliographic research; Studies on CH; Documentation of CH; Communication of CH
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data</i>	

		<i>acquisition, management and storage, catalogue of standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Communication of CH

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET

BP_007

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research	Skills on digitalisation				
•	•	•	Studies on CH	Skills on digitalisation				
•	•	•	Documentation of CH	Skills on digitalisation				
•	•	•	Communication of CH	Skills on digitalisation				Skills on mapping and analysis of users' needs and requirements
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•			Reconstruction					
•	•		Adaptive re-use of CH					
•	•		Accessibility					
			Dissemination through publications					
			Organisation of events and festivals					
			Encounters with communities					
			Educational activities and programmes					
		•	Creation of partnership and networking				Skills on encouraging and supporting the development of networks	
		•	Advertisements with CH					
		•	Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_008
Best practice ref. <i>identification code (add text)</i>	BP_008	
Object <i>object of the case study (add text)</i>	VILLA TUGENDHAT, BRNO, CZECH REPUBLIC	
Intervention <i>subject of the case study (add text)</i>	Deep analysis and restoration of a 20th century architecture	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2010
	End date	2012
Actors <i>main actors involved (add text)</i>	Omnia projekt, Archteam, Raw	
Description of the best practice <i>Brief abstract (add text)</i>	<p>A deep analysis is at the basis of the restoration intervention carried out at Villa Tugendhat, now house-museum, between 2010 and 2012. As early as 2003, the Conservation Investigation Campaign began the analyses for the project aimed at transmitting the building to the future, making it the object of a thorough knowledge process based on archival documents, design drawings, photographs, bibliographic sources, contacts with the heirs and the direct reading of the building. In addition, the project is the result of the reflections conducted by the Tugendhat House International Committee, as well as of an in-depth collaboration between institutions, scholars, professionals and workers. Conservation work was carried out for the Tivoli travertine and Morocco onyx slabs, while the Makassar ebony partition wall, lost during the Second World War, was found in a nearby building and rehoused in its original location, supported by a new wooden structure and anchored to the floor with metal inserts. The original Rako-Czechoslovakia ceramic tiles were preserved in small areas of the building. The hot rolled steel window profiles were mechanically cleaned of incoherent deposits and subject to a careful work to contain deformation. Anti-corrosion treatments, the painting of the window profiles and the replacing of glasses completed the work. A similar approach to that used for the conservation of the windows steel structures was generally followed for the metal elements of the villa, albeit oxidised and corroded. In addition, on the plant systems side, careful integrations have made it possible, on the one hand, to bear witness to the original functioning of the building through the musealization of the plant system machines that are still located in the level dedicated to the "technical monuments" and, on the other hand, to reuse the pre-existing traces and terminals which made it possible to minimise the compromise of the consistency of vertical and horizontal partitions. An insulating layer was applied to the flat roof of the building, allowing to improve the internal comfort. Microclimatic monitoring campaign are carried out in the building.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Bonora A., Fabbri K., Favaretto G., Pretelli M., <i>Le diverse consistenze dell'acqua. Dotazioni impiantistiche e controllo del microclima a Villa Tugendhat a Brno</i>, in Biscontin G., Driussi G. (eds.), <i>Gli effetti dell'acqua sui beni culturali. Valutazioni critiche e modalità di verifica</i>, Arcadia Ricerche, Marghera-Venezia, 2020, pp. 513-524. • Černá I., Černoušková D. (eds.), <i>Mies in Brno. The Tugendhat House</i>, Brno City Museum, Brno, 2013. • Hammer I., <i>The project of conservation/restoration research at Tugendhat House. Materials and surfaces of the rendered façades, interior walls and</i> 	

	<p><i>painted wood</i>, in I. Černá, I. Hammer (eds.), <i>Materiality</i>. Proceedings of the International Symposium on the Preservation of Modern Movement Architecture (Brno, 27-29 April 2006), Muzeum mesta Brna & Hornemann Institut, Brno, 2008, pp. 164-174.</p> <ul style="list-style-type: none"> • Peřák P., Wahla I., <i>Mies van der Rohe. Villa Tugendhat in Brno</i>, Brno City Museum, Brno, 2016. • Tropeano R., <i>Ludwig Mies van der Rohe. Casa Tugendhat, Brno, Repubblica Ceca</i>, in "Domus", 994, 2015, pp. 86-103. • https://www.tugendhat.eu/en/ • https://whc.unesco.org/en/list/1052/
<p>Documental references (add text)</p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>Vv.Aa., <i>I dieci punti del comitato dei monumenti moderni</i>, in F. Perego, <i>Monumenti moderni, un'emergenza nuova</i>, in "Edilizia Popolare", 216-217, 1991, p. 48.</p> <p>ICOMOS ISC20C, <i>Approaches for the Conservation of 20th Century Architectural Heritage</i>, Madrid Document, 2011, http://orcp.hustoj.com/wp-content/uploads/2016/04/madriddocumentenglish.pdf.</p> <p>The Getty Conservation Institute, <i>A Colloquium to Advance the Practice of Conserving Modern Heritage</i>, 2013, https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/colloquium_report.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches for the Conservation of Twentieth-Century Architectural Heritage</i>, Madrid Document, 2014, http://www.icomos-isc20c.org/pdf/madrid_doc_10.26.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches to the Conservation of Twentieth-Century Cultural Heritage</i>, Madrid-New Delhi Document, 2017, http://www.icomos-isc20c.org/pdf/madrid-new-delhi-document-2017.pdf.</p>
<p>Keywords transversal tags among different fields of research (add text)</p>	<p>20th century architectural heritage</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>

Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



Photo: Giulia Favaretto, 2017.




Photo: Giulia Favaretto, 2017.



Photo: Giulia Favaretto, 2017.

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_008

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Villa Tugendhat</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>1052</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>"Domus", 994, 2015, p. 91.</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Altenburg
		Address	Abt-Placidus-Much-Straße 1
		Country	Austria
		Continent	Europe
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
	Type B (of the heritage asset) <i>(select from list)</i>	Open surface	
		Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Villa
		Century	20th century
		Start year	1930
		End year	1938
		Function	Private dance school
		Century	20th century
		Start year	1945
		End year	1950
		Function	Brno Hospital children's rehabilitation centre
		Century	20th century
		Start year	1950s
		End year	1950s
	Function	Place for events of the city administration	
	Century	20th century	
	Start year	1985	
	End year	1994	
	Function	Decentralised structure of the Brno City Museum	
	Century	20th-21st century	
Start year	1994		
End year	On-going		
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
	Actor	Ludwig Mies van der Rohe	
	Century	20th century	
	Start year	1928	
	End year	1930	
	Event	Restoration intervention	
	Actor	SÚRPMO	
	Century	20th century	
	Start year	1981	
	End year	1985	
	Event	Property of the Brno City Museum	
	Actor		
Century	20th-21st century		
Start year	1994		
End year	On-going		
Event	Brno		
Actor	Černopolní 45		
Century	Czech Republic		
Start year	Europe		
End year	Brno		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	
		Artisanship	
		Authorship	Ludwig Mies van der Rohe
	Knowledge/ideas		
	Performance		
	Rituals/festivals/folklore/ceremonies		

OTHER	Immaterial aspects connection to immaterial aspects <i>(select from list)</i> <i>(add text)</i>	Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Modern Movement masterpiece

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
			Virtual reality
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	Realisation
		Actor	Ludwig Mies van der Rohe
		Century	20th century
		Start year	1928
End year	1930		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
Traditional arts			
Traditional communication means			
Traditional construction systems			
Traditional craftsmanship			
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)			

3. CHARACTERISATION OF THE BEST PRACTICE

BP_008

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	Villa	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Rako-Czechoslovakia ceramic tiles
	Concrete	
	Concrete derivatives	
	Glass materials	Glass
	Metal materials	Hot rolled steel window profiles, steel
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	
	Marbles, travertines, stones and granites	Tivoli travertine, Morocco onyx
	Vegetable, mineral and animal fibres	
	Wood	Makassar ebony, wood
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	—	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization	

<p>Relevance of the best practice main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</p> <p><i>(select from list)</i> <i>(add text)</i></p>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/up- skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>	Historic and bibliographic research; Studies on CH; Diagnostic activities; Pre-consolidation, cleaning, consolidation and protection of CH materials; Monitoring; Project of restoration
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Project of restoration; Dissemination through publications; Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

<p>Skills (on) main skills highlighted by the best practice</p> <p><i>(select from list)</i> <i>(add text)</i></p>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET

BP_008

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices			
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research			Skills on taking care of Cultural Heritage materials	
•	•	•	Studies on CH			Skills on taking care of Cultural Heritage materials	
•	•	•	Documentation of CH				
•	•	•	Communication of CH				
•	•	•	Preventive conservation				
•	•	•	Diagnostic activities			Skills on taking care of Cultural Heritage materials	
•	•	•	Identification of the risks and deterioration patterns				
•	•	•	Materials conservation tests				
•	•	•	Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials	
•	•	•	Reinforcement of CH buildings				
•	•	•	Monitoring			Skills on achievement of environmental challenges and objectives	
•	•	•	Maintenance practices				
•	•	•	Management and administration practices				
•	•	•	Promotion and support of interventions for conservation				
•	•	•	Project of restoration			Skills on achievement of environmental challenges and objectives	Skills on encouraging and supporting the development of networks
•	•	•	Reconstruction				
•	•	•	Adaptive re-use of CH				
•	•	•	Accessibility				
•	•	•	Dissemination through publications				Skills on encouraging and supporting the development of networks
•	•	•	Organisation of events and festivals				
•	•	•	Encounters with communities				



		(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices			
Conservation	Preservation	Valorisation	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
		<ul style="list-style-type: none"> Educational activities and programmes 				
		<ul style="list-style-type: none"> Creation of partnership and networking 			Skills on encouraging and supporting the development of networks	
		<ul style="list-style-type: none"> Advertisements with CH 				
		<ul style="list-style-type: none"> Gaming with CH 				

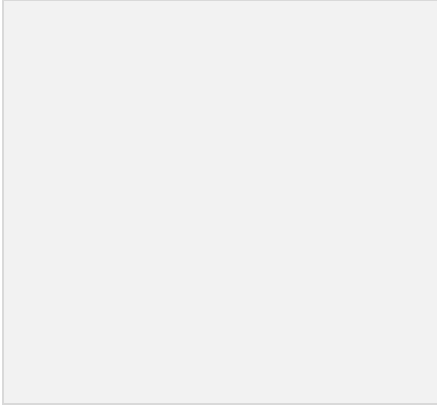
1. CASE STUDY (INTRODUCTION)		BP_009
Best practice ref. <i>identification code (add text)</i>	BP_009	
Object <i>object of the case study (add text)</i>	LUMA, ARLES, FRANCE	
Intervention <i>subject of the case study (add text)</i>	New additions for the re-use of an industrial archaeology site	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2014
	End date	2021
Actors <i>main actors involved (add text)</i>	Frank Gehry	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The city of Arles is known to the art community for two reasons: it is the place where Vincent van Gogh lived for over two years, and where he painted some of his best-known works, and it hosts the annual Rencontres d'Arles festival, the Europe's most important photography event. To consolidate Arles' position as a cultural hub, the collector Maja Hoffman founded the Luma Foundation and opened the Luma Arles Centre for Contemporary Arts in 2013, transforming an abandoned railway yard into a complex with exhibition spaces, artist residencies, workshops and other services related to cultural production. Luma Arles focuses on the relationship between art, culture, environmental issues, human rights, education and research, and it has proved to be a centre of international significance. Among the regenerated pavilions of the cultural centre and in the heart of the Parc des Ateliers, a new architecture stands out: a tower designed by architect Frank Gehry. This building is made up of various multi-purpose spaces, from exhibition halls to work and research rooms, and event venues. The tower is made up of 4 interconnected towers attached to a concrete spine that houses the elevators and stairs. The twisted façade is decorated with stainless steel bricks deformed by a specific mechanical process. This material, which is typical of the architect's work, captures and renders all the color variations in the sky, and gives the building an ever-changing appearance. This aesthetic choice is a nod to the pictorial practice of Vincent van Gogh, who was constantly capturing the shades of the Provençal sky on his canvases during his time in Arles. The architect also wanted to give the building a mineral touch through its shape and internal structure, which are imbued with the rocky landscapes of the Alpilles, especially the Val d'Enfer near Les Baux-de-Provence. He even used elements of the geological vocabulary to characterize certain parts of the building, such as the glazed "faults" that run along the façade and connect the towers together. Glass boxes serve as windows extending beyond the façade to offer different views of the site and its surroundings. At the foot of the building, a glass rotunda, called the Drum and inspired by the Arles Amphitheater, offers a unique reception area for visitors. Like the Roman arena, the scale and geometry of the rotunda reflect the influence of Roman urbanism on the city. Blinds can be spread following the path of the sun to protect the spaces. The energy supply for this building, as well as for the other buildings on the site, will be provided by the centralized cogeneration system using waste vegetable oil installed in Les Forges.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://www.luma.org/en/arles.html • https://www.ilgiornaledellarte.com/articoli/nella-torre-di-maja-l-arte-biodiversa-/136655.html 	

	<ul style="list-style-type: none"> • https://www.artribune.com/progettazione/architettura/2021/07/luma-foundation-torre-frank-gehry-van-gogh-arles/ • https://www.domusweb.it/it/architettura/gallery/2021/04/07/uno-scintillante-edificio-di-gehry-luma-arles-ne-aveva-veramente-bisogno.html
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Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)
	ICOMOS-TICCIH, <i>The Nizhny Tagil Charter for the Industrial Heritage</i> , 2003, https://www.icomos.org/18thapril/2006/nizhny-tagil-charter-e.pdf .
	ICOMOS-TICCIH, <i>Joint ICOMOS-TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes</i> , Dublin Principles, 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_d251c1dbc22a4210a5d893cf058f8c41.pdf .

Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i>	Industrial archaeology assets
	Conservation
	Preservation
	Valorisation


Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i>		https://www.theguardian.com/artanddesign/2021/aug/29/luma-arles-review-frank-gehry-carsten-holler-olafur-eliasson-maja-hoffmann
		https://www.domusweb.it/it/architettura/gallery/2021/04/07/uno-scintillante-edificio-di-gehry-luma-arles-ne-aveva-veramente-bisogno.html



<https://www.theguardian.com/artanddesign/2021/aug/29/luma-aries-review-frank-gehry-carsten-holler-olafur-eliasson-maja-hoffmann>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_009

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Luma</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Art Resource Centre</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.domusweb.it/it/architettura/gallery/2021/04/07/uno-scintillante-edificio-di-gehry-luma-arles-ne-aveva-veramente-bisogno.html</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Arles
		Address	Parc des Ateliers, Av. Victor Hugo 35
		Country	France
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
		Type B (of the heritage asset) <i>(select from list)</i>	Agricultural
	Burial		<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
	Commercial		<i>(passages, markets, etc.)</i>
	Cultural		<i>(libraries, archives, etc.)</i>
	Cultural Landscape		
	Dwellings		<i>(villas, palaces, houses, etc.)</i>
	Educational		
	Expositive		<i>(museums, galleries, etc.)</i>
	Gardens and Parks		
	Health and Welfare		<i>(hospitals, spas, etc.)</i>
	Industrial and Technological		<i>(factories, power plants, etc.)</i>
	Infrastructure and Maritime		<i>(stations, ports, canals, roads, railways, etc.)</i>
	Military and defensive		<i>(castles, forts, battlefields, etc.)</i>
	Mining		<i>(mines, etc.)</i>
	Other, Public		<i>(law courts, city hall, etc.)</i>
	Performing	<i>(theatres, etc.)</i>	
Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>		
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Industrial site for the repair and construction of locomotives
		Century	19th century
		Start year	1856
		End year	1984
		Function	Site for photo exhibitions
		Century	20th century
		Start year	1986
		End year	1986
		Function	Site for summer installation of the Rencontres d'Arles and Les Suds festivals
		Century	21st century
		Start year	2000
		End year	2013
		Function	Luma Arles Centre for Contemporary Arts
	Century	21st century	
	Start year	2013	
	End year	On-going	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation
		Actor	PLM (Paris-Lyon-Méditerranée) company
		Century	19th century
		Start year	1844
		End year	1856
		Event	Closure of the Parc des Ateliers
		Actor	
		Century	20th century
		Start year	1984
End year		1984	
Event		Purchase of the Chaudronnerie de Fer (iron and boiler works) building	
Actor		Provence-Alpes-Côte d'Azur region	
Century		21st century	
Start year		2005	
End year	2005		
Event	Renovation of the Grande Halle (transformation of the space into a cultural venue dedicated to multimedia creation, as well as digital and virtual imaging)		
Actor	Moatti & Rivière Architects		
Century	21st century		
Start year	2005		
End year	2007		
Event	Establishment of the Luma Foundation and lunch of the Luma Arles project		
Actor	Collector Maja Hoffman		
Century	21st century		
Start year	2013		

		End year	2013	
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects (select from list) (add text)</i>	Architectural typology	Industrial archaeological site	
		Artisanship		
		Authorship		
		Knowledge/ideas	New tower inspired to the rock formations in the region and the lighting effects of the <i>Starry Night</i> (1889) by Vincent Van Gogh	
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
Traditional construction systems				
Traditional craftsmanship				
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)				

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
		Immovable	Written evidences
			Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage artefact (add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
		Immaterial aspects <i>connection to immaterial aspects (select from list)</i>	Artefact typology
Artisanship			
Authorship			
Knowledge/ideas			

		Performance
		Rituals/festivals/folklore/ceremonies
OTHER	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_009

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	New tower		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete	Concrete	
	Concrete derivatives		
	Glass materials	Glass	
	Metal materials	Stainless steel bricks	
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites		
	Vegetable, mineral and animal fibres		
Wood			
Wood derivatives			
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	–		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Companies from the creative industry producing heritage-based content, apps, games, education and tourism services		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Project of restoration
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Organisation of events and festivals; Encounters with communities; Educational activities and programmes

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET



BP_009

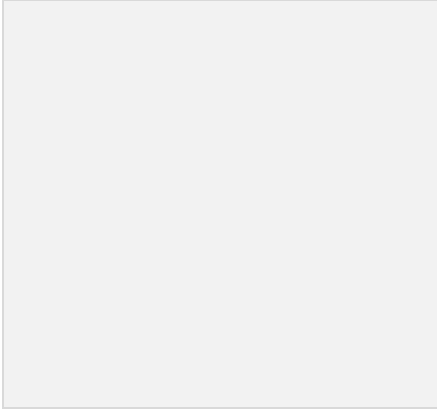
			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices		
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research			
•	•	•	Studies on CH			
•	•	•	Documentation of CH			
•	•	•	Communication of CH			
•	•		Preventive conservation			
•	•		Diagnostic activities			
•	•		Identification of the risks and deterioration patterns			
•	•		Materials conservation tests			
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials			
•	•		Reinforcement of CH buildings			
•	•		Monitoring			
•	•		Maintenance practices			
•	•		Management and administration practices			
•	•	•	Promotion and support of interventions for conservation			
•	•	•	Project of restoration	Skills on achievement of environmental challenges and objectives		
•			Reconstruction			
	•	•	Adaptive re-use of CH			
	•	•	Accessibility			
		•	Dissemination through publications			
		•	Organisation of events and festivals			Skills on encouraging creative industries' involvement in CH domains
		•	Encounters with communities			Skills on encouraging creative industries' involvement in CH domains
		•	Educational activities and programmes			Skills on encouraging creative industries' involvement in CH domains
	•		Creation of partnership and networking			
	•		Advertisements with CH			
	•		Gaming with CH			

1. CASE STUDY (INTRODUCTION)		BP_010
Best practice ref. <i>identification code (add text)</i>	BP_010	
Object <i>object of the case study (add text)</i>	JARDIN DES VESTIGES, MARSEILLES, FRANCE	
Intervention <i>subject of the case study (add text)</i>	Valorisation and cultural tourism in a green area	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2009
	End date	2019
Actors <i>main actors involved (add text)</i>	Joël-Louis Martin, Municipality of Marseille, Marseille Provence Greeters Association, Fabrica Traceorum	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The Jardin des Vestiges is a garden housing the archaeological remains of the old port of Marseille. The site was brought to light in 1967. During the construction work, carried out in that year, of a shopping centre in the heart of Marseille called "Centre Bourse", these important archaeological remains were in fact brought to light. This discovery led to the classification of them as national historic monument. In 2009, a garden designed by Joël-Louis Martin, a landscape architect, was inaugurated here. The garden is part of the Marseille History Museum. In 2013, on the occasion of the designation of Marseille as capital of culture, the site was renovated, the area was redeveloped and the adjoining Marseille History Museum offered a flashback of 26 centuries in the city. As a matter of fact, for Marseille, the 2013 year as European Capital of Culture was marked by numerous events, festivals and the opening of new spaces dedicated to the arts; within this framework, cultural experiences were accompanied by walks in parks or other wellness activities. Green spaces has therefore been as important as theatres and museums; after all, half of Marseille's territory is "green", with 400 hectares of parks and public gardens. On this occasion, an original idea for getting to know the city and its heritage was to be accompanied by Marseille locals. This was proposed by the Marseille Provence Greeters Association. After that, in 2018, a project was launched to upgrade the spaces and redesign the scenography with a new entrance thanks to the realisation of a large staircase. The garden, requalified by the Marseille architectural agency Fabrica Traceorum of Corrado de Giuli Morghen and Céline Girard, specialising in heritage restoration, was inaugurated in 2019. Guided tours are conducted within it.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://france3-regions.francetvinfo.fr/provence-alpes-cote-d-azur/bouches-du-rhone/marseille/patrimoine-marseille-site-archeologique-du-port-antique-fait-peau-neuve-1727179.html • https://www.tpbm-presse.com/marseille-le-jardin-des-vestiges-a-bon-port-antique-3146.html • https://www.frequence-sud.fr/loc-1709-jardin_des_vestiges_-_port_antique_marseille • https://madeinmarseille.net/52604-jardin-vestige-musee-histoire/ • https://www.ansa.it/web/notizie/canali/inviaggio/news/2013/02/01/Marsigli-a-relax-capitale-cultura_8176698.html • https://tourisme-marseille.com/fiche/jardin-des-vestiges-musee-d-histoire-de-la-ville-de-marseille/ • https://it.wikipedia.org/wiki/Jardin_des_Vestiges 	
Documental references	CH general criteria framework (common framework, documents, CH)	

<i>(add text)</i>	ICOMOS, <i>Charter for the Protection and Management of the Archaeological Heritage</i> , 1990, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_fdf09c5b303f4fa09a283992ae16bcb8.pdf .
	Council of Europe, <i>Convention for the Protection of the Archaeological Heritage of Europe</i> , The Valletta Convention, 1992, https://www.coe.int/en/web/culture-and-heritage/valletta-convention .
	ICOMOS, <i>Salalah Guidelines for the Management of Public Archaeological Sites</i> , 2017, https://www.icomositalia.com/_files/ugd/57365b_36589194d828402e9380a363f8c4662b.pdf .

Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i>	Archeological site
	Conservation
	Preservation
	Valorisation


Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i>		https://france3-regions.francetvinfo.fr/provence-alpes-cote-d-azur/bouches-du-rhone/marseille/patri-moine-marseille-site-archeologique-du-port-antique-fait-peau-neuve-1727179.html
		https://www.freguence-sud.fr/loc-1709-jardin_des_vestiges_-_port_antique_marseille



<https://www.tpbm-presse.com/marseille-le-jardin-des-vestiges-a-bon-port-antique-3146.html>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_010

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Jardin des Vestiges</p>	
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Old port</p>	
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>	
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>	
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>	
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>		<p>https://tourisme-marseille.com/fiche/jardin-des-vestiges-musee-d-histoire-de-la-ville-de-marseille/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Marseille
		Address	2 Rue Henri Barbusse
		Country	France
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
	Location <i>(select from list)</i>	Natural	
		On ground	
		Underwater/maritime	
Underground			
Cave			
	Find spot		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
	Type B (of the heritage asset) <i>(select from list)</i>	Earthworks	
		Open surface	
		Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
	Settlement	<i>(towns, town centres, villages, etc.)</i>	
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Port	
		Century	Greco-romain period	
		Start year		
		End year		
		Function	Site with archaeological remains	
		Century	20th century	
		Start year	1967	
		End year	2009	
		Function	Garden	
		Century	21st century	
		Start year	2009	
		End year	On-going	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Discovery of the archaeological remains	
		Actor		
		Century	20th century	
		Start year	1967	
		End year	1967	
Event		Realisation of the garden		
Actor		Joël-Louis Martin		
Century		21st century		
Start year		2009		
End year		2009		
Event		Renovation		
Actor		Municipality of Marseille		
Century	21st century			
Start year	2013			
End year	2013			
Event	Spaces upgrading and scenography redesigning			
Actor	Fabrica Traceorum			
Century	21st century			
Start year	2018			
End year	2019			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	Port of the greco-romain period	
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
Traditional construction systems				
Traditional craftsmanship				
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)				

Cultural Heritage Type			
ARTEFACTS (particular consideration for, if relevant)			
CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)			

3. CHARACTERISATION OF THE BEST PRACTICE

BP_010

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	Archeological site	
	Garden	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	
	Concrete	
	Concrete derivatives	
	Glass materials	
	Metal materials	
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	
	Marbles, travertines, stones and granites	Stone
	Vegetable, mineral and animal fibres	
Wood		
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	–	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Management and administration practices; Promotion and support of interventions for conservation; Organisation of events and festivals; Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Encounters with communities

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities


4. SYNTHESIS SHEET

BP_010

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices			
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research				
•	•	•	Studies on CH				
•	•	•	Documentation of CH				
•	•	•	Communication of CH				
•	•		Preventive conservation				
•	•		Diagnostic activities				
•	•		Identification of the risks and deterioration patterns				
•	•		Materials conservation tests				
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials				
•	•		Reinforcement of CH buildings				
•	•		Monitoring				
•	•		Maintenance practices				
•	•		Management and administration practices			Skills on encouraging and supporting the development of networks	
•	•	•	Promotion and support of interventions for conservation			Skills on encouraging and supporting the development of networks	
•	•	•	Project of restoration				
•			Reconstruction				
•	•	•	Adaptive re-use of CH				
	•	•	Accessibility			Skills on implementing measures to encourage people to practice heritage	
	•		Dissemination through publications				
	•		Organisation of events and festivals			Skills on implementing measures to encourage people to practice heritage	

		(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices			
Conservation	Preservation	Valorisation	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
		Activities				
		<ul style="list-style-type: none"> Encounters with communities 				Skills on implementing measures to encourage people to practice heritage
		<ul style="list-style-type: none"> Educational activities and programmes 				
		<ul style="list-style-type: none"> Creation of partnership and networking 			Skills on encouraging and supporting the development of networks	
		<ul style="list-style-type: none"> Advertisements with CH 				
		<ul style="list-style-type: none"> Gaming with CH 				

1. CASE STUDY (INTRODUCTION)		BP_011
Best practice ref. <i>identification code (add text)</i>	BP_011	
Object <i>object of the case study (add text)</i>	FESTIVAL OF LIGHTS, LYON, FRANCE	
Intervention <i>subject of the case study (add text)</i>	Lighting valorisation of urban cultural heritage	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2016
	End date	Ongoing
Actors <i>main actors involved (add text)</i>	City of Lyon	
Description of the best practice <i>Brief abstract (add text)</i>	<p>Since 1998, Lyon's Old Town is listed as a UNESCO World Heritage area. To find the balance between the rapidly developing urban area and the protected historic city, Lyon adopted a management plan in 2013. This plan guarantees the place of the historic site in a city in development, while at the same time watching to safeguard the spirit of the place. This mechanism of governance creates conditions for a proper coordination of all heritage stakeholders at local level. Since 2016, the city of Lyon organised its annual Fête des Lumières (Festival of Lights). For a series of nights, artists lit up buildings, streets, squares and parks all over the city with several light installations. Millions of visitors gather in Lyon to enjoy the friendly and joyful spirit of the festival. In Lyon, urban lighting is closely embedded in the whole city scape and is part of the city's heritage. Within this scenario participants in the work-shadowing visit had the opportunity to take part in a workshop organised by LUCI (Lighting Urban Community International) in the framework of the Lyon Light Festival Forum, when the organisers of the Festival of Lights shared their experience and gave a behind-the-scenes look at the event. Through the ROCK project (2017-2020), Lyon entered a new phase in the management of its heritage site: the Observatory of Cultural Heritage monitored and evaluated in quantitative and qualitative ways the changes in the Old Town, and assessed together with the inhabitants and citizens which solutions can be found to strike the fragile balance between preservation and development. With regard to the light management, Lyon renewed its Lighting Plan, with the ambition to open the path for integrating new technical possibilities, using light better for urban and social development, preventing the danger of luminous cacophony, reducing energy demand and nocturnal pollution. The entrances/exits of the city are also part of the lighting scheme. Light is an integral part of public actions and landscape, urban and architectural development projects, and open up the way to professionalising an activity that annually acquires new references to its pedigree.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Signorelli L., <i>Investire nell'industria culturale creativa: il Lighting Design come strategia di valorizzazione dei beni culturali</i>, in Musso S.F., Pretelli M. (coords.), <i>Restauro: Conoscenza, Progetto, Cantiere, Gestione. Sezione 2: Programmazione e finanziamenti</i>, Quasar, Roma 2020, pp. 359-365. • https://whc.unesco.org/en/list/872/ • https://www.fetedeslumieres.lyon.fr/en • http://www.art-vibes.com/art/festival-lights-lyon/ • https://rockproject.eu/role-model-cities 	

	<ul style="list-style-type: none"> • https://rockproject.eu/news-details/30
<p>Documental references (add text)</p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>Vv.Aa., <i>Gubbio Charter</i>, 1960, https://www.italianostra.org/la-carta-di-gubbio-del-1960/.</p> <p>Vv.Aa., <i>Noto Charter</i>, 1986, https://ipce.culturaydeporte.gob.es/dam/jcr:c985ba29-4817-442b-8cde-e2a490140936/1986-carta-de-noto.pdf.</p> <p>ICOMOS, <i>Charter for the Conservation of Historic Towns and Urban Areas</i>, Washington Charter, 1987, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_012ee3b47bea4183b8a7d344d1bcd340.pdf.</p> <p>ICOMOS, <i>The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas</i>, 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_b4260164b6a74386a9bc53253775bb98.pdf.</p> <p>UNESCO, <i>Recommendation on the Historic Urban Landscape</i>, 2011, https://whc.unesco.org/uploads/activities/documents/activity-638-98.pdf.</p> <p>Vv.Aa., <i>Urban Agenda for the EU</i>, Pact of Amsterdam, 2016, https://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf.</p> <p>UNESCO, <i>The UNESCO Recommendation on the Historic Urban Landscape</i>, 2019, https://whc.unesco.org/en/hull.</p>
<p>Keywords transversal tags among different fields of research (add text)</p>	<p>Urban spaces/assets</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>
<p>Image/s of the best practice nr. 1/3 image/s to identify the type of best practice</p>	 <p>https://www.fetedeslumieres.lyon.fr/en/installation/enoha-fait-son-cinema</p>




<https://www.fetedesumieres.lyon.fr/en/installation/reflets>



<https://www.fetedesumieres.lyon.fr/en/installation/great-indecision-council>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_011

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Festival of Lights</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>872</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://whc.unesco.org/en/list/872/gallery/&index=13&maxrows=12</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Lyon
		Address	
		Country	France
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
	Type B (of the heritage asset) <i>(select from list)</i>	Open surface	
		Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
Routes		<i>(trading, pilgrimage, etc.)</i>	
Settlement		<i>(towns, town centres, villages, etc.)</i>	
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		
Cities	<i>(if other, add text)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	City	
		Century		
		Start year		
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event		
		Actor		
		Century		
		Start year		
	End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices	City as a place for social activities and practices	
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)				

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Art		
	Virtual reality		
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	

		Exhibited
		Preserved
		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_011

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	City Heritage assets	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	
	Concrete	
	Concrete derivatives	
	Glass materials	
	Metal materials	
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	
	Marbles, travertines, stones and granites	
	Vegetable, mineral and animal fibres	
	Wood	
	Wood derivatives	
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	Lighting design	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Public and private heritage institutions responsible for managing monuments and sites General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION <i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Communication of CH
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES <i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Communication of CH
	TRANSFERABILITY <i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition,</i>	Communication of CH

		<i>management and storage, catalogue of standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Monitoring; Management and administration practices
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Organisation of events and festivals; Encounters with communities

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET

BP_011

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			<ul style="list-style-type: none"> Historic and bibliographic research Studies on CH Documentation of CH 					
			<ul style="list-style-type: none"> Communication of CH 	Skills on application of new technologies	Skills on sustainable management of Cultural Heritage	Skills on application of new technologies		
			<ul style="list-style-type: none"> Preventive conservation Diagnostic activities Identification of the risks and deterioration patterns Materials conservation tests Pre-consolidation, cleaning, consolidation and protection of CH materials Reinforcement of CH buildings 					
			<ul style="list-style-type: none"> Monitoring 				Skills on encouraging and supporting the development of networks	
			<ul style="list-style-type: none"> Maintenance practices Management and administration practices 				Skills on encouraging and supporting the development of networks	
			<ul style="list-style-type: none"> Promotion and support of interventions for conservation Project of restoration Reconstruction Adaptive re-use of CH Accessibility Dissemination through publications 					
			<ul style="list-style-type: none"> Organisation of events and festivals 					Skills on implementing measures

1. CASE STUDY (INTRODUCTION)		BP_012
Best practice ref. <i>identification code (add text)</i>	BP_012	
Object <i>object of the case study (add text)</i>	PALACE OF THE POPES, AVIGNON, FRANCE	
Intervention <i>subject of the case study (add text)</i>	Augmented reality and interactive visits in an ancient palace	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2017
	End date	Ongoing
Actors <i>main actors involved (add text)</i>	Avignon tourism, Histoverly	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The Palace of the Popes in Avignon is a virtuous example of application of cutting-edge technology and augmented reality at the service of history and cultural heritage. Available to all visitors to the palace since 2017, an interactive tablet, the so-called Histopad, offers a modern museography system for an immersive digital visit to go back in time and "see the invisible". Visitors are the actors of their own visit: with the Histopad interactive tablet with which they are equipped, thanks to 3D technologies, augmented reality and a powerful geolocation system, they can see in 360° what the palace was like, as well as learn about its history. The Histopad shows historical reconstructions, entirely elaborated by a scientific committee. In addition, the historical content of the old audio guides has been added for an in-depth approach to the history of the monument. This new intuitive, digital, interactive, educational and entertaining way of visiting thus allows the public to discover and understand this cultural heritage asset. Children and their families are also invited on a treasure hunt: coins bearing the effigy of the Popes, hidden in 3D objects that can be manipulated, can be found throughout the tour. Avignon tourism invites to this experience of virtual immersion in the past, in the heart of Europe's largest Gothic palace. Developed by Histoverly, a start-up of the French Tech Culture, an association based in Avignon, this system brings together regional actors. Within the framework of a regular cultural animation organised throughout the year, consisting of thematic and educational exhibitions, thematic visits and concerts, in the Courtyard of Honour of the palace also takes place the Avignon Festival, with immersive shows powered by both image and sound.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://whc.unesco.org/en/list/228/ • https://www.palais-des-papes.com/en/actualite • https://avignon-tourisme.com/en/activities/palace-of-the-popes/ • https://www.wikivirtualreality.com/it/histopad-la-realta-aumentata-resuscita-il-lustro-dei-luoghi-storici • https://www.seeprovence.com/news/avignon-s-main-attraction-gets-augmented-reality-avignon-709626 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
Keywords <i>transversal tags among different fields of research (add text)</i>	Ancient constructions	
	Conservation	
	Preservation	
	Valorisation	

Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



http://static.apidae-tourisme.com/filestore/objets-touristiques/documents/128/194/843840_0.pdf




http://static.apidae-tourisme.com/filestore/objets-touristiques/documents/128/194/843840_0.pdf



http://static.apidae-tourisme.com/filestore/objets-touristiques/documents/128/194/843840_0.pdf

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_012

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Palace of the Popes</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Papal Palace</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>228</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://avignon-tourisme.com/en/activites/palace-of-the-popes/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Avignon
		Address	Pl. du Palais
		Country	France
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
		Symbolic and Memorial	<i>(monuments, plates, etc.)</i>
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Monumental residence of the sovereign pontiffs	
		Century	14th century	
		Start year	1352	
		End year		
		Function	Museum	
		Century	20th-21st century	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
		Actor	Pope Benedetto XII and Pope Clemente VI	
		Century	14th century	
		Start year	1334	
		End year	1352	
		Event	Opening to the public tourism	
Actor				
Century		20th-21st century		
Start year		1907		
End year				
Event		Avignon Festival (in the Courtyard of Honour of the palace)		
Actor		Avignon tourism		
Century	20th-21st century			
Start year	1947			
End year				
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		Spiritual value		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT	Type <i>(of the artefact asset)</i> <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved

OTHER			Frescoes
			Graffiti
			Mosaics
		Digital	Art
			Virtual reality
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	Execution
		Actor	Matteo Giovannetti
		Century	
		Start year	
		End year	
	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
	Exhibited		
	Preserved		
	Recorded		
Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology		
	Artisanship		
	Authorship		
	Knowledge/ideas		
	Performance		
	Rituals/festivals/folklore/ceremonies		
	Social activities/practices		
	Traditional arts		
	Traditional communication means		
	Traditional construction systems		
	Traditional craftsmanship		
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

3. CHARACTERISATION OF THE BEST PRACTICE

BP_012

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Palace rooms Courtyard of Honour		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites		
	Vegetable, mineral and animal fibres		
	Wood		
	Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	—		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	3D technologies Augmented reality Geolocation system		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Companies from the creative industry producing heritage-based content, apps, games, education and tourism services		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Documentation of CH; Communication of CH
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Communication of CH
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Organisation of events and festivals



Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

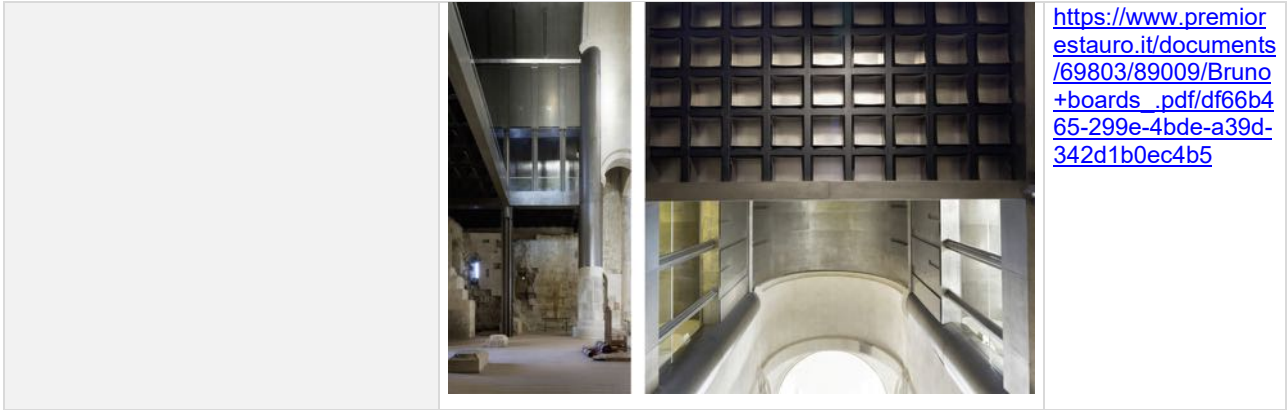
4. SYNTHESIS SHEET

BP_012

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			• Historic and bibliographic research					
			• Studies on CH					
			• Documentation of CH	Skills on digitalisation				
			• Communication of CH	Skills on digitalisation			Skills on training and educational activities	
			• Preventive conservation					
			• Diagnostic activities					
			• Identification of the risks and deterioration patterns					
			• Materials conservation tests					
			• Pre-consolidation, cleaning, consolidation and protection of CH materials					
			• Reinforcement of CH buildings					
			• Monitoring					
			• Maintenance practices					
			• Management and administration practices					
			• Promotion and support of interventions for conservation					
			• Project of restoration					
			• Reconstruction					
			• Adaptive re-use of CH					
			• Accessibility					
			• Dissemination through publications					
			• Organisation of events and festivals					Skills on implementing measures to encourage people to practice heritage
			• Encounters with communities					
			• Educational activities and programmes					
			• Creation of partnership and networking					
			• Advertisements with CH					
			• Gaming with CH					


1. CASE STUDY (INTRODUCTION)		BP_013
Best practice ref. <i>identification code (add text)</i>	BP_013	
Object <i>object of the case study (add text)</i>	BAGRATI CATHEDRAL, KUTAISI, GEORGIA	
Intervention <i>subject of the case study (add text)</i>	Rehabilitation of an ancient cathedral with relationship between old and new	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2011
	End date	2012
Actors <i>main actors involved (add text)</i>	Arch. Andrea Bruno and Arch. Ivane Gremelashvili (architecture design), Arch. Vakhtang Zeseshvili (coordination), Ltd. Kapiteli, Ing. Zura Oqroshidze and Ing. Levan Kurtanidze (structural design), Ltd. Restavretorebu & Co. (restoration company for masonry and stone restoration), Ltd. Magi Style (restoration company for the structure in steel). Collaboration with Milan Ingegneria SpA and DMM SpA	
Description of the best practice <i>Brief abstract (add text)</i>	<p>Winner of the International Architecture Restoration Prize 2012 "Fassa Bortolo Domus Restoration and Preservation", the restoration project of the Bagrati Cathedral represents the answer to the local authorities requests to be able to rehabilitate an ancient sacred building, a symbol of the cultural and religious history of Georgia and to avoid the release of the monument from the World Heritage List in which the cathedral was officially registered in 1994. As a matter of fact, UNESCO wanted the ruins of the cathedral to stay as they were otherwise they would have removed the site from its protection, while the Georgian Orthodox Church wanted to rebuild the cathedral that represents an important religious symbol. The situation was deadlocked. They entrusted the project to architect Andrea Bruno, among the most experienced in the resolution of such issues and challenges. The project is a reasoned compromise between maintaining some of the reconstruction works already made and the realisation of completions and additions inspired by contemporary restoration concepts: using new materials and technologies compatible with the building and surrounding site. The attention to all the mentioned aspects has led to the realisation of a new structure which faithfully traces the scheme of the original structure, giving the possibility for a new and additional museographic use of the building. The project managed to fuse contemporary solutions adapting them to the composition of the medieval architecture, pulling together Touch and Peltrox finishes, glass and the original stone, and completing the construction that was needed in several parts of the ruins. The work is of considerable complexity, given the need to intervene on vaults, floors, walls, columns, lofts and an elevator shaft tower.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • T. Meladze, Y. Uekita, <i>Reconstructing the Sacred: The Controversial Process of Bagrati Cathedral's Full-scale Restoration and Its World Heritage Delisting</i>, in "International Journal of Cultural Property", 27, 3, 2020, pp. 375-396. • https://whc.unesco.org/en/news/637 • https://www.premiorestauro.it/documents/69803/89009/Bruno+boards_.pdf/df66b465-299e-4bde-a39d-342d1b0ec4b5 • http://buromilan.com/en/project/bagrati-cathedral-restoration-kutaisi-georgia/ • https://www.dmmitalia.com/progetti/progetti/restauro-cattedrale-bagrati-in-peltrox/ 	

<p>Documental references <i>(add text)</i></p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>UNESCO, <i>Final act of the Intergovernmental Conference on the Protection of Cultural Property in the Event of Armed Conflict</i>, 1954, https://unesdoc.unesco.org/ark:/48223/pf0000082464.</p> <p>Vv.Aa., <i>Lima Declaration for Disaster Risk Management of Cultural Heritage</i>, 2010, https://www.icomositalia.com/_files/ugd/57365b_452c480e9ba54686ba2f6c22b0d52b9e.pdf.</p> <p>UNESCO, <i>Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage</i>, 2018, https://whc.unesco.org/en/news/1826.</p>	
<p>Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i></p>	<p>Assets with signs of conflicts/natural hazards</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>	
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>		<p>https://www.premiorrestauro.it/documents/69803/89009/Bruno+boards_.pdf/df66b465-299e-4bde-a39d-342d1b0ec4b5</p>
		<p>https://www.premiorrestauro.it/documents/69803/89009/Bruno+boards_.pdf/df66b465-299e-4bde-a39d-342d1b0ec4b5</p>



2. IDENTIFICATION OF THE HERITAGE ASSET

BP_013

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Bagrati Cathedral</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Bagrat III Cathedral</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO List of World Heritage in Danger</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.premiorestauro.it/documents/69803/89009/Bruno+boards_pdf/df66b465-299e-4bde-a39d-342d1b0ec4b5</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Kutaisi
		Address	Bagrati Street
		Country	Georgia
		Continent	Europe (outside the European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			
CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
	Performing	<i>(theatres, etc.)</i>	
	Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>	
	Routes	<i>(trading, pilgrimage, etc.)</i>	
	Settlement	<i>(towns, town centres, villages, etc.)</i>	
	Symbolic and Memorial	<i>(monuments, plates, etc.)</i>	
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Cathedral
		Century	11st-16th century
		Start year	
		End year	
		Function	Museum
		Century	21st century
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation
		Actor	
		Century	10th-11st century
		Start year	
		End year	
		Event	Destruction with roof and dome collapse
Actor		Ottoman troops	
Century		16th century	
Start year			
End year			
Event		Archaeological survey and starting of the reconstruction works	
Actor			
Century	20th century		
Start year	1952		
End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Symbol of the cultural and religious identity of Georgia		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT	Type <i>(of the artefact asset)</i> <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved

			Frescoes
			Graffiti
			Mosaics
		Digital	Art
			Virtual reality
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	
		Actor	
		Century	
	Start year		
	End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_013

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Entire monument	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	
	Concrete	
	Concrete derivatives	
	Glass materials	Glass
	Metal materials	Touch and Peltrox
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	
	Marbles, travertines, stones and granites	Stone
	Vegetable, mineral and animal fibres	
Wood		
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage crimes)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	-	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>
		Pre-consolidation, cleaning, consolidation and protection of CH materials; Project of restoration;

		<i>standards, replicable strategies)</i>	Reconstruction; Adaptive re-use of CH; Accessibility
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	



Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_013

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•	•	Preventive conservation					
•	•	•	Diagnostic activities					
•	•	•	Identification of the risks and deterioration patterns					
•	•	•	Materials conservation tests					
•	•	•	Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
•	•	•	Reinforcement of CH buildings					
•	•	•	Monitoring					
•	•	•	Maintenance practices					
•	•	•	Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration			Skills on organisation and logistics of complex situations (management of means and resources)		
•	•	•	Reconstruction			Skills on organisation and logistics of complex situations (management of means and resources)		
•	•	•	Adaptive re-use of CH			Skills on implementing measures to encourage people to practice heritage		
•	•	•	Accessibility			Skills on implementing measures to encourage people to practice heritage		
•	•	•	Dissemination through publications					
•	•	•	Organisation of events and festivals					
•	•	•	Encounters with communities					
•	•	•	Educational activities and programmes					
•	•	•	Creation of partnership and networking					
•	•	•	Advertisements with CH					
•	•	•	Gaming with CH					


1. CASE STUDY (INTRODUCTION)		BP_014
Best practice ref. <i>identification code (add text)</i>	BP_014	
Object <i>object of the case study (add text)</i>	BAUHAUS BUILDING, DESSAU, GERMANY	
Intervention <i>subject of the case study (add text)</i>	Conservation/Preservation of industrially-produced materials and Valorisation of use of a 20th century architecture	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	20th-21st century
	Start date	1996
	End date	2006
Actors <i>main actors involved (add text)</i>	Brambach + Ebert Architekten, Pfister Schiess Tropeano & Partner Architekten, Bauhaus Dessau Foundation	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The intervention of preservation carried out between 1996 and 2006 at the Bauhaus building in Dessau can be considered of great relevance with regard to the conservation of industrially-produced materials. Of particular interest are the window frames of the building, which present different materials, technologies and typologies: glass panes coexist with hot rolled steel window profiles in the original windows of the 1920s; the glass walls introduced in the 1970s show an aluminium structure; glass-stop in stucco are present in some windows while, in other ones, glass panes are stopped by more recent metal profiles. The intervention carried out for the window frames appears relevant for the adopted methodology: it studied and analysed all these components, and chose to preserve them as material proofs of the history and transformation of the building over time. Other materials were preserved in their stratifications, also through the subsequent maintenance practices. This occurred especially for the floors materials, such as Triolin, Magnesite and Terrazzo. Here conservation was accompanied by distinguishable integrations, realised for example in Linoleum. In the following years, reflections about the use vocation were carried out too. In this regard, the decision to translate the offices of the Bauhaus Dessau Foundation from the workshop wing (with extended spaces and wide transparent surfaces) to the northern wing (with little rooms and smaller dispersant areas) represents an operation that takes into account both consumes containment through reflections able to link use vocation, space dimensions and thermic dispersions, and the purposes of users wealth, respect for the environment, costs reduction and building preservation. The Bauhaus building is included in the list of 2017 grants awarded (grant support: € 135,000) by Keeping It Modern, a grant initiative by The Getty Foundation focused on supporting model projects for the conservation of modern architecture.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Černá I., Hammer I. (eds.), <i>Materiality</i>. Proceeding of the International Symposium on the Preservation of Modern Movement Architecture, Brno 27-29 April 2006, Muzeum mesta Brna & Hornemann Institut, Brno 2008. • Markgraf M. (ed.), <i>Archaeology of Modernism. Renovation Bauhaus Dessau</i>, Jovis, Berlin 2006. • Walter Gropius, <i>Bauhaus Building in Dessau, 1926</i>. Brambach und Edert Architekten and Pfister Schiess Tropeano & Partner, conservation of the Bauhaus Building in Dessau, Dessau, Germany 1996-2006, in "A&U: architecture & urbanism", n. 474, marzo 2010, pp. 58-67. • https://www.bauhaus-dessau.de/en/restoration-work.html • https://www.getty.edu/foundation/initiatives/current/keeping_it_modern/grants_awarded_2017.html 	

<p>Documental references <i>(add text)</i></p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>Vv.Aa., <i>I dieci punti del comitato dei monumenti moderni</i>, in F. Perego, <i>Monumenti moderni, un'emergenza nuova</i>, in "Edilizia Popolare", 216-217, 1991, p. 48.</p> <p>ICOMOS ISC20C, <i>Approaches for the Conservation of 20th Century Architectural Heritage</i>, Madrid Document, 2011, http://orcp.hustoj.com/wp-content/uploads/2016/04/madriddocumentenglish.pdf.</p> <p>The Getty Conservation Institute, <i>A Colloquium to Advance the Practice of Conserving Modern Heritage</i>, 2013, https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/colloquium_report.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches for the Conservation of Twentieth-Century Architectural Heritage</i>, Madrid Document, 2014, http://www.icomos-isc20c.org/pdf/madrid_doc_10.26.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches to the Conservation of Twentieth-Century Cultural Heritage</i>, Madrid-New Delhi Document, 2017, http://www.icomos-isc20c.org/pdf/madrid-new-delhi-document-2017.pdf.</p>	
<p>Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i></p>	<p>20th century architectural heritage</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>	
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>		<p>Photo: Giulia Favaretto, 2017</p>
		<p>Photo: Giulia Favaretto, 2017</p>



2. IDENTIFICATION OF THE HERITAGE ASSET

BP_014

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Bauhaus building</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Stiftung Bauhaus Dessau</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>729</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>Photo: Giulia Favaretto, 2017</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Dessau
		Address	Gropiusallee 38
		Country	Gernamy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Educational centre with dormitories
		Century	20th century
		Start year	1926
		End year	1932
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation
		Actor	Walter Gropius
		Century	20th century
		Start year	1925
	End year	1926	
	Event	Restoration intervention	
	Actor	Vv.Aa.	
	Century	20th century	
	Start year	1976	
	End year	1976	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	
		Artisanship	
		Authorship	Walter Gropius
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
	Traditional arts		
	Traditional communication means		
	Traditional construction systems		
	Traditional craftsmanship		
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Modern Movement masterpiece	

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
Digital	Art		
	Virtual reality		
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal	Event		
	Actor		
	Century		

	<i>significant events in the history of the</i>	Start year		
		End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
		Exhibited		
		Preserved		
		Recorded		
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

3. CHARACTERISATION OF THE BEST PRACTICE

BP_014

Type of best practice <i>(select from list)</i>	Conservation
	Preservation
	Valorisation

Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Window frames
	Floors
	Spaces reuse

Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	
	Concrete	
	Concrete derivatives	Magnesite, Terrazzo
	Glass materials	Glass
	Metal materials	Hot rolled steel window profiles, Aluminium
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	Triolin, Linoleum
	Marbles, travertines, stones and granites	
	Vegetable, mineral and animal fibres	
	Wood	
Wood derivatives		

Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)
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Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	–
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Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization Public and private heritage institutions responsible for managing monuments and sites
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Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Pre-consolidation, cleaning, consolidation and protection of CH materials; Maintenance practices; Adaptive re-use of CH

	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>	Project of restoration; Adaptive re-use of CH
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Promotion and support of interventions for conservation
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities



4. SYNTHESIS SHEET

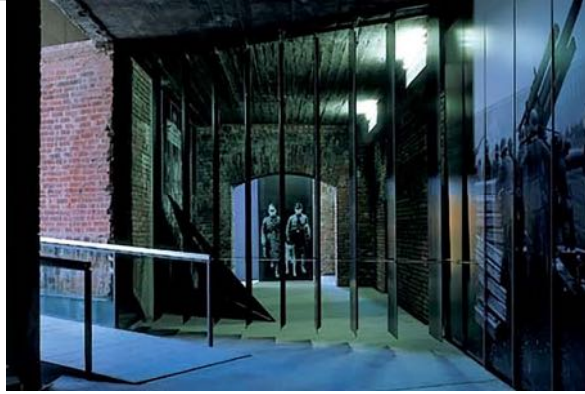
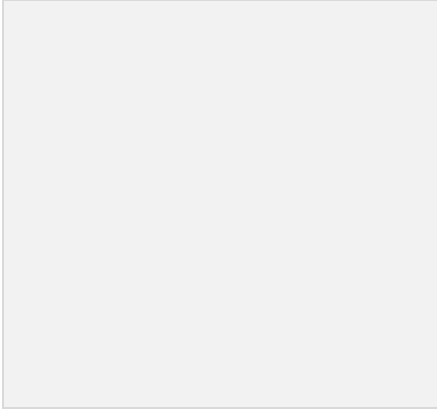
BP_014

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			<ul style="list-style-type: none"> Historic and bibliographic research Studies on CH Documentation of CH Communication of CH Preventive conservation Diagnostic activities Identification of the risks and deterioration patterns Materials conservation tests 					
			<ul style="list-style-type: none"> Pre-consolidation, cleaning, consolidation and protection of CH materials 		Skills on taking care of Cultural Heritage materials			
			<ul style="list-style-type: none"> Reinforcement of CH buildings Monitoring 					
			<ul style="list-style-type: none"> Maintenance practices 		Skills on taking care of Cultural Heritage materials			
			<ul style="list-style-type: none"> Management and administration practices 					
			<ul style="list-style-type: none"> Promotion and support of interventions for conservation 				Skills on encouraging and supporting the development of networks	
			<ul style="list-style-type: none"> Project of restoration 			Skills on organisation and logistics of complex situations (management of means and resources)		
			<ul style="list-style-type: none"> Reconstruction 					
			<ul style="list-style-type: none"> Adaptive re-use of CH 		Skills on achievement of environmental challenges and objectives	S Skills on organisation and logistics of complex situations (management of		

							means and resources)
	•	•	Accessibility				
		•	Dissemination through publications				
		•	Organisation of events and festivals				
		•	Encounters with communities				
		•	Educational activities and programmes				
		•	Creation of partnership and networking				
		•	Advertisements with CH				
		•	Gaming with CH				

1. CASE STUDY (INTRODUCTION)		BP_015
Best practice ref. <i>identification code (add text)</i>	BP_015	
Object <i>object of the case study (add text)</i>	CONGRESS HALL, NUREMBERG, GERMANY	
Intervention <i>subject of the case study (add text)</i>	Adaptive re-use of a National Socialist Party congress hall	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	20th-21st century
	Start date	1998
	End date	2001
Actors <i>main actors involved (add text)</i>	Günther Domenig	
Description of the best practice <i>Brief abstract (add text)</i>	<p>Even today, in the area used to host the National Socialist Party congresses in the south of Nuremberg, gigantic architectural remains bear witness to the regime's megalomania. Covering an area of 11 square kilometres, the Congress Hall was intended to provide a monumental backdrop for the party's self-celebration. The Congress Hall is the largest building the Nazism wanted in Germany, although it was never completed. This arena, designed to hold 50.000 people and designed on the image of Colosseum, is today home to the Documentation Centre "Dokumentationszentrum Reichsparteitagsgelände". As a matter of fact, the Nuremberg Municipal Museums proposed housing a Documentation Center in the Congress Hall and, on that basis, an international architectural competition was announced in 1998. The Documentation Centre opened in 2001 and, since that year, it houses a permanent exhibition on the causes, contexts and consequences of the National Socialist tyranny. The focus of the exhibition areas, in chronological order, is the history of the National Socialist Party congresses and of how these mass gatherings were used for the party propaganda. The exhibition continues outside with large panels providing additional information on the history of the various corners of the National Socialist Party congress area. Special exhibitions are also organised in the Documentation Centre. The educational forum offers numerous study programmes for school classes and youth groups, as well as for adult groups, providing various insights. In the exhibition halls, the walls themselves, preserved in their material consistency, become part of the documentation. The new steel and glass additions are clearly distinguishable. The new system of horizontal and vertical pathways declares its independence from the existing building and speaks a contemporary architectural language. UNESCO included this institution in its International Year for the Culture of Peace. Moreover, in 2002, the Documentation Center was awarded the Silver Otter from the British Guild of Travel Writers as the best overseas tourism project.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://museums.nuernberg.de/documentation-center/ • https://www.domusweb.it/it/architettura/2002/04/16/affrontare-l-architettura-del-male.html • https://tourismus.nuernberg.de/old/it/giri-turistici/musei/centro-di-documentazione.html 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
	Vv.Aa., <i>I dieci punti del comitato dei monumenti moderni</i> , in F. Perego, <i>Monumenti moderni, un'emergenza nuova</i> , in "Edilizia Popolare", 216-217, 1991, p. 48.	


	<p>ICOMOS ISC20C, <i>Approaches for the Conservation of 20th Century Architectural Heritage</i>, Madrid Document, 2011, http://orcp.hustoj.com/wp-content/uploads/2016/04/madriddocumentenglish.pdf.</p> <p>The Getty Conservation Institute, <i>A Colloquium to Advance the Practice of Conserving Modern Heritage</i>, 2013, https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/colloquium_report.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches for the Conservation of Twentieth-Century Architectural Heritage</i>, Madrid Document, 2014, http://www.icomos-isc20c.org/pdf/madrid_doc_10.26.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches to the Conservation of Twentieth-Century Cultural Heritage</i>, Madrid-New Delhi Document, 2017, http://www.icomos-isc20c.org/pdf/madrid-new-delhi-document-2017.pdf.</p>	
<p>Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i></p>	<p>20th century architectural heritage</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>	
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>		<p>https://museums.nuernberg.de/documentation-center/</p>
		<p>https://www.domusweb.it/it/architettura/2002/04/16/affrontare-l-architettura-del-male.html</p>



<https://www.domusweb.it/it/architettura/2002/04/16/affrontare-l-architettura-del-male.html>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_015

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Congress Hall</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.domusweb.it/it/architettura/2002/04/16/affrontare-l-architettura-del-male.html</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Nuremberg
		Address	Bayernstraße 100
		Country	Germany
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Congress hall
		Century	20th century
		Start year	1935
		End year	Unfinished
	Time period <i>(select from list)</i>	Function	Venue for exhibitions and fairs
		Century	20th-21st century
		Start year	1949
		End year	
Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
	Actor	Ludwig and Franz Ruff	
	Century	20th century	
	Start year	1935	
	End year	1942	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Memorial value

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type <i>(of the artefact asset)</i> <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
Temporal <i>significant events in the history of the heritage artefact</i>	Event		
	Actor		
	Century		
	Start year		

	<i>(add text)</i>	End year
OTHER	Investigation status <i>(select from list)</i>	Un-documented
		Archived
		Studied
		Exhibited
		Preserved
		Recorded
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_015

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Congress Hall	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Brick
	Concrete	Reinforced concrete
	Concrete derivatives	
	Glass materials	Glass
	Metal materials	Steel
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	
	Marbles, travertines, stones and granites	Granite
	Vegetable, mineral and animal fibres	
Wood		
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	–	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>
		Documentation of CH; Project of restoration; Adaptive re-use of CH

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Educational activities and programmes

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities



4. SYNTHESIS SHEET

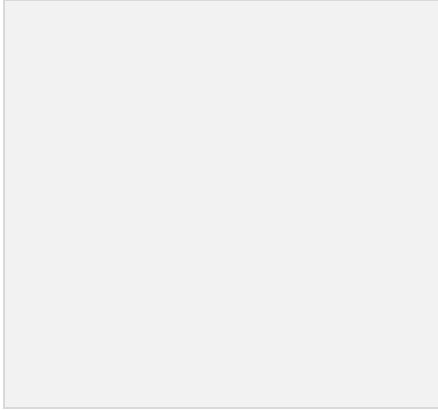
BP_015

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH			Skills on training and educational activities		
•	•	•	Communication of CH					
•	•	•	Preventive conservation					
•	•	•	Diagnostic activities					
•	•	•	Identification of the risks and deterioration patterns					
•	•	•	Materials conservation tests					
•	•	•	Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•	•	Reinforcement of CH buildings					
•	•	•	Monitoring					
•	•	•	Maintenance practices					
•	•	•	Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration			Skills on organisation and logistics of complex situations (management of means and resources)		
•	•	•	Reconstruction					
•	•	•	Adaptive re-use of CH			Skills on implementing measures to encourage people to practice heritage		
•	•	•	Accessibility					
•	•	•	Dissemination through publications					
•	•	•	Organisation of events and festivals					
•	•	•	Encounters with communities					
•	•	•	Educational activities and programmes					Skills on training and educational activities
•	•	•	Creation of partnership and networking					

	• Advertisements with CH					
	• Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_016
Best practice ref. <i>identification code (add text)</i>	BP_016	
Object <i>object of the case study (add text)</i>	NEUES MUSEUM, BERLIN, GERMANY	
Intervention <i>subject of the case study (add text)</i>	Restoration of a building in ruin	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	20th-21st century
	Start date	1998
	End date	2009
Actors <i>main actors involved (add text)</i>	David Chipperfield Architects London & Berlin, in collaboration with Julian Harrap	
Description of the best practice <i>Brief abstract (add text)</i>	<p>In 2009, after more than sixty years as a ruin, the Neues Museum reopened to the public as the third restored building on Museum Island, exhibiting the collections of the Egyptian Museum and the Museum of Pre- and Early History. The key aim of the restoration project of the Neues Museum was to recomplete the original volume, and encompassed the repair and preservation of the parts that remained after the destruction of the Second World War. The original sequence of rooms was restored with new building sections that create continuity with the existing structure. The restoration followed the guidelines of the Charter of Venice, respecting the historical structure in its different states of preservation. All the gaps in the existing structure were filled in without competing with the existing structure in terms of brightness and surface. The restoration of the existing is driven by the idea that the original structure should be emphasized in its spatial context and original materiality: the new reflects the lost without imitating it. The new exhibition rooms are built of large format pre-fabricated concrete elements consisting of white cement mixed with Saxonian marble chips. Formed from the same concrete elements, the new main staircase repeats the original without replicating it, and sits within a majestic hall that is preserved only as a brick volume, devoid of its original ornamentation. There are rooms defined by fragments of plaster, distressed but recognisable classical columns, and vaults of hollow clay pots. The war signs have been preserved as intangible heritage bearing witness to a past history. Other new volumes (the Northwest wing, with the Egyptian court and the Apollo risalit, the apse in the Greek courtyard, and the South Dome) are built of recycled handmade bricks, complementing the preserved sections. With the reinstatement and completion of the mostly preserved colonnade at the Eastern and Southern side of the Neues Museum, the pre-war urban situation is re-established to the East. A new building, the James-Simon-Galerie, between the Neues Museum and the Kupfergraben canal, echoes the urban situation of the site pre-1938. The intervention carried out at the Neues Museum is the recipient of the 2011 European Union Prize for Contemporary Architecture – Mies van der Rohe Award.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • <i>Neues Museum Berlin. David Chipperfield Architects in collaboration with Julian Harrap, Walther König, 2009.</i> • https://davidchipperfield.com/project/neues_museum • https://www.architectural-review.com/today/neues-museum-by-david-chipperfield-architects-berlin-germany • https://www.buildingconservation.com/articles/neuesmuseum/neuesmuseum.htm 	


	<ul style="list-style-type: none"> • https://www.archdaily.com/126727/david-chipperfields-neues-museum-receives-2011-mies-van-der-rohe-award • https://www.museumsinsel-berlin.de/en/buildings/neues-museum/ • https://whc.unesco.org/en/list/896/
<p>Documental references <i>(add text)</i></p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>UNESCO, <i>Final act of the Intergovernmental Conference on the Protection of Cultural Property in the Event of Armed Conflict</i>, 1954, https://unesdoc.unesco.org/ark:/48223/pf0000082464.</p> <p>Vv.Aa., <i>Lima Declaration for Disaster Risk Management of Cultural Heritage</i>, 2010, https://www.icomositalia.com/_files/ugd/57365b_452c480e9ba54686ba2f6c22b0d52b9e.pdf.</p> <p>UNESCO, <i>Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage</i>, 2018, https://whc.unesco.org/en/news/1826.</p>
<p>Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i></p>	<p>Assets with signs of conflicts/natural hazards</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>	<div>  </div> <div> <p>https://davidchipperfeld.com/project/neues_museum</p> </div> <div>  </div> <div> <p>https://davidchipperfeld.com/project/neues_museum</p> </div>



https://davidchipperfield.com/project/neues_museum

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_016

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Neues Museum</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>896</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://davidchipperfield.com/project/neues_museum</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Berlin
		Address	Museum Island, Bodestraße 1-3
		Country	Germany
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
	Performing	<i>(theatres, etc.)</i>	
	Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>	
	Routes	<i>(trading, pilgrimage, etc.)</i>	
	Settlement	<i>(towns, town centres, villages, etc.)</i>	
	Symbolic and Memorial	<i>(monuments, plates, etc.)</i>	
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	First building of the “sanctuary for art and science” envisioned
		Century	19th century
		Start year	1859
		End year	1938
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation
		Actor	Friedrich August Stüler
		Century	19th century
		Start year	1841
	End year	1859	
	Event	Extensive bombing	
	Actor	Second World War	
	Century	20th century	
	Start year	1938	
	End year	1938	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
	Traditional arts		
	Traditional communication means		
	Traditional construction systems		
	Traditional craftsmanship		
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Past and war signs	

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
Digital	Art		
	Virtual reality		
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal	Event		
	Actor		
	Century		

	<i>significant events in the history of the</i>	Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_016

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Neues Museum Museum Island	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Brick
	Concrete	Concrete elements consisting of white cement mixed with Saxonian marble chips
	Concrete derivatives	
	Glass materials	
	Metal materials	
	Paints, varnishes and enamels	
	Plasters	Plaster
	Polymeric materials	
	Marbles, travertines, stones and granites	
	Vegetable, mineral and animal fibres	
	Wood	
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage crimes)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	—	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
		Project of restoration

	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>	Pre-consolidation, cleaning, consolidation and protection of CH materials; Project of restoration; Dissemination through publications
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities





4. SYNTHESIS SHEET


BP_016

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			• Historic and bibliographic research					
			• Studies on CH					
			• Documentation of CH					
			• Communication of CH					
			• Preventive conservation					
			• Diagnostic activities					
			• Identification of the risks and deterioration patterns					
			• Materials conservation tests					
			• Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
			• Reinforcement of CH buildings					
			• Monitoring					
			• Maintenance practices					
			• Management and administration practices					
			• Promotion and support of interventions for conservation					
			• Project of restoration		Skills on organisation and logistics of complex situations (management of means and resources)	Skills on organisation and logistics of complex situations (management of means and resources)		
			• Reconstruction					
			• Adaptive re-use of CH					
			• Accessibility					
			• Dissemination through publications			Skills on training and educational activities		
			• Organisation of events and festivals					
			• Encounters with communities					
			• Educational activities and programmes					
			• Creation of partnership and networking					
			• Advertisements with CH					
			• Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_017
Best practice ref. <i>identification code (add text)</i>	BP_017	
Object <i>object of the case study (add text)</i>	PARK OF THE VARUS BATTLE, KALKRIESE, BRAMSCHE, GERMANY	
Intervention <i>subject of the case study (add text)</i>	Didactic and evocative interpretation of a natural landscape	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	20th-21st century
	Start date	1998
	End date	2006
Actors <i>main actors involved (add text)</i>	Gigon/Guyer architect, Zulauf & Partners landscape architect, with designers Ruedi Baur, Philippe Dèlis and Lars Müller	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The Park of the Varus Battle is an example of a landscape project on a very special archaeological site, characterised by the exclusive presence of clues and stratigraphy linked to an isolated event, the Varus Battle which took place in 9 AD. After the discovery of the site in 1987, archaeological excavations were started. The immediate public interest in the site led to the decision to realise an archaeological park and museum where visitors could learn about the local history and evolution of the landscape. A competition to design the entire area, consequent and parallel to the development of the archaeological excavations, was won in 1998 by the architects Annette Gigon and Mike Guyer from Zurich, with advice from the landscape architecture firm Zulauf & Partners in Baden, and designers Ruedi Baur, Philippe Dèlis and Lars Müller. The conclusion of the first phase of implementation was in 2006. In the site, the system of archaeological traces became the plot around which a story was woven, developed by the designers and linked to the events of the site. The terms with which the authors drew the plot of this text were landscape components, morphology, vegetation and the grid of agricultural patterns. The semantic characterisation of the project is essentially linked to the process of narration, developed through a code of signs calibrated to stimulate the visitor's imagination in the mental reconstruction of the battle. Within this landscape, there is a combination of didactic intent, based on the historical and archaeological data available on the site, and evocative intent, based on a subjective interpretation that leads the visitor to follow both the material and immaterial traces of the two armies. This dual interpretation permeates the entire landscaping, juxtaposing, for example, the main museum building and the route system with a series of semantic nodes made up of small isolated pavilions dedicated to different aspects of reading the site.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Matteini T., <i>Paesaggi del tempo. Documenti archeologici e rovine artificiali nel disegno di giardini e paesaggi</i>, Alinea, Firenze 2009. • https://www.gigon-guyer.ch/en/project/archaeological-museum-kalkriese/ • https://arquitecturaviva.com/works/parque-museo-kalkriese • https://www.designboom.com/architecture/9sekundens-short-film-varus-battle-museum-gigon-guyer-germany-10-23-2020/ • https://www.thisispaper.com/mag/varus-battle-museum-gigon-guyer 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
	ICOMOS, <i>Florence Charter</i> , 1981, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_baf8432e213a404dbdedef5171b7df90.pdf .	

	<p>Council of Europe, <i>European Landscape Convention</i>, 2000, https://rm.coe.int/1680080621.</p> <p>ICOMOS-IFLA, <i>ICOMOS-IFLA Document on Historic Urban Public Parks</i>, 2017, https://www.icomositalia.com/_files/ugd/57365b_35cc0006820a47298626dc214cedb11b.pdf.</p> <p>ICOMOS-IFLA, <i>ICOMOS-IFLA Principles Concerning Rural Landscapes as Heritage</i>, 2017, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_cd7200d8a8b04613b4456f230c433a15.pdf.</p>
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<p>Keywords <i>transversal tags among different fields</i></p>	<p>Landscape and historical gardens Valorisation</p>
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>	<div style="display: flex; flex-direction: column;"> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>https://www.gigon-guyer.ch/en/project/archaeological-museum-kalkriese/</p> </div> </div> <div style="display: flex; align-items: center; margin-top: 10px;">   <div style="margin-left: 10px;"> <p>https://www.gigon-guyer.ch/en/project/archaeological-museum-kalkriese/</p> </div> </div> <div style="display: flex; align-items: center; margin-top: 10px;">  <div style="margin-left: 10px;"> <p>https://www.gigon-guyer.ch/en/project/archaeological-museum-kalkriese/</p> </div> </div> </div>

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Park of the Varus Battle</p>	
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Park of the Battle of Teutoburg Forest</p>	
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>	
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>	
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>	
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>		<p>Matteini T., <i>op. cit.</i>, p. 103.</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Kalkriese, Bramsche
		Address	Venner Str. 69
		Country	Germany
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Route	
		Built	
		Carved	
		Natural	
		Earthworks	
	Type B (of the heritage asset) <i>(select from list)</i>	Open surface	
		Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Natural landscape	
		Century		
		Start year		
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Site of the Battle of Varo	
		Actor	Roman legions and Teutons	
		Century	1st century	
		Start year	9 AD	
End year		9 AD		
Event		Site discovery		
Actor		Archaeologist Tony Clunn		
	Century	20th century		
	Start year	1987		
	End year	1987		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
Traditional craftsmanship				
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Memory of a battle		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
		Mosaics	
	Digital	Art	
		Virtual reality	
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal	Event		
	Actor		
	Century		

	<i>significant events in the history of the</i>	Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_017

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Park	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	
	Concrete	
	Concrete derivatives	
	Glass materials	Glass
	Metal materials	Metal, rusty steel
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	
	Marbles, travertines, stones and granites	Stone
	Vegetable, mineral and animal fibres	
Wood		
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	–	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities



4. SYNTHESIS SHEET

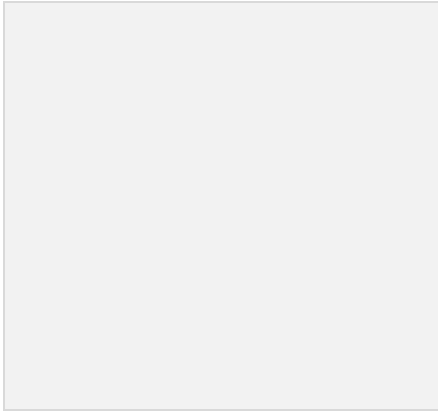
BP_017

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			• Historic and bibliographic research					
			• Studies on CH					
			• Documentation of CH					
			• Communication of CH			Skills on implementing measures to encourage people to practice heritage		
			• Preventive conservation					
			• Diagnostic activities					
			• Identification of the risks and deterioration patterns					
			• Materials conservation tests					
			• Pre-consolidation, cleaning, consolidation and protection of CH materials					
			• Reinforcement of CH buildings					
			• Monitoring					
			• Maintenance practices					
			• Management and administration practices					
			• Promotion and support of interventions for conservation					
			• Project of restoration					
			• Reconstruction					
			• Adaptive re-use of CH					
			• Accessibility			Skills on implementing measures to encourage people to practice heritage		
			• Dissemination through publications					
			• Organisation of events and festivals					
			• Encounters with communities					
			• Educational activities and programmes			Skills on training and educational activities		
			• Creation of partnership and networking					
			• Advertisements with CH					
			• Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_018
Best practice ref. <i>identification code (add text)</i>	BP_018	
Object <i>object of the case study (add text)</i>	TOPOGRAPHY OF TERROR, BERLIN, GERMANY	
Intervention <i>subject of the case study (add text)</i>	Safeguarding of dissonant heritage	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2007
	End date	2010
Actors <i>main actors involved (add text)</i>	Ursula Wilms (architect), Heinz Hallmann (urban planner)	
Description of the best practice <i>Brief abstract (add text)</i>	<p>Topography of Terror is one of the most visited memorial sites in Berlin. It is an architectural complex which holds the evidence of Nazi crimes. The exhibition documents the history of the institutions of terror linked to the Nazi government, and the history of the crimes which had their starting point in this place. It is complemented by a further exhibition that can be seen outside at the remaining exposed cellar walls. As a matter of fact, the exhibition is also housed outdoors in a passageway of an excavation along the building remains. The area also includes one of the few preserved remains of the Berlin Wall. Within this complex, the documentation centre contains a chronological overview of the structure, bureaucratic methodology and murderous actions; an excavated former cellar space of the Gestapo headquarters, where uniforms and documents were previously stored, is used in the warmer months for temporary exhibitions; a collection of information panels commenting on the terrain and topography of the site are intended to be experienced as part of a walking tour. Fifteen information stations along a preconfigured route, that can be experienced with an audio guide, present the traces of the site. They provide prompts for further examining the consequences of what was planned and implemented from this location. In this sense, it is an opportunity to confront the cruel actions of these men and women in situ, transforming a location that once enabled these crimes into a place to remember and reflect.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://www.topographie.de/en/topography-of-terror/ • https://www.museumportal-berlin.de/en/museums/topographie-des-terrors/ • https://www.berlinexperiences.com/featured-berlin-experiences/explore-the-topography-of-terror/ • https://www.archiweb.cz/en/b/dokumentacni-centrum-topografie-teroru-dokumentationszentrum-topographie-des-terrors • https://www.domusweb.it/en/architecture/2010/05/12/wilms-heinle-wischer--partner--topography-of-terror.html • https://www.architectural-review.com/essays/berlin-germany-topography-of-terror-has-washed-away-too-much-dirt-in-presenting-nazi-history 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
	Vv.Aa., <i>I dieci punti del comitato dei monumenti moderni</i> , in F. Perego, <i>Monumenti moderni, un'emergenza nuova</i> , in "Edilizia Popolare", 216-217, 1991, p. 48.	

	<p>ICOMOS ISC20C, <i>Approaches for the Conservation of 20th Century Architectural Heritage</i>, Madrid Document, 2011, http://orcp.hustoj.com/wp-content/uploads/2016/04/madriddocumentenglish.pdf.</p> <p>The Getty Conservation Institute, <i>A Colloquium to Advance the Practice of Conserving Modern Heritage</i>, 2013, https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/colloquium_report.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches for the Conservation of Twentieth-Century Architectural Heritage</i>, Madrid Document, 2014, http://www.icomos-isc20c.org/pdf/madrid_doc_10.26.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches to the Conservation of Twentieth-Century Cultural Heritage</i>, Madrid-New Delhi Document, 2017, http://www.icomos-isc20c.org/pdf/madrid-new-delhi-document-2017.pdf.</p>
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<p>Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i></p>	<p>20th century architectural heritage</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>	
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>		<p>https://www.domusweb.it/en/architecture/2010/05/12/wilms-heinle-wischer-partner--topography-of-terror.html</p>
		<p>https://whichmuseum.com/museum/topography-of-terror-berlin-5393</p>



<https://whichmuseum.com/museum/topography-of-terror-berlin-5393>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_018

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Topography of Terror</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.domusweb.it/en/architecture/2010/05/12/wilms-heinle-wischer--partner--topography-of-terror.html</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Berlin
		Address	Niederkirchnerstraße 8
		Country	Germany
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
		Symbolic and Memorial	<i>(monuments, plates, etc.)</i>
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		
Political centers	<i>(if other, add text)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Site of the Nazi SS-Gestapo Headquarters	
		Century	20th century	
		Start year	1933	
		End year	1945	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation of the Nazi SS-Gestapo Headquarters	
		Actor	National Socialist Party	
		Century	20th century	
		Start year	1933	
End year		1933		
Event		First project for the Topography of Terror		
Actor		Peter Zumthor		
Century		20th century		
Start year		1993		
End year	1993			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
Traditional arts				
Traditional communication means				
Traditional construction systems				
Traditional craftsmanship				
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Memorial site		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
Digital	Art		
	Virtual reality		
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal	Event		
	Actor		
	Century		

	<i>significant events in the history of the</i>	Start year		
		End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
		Exhibited		
		Preserved		
		Recorded		
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

3. CHARACTERISATION OF THE BEST PRACTICE

BP_018

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Remains of the Nazi SS-Gestapo Headquarters Berlin Wall	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Brick
	Concrete	Concrete
	Concrete derivatives	
	Glass materials	Glass
	Metal materials	Metal
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	
	Marbles, travertines, stones and granites	
	Vegetable, mineral and animal fibres	
Wood		
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	—	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Communication of CH; Educational activities and programmes

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_018

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					Skills on implementing measures to encourage people to practice heritage
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•			Reconstruction					
	•	•	Adaptive re-use of CH					
	•	•	Accessibility					
		•	Dissemination through publications					
		•	Organisation of events and festivals					
		•	Encounters with communities					
		•	Educational activities and programmes					Skills on training and educational activities
		•	Creation of partnership and networking					
		•	Advertisements with CH					
		•	Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_019
Best practice ref. <i>identification code (add text)</i>	BP_019	
Object <i>object of the case study (add text)</i>	BASILICA PALLADIANA, VICENZA, ITALY	
Intervention <i>subject of the case study (add text)</i>	Maximisation of conservation and plant adaptive re-use of a Cultural Heritage asset	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2007
	End date	2012
Actors <i>main actors involved (add text)</i>	Prof. Arch. Eugenio Vassallo, Prof. Arch. Paolo Marconi, Prof. Arch. Salvador Perez Arroyo, Favero & Milan Ingegneria, Tifs Ingegneria, Arch. Andrea Piero Donadello	
Description of the best practice <i>Brief abstract (add text)</i>	<p>Won in 2004, the restoration project of the Basilica Palladiana in Vicenza responded to a twofold challenge: to make usable in a safe and secure manner and to adapt in terms of plant engineering the spaces of this monument without altering its spatial and figurative qualities. The challenge had to be resolved together with the cleaning, consolidation and protection of the stone, brick and decorative apparatus that characterise the basilica and which time has profoundly marked. It was possible to achieve both results by intervening incisively on the neighbouring Corte dei Bissari and by studying a new use of the spaces of the Domus Commestabilis. As a matter of fact, below the courtyard all the plant engineering units relating to electricity, air treatment and fire safety were placed, while in the domus the control room for the entire plant engineering system, the lifts and a staircase were adequately arranged. In the Corte dei Bissari, below the level of the "piazza", storage spaces have also been provided to serve the activities taking place in the great hall of the basilica. Toilets have also been placed in the courtyard, to be used by the existing shops in the basilica. This is to reduce the work to be done in the basilica to the conservation work only, ensuring at the same time the full compliance with safety and hygiene standards and regulations. The interventions planned in the basilica were substantial and complex, but all aimed at its conservation. They are the result of a careful investigation carried out during the design process, which concerned the load-bearing structure of the great hall vault, the identification of the processes of the materials degradation, and the consistency of the vaulting system between the mezzanine and first floors. The most important work carried out was to replace the reinforced concrete load-bearing arches of the vault with wooden ones. This replacement was necessary because of the advanced state of deterioration of reinforced concrete, which was no longer able to meet the safety requirements, and even less so the anti-seismic requirements dictated by the most recent legislation. The replacement only concerned the load-bearing core and had no impact on the figurative and spatial aspects, both inside and outside the hall and the entire basilica. The second and complex intervention involved the cleaning, consolidation and protection of all the internal and external surfaces in stone, brick and plaster. Finally, the necessary works to ensure the passage of the plant engineering networks were carried out, using all the interstices detected during the survey campaign, so as not to produce changes to the current configuration of the spaces and shape. The project won the 2014 European Union Award for Cultural Heritage.</p>	


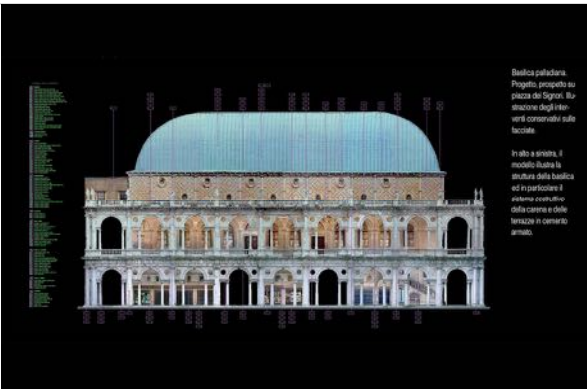

<p>Bibliography and sitography main sources referred to the best practice (add text)</p>	<ul style="list-style-type: none"> • Acoleo A., <i>Restauro del cuore pulsante di Vicenza</i>, 2013, http://www.palladiospa.com/wp-content/uploads/NuovaFinestra_giu2013.pdf. • Milan M., Vassallo E., <i>La Basilica palladiana a Vicenza</i>, in "Progetto&Pubblico", aprile 2007, pp. 22-24. • Milan M., Vassallo E., Donadello A., <i>Progetto, realizzazione, durata e restauro della struttura in calcestruzzo armato della volta della Basilica palladiana di Vicenza</i>, in lentile R. (ed.), <i>Architetture in cemento armato. Orientamenti per la conservazione</i>, FrancoAngeli, Milano, 2008, pp. 360-392. • http://buromilan.com/project/restauro-conservativo-della-basilica-palladiana-a-vicenza-italia/ • https://www.hsh.info/favero07.htm • https://www.museicivivicenza.it/it/tbc/basilica_palladiana/premio.php • https://whc.unesco.org/en/list/712/
<p>Documental references (add text)</p>	<p>CH general criteria framework (common framework, documents, CH)</p>
<p>Keywords transversal tags among different fields of research (add text)</p>	<p>Ancient constructions Conservation Preservation Valorisation</p>
<p>Image/s of the best practice nr. 1/3 image/s to identify the type of best practice</p>	<div>  </div> <div> <p>http://www.vicenzareport.it/2016/12/vicenza-basilica-palladiana-esempio-di-innovazione/</p> </div> <div>  <p>Basilica palladiana. Progetto progetta su piazza dei Signori. Realizzazione degli interventi conservativi sulle facciate.</p> <p>In alto a sinistra, il modello digitale 3D della struttura della basilica ed in particolare il sistema costruttivo della cupola e delle terrazze in cemento armato.</p> </div> <div> <p>Milan M., Vassallo E., <i>op. cit.</i>, 2007, p. 23.</p> </div>



Photo:
Giulia Campanini,
2021

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_019

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Basilica Palladiana</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>712</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>Acoleo A., <i>op. cit.</i>, 2013</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Vicenza
		Address	Piazza dei Signori
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Basilica	
		Century	15th-21st century	
		Start year	1460	
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
		Actor	Domenico da Venezia	
		Century	15th century	
		Start year	1449	
End year		1460		
Event		Reconstruction of the roof with reinforced concrete and wood works		
Actor		Ferdinando Forlati		
Century		20th century		
Start year		1948		
End year	1948			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		Domenico da Venezia, Ferdinando Forlati
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
Traditional arts				
Traditional communication means				
Traditional construction systems				
Traditional craftsmanship				
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		Symbolic value		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
Digital	Art		
	Virtual reality		
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal	Event		

	<i>significant events in the history of the heritage artefact (add text)</i>	Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
Traditional construction systems			
Traditional craftsmanship			
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)			

3. CHARACTERISATION OF THE BEST PRACTICE

BP_019

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Basilica Palladiana		
	Corte dei Bissari		
	Domus Commestabilis		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials	Brick	
	Concrete	Reinforced concrete	
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters	Plasters	
	Polymeric materials		
	Marbles, travertines, stones and granites	Stone	
	Vegetable, mineral and animal fibres		
	Wood	Wood	
	Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	-		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Project of restoration; Adaptive re-use of CH
	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	Diagnostic activities; Identification of the risks and deterioration patterns; Materials conservation tests; Pre-

		<i>standards, replicable strategies)</i>	consolidation, cleaning, consolidation and protection of CH materials; Reinforcement of CH buildings; Project of restoration; Accessibility
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_019

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation					
•	•		Diagnostic activities			Skills on taking care of Cultural Heritage materials		
•	•		Identification of the risks and deterioration patterns			Skills on taking care of Cultural Heritage materials		
•	•		Materials conservation tests			Skills on taking care of Cultural Heritage materials		
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
•	•		Reinforcement of CH buildings			Skills on organisation and logistics of complex situations (management of means and resources)		
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration		Skills on organisation and logistics of complex situations (management of means and resources)	Skills on organisation and logistics of complex situations (management of means and resources)		
•			Reconstruction					
	•	•	Adaptive re-use of CH		Skills on organisation and logistics of complex situations (management of means and resources)			

	•	• Accessibility			Skills on organisation and logistics of complex situations (management of means and resources)		
		• Dissemination through publications					
		• Organisation of events and festivals					
		• Encounters with communities					
		• Educational activities and programmes					
		• Creation of partnership and networking					
		• Advertisements with CH					
		• Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_020
Best practice ref. <i>identification code (add text)</i>	BP_020	
Object <i>object of the case study (add text)</i>	CESTIA PYRAMID, ROME, ITALY	
Intervention <i>subject of the case study (add text)</i>	Material conservation of a pyramid	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2012
	End date	2015
Actors <i>main actors involved (add text)</i>	Arch. Maria Grazia Filetici, Dr. Rita Paris	
Description of the best practice <i>Brief abstract (add text)</i>	<p>After the company Yagi Tsusho Ltd, chaired by Japanese patron Yuzo Yagi, signed a spontaneous donation agreement with the Soprintendenza Speciale per i Beni Archeologici of Rome in 2012 for the restoration of the Cestia Pyramid, a call for tenders has been issued by the Soprintendenza for the works on the basis of a project drawn up by Arch. Maria Grazia Filetici and Dr. Rita Paris. Preceded by a restoration intervention carried out between 1999 and 2000, which was followed by a programmed maintenance plan for the wall paintings, the intervention carried out between 2012 and 2015 provided for cleaning, consolidation and protection of the external Lunense marble cladding, ensured by stainless steel equipment, designed ad hoc. The paintings of the inner burial chamber were protected from water infiltration. The intervention also envisaged a periodic maintenance, during which the study of the effects of pollution on the marble will be continued. As a matter of fact, the effect of polluted air on the marble's protective layers will be monitored on the four façades of the monument with a view to making an even greater contribution to the conservation of the cultural heritage. The restoration of the Cestia Pyramid won the 2017 edition of the European Union Award for Cultural Heritage / Europa Nostra Awards.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://www.soprintendenzaspecialeroma.it/schede/piramide-di-caio-cestio_3006/ • https://www.beniculturali.it/comunicato/il-restauro-della-piramide-di-caio-cestio • https://bollettinodiarcheologiaonline.beniculturali.it/wp-content/uploads/2018/12/BAO_VII_2017_1-2_4_Filetici-Cibrario-De_Monte_Jatta_Molè_Vazio.pdf • https://www.ansa.it/sito/notizie/cultura/arte/2017/04/05/premio-ue-a-restauro-piramide-cestia_7a1cff4e-174a-4c40-8702-f74b4ddc8b17.html • https://www.arte.it/notizie/roma/il-restauro-della-piramide-cestia-vince-l-europa-nostra-awards-2017-12777 • https://roma.repubblica.it/cronaca/2015/04/20/news/piramide-112423807/ 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
Keywords <i>transversal tags among different fields of research</i>	Ancient constructions	
	Conservation	
	Preservation	

Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



https://www.soprintendenzaspecialeroma.it/schede/piramide-di-caio-cestio_3006/




<https://www.arte.it/notizie/roma/il-restauro-della-piramide-cestia-vince-l-europa-nostra-awards-2017-12777>



https://bollettinodiarcheologiaonline.beniculturali.it/wp-content/uploads/2018/12/BAO_VII_2017_1-2_4_Filefici-Cibrario-De_Monte_Jatta_Mo_lè_Vazio.pdf

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_020

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Cestia Pyramid</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Caius Cestius Pyramid</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>91</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.soprintendenzaspecialeroma.it/schede/piramide-di-caio-cestio-3006/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Rome
		Address	Via Ostiense
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		
Pyramids	<i>(if other, add text)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Sepulchre	
		Century	1st century BC - Middel Ages	
		Start year		
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
		Actor	Caius Cestius Epulo	
		Century	1st century BC	
		Start year	18 BC	
		End year	12 BC	
		Event	Incorporated into the city walls	
Actor		Emperor Aurelian		
Century		3rd century AD		
Start year		272 AD		
End year		279 AD		
	Event	Tomb violation with loss of the cinerary urn		
	Actor			
	Century	Middle Ages		
	Start year			
	End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	Pyramid	
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
			Immovable
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
			Virtual reality

	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage artefact (add text)</i>	Event	Realisation
		Actor	
		Century	1st century BC
		Start year	18 BC
		End year	12 BC
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects <i>connection to immaterial aspects (select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_020

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Pyramid	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Brick curtain
	Concrete	Concrete core
	Concrete derivatives	
	Glass materials	
	Metal materials	Iron nails
	Paints, varnishes and enamels	Walls decorated with frescoes
	Plasters	Plasters
	Polymeric materials	
	Marbles, travertines, stones and granites	External cladding in Lunense marble
	Vegetable, mineral and animal fibres	
	Wood	
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	-	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>

		<i>standards, replicable strategies)</i>	consolidation, cleaning, consolidation and protection of CH materials; Monitoring; Maintenance practices
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities




4. SYNTHESIS SHEET

BP_020

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns			Skills on taking care of Cultural Heritage materials		
•	•		Materials conservation tests			Skills on taking care of Cultural Heritage materials		
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
•	•		Reinforcement of CH buildings					
•	•		Monitoring			Skills on taking care of Cultural Heritage materials		
•	•		Maintenance practices			Skills on taking care of Cultural Heritage materials		
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•			Reconstruction					
•	•		Adaptive re-use of CH					
•	•		Accessibility					
	•		Dissemination through publications					
	•		Organisation of events and festivals					
	•		Encounters with communities					
	•		Educational activities and programmes					
	•		Creation of partnership and networking					
	•		Advertisements with CH					
	•		Gaming with CH					


1. CASE STUDY (INTRODUCTION)		BP_021
Best practice ref. <i>identification code (add text)</i>	BP_021	
Object <i>object of the case study (add text)</i>	FORUM OF AUGUSTUS, ROME, ITALY	
Intervention <i>subject of the case study (add text)</i>	Valorisation of Cultural Heritage through videogames	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2017
	End date	2019
Actors <i>main actors involved (add text)</i>	REVEAL project (CNR, Museo dei Fori Imperiali, VRTRON)	
Description of the best practice <i>Brief abstract (add text)</i>	<p>In 2019, the video game "A Night in the Forum" was released for Sony Playstation VR. This is the first co-production of a video game for such a relevant platform, made by the CNR in collaboration with a public institution, the Museo dei Fori Imperiali, and with a private company, VRTRON, which handled the development and production. "A Night in the Forum" is a 3D video game set in the Forum of Augustus in Rome and realised thanks to a grant from the European Commission under the H2020 REVEAL "Realising Education through Virtual Environments and Augmented Locations" project (2017-2018). This 3D video game is the first one made in Italy for an archaeological site. It is an "Environmental Narrative Videogame", a narrative genre of setting that involves a story and a mystery that must be revealed, through the immersion of the player within a photo-realistically reconstructed setting and through the discovery of clues that can help. In this kind of game everything is based on the involvement given by the narration and immersion, without the need of characters or other elements. In the case of this video game, it has been used real scenarios acquired in the field with Image-Based Modelling techniques that exploit photogrammetry and computer vision algorithms to build virtual models of real objects by processing digital images with special software. They were thus reconstructed following the sources, in order to be used in a 1st century AD setting. Finally, an engaging story was created, invented but based on historical reference elements. This is in fact the plot of the game: a tourist, left behind during a visit to the Forum of Augustus, picks up an object that projects him back in time. Stuck in the 1st century AD, he has to take on the role of the forum guardian and carry out the tasks assigned to him in order to return home before sunrise. The sounds of the night and the memories of the past will accompany and help him understand the world of the Roman Empire during the reign of Augustus.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Pescarin S. (ed.), <i>Videogames, Ricerca, Patrimonio Culturale</i>, FrancoAngeli, Milano 2020. • Habgood J. et al., <i>The REVEAL educational environmental narrative framework for PlayStation VR</i>, in <i>ECGBL 2018. 12th European Conference on Game-Based Learning, Academic Conferences and publishing limited 2018</i>. • https://cordis.europa.eu/project/id/732599/it 	
Documental references	CH general criteria framework (common framework, documents, CH)	

(add text)	ICOMOS, <i>Charter for the Protection and Management of the Archaeological Heritage</i> , 1990, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_fdf09c5b303f4fa09a283992ae16bcb8.pdf .
	Council of Europe, <i>Convention for the Protection of the Archaeological Heritage of Europe</i> , The Valletta Convention, 1992, https://www.coe.int/en/web/culture-and-heritage/valletta-convention .
	ICOMOS, <i>Salalah Guidelines for the Management of Public Archaeological Sites</i> , 2017, https://www.icomositalia.com/_files/ugd/57365b_36589194d828402e9380a363f8c4662b.pdf .

Keywords	Archaeological sites	
<i>transversal tags among different fields</i>	Valorisation	
Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i>		Pescarin S., <i>op. cit.</i> , p. 65.
		Pescarin S., <i>op. cit.</i> , p. 64.
		Pescarin S., <i>op. cit.</i> , p. 65.

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_021

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Forum of Augustus</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>91</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>Pescarin S., <i>op. cit.</i>, p. 67.</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Rome
		Address	Forum of Augustus
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
		Symbolic and Memorial	<i>(monuments, plates, etc.)</i>
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		
Forum	<i>(if other, add text)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Forum	
		Century	1st century BC - 21st century AD	
		Start year	2 BC	
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Inauguration	
		Actor	Gaius Iulius Caesar Augustus	
		Century	1st century BC	
		Start year	2 BC	
	End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		Gaius Iulius Caesar Augustus
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
Traditional construction systems				
Traditional craftsmanship				
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Symbol of ancient Rome		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	

		Preserved
		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_021

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Forum of Augustus		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites		
	Vegetable, mineral and animal fibres		
	Wood		
	Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	—		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	3D video games		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Companies from the creative industry producing heritage-based content, apps, games, education and tourism services		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Communication of CH; Gamings with CH
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	Gamings with CH

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	


Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET

BP_021

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH	Skills on digitalisation				
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•			Reconstruction					
•	•		Adaptive re-use of CH					
•	•		Accessibility					
			Dissemination through publications					
			Organisation of events and festivals					
			Encounters with communities					
			Educational activities and programmes					
			Creation of partnership and networking					
			Advertisements with CH					
		•	Gaming with CH	Skills on digitalisation		Skills on digitalisation		

1. CASE STUDY (INTRODUCTION)		BP_022
Best practice ref. <i>identification code (add text)</i>	BP_022	
Object <i>object of the case study (add text)</i>	GREAT POMPEII PROJECT, ITALY	
Intervention <i>subject of the case study (add text)</i>	Grat project for an archaeological area and its cultural surrounding territory	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2012
	End date	2018
Actors <i>main actors involved (add text)</i>	Italian Ministry of Culture	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The Great Pompeii Project is the result of an action by the Italian Government aimed at strengthening the effectiveness of the protection actions and interventions in the archaeological area of Pompeii by drawing up an extraordinary and urgent programme of conservation, prevention, maintenance and restoration interventions. In 2012, it was financed as a EU Great Project using funds from the Interregional Operational Programme "Cultural, Natural Attractions and Tourism" European Fund of Regional Development 2007-2013. In 2016, the request of the Italian Government to obtain an articulation into two phases was accepted: if the first one ended in 2015, the second one ended in 2018 and was financed with resources from the National Operational Plan "Culture and Development" European Fund of Regional Development 2014-2020. The Great Pompeii Project, which aims to the requalification of the archaeological site of Pompeii, is supported and accompanied by a scientific and technical study plan aimed at making diagnoses, deepening scientific knowledge and guiding operational choices. The interventions envisaged by the strategic plan, in line with the provisions of the UNESCO site management plan, are framed within a logic of integrated cultural tourism system, articulated in networks, areas, complexes and intangible actions, to which the individual interventions are functional. The connection networks serve to provide accessibility to the places of cultural tourism interest, favouring the enhancement of historical routes and eco-sustainable mobility. Within this scenario, the Pompeii archaeological park has inaugurated "Pompeii for All", a new route that allows also those with mobility difficulties to enter and visit some of the site's main places. The complex of palaces and cultural emergencies aims to enhance the territory's extensive historical and architectural heritage from a unified perspective. The field of naturalistic and landscape recomposition aims to organically enhance the entire coastal strip and the green areas, including peri-urban ones. The regeneration and recovery of degraded areas, such as disused industrial complexes or railway lines, by adapting their infrastructural dotation, aims at promoting their re-use for cultural tourism. Finally, intangible actions are used to activate wide-ranging digital services and to realise information products throughout the territory. In this sense, SmartLand@Pompei is a service that envisages the design and realisation of a portal for the integrated cultural tourist system, through which to network both those operating in the territory, to publicise the initiatives and events aimed at expanding the tourist offer and creating greater involvement of residents, and visitors, to whom a complete framework of the tourist offer and services and the suggested itineraries can be presented in relation to their financial and time resources.</p>	

<p>Bibliography and sitography main sources referred to the best practice (add text)</p>	<ul style="list-style-type: none"> • Picone R. (ed.), <i>Pompei accessibile. Per una fruizione ampliata del sito archeologico</i>, L'Erma di Bretschneider, Roma 2014. • https://www.unesco.it/it/PatrimonioMondiale/Detail/123 • http://pompeisites.org/grande-progetto-pompei/ • https://www.grandepompei.beniculturali.it • https://www.beniculturali.it/ente/grande-progetto-pompei-unita-grande-pompei • https://www.teknoring.com/news/progettazione/pompei-per-tutti-3-km-di-percorso-accessibile-dentro-gli-scavi/
<p>Documental references (add text)</p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>ICOMOS, <i>Florence Charter</i>, 1981, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_baf8432e213a404dbdedef5171b7df90.pdf.</p> <p>ICOMOS, <i>Charter for the Protection and Management of the Archaeological Heritage</i>, 1990, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_fdf09c5b303f4fa09a283992ae16bcb8.pdf.</p> <p>Council of Europe, <i>Convention for the Protection of the Archaeological Heritage of Europe</i>, The Valletta Convention, 1992, https://www.coe.int/en/web/culture-and-heritage/valletta-convention.</p> <p>Council of Europe, <i>European Landscape Convention</i>, 2000, https://rm.coe.int/1680080621.</p> <p>ICOMOS, <i>Salalah Guidelines for the Management of Public Archaeological Sites</i>, 2017, https://www.icomositalia.com/_files/ugd/57365b_36589194d828402e9380a363f8c4662b.pdf.</p> <p>ICOMOS-IFLA, <i>ICOMOS-IFLA Document on Historic Urban Public Parks</i>, 2017, https://www.icomositalia.com/_files/ugd/57365b_35cc0006820a47298626dc214cedb11b.pdf.</p> <p>ICOMOS-IFLA, <i>ICOMOS-IFLA Principles Concerning Rural Landscapes as Heritage</i>, 2017, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_cd7200d8a8b04613b4456f230c433a15.pdf.</p>
<p>Keywords transversal tags among different fields of research (add text)</p>	<p>Archaeological sites</p> <p>Ancient constructions</p> <p>Landscape and historical gardens</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>
<p>Image/s of the best practice nr. 1/3 image/s to identify the type of best practice</p>	 <p>https://www.grandepompei.beniculturali.it/index.php/valorizzazione-area-archeologica-di-villa-sora-a-torre-del-greco-is-15</p>




<https://www.teknoring.com/news/progettazione/pompei-per-tutti-3-km-di-percorso-accessibile-dentro-gli-scavi/>



<https://www.grandepompei.beniculturali.it>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_022

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Great Pompeii Project</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>123</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.grandepompei.beniculturali.it</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Pompei, Ercolano, Oplontis and surrounding areas
		Address	
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
		Symbolic and Memorial	<i>(monuments, plates, etc.)</i>
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		
Cities	<i>(if other, add text)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Archaeological sites, historical buildings, landscape and
	Time period <i>(select from list)</i>	Century	
		Start year	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	End year	
Investigation status <i>(select from list)</i>		Ancient period	
		Post industrial revolution period	
		Event	
		Actor	
		Century	
	Start year		
OTHER	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	End year	
		Un-documented	
		Archived	
		Studied	
		Architectural typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	Traditional cults
		Social activities/practices	Agri-food excellence and presidia
		Traditional arts	Arts
		Traditional communication means	
Traditional construction systems			
Traditional craftsmanship	Professions		
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Old cities		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	
		Actor	
		Century	
Start year			
End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	

		Preserved
		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_022

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Individual buildings		
	Cities		
	Natural areas		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials	Bricks	
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels	Painted surfaces	
	Plasters	Plasters	
	Polymeric materials		
	Marbles, travertines, stones and granites	Travertines, stones	
	Vegetable, mineral and animal fibres		
Wood	Wood		
Wood derivatives			
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	Portal		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists Public and private heritage institutions responsible for managing monuments and sites		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Organisation of events and festivals
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	Preventive conservation; Identification of the risks and deterioration patterns; Materials conservation tests; Pre-

		<i>standards, replicable strategies)</i>	consolidation, cleaning, consolidation and protection of CH materials; Maintenance practices; Accessibility
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Organisation of events and festivals

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	




4. SYNTHESIS SHEET

BP_022

			<i>(select from list)</i> <i>(add text)</i>					Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION				
			• Historic and bibliographic research									
			• Studies on CH									
			• Documentation of CH									
			• Communication of CH									
			• Preventive conservation			Skills on taking care of Cultural Heritage materials						
			• Diagnostic activities			Skills on taking care of Cultural Heritage materials						
			• Identification of the risks and deterioration patterns			Skills on taking care of Cultural Heritage materials						
			• Materials conservation tests			Skills on taking care of Cultural Heritage materials						
			• Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials						
			• Reinforcement of CH buildings									
			• Monitoring									
			• Maintenance practices			Skills on taking care of Cultural Heritage materials						
			• Management and administration practices									
			• Promotion and support of interventions for conservation									


•	•	•	Project of restoration					
•			Reconstruction					
	•	•	Adaptive re-use of CH					
	•	•	Accessibility				Skills on implementing measures to encourage people to practice heritage	
		•	Dissemination through publications					
	•	•	Organisation of events and festivals					Skills on implementing measures to encourage people to practice heritage
				Skills on social media				
		•	Encounters with communities					
		•	Educational activities and programmes					
		•	Creation of partnership and networking					
		•	Advertisements with CH					
		•	Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_023
Best practice ref. <i>identification code (add text)</i>	BP_023	
Object <i>object of the case study (add text)</i>	MALATESTIANA LIBRARY, CESENA, ITALY	
Intervention <i>subject of the case study (add text)</i>	Monitoring and preventive conservation of a library without HVAC systems	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2013
	End date	2013
Actors <i>main actors involved (add text)</i>	University of Bologna	
Description of the best practice <i>Brief abstract (add text)</i>	<p>With reference to the architectural heritage, a relevant aspect concerns the relationship between comfort and preservation. In this regard, microclimatic monitoring should aim firstly at preserving the architecture and the goods, such as collections, guarded inside it, and secondly at ensuring the well-being of its visitors and workers. Often the current introduction of the Heating, Ventilation and Air Conditioning (HVAC) systems, motivated by the achievement of a certain comfort for the users of the asset, is not accompanied by an assessment of the possible side effects of these systems on the building, and it is precisely the modification of the internal microclimatic conditions that can generate a "stress" that was not present in the original building and that affects its conservation. In this sense, the case of the Malatestiana Library in Cesena is exemplary. Here the internal temperature and relative humidity is still regulated through a precise windows opening and the numerical control of the visitors. If this management approach has long been based on the rule of "good sense", the results of the microclimate monitoring campaign carried out in 2013 by the Department of Architecture of the University of Bologna showed how it was precisely the absence of HVAC systems, combined with precise management practices, that ensured an optimal conservation of the ancient library, the wooden plutei and the manuscripts. This does not mean banning the introduction of plant systems in buildings originally without them, but rather highlighting the importance of studying the historic microclimate in order to make choices compatible with heritage conservation. In particular, the monitoring campaign carried out at the Malatestiana Library regarded the measurement of the two most important parameters, able to deteriorate the building, the manuscripts and the plutei: Temperature (T) in °C, and Relative Humidity (RH).</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Pretelli M., Fabbri K. (eds.), <i>Historic Indoor Microclimate of the Heritage Buildings. A Guideline for Professionals who care for Heritage Buildings</i>, Springer, Cham 2018. • Pretelli M., Fabbri K., <i>Heritage buildings and historic microclimate without HVAC technology: Malatestiana Library in Cesena, Italy, UNESCO Memory of the World</i>, in "Energy and Buildings", 76, 2014, pp. 15-31. • Pretelli M., Fabbri K., Ugolini A., Milan A., <i>Indoor Microclimate effect on heritage buildings: the case study of Malatestiana Library</i>, in Boriani M., Gabaglio R., Gulotta D. (eds.), <i>Built Heritage 2013. Monitoring Conservation Management</i>. Proceedings of the Conference (Milan, 18-20 November 2013), Politecnico di Milano, Centro per la Conservazione e Valorizzazione dei Beni Culturali, Milano, 2013, pp. 1439-1446. 	

	<ul style="list-style-type: none"> • Canali F., <i>Tracce albertiana nella Romagna umanistica tra Rimini e Faenza. L'architettura malatestiana a Cesena (1433-1465): la biblioteca di Malatesta Novello e il problema dei "modelli", "domini", "orizzonti" e "consigli" di Leon Battista Alberti</i>, in Canali F. (ed.), <i>Brunelleschi, Alberti e oltre</i>, Emmebi Edizioni Firenze, Firenze 2010, pp. 81-105. • http://www.unesco.org/new/en/communication-and-information/memory-of-the-world/register/full-list-of-registered-heritage/registered-heritage-page-8/the-malatesta-novello-library/
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)
Keywords <i>transversal tags among different fields of research</i>	Ancient constructions Conservation Preservation
Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i>	<div>  </div> <div> <p>Photo: Kristian Fabbri, 2013.</p> </div> <div>  </div> <div> <p>Photo: Kristian Fabbri, 2013.</p> </div> <div>  </div> <div> <p>Photo: Kristian Fabbri, 2013.</p> </div>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_023

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Malatestiana Library</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Malatesta Novello Library</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>Registered Heritage of UNESCO Memory of the World</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>2004-18</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>Photo: Kristian Fabbri, 2013.</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Cesena
		Address	Piazza Maurizio Bufalini
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Library	
		Century	16th-21st century	
		Start year	1545	
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
		Actor	Matteo Nuti	
		Century	15th-16th century	
		Start year	1450	
	End year	1545		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	Architectural conformation	
		Artisanship		
		Authorship	Wanted by Malatesta Novello; possible involvement of Leon Battista Alberti	
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type <i>(of the artefact asset)</i> <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event		
	Actor		
	Century		
	Start year		
	End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	

		Exhibited
		Preserved
		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_023

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Ancient library		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials	Cotto tiles, bricks	
	Concrete		
	Concrete derivatives		
	Glass materials	Glass	
	Metal materials	Iron	
	Paints, varnishes and enamels		
	Plasters	Plasters	
	Polymeric materials		
	Marbles, travertines, stones and granites	Stones	
	Vegetable, mineral and animal fibres		
	Wood	Wood	
Wood derivatives			
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological) Anthropic risks (heritage management)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	Probes for monitoring T and RH		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Public and private heritage institutions responsible for managing monuments and sites		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Preventive conservation; Monitoring
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	Preventive conservation; Monitoring; Maintenance practices

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	


Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_023

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation		Skills on taking care of Cultural Heritage materials	Skills on taking care of Cultural Heritage materials		
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•		Reinforcement of CH buildings					
•	•		Monitoring		Skills on application of new technologies	Skills on application of new technologies		
•	•		Maintenance practices			Skills on taking care of Cultural Heritage materials		
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•			Reconstruction					
	•	•	Adaptive re-use of CH					
	•	•	Accessibility					
		•	Dissemination through publications					
		•	Organisation of events and festivals					
		•	Encounters with communities					
		•	Educational activities and programmes					
		•	Creation of partnership and networking					
		•	Advertisements with CH					
		•	Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_024
Best practice ref. <i>identification code (add text)</i>	BP_024	
Object <i>object of the case study (add text)</i>	MUBIG, MILAN, ITALY	
Intervention <i>subject of the case study (add text)</i>	Construction of a community museum in a city district	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2020
	End date	Ongoing
Actors <i>main actors involved (add text)</i>	ABCittà, Social Green Way_Stazione Radio Martesana, Pinacoteca di Brera, Gruppo FAS, Greco Positiva, IC Locatelli-Quasimodo, Associação de Antigos Alunos da Universidade de Aveiro	
Description of the best practice <i>Brief abstract (add text)</i>	<p>MUBIG is an open-air museum in the Greco district of Milan, which describes it through permanent and temporary actions. The project aims to offer the city a new decentralised cultural pole, with the intention of enhancing the collective memory, past and present, of a territory through the bottom-up production of significant content of interest to many. In fact, a community museum activates the resources of a territory and encourages the construction of meanings and values around objects and places by the people who identify with them. In the process of building such a museum, all the inhabitants are involved in a participatory and generative process from below, aimed at defining common goods and building and consolidating networks and actions to generate, nurture and support the museum. The aim is to build a new form of welfare in a relational key. MUBIG breaks down the prejudices surrounding the word "museum" by focusing on the methods, approaches and visions for which this institution can be the spokesman, regardless of the physical nature of its spaces. A community museum makes it possible to enhance the socio-cultural and intangible heritage of a place, activates the resources of a territorial community and highlights the links between heritage, human rights and democracy. Specifically, MUBIG is a community museum which involves a diffuse museum (MUBIG develops in the territory and its cornerstones are places which have value for the inhabitants of the neighbourhood, capable of becoming relevant for many more people), a participatory museum (MUBIG is born from below, in fact, people with different skills and experiences, first and foremost residents, collaborate in the production of the museum, coordinated by a group of experts) and a museum of the present (MUBIG tells the present, by listening to a neighbourhood, investigating issues of social relevance and developing proposals capable of responding to current interests and needs). In this sense, MUBiG strengthens the local identity of the Greco district and the sense of belonging of its community; it enhances the ongoing process of urban regeneration and social cohesion; it tells the story and the present; it enhances the material and immaterial dimension; it indicates project lines for the future. MUBIG is a project by ABCittà, in partnership with Social Green Way_Stazione Radio Martesana and with the support of Pinacoteca di Brera, Gruppo FAS, Greco Positiva, IC Locatelli-Quasimodo and Associação de Antigos Alunos da Universidade de Aveiro. MUBIG is winner of the "BANDO 57" of Fondazione di Comunità Milano.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://mubig.it • http://abcitta.org/portfolio/mubig/ 	

	<ul style="list-style-type: none"> • https://www.che-fare.com/ciaccheri-pratiche-partecipative-museo-contemporaneo/
<p>Documental references <i>(add text)</i></p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>Vv.Aa., <i>Gubbio Charter</i>, 1960, https://www.italianostra.org/la-carta-di-gubbio-del-1960/.</p> <p>Vv.Aa., <i>Noto Charter</i>, 1986, https://ipce.culturaydeporte.gob.es/dam/jcr:c985ba29-4817-442b-8cde-e2a490140936/1986-carta-de-noto.pdf.</p> <p>ICOMOS, <i>Charter for the Conservation of Historic Towns and Urban Areas</i>, Washington Charter, 1987, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_012ee3b47bea4183b8a7d344d1bcd340.pdf.</p> <p>ICOMOS, <i>The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas</i>, 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_b4260164b6a74386a9bc53253775bb98.pdf.</p> <p>UNESCO, <i>Recommendation on the Historic Urban Landscape</i>, 2011, https://whc.unesco.org/uploads/activities/documents/activity-638-98.pdf.</p> <p>Vv.Aa., <i>Urban Agenda for the EU</i>, Pact of Amsterdam, 2016, https://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf.</p> <p>UNESCO, <i>The UNESCO Recommendation on the Historic Urban Landscape</i>, 2019, https://whc.unesco.org/en/hull.</p>
<p>Keywords <i>transversal tags among different fields</i></p> <p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>	<p>Urban spaces/assets</p> <p>Valorisation</p>  <p>https://mubig.it/dove/</p>




<https://mubig.it/dove/>



<https://www.chefare.com/ciaccheri-pratiche-partecipative-museo-contemporaneo/>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_024

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>MUBIG</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://mubig.it/dove/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Milan
		Address	Greco district
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
	Type B (of the heritage asset) <i>(select from list)</i>	Open surface	
		Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
Routes		<i>(trading, pilgrimage, etc.)</i>	
Settlement		<i>(towns, town centres, villages, etc.)</i>	
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		
Districts	<i>(if other, add text)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	District	
		Century		
		Start year		
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event		
		Actor		
		Century		
		Start year		
	End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
Traditional craftsmanship				
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Local socio-cultural heritage		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	

		Preserved
		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_024

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Greco district	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	
	Concrete	
	Concrete derivatives	
	Glass materials	
	Metal materials	
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	
	Marbles, travertines, stones and granites	
	Vegetable, mineral and animal fibres	
	Wood	
	Wood derivatives	
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	—	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Public and private heritage institutions responsible for managing monuments and sites	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Encounters with communities; Creation of partnership and networking


Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_024

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			• Historic and bibliographic research					
			• Studies on CH					
			• Documentation of CH					
			• Communication of CH					
			• Preventive conservation					
			• Diagnostic activities					
			• Identification of the risks and deterioration patterns					
			• Materials conservation tests					
			• Pre-consolidation, cleaning, consolidation and protection of CH materials					
			• Reinforcement of CH buildings					
			• Monitoring					
			• Maintenance practices					
			• Management and administration practices					
			• Promotion and support of interventions for conservation					
			• Project of restoration					
			• Reconstruction					
			• Adaptive re-use of CH					
			• Accessibility					
			• Dissemination through publications					
			• Organisation of events and festivals					
			• Encounters with communities					Skills on implementing measures to encourage people to practice heritage
			• Educational activities and programmes					
			• Creation of partnership and networking					Skills on encouraging and supporting the development of networks
			• Advertisements with CH					
			• Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_025
Best practice ref. <i>identification code (add text)</i>	BP_025	
Object <i>object of the case study (add text)</i>	OFFICINE GRANDI RIPARAZIONI, TURIN, ITALY	
Intervention <i>subject of the case study (add text)</i>	Cultural and creative reuse of industrial heritage	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2014
	End date	2019
Actors <i>main actors involved (add text)</i>	For Engineering Architecture	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The case of Officine Grandi Riparazioni (OGR) in Turin is a virtuous example of reuse and valorisation of industrial heritage triggered by the experimentation of new processes of economic development in which the role and function of culture and creative activities become increasingly crucial in the value chain of local productions. The cultural mechanism of restarting OGR transformed this complex from a train repair factory to a creativity and innovation hotbed. It is in 2008 that the CRT Foundation acquires the complex of OGR from Rete Ferroviaria Italiana. In 2012, the Consortium Company OGR-CRT is born and, in 2013, it bought the OGR with the intention of returning them to the city as a research and innovation hub, a driver of cultural and creative industry. The rebirth of OGR can be found in the materialisation of the link between history, research and innovation. It is an area that develops beyond the building where the intervention has been concentrated (the H-building) which is the oldest pre-existence. The project was entrusted to For Engineering Architecture, a company founded in 2012 by Roberto Mancini, Valeria Sclaverano and Corrado Vaschetti. Construction started in 2014, a first part of the construction site was concluded in 2017, and the last part in 2019. The reinterpretation of the historical material substance has been combined with high technology, flexibility of spaces, accessibility for all and artistic installations. The restoration work seems to take up a line of restoration that envisages the implementation of the principle of minimum intervention. The idea behind the operation was that of a production process that preserves the historical vocation of the complex, while moving from the material side, that of trains, to the immaterial side, that of ideas. The OGR are no longer filled with trains to be repaired, but with citizens who feed a new factory based on the pillars of creativity and innovation, a cultural device that constitutes an entrepreneurial accelerator. The latest development in the OGR timeframe is linked to the compelling initiatives put in place to counter the emergency caused by the spread of COVID-19. As a matter of fact, this centre has been used as a specific health centre with 100 sub-intensive and in-patient treatment places. In 2015, the project won the Urban Prize of Urbanpromo for the category "Quality of infrastructures and public spaces" and, in 2018, as part of the event "Urbanpromo projects for the country", the designers were asked to present the project in the section "Turin and Ivrea: functions of excellence in projects that renew urban quality".</p>	

<p>Bibliography and sitography main sources referred to the best practice (add text)</p>	<ul style="list-style-type: none"> • <i>Covid-19, alle OGR di Torino 100 posti letto per i malati</i>, https://www.aipaipatrimonioindustriale.com/post/covid-19-alle-ogr-di-torino-cento-posti-letto-per-i-malati. • <i>Ecco il programma arti visive delle nuove OGR di Torino con grandi nomi dell'arte contemporanea</i>, https://www.tribune.com/arti-visive/arte-contemporanea/2017/05/anteprime-programma-arti-visive-2017-2018-nuove-ogr-di-torino-mostre/. • Gibello L., Milan L., <i>Torino, la rinascita delle OGR tra storia e futuro</i>, in "Il Giornale dell'Architettura", 3 October 2017, https://ilgiornaledellarchitettura.com/2017/10/03/torino-la-rinascita-delle-ogr-tra-storia-e-futuro/. • <i>Officine Grandi Riparazioni: fucina di treni e di vite</i>, in "Rivista Museo Torino", Special OGR, January 2011, https://www.museotorino.it/resources/pdf/magazine/flip/ogr/files/assets/common/. • <i>Premio Urbanistica, vincono i progetti delle OGR e di San Salvario</i>, https://urbanpromo.it/2019/premio-urbanistica/le-precedenti-edizioni-del-premio-urbanistica/. • Signorelli L., Mariotti C., <i>Officine Grandi Riparazioni di Torino. Patrimonio industriale come fucina di creatività e innovazione</i>, in "Recupero e Conservazione", 160, 2020, pp. 42-51. • https://ogrtorino.it/project
<p>Documental references (add text)</p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>ICOMOS-TICCIH, <i>The Nizhny Tagil Charter for the Industrial Heritage</i>, 2003, https://www.icomos.org/18thapril/2006/nizhny-tagil-charter-e.pdf.</p> <p>ICOMOS-TICCIH, <i>Joint ICOMOS-TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes</i>, Dublin Principles, 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_d251c1dbc22a4210a5d893cf058f8c41.pdf.</p>
<p>Keywords transversal tags among different fields of research (add text)</p>	<p>Industrial archaeology assets</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>
<p>Image/s of the best practice nr. 1/3 image/s to identify the type of best practice</p>	 <p>Signorelli L., Mariotti C., <i>op. cit.</i>, p. 45.</p>




Signorelli L., Mariotti C., *op. cit.*, p. 46.



Signorelli L., Mariotti C., *op. cit.*, p. 48.

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_025

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Officine Grandi Riparazioni</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>OGR</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>Signorelli L., Mariotti C., <i>op. cit.</i>, p. 42.</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Turin
		Address	Corso Castelfidardo 22
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Train repair factory	
		Century	19th-20th century	
		Start year	1889	
		End year	1992	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Construction of the H-building	
		Actor		
		Century	19th century	
		Start year	1884	
		End year	1889	
		Event	Completion of the entire industrial sector	
		Actor		
		Century	19th century	
Start year		1889		
End year		1895		
	Event	Abandonment		
	Actor			
	Century	20th century		
	Start year	1992		
	End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	Industrial Heritage	
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)				

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
			Virtual reality

	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
	OTHER	Investigation status <i>(select from list)</i>	Un-documented
			Archived
			Studied
Exhibited			
Preserved			
Recorded			
Immaterial aspects connection to immaterial aspects <i>(select from list)</i>		Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
	Performance		
	Rituals/festivals/folklore/ceremonies		
	Social activities/practices		
	Traditional arts		
	Traditional communication means		
	Traditional construction systems		
	Traditional craftsmanship		
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

3. CHARACTERISATION OF THE BEST PRACTICE

BP_025

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	H-building of Officine Grandi Riparazioni	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Brick
	Concrete	
	Concrete derivatives	
	Glass materials	Glass
	Metal materials	Cast iron, steel
	Paints, varnishes and enamels	
	Plasters	Plaster
	Polymeric materials	
	Marbles, travertines, stones and granites	Stone
	Vegetable, mineral and animal fibres	
	Wood	
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	–	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization Companies from the creative industry producing heritage-based content, apps, games, education and tourism services	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>

		<i>standards, replicable strategies)</i>	use of CH; Accessibility; Organisation of events and festivals
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Encounters with communities


Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
Taking care of Cultural Heritage materials	
Training and educational activities	

4. SYNTHESIS SHEET

BP_025

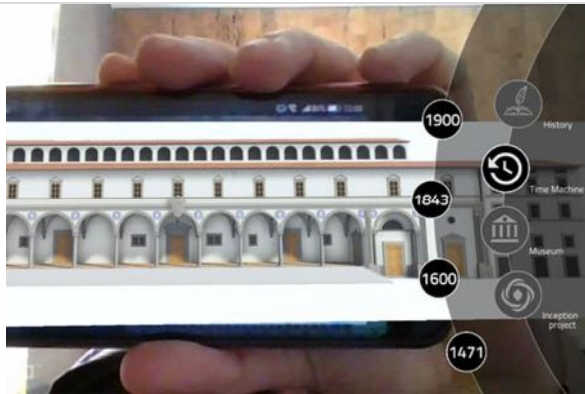
			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration			Skills on organisation and logistics of complex situations (management of means and resources)		
•			Reconstruction					
	•	•	Adaptive re-use of CH			Skills on organisation and logistics of complex situations (management of means and resources)		
	•	•	Accessibility			Skills on organisation and logistics of complex situations (management		

1. CASE STUDY (INTRODUCTION)		BP_026
Best practice ref. <i>identification code (add text)</i>	BP_026	
Object <i>object of the case study (add text)</i>	OSPEDALE DEGLI INNOCENTI, FLORENCE, ITALY	
Intervention <i>subject of the case study (add text)</i>	Phisical and digital enhancement of a cultural heritage asset	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2008
	End date	2016
Actors <i>main actors involved (add text)</i>	Ipostudio with Pietro Carlo Pellegrini and Eugenio Vassallo; INCEPTION project (coordinator: University of Ferrara, Italy)	
Description of the best practice <i>Brief abstract (add text)</i>	<p>After an international competition held in 2008 by the Istituto degli Innocenti, a design phase carried out from 2008 to 2011 by Ipostudio with Pietro Carlo Pellegrini and Eugenio Vassallo, and a construction phase from 2012 to 2016, the MUDI - Museo degli Innocenti has been inaugurated. The project for the Nuovo Museo degli Innocenti involved the new public accesses from the square through two metal mechanisms, and concerned the reorganisation of the internal paths, both vertical and horizontal, the refurbishment, the enhancement of temporary and permanent exhibition spaces, and the recovery of the large loggia on the top floor for the construction of a new cafeteria with a view of the monuments of Florence, that can be closed by movable glass panels. In the framework of the project, it has been addressed target users, such as tourists, visitors, cultural heritage asset owners, scholars and professionals. In this regard, INCEPTION project developed a user-based walkthrough which is related to the understanding of the evolution of the building, as a support for restoration or touristic applications. This cultural heritage workflows allows the definition and implementation of what a user can do to retrieve, provide, link, analyse, validate, interpret and use data, and can be performed for tasks such as preservation, site management, and connect tangible and intangible information. Especially, the acquired documentation aimed at the creation of a 3D model, that could allow multimedia visualisations and applications to enhance the new museum and to create innovative ways to explore the artistic and architectonic heritage and new forms of accessibility. By the use of a 3D morphometric survey, it was possible to investigate the complexity of the object using different technologies, such as the 3D laser scanner in order to obtain a 3D database, the topographic survey for geo-referencing of the database, and the photographic survey aimed at the implementation of a comprehensive knowledge of surfaces state of conservation. Moreover, it was highlighted possible uses of the 3D models and information, semantically linked towards applications. Especially, the implementation of the overall documentation and data aggregation for the 3D modelling semantic approach allowed data association among survey data, modelled geometries (parametric modelling) and information enrichment (building evolution, historical analysis, new form of accessibility to the museum). In this way, the project activities have addressed the modelling approach within the 3D semantic H-BIM, aggregating semantic attributes to 3D geometric models to allow new forms of heritage data management. In particular, the semantic part consisted of nomenclature and interpretation of building elements, and integration of additional documents and information related to the history of the building and 3D data capturing. This has been performed by involving the dedicated stakeholder (Istituto degli Innocenti)</p>	

	and the members of the stakeholder panel that supported the consortium in focusing effective strategies to increase use and reuse of digital models.
<p>Bibliography and sitography main sources referred to the best practice (add text)</p>	<ul style="list-style-type: none"> • Mulazzani M. (ed.), <i>L'Ospedale degli Innocenti di Firenze. La fabbrica brunelleschiana dal Quattrocento al Novecento. Il nuovo museo</i>, Electa, Milano 2016. • Terpolilli C., <i>Oltre il Restauro. La valorizzazione del patrimonio edilizio pubblico monumentale. L'Istituto degli Innocenti e il progetto MUDI</i>, in "TECHNE", 2, 2012, pp. 158-171. • https://www.abitare.it/it/architettura/progetti/2016/10/18/ipostudio-spedale-degli-innocenti/ • https://www.aeiprogetti.com/projects/museo-degli-innocenti/ • https://www.themaprogetto.it/il-progetto-del-museo-degli-innocenti-fiorenze/ • https://www.inception-project.eu/en/demonstration_cases/istituto-degli-innocenti-florence-italy • https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5c487bf10&appId=PPGMS • http://www.salonedelrestauro.com/new/admin/upload/incontro/Combine_2.pdf • https://www.abstrartfirenze.org/blog/putti-andrea-della-robbia/
<p>Documental references (add text)</p>	CH general criteria framework (common framework, documents, CH)
<p>Keywords transversal tags among different fields of research (add text)</p>	<p>Ancient constructions</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>
<p>Image/s of the best practice nr. 1/3 image/s to identify the type of best practice</p>	 <p>https://www.aeiprogetti.com/projects/museo-degli-innocenti/</p>




<https://www.aeiprojectti.com/projects/museo-degli-innocenti/>



<https://ec.europa.eu/research/participants/documents/downloadPublic?documentId=080166e5c487bf10&appId=PPGMS>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_026

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Ospedale degli Innocenti</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Spedale degli Innocenti Istituto degli Innocenti</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection Local listing (a monument, building, urban area or landscape which is listed on a local register for protection) National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection) International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.aeprogetti.com/projects/museo-degli-innocenti/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Florence
		Address	Piazza della Santissima Annunziata 12
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Horphanage
		Century	15th-19th century
		Start year	1445
		End year	c. 1875
		Function	Brefotrophy
		Century	19th century
		Start year	c. 1875
		End year	1890
		Function	Museum
	Century	19th-21st century	
	Start year	1890	
	End year		
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation
		Actor	Filippo Brunelleschi
		Century	15th century
		Start year	1419
		End year	1427
		Event	Continuation of the construction work
		Actor	Francesco della Luna
		Century	15th century
		Start year	1436
End year		1445	
Event		Restoration	
Actor		Leopoldo Pasqui	
Century		19th century	
Start year		1845	
End year	1845		
Event	Addition of an attic on the Renaissance façade		
Actor	Luigi Fusi		
Century	19th century		
Start year	1895		
End year	1895		
Event	Restoration		
Actor	Design by architects Rodolfo Raspollini, Domenico Cardini and Guido Morozzi, and construction supervision by architect Domenico Cardini and engineer Mario Focacci		
Century	20th century		
Start year	1966		
End year	1970		
Event	Restoration of the front on the square including the loggia		
Actor			
Century	20th century		
Start year	1994		
End year	1994		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	

Immaterial aspects connection to immaterial aspects <i>(select from list)</i> <i>(add text)</i>	Architectural typology	
	Artisanship	
	Authorship	Filippo Brunelleschi
	Knowledge/ideas	
	Performance	
	Rituals/festivals/folklore/ceremonies	
	Social activities/practices	
	Traditional arts	
	Traditional communication means	
	Traditional construction systems	
	Traditional craftsmanship	
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Renaissance milestone	

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
		Immovable	Written evidences
			Carved
			Frescoes
			Graffiti
		Digital	Mosaics
		Art	
		Virtual reality	
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	
		Actor	
		Century	
Start year			
	End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
		Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology
	Artisanship		
	Authorship		
	Knowledge/ideas		
	Performance		
	Rituals/festivals/folklore/ceremonies		
	Social activities/practices		
	Traditional arts		
	Traditional communication means		
	Traditional construction systems		
	Traditional craftsmanship		
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)			

3. CHARACTERISATION OF THE BEST PRACTICE

BP_026

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Hospital		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		Ceramic, terracotta, brick
	Concrete		
	Concrete derivatives		
	Glass materials		Glass
	Metal materials		Metal
	Paints, varnishes and enamels		
	Plasters		Plaster
	Polymeric materials		
	Marbles, travertines, stones and granites		Stone
	Vegetable, mineral and animal fibres		
	Wood		Wood
Wood derivatives			
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological) Anthropic risks (heritage management)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	3D model 3D laser scanner 3D database		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization Professional researchers Companies from the creative industry producing heritage-based content, apps, games, education and tourism services		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Documentation of CH; Communication of CH; Educational activities and programmes
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and</i>	Project of restoration; Creation of partnership and networking

		<i>storage, catalogue of standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Communication of CH
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Encounters with communities

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Training and educational activities

4. SYNTHESIS SHEET

BP_026

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH	Skills on developing knowledge banks on Cultural Heritage materials, techniques and know- how				
•	•	•	Communication of CH	Skills on digitalisati on			Skills on mapping and analysis of users' needs and requiremen ts	
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration			Skills on organisatio n and logistics of complex situations (managem ent of means and resources)		

•		Reconstruction					
•	•	Adaptive re-use of CH					
•	•	Accessibility					
		Dissemination through publications					
		Organisation of events and festivals					
		Encounters with communities					Skills on training and educational activities
	•	Educational programmes activities and	Skills on training and educational activities				
	•	Creation of partnership and networking			Skills on encouraging and supporting the development of networks		
	•	Advertisements with CH					
	•	Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_027
Best practice ref. <i>identification code (add text)</i>	BP_027	
Object <i>object of the case study (add text)</i>	PIAZZA ROSSINI, BOLOGNA, ITALY	
Intervention <i>subject of the case study (add text)</i>	Participated and green valorisation of cultural urban spaces	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2017
	End date	2020
Actors <i>main actors involved (add text)</i>	ROCK project (Municipality of Bologna, Foundation for Urban Innovation, Architecture Department of the University of Bologna), Bologna Design Week, Unipolis Foundation	
Description of the best practice <i>Brief abstract (add text)</i>	<p>To solve conflicting issues, regenerate the urban fabric and strengthen the identity of the area, the city of Bologna, within the framework of the ROCK project, launched Five Squares, a six-day event to reconnect open public spaces and give them back to citizens in a shared and participatory process. One of these spaces is Piazza Rossini, a public space of great historical and architectural value, which was transformed into a parking lot decades ago, in the middle of the university historical area. Using participatory methods, listening to the wishes of citizens and co-designing with students, the municipality, its urban agency (Foundation for Urban Innovation) and the University of Bologna installed a green carpet in the middle of the square instead of cars, a temporary installation conceived and designed with students. In particular, the idea of redesigning Piazza Rossini was born during the participatory laboratory "U-Lab" implemented in the university area, which was attended by over 250 people and from which emerged the need to restore a social dimension to the square, revalorise it and its surroundings, enhancing the collaboration of all the local actors (institutions, associations, students, etc.), while paying particular attention to greening and lighting as design elements. In this way, inhabitants can now experiment with new uses and rediscover and appreciate the details of the architectural treasures overlooking the square. Additionally, as heat waves in Bologna are increasingly frequent and the city must adapt to present and future changes in the climate, the transformation of Piazza Rossini is a symbolic and demonstrative action to change behaviour and reduce temperatures in urban spaces. A large ecosystem of stakeholders has been involved in the whole project: from the listening and co-design phases within U-Lab, to the experimentation on Piazza Rossini and the whole university area. The transferability of these actions regards, in particular: the use of cultural heritage as an engine to work towards a common urban regeneration and development vision, involving citizens; the engage in active and serious listening in a cooperative manner; the organisation of communication campaigns to promote local heritage; the demonstration of the willingness to listen to citizens and to reflect their needs (e.g. the approval of Bologna's municipal board to turn Piazza Rossini into a permanent pedestrian space). The temporary experiment and transformation of Piazza Rossini was largely embraced, with an average daily presence of over 27,000 and a peak of 36,000 visitors, monitored through crowd analysis sensors. People did not just go through the area but spent time in the square, and a large number of locals, local associations and social entrepreneurs endorsed the initiative as a first step towards a future vision and action for the city. This rapidly led to the decision from the municipal board to turn the temporary action into a permanent solution for the pedestrianisation of this space.</p>	

<p>Bibliography and sitography main sources referred to the best practice (add text)</p>	<ul style="list-style-type: none"> Boeri A., Longo D., Gianfrate V., Turillazzi B., Roversi R., Massari M., <i>Inclusive Historical Centres: the Experience of the EU ROCK Project in Bologna</i>, in <i>Accessibility in architectural heritage: Approaches and experiences between technology and restoration</i>, Anteferma Edizioni srl, Conegliano (TV) 2021, pp. 118 - 127. Leoni G., Boeri A., Longo D., Gianfrate V., Boulanger S.O.M., Massari M., Roversi R. (eds.), <i>Cultural Heritage Leading Urban Futures. Actions and Innovations from ROCK Project</i>, CPCL Series, 2020. Roversi R., Longo D., Massari M., Orlandi S., Turillazzi B., <i>Cultural heritage as activator of circular urban dynamic</i>, in "TECHNE", 22, 2021, pp. 218 - 226. https://bologna.rockproject.eu/rock-sperimenta-e-piazza-rossini-diventa-pedonale/ http://www.culturalheritageinaction.eu/culture/resources/BOLOGNA-A-new-life-for-piazza-Rossini-From-a-parking-lot-to-a-pedestrian-green-space-WSWE-BUCH5F
<p>Documental references (add text)</p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>Vv.Aa., <i>Gubbio Charter</i>, 1960, https://www.italianostra.org/la-carta-di-gubbio-del-1960/.</p> <p>Vv.Aa., <i>Noto Charter</i>, 1986, https://ipce.culturaydeporte.gob.es/dam/jcr:c985ba29-4817-442b-8cde-e2a490140936/1986-carta-de-noto.pdf.</p> <p>ICOMOS, <i>Charter for the Conservation of Historic Towns and Urban Areas</i>, Washington Charter, 1987, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_012ee3b47bea4183b8a7d344d1bcd340.pdf.</p> <p>ICOMOS, <i>The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas</i>, 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_b4260164b6a74386a9bc53253775bb98.pdf.</p> <p>UNESCO, <i>Recommendation on the Historic Urban Landscape</i>, 2011, https://whc.unesco.org/uploads/activities/documents/activity-638-98.pdf.</p> <p>Vv.Aa., <i>Urban Agenda for the EU</i>, Pact of Amsterdam, 2016, https://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf.</p> <p>UNESCO, <i>The UNESCO Recommendation on the Historic Urban Landscape</i>, 2019, https://whc.unesco.org/en/hul/.</p>
<p>Keywords transversal tags among different fields</p>	<p>Urban spaces/assets</p> <p>Valorisation</p>

Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



<http://www.culturalheritageinaction.eu/culture/resources/BOLOGNA-A-new-life-for-piazza-Rossini-From-a-parking-lot-to-a-pedestrian-green-space-WSWE-BUCH5F>




https://bologna.rockproject.eu/rock-sperimenta-e-piazza-rossini-diventa-pedonale/#iLightbox/gallery_image_11/2



Photo:
Serena Orlandi,
2019

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_027

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Piazza Rossini</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Piazza San Giacomo</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://bologna.rockproject.eu/rock-sperimenta-e-piazza-rossini-diventa-pedonale/#ilightbox[gallery_image_1]/2</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Bologna
		Address	Piazza Rossini
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Churchyard	
		Century	until 19th century	
		Start year		
		End year	1801	
		Function	Square	
		Century	19th-21st century	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Use as churchyard of San Giacomo Maggiore Church	
		Actor		
		Century	until 19th century	
		Start year		
		End year	1801	
		Event	Opening to the public passage under the name of Piazza San Giacomo	
Actor				
Century		19th century		
Start year		1801		
End year		1868		
Event		Dedication of the square to Giacomo Rossini		
Actor				
Century	19th-21st century			
Start year	1868			
End year				
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		Square as place of social activities and practices
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)				

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian

			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	
Actor			
Century			
Start year			
End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_027

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Square Surrounding heritage buildings		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites		
	Vegetable, mineral and animal fibres		
	Wood		
	Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	Crowd analysis sensors		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Public and private heritage institutions responsible for managing monuments and sites Companies from the creative industry producing heritage-based content, apps, games, education and tourism services		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Adaptive re-use of CH; Accessibility
	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition,</i>	Adaptive re-use of CH; Accessibility

		<i>management and storage, catalogue of standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Communication of CH; Adaptive re-use of CH; Organisation of events and festivals; Encounters with communities; Creation of partnership and networking

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET

BP_027

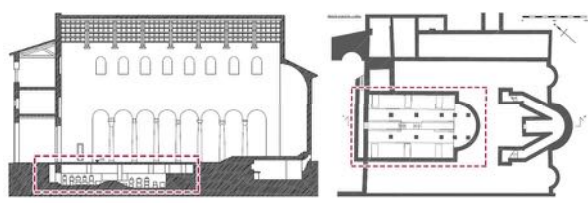
			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			<ul style="list-style-type: none"> Historic and bibliographic research 					
			<ul style="list-style-type: none"> Studies on CH 					
			<ul style="list-style-type: none"> Documentation of CH 					
			<ul style="list-style-type: none"> Communication of CH 					Skills on social media
			<ul style="list-style-type: none"> Preventive conservation 					
			<ul style="list-style-type: none"> Diagnostic activities 					
			<ul style="list-style-type: none"> Identification of the risks and deterioration patterns 					
			<ul style="list-style-type: none"> Materials conservation tests 					
			<ul style="list-style-type: none"> Pre-consolidation, cleaning, consolidation and protection of CH materials 					
			<ul style="list-style-type: none"> Reinforcement of CH buildings 					
			<ul style="list-style-type: none"> Monitoring 					
			<ul style="list-style-type: none"> Maintenance practices 					
			<ul style="list-style-type: none"> Management and administration practices 					
			<ul style="list-style-type: none"> Promotion and support of interventions for conservation 					
			<ul style="list-style-type: none"> Project of restoration 					
			<ul style="list-style-type: none"> Reconstruction 					
			<ul style="list-style-type: none"> Adaptive re-use of CH 		Skills on sustainable management of Cultural Heritage	Skills on sustainable management of Cultural Heritage		Skills on implementing measures to encourage people to practice heritage
			<ul style="list-style-type: none"> Accessibility 		Skills on application of new technologies	Skills on sustainable management of Cultural Heritage		
			<ul style="list-style-type: none"> Dissemination through publications 					
			<ul style="list-style-type: none"> Organisation of events and festivals 					Skills on implementing measures to encourage people to practice heritage
			<ul style="list-style-type: none"> Encounters with communities 					Skills on implementing

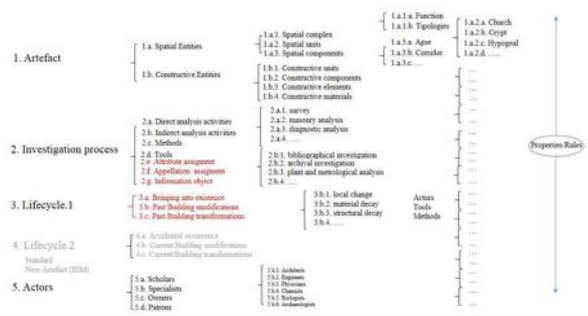
1. CASE STUDY (INTRODUCTION)		BP_028
Best practice ref. <i>identification code (add text)</i>	BP_028	
Object <i>object of the case study (add text)</i>	SAN SABA ORATORY, ROME, ITALY	
Intervention <i>subject of the case study (add text)</i>	Ontology and Built Heritage Information Modelling/Management of a historical architectural heritage	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2010
	End date	2011
Actors <i>main actors involved (add text)</i>	Sapienza University of Rome	
Description of the best practice <i>Brief abstract (add text)</i>	<p>Once located in the middle of the countryside, the San Saba Oratory is a case study treated by the Unit of Sapienza University of Rome in the framework of the PRIN 2010-2011 funding, obtained from the project BHIMM - Built Heritage Information Modelling/Management. The choice was to focus the research on BIM in relation to the existing historical architecture. The application of BIM to the historical architectural heritage involves the use of rather generalist semantic tools that lead to uncertain results in the characterisation of the existing building, in terms of both the fidelity of the geometric representation and the organisation of the information data. The concrete application of BIM to an existing reality forces in fact to a heavy limitation of the knowledge data that can be accumulated in a traditional way, and to a certain vagueness of representation. The case of the San Saba Oratory in Rome offered the experimental opportunity to try to find a way to reconcile precision and certainty through the integration of two tools of semantic representation of the existing heritage: Ontology and BIM. An Ontology was thus defined, while at the same time ensuring the possibility of establishing relationships between the databases of this and the current BIM systems. The development of an appropriate and open Ontology, and the definition of a way of linking it with programmes in the BIM environment, constituted the main objective in the development of the work produced, which has been named (O)BHIMM - Ontology for Built Heritage Information Modelling/Management. The operative contents of the work carried out can be traced back to three fundamental steps: elaboration of an ontology suitable for the representation of the existing through the modelling of domains; creation of a BIM model relative to the San Saba Oratory; design of an interface between Ontology and BIM system. This corresponded to the realisation of a "bridge" programme between an Ontology editor programme, such as Protegé, and a BIM modelling programme, such as Revit.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Acierno M., Cursi S., Simeone D., Fiorani D., <i>Architectural heritage knowledge modelling: An ontology-based framework for conservation process</i>, in "Journal of Cultural Heritage", 24, 2017, pp. 124-133. • Fiorani D., <i>La modellazione della conoscenza nel restauro: uno sviluppo per il BHIMM. Problematiche generali e il caso-studio di San Saba in Roma</i>, in Della Torre S. (ed.), <i>Built Heritage Information Modelling/Management BHIMM</i>, Edizioni IMREADY, Galazzano 2017, pp. 1-12. • Rechichi F., <i>Definizione e implementazione di un modello informativo per i beni culturali</i>, Tesi di Dottorato in Ingegneria Civile e Architettura, 	

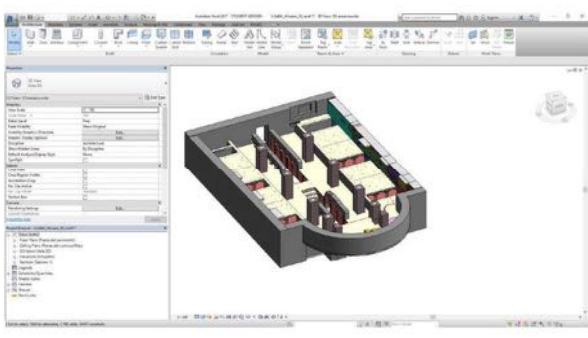
	<p>Università degli Studi di Parma, Ciclo XXXIII, Coordinatore Prof. Longo S., Relatore Prof. Roncella R., Tutor Prof. Fassi F., 2020.</p> <ul style="list-style-type: none"> Saulli T., Wahbeh W., Nardinocchi C., <i>3D survey and digital models as the first documentation of hypogeum of S. Saba in Rome</i>, in "Applied Geomatics", October 2018, pp. 1-8. https://sansaba.gesuiti.it/basilica-storia-arte/
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Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)
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Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i>	Ancient constructions Conservation Preservation Valorisation
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Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i>		Saulli T., Wahbeh W., Nardinocchi C., <i>op. cit.</i> , p. 2.
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		Fiorani D., <i>op. cit.</i> , p. 9.
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		Fiorani D., <i>op. cit.</i> , p. 10.
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Name <i>name by which the heritage asset is known</i> <i>(add text)</i>	San Saba Oratory
Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i>	n.a.
Designation and Protection (if any) <i>(select from list)</i>	No protection Local listing (a monument, building, urban area or landscape which is listed on a local register for protection) National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection) International protection (i.e. UNESCO World Heritage)
Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i>	—
Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i>	—
Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i>	 <p>Saulli T., Wahbeh W., Nardinocchi C., <i>op. cit.</i>, p. 3.</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Rome
		Address	Piazza Gian Lorenzo Bernini 20
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>		
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Oratory	
		Century	8th century	
		Start year		
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
		Actor		
		Century	8th century	
		Start year		
	End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
Traditional communication means				
Traditional construction systems				
Traditional craftsmanship				
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Sacred value		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event		
	Actor		
	Century		
	Start year		
	End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	

		Preserved
		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_028

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Oratory Hypogeum		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials	Bricks	
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels	Painted surfaces	
	Plasters	Plasters	
	Polymeric materials		
	Marbles, travertines, stones and granites	Stone	
	Vegetable, mineral and animal fibres		
	Wood	Wood	
Wood derivatives			
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	BIM modelling programme Ontology editor programme		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Professionals and SMEs providing services for preservation, conservation and restoration		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Historic and bibliographic research; Studies on CH; Documentation of CH; Communication of CH
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data</i>	

		<i>acquisition, management and storage, catalogue of standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	



Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

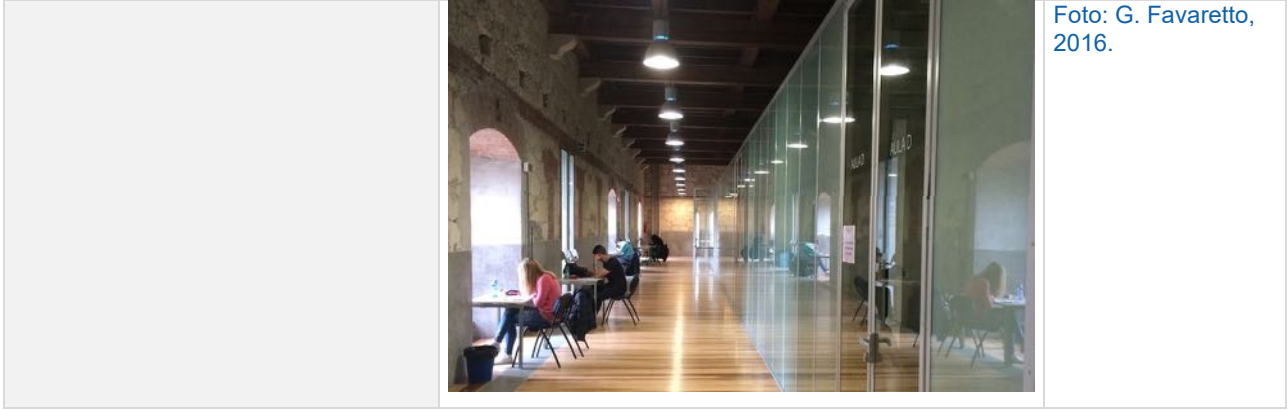
4. SYNTHESIS SHEET

BP_028

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research	Skills on developing knowledge banks on Cultural Heritage materials, techniques and know-how				
•	•	•	Studies on CH	Skills on developing knowledge banks on Cultural Heritage materials, techniques and know-how				
•	•	•	Documentation of CH	Skills on developing knowledge banks on Cultural Heritage materials, techniques and know-how				
•	•	•	Communication of CH	Skills on digitalisation				
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•			Reconstruction					
	•	•	Adaptive re-use of CH					
	•	•	Accessibility					
		•	Dissemination through publications					
		•	Organisation of events and festivals					
		•	Encounters with communities					
		•	Educational activities and programmes					
		•	Creation of partnership and networking					
		•	Advertisements with CH					
		•	Gaming with CH					


1. CASE STUDY (INTRODUCTION)		BP_029
Best practice ref. <i>identification code (add text)</i>	BP_029	
Object <i>object of the case study (add text)</i>	SANTA MARTA BARRACKS, VERONA, ITALY	
Intervention <i>subject of the case study (add text)</i>	Sustainable adaptive re-use of a military complex	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2009
	End date	2015
Actors <i>main actors involved (add text)</i>	ISP - IUAV Studi & Progetti	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The key to this project to restore the former military bakery at the Santa Marta Barracks in Verona, with strong structural density and considerable volumetric complexity, was the definition of a new layout strategy in the imposing Provianda factory, consisting of the bakery warehouse and two grain storage silos. The University of Verona entrusted the design to ISP - IUAV Studi & Progetti, the Venetian university's technical department, which relied on the scientific advice of its professors in the various specialist disciplines, including Massimo Carmassi, who was teaching in the lagoon at the time. The new arrangement responds to the needs of the new function designed as pole of the University of Verona, while maintaining and enhancing the spaces and materials of the building. The new function for the former bakery as new headquarters of the Faculty of Economics of the University of Verona includes classrooms, spaces for teachers and a library. The three courtyards have been lowered to the basement level and closed with steel and glass vaults with lowered arches. The reconnection of horizontal and vertical routes has been achieved with the introduction of walkways and metal staircases, including safety stairs. A complex set of plant systems has been installed. The internal partitions are almost always glazed, aiming to favour the reading of space. Great attention has also been paid to the conservation of materials. In particular, it was Cooperativa Archeologia's technicians who carried out the interventions for the conservation of the external facades and the internal finishing works. In addition, energy saving and renewable energy measures were carried out. As a matter of fact, the project was also characterised by the objective of taking care of the aspects related to the containment of energy consumption. Noting the difficulty of connecting to the city's district heating network, it was decided to build a geothermal plant with heat pumps instead of conventional thermal power plants. The opportunity offered by renewable energies and the physical and geological characteristics of the site led to the feasibility assessment of the geothermal plant for the production of hot and cold thermal fluid, for heating and cooling. The various stages in the restoration of the former bakery include architectural surveys and documentation on the status quo; drawings (plans, cross-sections, axonometric projections and details), a description of all the work phases and, finally, a comprehensive photographic record of the project. In 2015 the work won the Gold Medal for Italian Architecture by the Triennale.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Mulazzani M., <i>L'architettura di Massimo Carmassi. La nuova sede dell'Università di Verona: restauro e riuso</i>, Electa, Milano 2016. • https://ilgiornaledellarchitettura.com/2016/01/05/verona-dietro-il-recupero-del-panificio-ce-di-piu/ 	

	<ul style="list-style-type: none"> • http://recuperoconservazione.it/2016/07/12/il-progetto-di-riuso-dellex-panificio-militare-di-verona-oggi-polo-universitario/ • https://divisare.com/projects/305952-carmassi-studio-di-architettura-restauro-del-panificio-della-caserma-santa-marta • https://www.archeologia.it/2015/12/panificio-della-caserma-santa-marta-a-verona-il-restauro-di-cooperativa-archeologia/ • https://www.univr.it/it/santa-marta • https://www.univrmagazine.it/2015/12/03/lintervento-di-recupero-dellex-panificio-santa-marta/
<p>Documental references <i>(add text)</i></p>	<p>CH general criteria framework (common framework, documents, CH)</p>
<p>Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i></p>	<p>Post industrial revolution architecture Conservation Preservation Valorisation</p>
<p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>	<div style="display: flex; flex-direction: column;"> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>https://ilgiornaledellaarchitettura.com/2016/01/05/verona-dietro-il-recupero-del-panificio-ce-di-piu/</p> </div> </div> <div style="display: flex; align-items: center; margin-top: 10px;">  <div style="margin-left: 10px;"> <p>https://ilgiornaledellaarchitettura.com/2016/01/05/verona-dietro-il-recupero-del-panificio-ce-di-piu/</p> </div> </div> </div>



2. IDENTIFICATION OF THE HERITAGE ASSET

BP_029

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Santa Marta Barracks</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Passalacqua Barracks</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://ilgiornaledellarchitettura.com/2016/01/05/verona-dietro-il-recupero-del-panificio-ce-di-piu/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Verona
		Address	Via dell'Artigliere 8
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Barracks	
		Century	19th-20th century	
		Start year	1865	
		End year	1990s	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
		Actor	Austrian military engineering	
		Century	19th century	
		Start year	1863	
	End year	1865		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	19th century barracks	
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
Traditional craftsmanship				
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)				

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	

		Preserved
		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_029

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Bakery warehouse Grain storage silos		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials	Brick	
	Concrete	Reinforced concrete	
	Concrete derivatives		
	Glass materials	Glass	
	Metal materials	Steel	
	Paints, varnishes and enamels		
	Plasters	Plaster	
	Polymeric materials		
	Marbles, travertines, stones and granites	Stone	
	Vegetable, mineral and animal fibres		
	Wood	Wood	
Wood derivatives			
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological) Anthropic risks (heritage management)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	-		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Professionals and SMEs providing services for preservation, conservation and restoration		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Adaptive re-use of CH
	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and</i>	Pre-consolidation, cleaning, consolidation and protection of CH materials; Project of

		<i>storage, catalogue of standards, replicable strategies)</i>	restoration; Adaptive re-use of CH; Accessibility; Dissemination through publications
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities


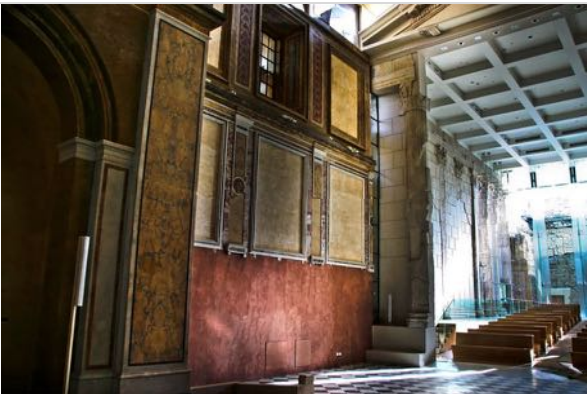
4. SYNTHESIS SHEET

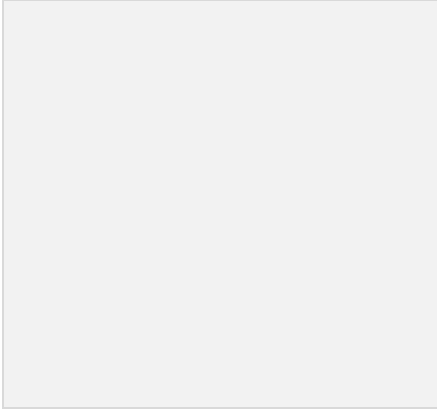
BP_029

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration			Skills on organisation and logistics of complex situations (management of means and resources)		
•			Reconstruction					
•	•	•	Adaptive re-use of CH		Skills on achievement of environmental challenges and objectives	Skills on organisation and logistics of complex situations (management of means and resources)		
•	•	•	Accessibility			Skills on organisation and logistics of complex situations (management of means and resources)		
•	•	•	Dissemination through publications			Skills on training and educational activities		
•			Organisation of events and festivals					

	• Encounters with communities					
	• Educational activities and programmes					
	• Creation of partnership and networking					
	• Advertisements with CH					
	• Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_030
Best practice ref. <i>identification code (add text)</i>	BP_030	
Object <i>object of the case study (add text)</i>	TEMPLE CATHEDRAL, POZZUOLI, ITALY	
Intervention <i>subject of the case study (add text)</i>	Ancient and New in a stratified cathedral	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2004
	End date	2009
Actors <i>main actors involved (add text)</i>	Marco Dezzi Bardeschi (group leader), Gnosis Architettura (Francesco Buonfantino, Antonio De Martino, Rossella Traversari), Alessandro Castagnaro, Renato De Fusco, Laura Gioeni	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The remains of the Roman temple built by Emperor Augustus, and then integrated within the Late-Baroque church-cathedral, were suddenly rediscovered in the aftermath of the tragic fire which in 1967 consistently ravaged the cathedral. On such remains has been initiated a project of partial anastilosis, carried out by one among the most known Italian museum designer (Ezio de Felice), interrupted, leaving the cathedral threatened by looting, while the archaeological remains were chaotically spread around. The project carried out in the 21st century, reconfirming the function of church for the stratified building, puts together, one close to the other, in comparison such diachronic heritage constituting the building. It obtains in the cella and in the entrance of the temple the unique hall of the new cathedral and re-gains to the cathedral the Late-Baroque liturgical spaces of the Presbytery, the Holy of Holy's Chapel, the Chapter and the Sacristy. The ancient pronaos hence became the open-air entrance leading to the unique nave of the church, while the spaces between the columns has been closed with high thin walls of structural glass. The floor of the temple has been brought back to the original level and is reconnected to the space of the transept and the altar, the latter looking to the entrance, through an oblique plan giving onto the altar's space and obtained excavating the hall. This solution in turn allows to enhance the space between the nave, where the remains of the podio belonging to the Roman perios building, identified with the Capitolium of the Roman colony founded in 194 B.C., are still conserved. As second result, it gains additional space to the archaeological visit. The ancient sacristy, equipped with a new internal stair, assumes the role of bridging element in the museum itinerary. The large chapel roofed by a majolica dome, is now turned in the baptistery and its centre is occupied by the baptism basin. Particular efforts have been put in designing the new bell tower, to host the three ancient bronze bells which remain from the ancient tower, built in 1633 and destroyed in 1968. Its new location in the apsidal area, where the stair looking the Chapter hall is conserved, gives to it the required visibility from the lower town. In the solution presented to the international competition the bell tower has been covered by a transparent roof which reproduces, as homage to the arrival in Pozzuoli of Saint Paul, who then consecrated the temple as church, the position of the stars in the sky at that specific propitious time. The intervention was estended to the Roman context beneath the Church with the archaeological paths, the archaeological museum and the lapidarium museum of the town. The project has been selected by the International Award "Domus Restoration and Conservation Fassa Bortolo".</p>	


<p>Bibliography and sitography main sources referred to the best practice (add text)</p>	<ul style="list-style-type: none"> • Pergoli Campanelli A., <i>Il restauro del Tempio-Duomo di Pozzuoli</i>, in "L'Architetto italiano", 35-36, 2010, pp. 8-13. • Pergoli Campanelli A., <i>Tempio-cattedrale a Pozzuoli</i>, in "AR", 60, 2005, pp. 8-37. • <i>Pozzuoli: l'esito del concorso per il recupero del Tempio-Duomo del Rione Terra</i>, in "ANANKE", 43, 2004, pp. 50-69. • https://ilgiornaledellarchitettura.com/2014/05/08/dopo-50-anni-riecco-il-tempio-duomo-di-pozzuoli/ • https://www.gnosisarchitettura.it/it/progetto/175/tempio-duomo • https://www.premiorestauro.it/documents/69803/94322/Dezzi+Bardeschi_.pdf/a9838858-e6d5-4c88-972a-2b249ad3273c
<p>Documental references (add text)</p>	<p>CH general criteria framework (common framework, documents, CH)</p>
<p>Keywords transversal tags among different fields of research (add text)</p>	<p>Ancient constructions Conservation Preservation Valorisation</p>
<p>Image/s of the best practice nr. 1/3 image/s to identify the type of best practice</p>	<div style="display: flex; flex-direction: column;"> <div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> <p>https://www.premiorestauro.it/documents/69803/94322/Dezzi+Bardeschi_.pdf/a9838858-e6d5-4c88-972a-2b249ad3273c</p> </div> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>https://www.gnosisarchitettura.it/it/progetto/175/tempio-duomo</p> </div> </div> </div>



<https://www.ilcommercioedile.it/terreal-laterizi-per-il-campanile-del-duomo-di-pozzuoli/>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_030

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Temple Cathedral</p>	
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>	
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>	
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>	
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>	
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>		<p>Pergoli Campanelli A., <i>op. cit.</i>, 2010, p. 8.</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Pozzuoli
		Address	Rione Terra
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>		
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Temple Cathedral		
		Century	Augustan period-21st century		
		Start year			
		End year			
	Time period <i>(select from list)</i>	Ancient period			
		Post industrial revolution period			
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation		
		Actor	Lucio Cocceio Aucto		
		Century	Augustan period		
		Start year			
		End year			
			Event	Construction of the tower	
			Actor		
			Century	17th century	
			Start year	1633	
			End year	1633	
			Event	Integration within the Late-Baroque church-cathedral	
			Actor	Bartolomeo Picchiatti	
			Century	17th century	
			Start year	1636	
	End year	1647			
	Event	Fire			
	Actor				
	Century	20th century			
	Start year	1967			
	End year	1967			
	Event	Intervention			
	Actor	Ezio de Felice			
	Century	20th century			
	Start year	1968			
	End year	1972			
OTHER	Investigation status <i>(select from list)</i>	Un-documented			
		Archived			
		Studied			
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology			
		Artisanship			
		Authorship			
		Knowledge/ideas			
		Performance			
		Rituals/festivals/folklore/ceremonies			
		Social activities/practices			
		Traditional arts			
		Traditional communication means			
		Traditional construction systems			
		Traditional craftsmanship			
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Sacred value			

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

Type	Movable	Architectonic features
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CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	(of the artefact asset) <i>(select from list)</i>		Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
	Digital	Art	
		Virtual reality	
Time period <i>(select from list)</i>		Ancient period	
		Post industrial revolution period	
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	
		Actor	
		Century	
Start year			
	End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
Traditional construction systems			
Traditional craftsmanship			
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)			

3. CHARACTERISATION OF THE BEST PRACTICE

BP_030

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Temple Cathedral	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Brick
	Concrete	
	Concrete derivatives	
	Glass materials	Glass
	Metal materials	Steel
	Paints, varnishes and enamels	Painted surfaces
	Plasters	Plaster
	Polymeric materials	
	Marbles, travertines, stones and granites	Marble, Stone
	Vegetable, mineral and animal fibres	
	Wood	
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (disasters and biological)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	-	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities



4. SYNTHESIS SHEET

BP_030

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration			Skills on organisation and logistics of complex situations (management of means and resources)		
•			Reconstruction					
	•	•	Adaptive re-use of CH					
	•	•	Accessibility					
		•	Dissemination through publications					
		•	Organisation of events and festivals					
		•	Encounters with communities					
		•	Educational activities and programmes					
		•	Creation of partnership and networking					
		•	Advertisements with CH					
		•	Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_031
Best practice ref. <i>identification code (add text)</i>	BP_031	
Object <i>object of the case study (add text)</i>	TREVI FOUNTAIN, ROME, ITALY	
Intervention <i>subject of the case study (add text)</i>	Valorisation of cultural heritage through fashion shows	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2015
	End date	2016
Actors <i>main actors involved (add text)</i>	Fendi	
Description of the best practice <i>Brief abstract (add text)</i>	<p>After financing the preservation works for the Trevi Fountain in 2015, Fendi chose this place to celebrate its 90th anniversary. In 2016, in fact, the baroque marbles of the Trevi Fountain, an icon of Rome and one of the most symbolic places in the city, were the protagonists of Fendi's "Legends and Fairy Tales" fashion show event for the inauguration of the fountain after the preservation works. The models walked on a transparent plexiglass catwalk, giving the impression of walking on water. Recognised as one of the most spectacular shows in the history of fashion, this event was also an opportunity to enhance this cultural heritage asset. On the one hand, this shows how sometimes patronage, when it decides to make money available for a specific project, can direct public choices in terms of protection. On the other hand, it shows how sponsorship directly requires visibility, more or less overt, during and after the project, both at the construction site level and at the level of communication around the project itself, up to events that transform, albeit temporarily, the asset whose preservation they have financed.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Schneider K., <i>Progetto e patrimonio culturale: riflessioni su una visione integrata</i>, in Musso S.F., Pretelli M. (coords.), <i>Restauro: Conoscenza, Progetto, Cantiere, Gestione. Sezione 0: Premessa e Apparati di un lavoro condiviso</i>, Quasar, Roma 2020, pp. 53-57. • https://www.elle.com/it/moda/ultime-notizie/news/g1366111/fendi-fontana-di-trevi/ • https://www.ilpost.it/2016/07/08/sfilata-fendi-fontana-trevi-roma/ • https://artemagazine.it/2016/07/08/la-fontana-di-trevi-scenario-spettacolare-per-la-sfilata-di-fendi-video/ • https://st.ilssole24ore.com/art/moda/2016-07-01/fendi-il-90-anni-sfilata-fontana-trevi--150346.shtml?uuid=ADjVYgm&refresh_ce=1 • https://whc.unesco.org/en/list/91/ 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
	Vv.Aa., <i>Gubbio Charter</i> , 1960, https://www.italianostra.org/la-carta-di-gubbio-del-1960/ .	
	Vv.Aa., <i>Noto Charter</i> , 1986, https://ipce.culturaydeporte.gob.es/dam/jcr:c985ba29-4817-442b-8cde-e2a490140936/1986-carta-de-noto.pdf .	
ICOMOS, <i>Charter for the Conservation of Historic Towns and Urban Areas</i> , Washington Charter, 1987, https://5129c385-3847-464f-90f1-		

	46e3571d8ee3.filesusr.com/ugd/57365b_012ee3b47bea4183b8a7d344d1bcd340.pdf.
	ICOMOS, <i>The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas</i> , 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_b4260164b6a74386a9bc53253775bb98.pdf .
	UNESCO, <i>Recommendation on the Historic Urban Landscape</i> , 2011, https://whc.unesco.org/uploads/activities/documents/activity-638-98.pdf .
	Vv.Aa., <i>Urban Agenda for the EU</i> , Pact of Amsterdam, 2016, https://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf .
	UNESCO, <i>The UNESCO Recommendation on the Historic Urban Landscape</i> , 2019, https://whc.unesco.org/en/hul/ .


<p>Keywords <i>transversal tags among different fields</i></p> <p>Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i></p>	Urban spaces/assets Valorisation	
		Schneider K., <i>op. cit.</i> , p. 57.
		https://www.elle.com/it/moda/ultime-notizie/news/g1366111/fendi-fontana-di-trevi/



<https://www.elle.com/it/moda/ultime-notizie/news/g1366111/fendi-fontana-di-trevi/>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_031

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Trevi Fountain</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>91</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.elle.com/it/moda/ultime-notizie/news/g1366111/fendi-fontana-di-trevi/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Rome
		Address	Piazza di Trevi
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
		Symbolic and Memorial	<i>(monuments, plates, etc.)</i>
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		
Fountains	<i>(if other, add text)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Fountain	
		Century	18th-21st century	
		Start year	1762	
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Construction	
		Actor	Nicola Salvi, Pietro e Virginio Bracci	
		Century	18th century	
		Start year	1732	
	End year	1762		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
Traditional arts				
Traditional communication means				
Traditional construction systems				
	Traditional craftsmanship	Ancient craftsmanship		
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)			

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	

		Preserved
		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_031

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Fountain		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites		
	Vegetable, mineral and animal fibres		
	Wood		
	Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	-		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	-		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Creation of partnership and networking; Advertisements with CH
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	Creation of partnership and networking; Advertisements with CH

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	


Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET

BP_031

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			• Historic and bibliographic research					
			• Studies on CH					
			• Documentation of CH					
			• Communication of CH					
			• Preventive conservation					
			• Diagnostic activities					
			• Identification of the risks and deterioration patterns					
			• Materials conservation tests					
			• Pre-consolidation, cleaning, consolidation and protection of CH materials					
			• Reinforcement of CH buildings					
			• Monitoring					
			• Maintenance practices					
			• Management and administration practices					
			• Promotion and support of interventions for conservation					
			• Project of restoration					
			• Reconstruction					
			• Adaptive re-use of CH					
			• Accessibility					
			• Dissemination through publications					
			• Organisation of events and festivals					
			• Encounters with communities					
			• Educational activities and programmes					
			• Creation of partnership and networking		Skills on encouraging and supporting the development of networks	Skills on encouraging and supporting the development of networks		
			• Advertisements with CH		Skills on implementing measures to encourage people to practice heritage	Skills on implementing measures to encourage people to practice heritage		
			• Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_032
Best practice ref. <i>identification code (add text)</i>	BP_032	
Object <i>object of the case study (add text)</i>	TROISI CINEMA, ROME, ITALY	
Intervention <i>subject of the case study (add text)</i>	Inclusive rehabilitation of a 20th century architecture	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2019
	End date	2021
Actors <i>main actors involved (add text)</i>	Arch. Raffaella Moscaggiuri, Arch. Claudia Tombini	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The intervention carried out at the Cinema Toisi in Rome is part of an urban regeneration operation, supported by funds from the Italian Ministry of Culture included in the "Extraordinary plan for the development of the cinema and multifunctional halls circuit" which granted the management, through a public tender, to the Piccolo America Association. The project imagined this cinema hall as a reference point and an inclusive square in people's social lives: it was conceived as a cinema that is always enlightened and open, even when the projector is turned off. The aim was to create also a study room, exploiting the spaces of the rationalist building originally used as a boiler room. The Troisi Cinema became a unique space on the European scene, with the historic cinema hall equipped with the most advanced projection technology (it also has seats reserved for people with disabilities and a system for the hearing and visually impaired, so that everyone can access the screenings), a foyer-bar, a brightly lit terrace, a multifunctional space for exhibitions and events, and a study-library completely free of charge and the first example in Italy that will be open 365 days a year, 24 hours a day, with comfort and seats inside and eventually on the terrace. Moreover, according to Open Impact, an innovative start-up and research spin-off of the University of Rome Tor Vergata, the impact of this social, economic and environmental redevelopment over the next 10 years is equivalent to 30 tonnes of CO2 saved each year, thanks to green partner Iberdrola, and to 70% less management costs for the public treasury. The restoration work by architects Raffaella Moscaggiuri and Claudia Tombini, which lasted about two years under the supervision of the Soprintendenza Speciale Archeologia Belle Arti e Paesaggio of Rome, preserved material traces of the original construction, adding the necessary new functional elements for contemporary use. The main works include restitution of a functional circularity, conservation of the Carrara marble floors, as well as of the travertine steps and cladding at the entrance, recovering of some bas-reliefs, and intervention for the large glass window on the terrace. In addition, the cinema is enriched by Lorenzo Terranera's mural illustrations that lead guests from the foyer, through the internal stairs, to the study room, to retrace the ten years of the Piccolo America experience. The Troisi Cinema wants therefore to be a new and inclusive space, in terms of audiences, proposals and programming choices, but also a space for culture, with the aim of creating a meeting place. The Troisi Cinema, a building granted by Roma Capitale through a public tender, is a project of Piccolo America made possible thanks to the support of the Ministry of Culture, the Lazio Region, with Lazio Innova, BNL BNP Paribas Group, SIAE (Società Italiana degli Autori ed Editori), Otto per mille of the Waldensian Church, the green partner Iberdrola and the digital sponsor TIM.</p>	

<p>Bibliography and sitography main sources referred to the best practice (add text)</p>	<ul style="list-style-type: none"> • https://www.professionearchitetto.it/news/notizie/29053/Roma-il-Cinema-Troisi-riapre-i-battenti-rinnovato-e-pronto-a-rilanciare-la-settima-arte-nella-Capitale • https://roma.repubblica.it/cronaca/2021/08/24/news/cinema_troisi_21_settembre-315146220/ • https://www.romatoday.it/politica/cinema-troisi-restauro-progetto.html • https://www.romatoday.it/eventi/cultura/inaugurazione-cinema-troisi-trastevere-21-settembre-2021.html • https://archello.com/project/restoration-of-the-ex-cinema-induno
<p>Documental references (add text)</p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>Vv.Aa., <i>I dieci punti del comitato dei monumenti moderni</i>, in F. Perego, <i>Monumenti moderni, un'emergenza nuova</i>, in "Edilizia Popolare", 216-217, 1991, p. 48.</p> <p>ICOMOS ISC20C, <i>Approaches for the Conservation of 20th Century Architectural Heritage</i>, Madrid Document, 2011, http://orcp.hustoj.com/wp-content/uploads/2016/04/madriddocumentenglish.pdf.</p> <p>The Getty Conservation Institute, <i>A Colloquium to Advance the Practice of Conserving Modern Heritage</i>, 2013, https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/colloquium_report.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches for the Conservation of Twentieth-Century Architectural Heritage</i>, Madrid Document, 2014, http://www.icomos-isc20c.org/pdf/madrid_doc_10.26.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches to the Conservation of Twentieth-Century Cultural Heritage</i>, Madrid-New Delhi Document, 2017, http://www.icomos-isc20c.org/pdf/madrid-new-delhi-document-2017.pdf.</p>
<p>Keywords transversal tags among different fields of research (add text)</p>	<p>20th century architectural heritage</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>
<p>Image/s of the best practice nr. 1/3 image/s to identify the type of best practice</p>	 <p>https://www.professionearchitetto.it/news/notizie/29053/Roma-il-Cinema-Troisi-riapre-i-battenti-rinnovato-e-pronto-a-rilanciare-la-settima-arte-nella-Capitale</p>




<https://www.professionearchitetto.it/news/notizie/29053/Roma-il-Cinema-Troisi-riapre-i-battenti-rinnovato-e-pronto-a-rilanciare-la-settima-arte-nella-Capitale>



<https://www.professionearchitetto.it/news/notizie/29053/Roma-il-Cinema-Troisi-riapre-i-battenti-rinnovato-e-pronto-a-rilanciare-la-settima-arte-nella-Capitale>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_032

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	Troisi Cinema	
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	Former GIL (Gioventù Italiana del Littorio) Induno Cinema	
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>	
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	—	
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	—	
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>		<p>https://www.rerumromanarum.com/2016/10/casa-della-gil-di-trastevere.html</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Rome
		Address	Via Girolamo Induno 1
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Cinema-theatre hall in House of GIL
		Century	20th century
		Start year	1937
		End year	
		Function	Parish hall
		Century	20th century
		Start year	1950s
		End year	1997
		Function	Cinema
	Century	20th-21st century	
	Start year	1997	
	End year	2012	
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
	Actor	Luigi Moretti	
	Century	20th century	
	Start year	1933	
	End year	1937	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	
		Artisanship	
		Authorship	Luigi Moretti
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
Traditional construction systems			
Traditional craftsmanship			
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Rationalist architecture masterpiece		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
	Digital	Art	
	Virtual reality		
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		

	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i>	Recorded	
		Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
Traditional construction systems			
Traditional craftsmanship			
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)			

3. CHARACTERISATION OF THE BEST PRACTICE

BP_032

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Cinema	
	Foyer	
	Spaces for exhibitions and events	
	Study-library	
	Terrace	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	
	Concrete	
	Concrete derivatives	
	Glass materials	Glass
	Metal materials	Iron
	Paints, varnishes and enamels	
	Plasters	
	Polymeric materials	
	Marbles, travertines, stones and granites	Carrara marble, travertine
	Vegetable, mineral and animal fibres	
	Wood	
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	System for the hearing and visually impaired	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization Public and private heritage institutions responsible for managing monuments and sites	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>

	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>	Pre-consolidation, cleaning, consolidation and protection of CH materials; Adaptive re-use of CH
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Organisation of events and festivals

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_032

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices		Skills on sustainable management of Cultural Heritage			
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•			Reconstruction					
•	•	•	Adaptive re-use of CH		Skills on application of new technologies	Skills on implementing measures to encourage people to practice heritage		
•	•		Accessibility					
	•		Dissemination through publications					
	•		Organisation of events and festivals					Skills on implementing measures to encourage people to practice heritage
	•		Encounters with communities					

	<ul style="list-style-type: none"> Educational activities and programmes 					
	<ul style="list-style-type: none"> Creation of partnership and networking 				Skills on encouraging and supporting the development of networks	
	<ul style="list-style-type: none"> Advertisements with CH 					
	<ul style="list-style-type: none"> Gaming with CH 					

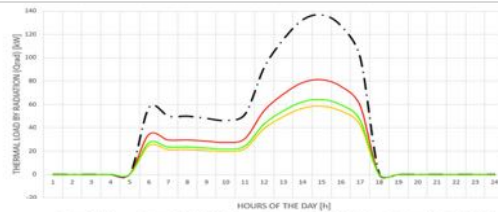
1. CASE STUDY (INTRODUCTION)		BP_033
Best practice ref. <i>identification code (add text)</i>	BP_033	
Object <i>object of the case study (add text)</i>	URBINO COLLEGES, URBINO, ITALY	
Intervention <i>subject of the case study (add text)</i>	Conservation and sustainable use of a complex	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2015
	End date	2017
Actors <i>main actors involved (add text)</i>	Università degli studi di Urbino "Carlo Bo" (group leader), MTA Associati, Politecnico di Milano, Institute for the Conservation and Promotion of Cultural Heritage of the National Research Council, Regional agency for study entitlement University of Urbino	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The Urbino Colleges have been included in the list of 2015 grants awarded by Keeping It Modern, an initiative of The Getty Foundation. Thanks to this grant, the outstanding architectural significance of the complex has been recognised at the international level, as well as its potential to be a reference for the conservation of modern materials and architectural elements. One of the aim of the conservation plan is to collect, explore and discuss different point of view expressed by different stakeholders, also through some workshops, in an approach that is complex and interdisciplinary, since it include a comprehensive evaluation and understanding of the material and immaterial values that are represented in the complex, including the different meaning experienced everyday by the students and workers that live, study and meet in those spaces. At the same time, the conservation plan is aimed at suggesting feasible solutions and development scenarios which includes several aspects (e.g. conservation procedures and guidelines, identification of new functions and uses, energy efficiency to improve the indoor comfort and reduce the operating costs, facilities, new connections with the city), also taking into account the specific issues of the site (e.g. the size of the complex, the need of working while the rooms are occupied by the students and the accessibility problems that are a crucial issue to make possible a regular maintenance routine). With reference to the materials conservation, exemplary is the accurate analysis on reinforced concrete, in which also the repairs already performed over time have been considered. In this regard, in the 1990's Giancarlo De Carlo developed a model for the repairs, witch are still recognizable on the "Colle". The concrete patches has regular shape, a surface hammered and in relief. An abacus of materials deterioration and damage has been done not only for reinforced concrete, but also for the brick surfaces, in order to map and evaluate the state of conservation. The conservation plan survey also reveals the sad condition of windows. In this regard, the original wooden window frames are almost all in a delicate condition and those that have been replaced are mostly in aluminium, some in PVC. For the new solutions, it has been chosen a thermal break aluminum window frame. With regard to the analysis and preventive conservations of the complex, it has also been monitored air temperature and humidity. This campaign of measurements consisted in a monitoring of indoor and outdoor climatic conditions through data-loggers and seasonal thermographic and psychrometric mapping. This was to assess both the current hygrothermal comfort conditions, both the performances of the building envelope in different seasonal conditions. Data have fed a building-HVAC model, which was used to design an appropriate strategy for retrofitting and improving the energy efficiency of the complex. Some solutions were</p>	

	implemented on a pilot site in order to compare the building performances before and after the retrofitting.
Bibliography and sitography <i>main sources referred to the best practice</i> <i>(add text)</i>	<ul style="list-style-type: none"> • Borgarino M.P., <i>Giancarlo De Carlo's Urbino University Colleges: A conservation management plan for long-term maintenance and sustainable use of the complex</i>, in Van Balen, Verstrynghe (eds.), <i>Structural Analysis of Historical Constructions: Anamnesis, diagnosis, therapy, controls</i>. SAHC Conference 2016 (Leuven), Taylor & Francis Group, London 2016. • Borgarino M.P., Mazzolani M., Troisi A., Bazzoli N., Del Curto D., Sansonetti A., <i>I Collegi di Giancarlo De Carlo a Urbino. Piano di conservazione e gestione</i>, Mimesis, Sesto San Giovanni 2019. • Canziani A., Borgarino M.P., <i>Giancarlo De Carlo's Collegi in Urbino: Towards a Management Strategy for the Conservation and Sustainable Use of the Complex</i>, in Tostões A., Kimm J.S., Kim T.W. (eds.), <i>Expansion & Conflict</i>. Proceedings of the 13th Docomomo International Conference (Seoul, 24-27 September 2014), Docomomo International & Docomomo Korea, Seoul 2014, pp. 126-130. • Joppolo C.M., Del Curto D., Luciani A., Valisi L.P., Bellebono M., <i>Keeping it modern, making it sustainable. Monitoring and energy retrofitting the Urbino University Colleges</i>, in "Energy Procedia", 133, 2017, pp. 243-256. • Spada P., <i>A therapy for the Collegi</i>, in Guccione M., Vittorini A. (eds.), <i>Giancarlo De Carlo. Le ragioni dell'architettura</i>, Mondadori, Milano 2005, pp. 166-169. • Università degli Studi di Urbino Carlo Bo, <i>Giancarlo De Carlo "Collegi" in Urbino: Conservation Plan</i>, 2017. • https://www.getty.edu/foundation/initiatives/current/keeping_it_modern/report_library/urbino.html?q=%7B%7D • https://whc.unesco.org/en/list/828/
Documental references <i>(add text)</i>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>Vv.Aa., <i>I dieci punti del comitato dei monumenti moderni</i>, in F. Perego, <i>Monumenti moderni, un'emergenza nuova</i>, in "Edilizia Popolare", 216-217, 1991, p. 48.</p> <p>ICOMOS ISC20C, <i>Approaches for the Conservation of 20th Century Architectural Heritage</i>, Madrid Document, 2011, http://orcp.hustoj.com/wp-content/uploads/2016/04/madriddocumentenglish.pdf.</p> <p>The Getty Conservation Institute, <i>A Colloquium to Advance the Practice of Conserving Modern Heritage</i>, 2013, https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/colloquium_report.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches for the Conservation of Twentieth-Century Architectural Heritage</i>, Madrid Document, 2014, http://www.icomos-isc20c.org/pdf/madrid_doc_10.26.pdf.</p> <p>ICOMOS ISC20C, <i>Approaches to the Conservation of Twentieth-Century Cultural Heritage</i>, Madrid-New Delhi Document, 2017, http://www.icomos-isc20c.org/pdf/madrid-new-delhi-document-2017.pdf.</p>
Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i>	<p>20th century architectural heritage</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>

Image/s of the best practice
nr. 1/3 image/s to identify the type of
best practice

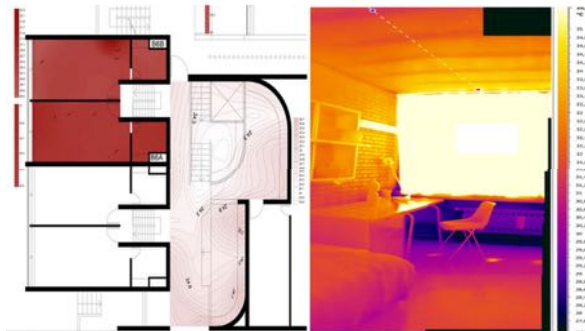


Università degli
Studi di Urbino Carlo
Bo, *op. cit.*, 2017,
p. 325.



Università degli
Studi di Urbino Carlo
Bo, *op. cit.*, 2017,
p. 290.


TYPOLOGY OF GLASS TO SOLAR CONTROL: DOUBLE-GLAZED WINDOW WITH	g [-]	ϵ_{ext} [-]	ϵ_{int} [-]	selectivity
CASE 1: STRATIFIED LOW- EMISSIVITY GLASS	0,43	0,04	0,29	1,56
CASE 2: STRATIFIED SELECTIVE GLASS	0,31	0,02	0,46	1,90
CASE 3: TEMPERED SELECTIVE GLASS	0,34	0,04	0,41	1,68



Università degli
Studi di Urbino Carlo
Bo, *op. cit.*, 2017,
p. 278.

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_033

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Urbino Colleges</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Urbino University Colleges</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>828</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>Università degli Studi di Urbino Carlo Bo, <i>op. cit.</i>, 2017, p. 64.</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Urbino
		Address	Via Giancarlo De Carlo
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Colleges	
		Century	20th century	
		Start year	1966	
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation of the Colle (the dormitories of the University of Urbino)	
		Actor	Giancarlo De Carlo	
		Century	20th century	
		Start year	1962	
		End year	1965	
		Event	Realisation of the Tridente (Block B)	
		Actor	Giancarlo De Carlo	
		Century	20th century	
		Start year	1974	
End year		1978		
Event	Realisation of the Vela (Block A)			
Actor	Giancarlo De Carlo			
Century	20th century			
Start year	1974			
End year	1979-1980			
Event	Realisation of the Aquilone and the Serpentine (Block C)			
Actor	Giancarlo De Carlo			
Century	20th century			
Start year	1974			
End year	1979-1980			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	Architectural significance	
		Artisanship		
		Authorship	Giancarlo De Carlo	
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices	Social value	
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
	Traditional craftsmanship			
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Connection with landscape and the historic city		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE	Type <i>(of the artefact asset)</i> <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian

			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	
	Actor		
	Century		
	Start year		
	End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_033

Type of best practice <i>(select from list)</i>	Conservation Preservation Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Colle Tridente Vela Aquilone	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials Ceramic materials Concrete Concrete derivatives Glass materials Metal materials Paints, varnishes and enamels Plasters Polymeric materials Marbles, travertines, stones and granites Vegetable, mineral and animal fibres Wood Wood derivatives	Brick Reinforced concrete Glass slabs Aluminium window frames, steel PVC window frames Wooden window frames
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	Probes for monitoring indoor microclimate	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Public and private heritage institutions responsible for managing monuments and sites Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES TRANSFERABILITY	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i> <i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i> <i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition,</i>
		Monitoring Preventive conservation; Diagnostic Activities; Pre-consolidation, cleaning, consolidation and protection of CH

		<i>management and storage, catalogue of standards, replicable strategies)</i>	materials; Maintenance practices; Management and administration practices; Adaptive re-use of CH; Accessibility
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Dissemination through publications; Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Encounters with communities; Educational activities and programmes

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_033

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation			Skills on taking care of Cultural Heritage materials		
•	•		Diagnostic activities			Skills on taking care of Cultural Heritage materials		
•	•		Identification of the risks and deterioration patterns			Skills on taking care of Cultural Heritage materials		
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
•	•		Reinforcement of CH buildings					
•	•		Monitoring		Skills on application of new technologies			
•	•		Maintenance practices			Skills on taking care of Cultural Heritage materials		
•	•		Management and administration practices			Skills on organisation and logistics of complex situations (management of means and resources)		
•	•	•	Promotion and support of interventions for conservation					

•	•	•	Project of restoration					
•			Reconstruction					
		•	•	Adaptive re-use of CH				Skills on organisation and logistics of complex situations (management of means and resources)
		•	•	Accessibility				Skills on organisation and logistics of complex situations (management of means and resources)
			•	Dissemination through publications				Skills on training and educational activities
			•	Organisation of events and festivals				
			•	Encounters with communities				Skills on encouraging and supporting the development of networks
			•	Educational programmes and activities				Skills on training and educational activities
			•	Creation of partnership and networking				Skills on encouraging and supporting the development of networks
			•	Advertisements with CH				
			•	Gaming with CH				

1. CASE STUDY (INTRODUCTION)		BP_034
Best practice ref. <i>identification code (add text)</i>	BP_034	
Object <i>object of the case study (add text)</i>	VILLA CONTARINI, PIAZZOLA SUL BRENTA (PD), ITALY	
Intervention <i>subject of the case study (add text)</i>	Preservation and reinforcement of a Palladian villa	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2000
	End date	2004
Actors <i>main actors involved (add text)</i>	Faccio Engineering with prof. Pierluigi Grandinetti and prof. Eugenio Vassallo (University luav of Venice)	
Description of the best practice <i>Brief abstract (add text)</i>	<p>Villa Contarini in Piazzola sul Brenta, with its gardens, barchesse, waterways and large square, is a site of absolute architectural and landscape interest, providing historical evidence of the role of the villas on the mainland of the Serenissima. The interventions for its preservation have been divided into different functional and performance lots. Among these, it is within the framework of the "Culture and Tourism" Stralcio Plan - FSC 2014/2020 that the Italian Ministry for Cultural Heritage has admitted to funding an intervention to improve the monumental complex. In this phase, the object of the works were, in particular, the structural and plant engineering components, which are essential to make the spaces of the complex usable. Particularly noteworthy is the safety intervention, carried out through the addition of a metal structure to consolidate the wall box, which made it possible to maximises the conservation of the existing material substance. Today the complex is a cultural centre of attraction for the area. Alongside guided tours and educational activities aimed at raising awareness of the entire architectural and landscape complex, with the rich decorative apparatus that characterises it, the commitment to enhancing the value of the villa also takes the form of seeing it not only as a museum of itself but as an evocative contemporary venue in which to hold exhibitions and events.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Vassallo E. (a cura di), <i>Villa Contarini: conservazione e valorizzazione delle Foresterie vecchie</i>, Istituto regionale per le ville venete, Venezia 2004. • https://www.villacontarini.eu • https://annoeuropeo2018.beniculturali.it/eventi/villa-contarini-la-capitale-delle-ville/ • https://www.padovaoggi.it/attualita/lavori-finanziamento-veneto-villa-contarini-piazzola-sul-brenta-16-ottobre-2019.html • https://www.marconisrl.com/lavori/restauro-conservativo-villa-contarini/ • http://www.ducalorestaurio.it/portfolio-item/villa-contarini/ 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
Keywords <i>transversal tags among different fields of research (add text)</i>	Ancient constructions	
	Conservation	
	Preservation	
	Valorisation	

Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



<https://faccioengineerblog.wordpress.com/2000-piazzola-sul-brenta-copia/>




<https://www.marconisrl.com/lavori/restauro-conservativo-villa-contarini/>



<https://www.villacontarini.eu/galleria-immagini/>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_034

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Villa Contarini</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.marconisrl.com/lavori/restauro-conservativo-villa-contarini/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Piazzola sul Brenta (PD)
		Address	Via L. Camerini 1
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
		Symbolic and Memorial	<i>(monuments, plates, etc.)</i>
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Villa		
		Century	16th-20th century		
		Start year	1546		
		End year	1970		
	Time period <i>(select from list)</i>	Function	Venue for congresses, exhibitions, concerts and other events		
		Century	20th century		
		Start year	1970		
		End year			
		Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
			Actor	Andrea Palladio	
	Century	16th-17th century			
	Start year	1546			
	End year				
OTHER	Investigation status <i>(select from list)</i>	Un-documented			
		Archived			
		Studied			
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology			
		Artisanship			
		Authorship	Andrea Palladio		
		Knowledge/ideas			
		Performance			
		Rituals/festivals/folklore/ceremonies			
		Social activities/practices			
		Traditional arts			
		Traditional communication means			
		Traditional construction systems			
		Traditional craftsmanship			
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)			

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type <i>(of the artefact asset)</i> <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
Temporal <i>significant events in the history of the heritage artefact</i>		Event	
	Actor		
	Century		
	Start year		

	<i>(add text)</i>	End year
OTHER	Investigation status <i>(select from list)</i>	Un-documented
		Archived
		Studied
		Exhibited
		Preserved
		Recorded
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_034

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Villa Old guesthouses	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Brick
	Concrete	
	Concrete derivatives	
	Glass materials	
	Metal materials	Steel
	Paints, varnishes and enamels	Painted surfaces
	Plasters	Plaster
	Polymeric materials	
	Marbles, travertines, stones and granites	Stone
	Vegetable, mineral and animal fibres	
	Wood	Wood
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	–	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Professionals and SMEs providing services for preservation, conservation and restoration General and educational users and visitors, tourists	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>

		<i>standards, replicable strategies)</i>	buildings; Dissemination through publications
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Organisation of events and festivals; Educational activities and programmes

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_034

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			• Historic and bibliographic research					
			• Studies on CH					
			• Documentation of CH					
			• Communication of CH					
			• Preventive conservation					
			• Diagnostic activities					
			• Identification of the risks and deterioration patterns					
			• Materials conservation tests					
			• Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
			• Reinforcement of CH buildings			Skills on taking care of Cultural Heritage materials		
			• Monitoring					
			• Maintenance practices					
			• Management and administration practices					
			• Promotion and support of interventions for conservation					
			• Project of restoration					
			• Reconstruction					
			• Adaptive re-use of CH					
			• Accessibility					
			• Dissemination through publications			Skills on training and educational activities		
			• Organisation of events and festivals					Skills on implementing measures to encourage people to practice heritage
			• Encounters with communities					
			• Educational activities and programmes					Skills on training and educational activities
			• Creation of partnership and networking					
			• Advertisements with CH					
			• Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_035
Best practice ref. <i>identification code (add text)</i>	BP_035	
Object <i>object of the case study (add text)</i>	SÃO ROQUE CHURCH, LISBON, PORTUGAL	
Intervention <i>subject of the case study (add text)</i>	Preservation of a church with azulejo panels	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2015
	End date	2016
Actors <i>main actors involved (add text)</i>	Nova Conservação S.A., LNEC, Museu Nacional do Azulejo, Museu de São Roque, Laboratório HERCULES - Universidade de Évora	
Description of the best practice <i>Brief abstract (add text)</i>	<p>After a conservation condition survey, the restoration intervention carried out by Nova Conservação S.A. at the São Roque Church regarded the ceiling, vertical surfaces, altar, nave and high choir of the building. The pre-consolidation, cleaning, consolidation and protection of the asset materials have been done on mono and polychromatic plasterworks, mural paintings, stone materials, and treated, gilded and polychromatic woods. Of particular interest are also the azulejo panels of the church. In this regard, a deep analysis work has been carried out thanks to the collaboration between the Laboratório Nacional de Engenharia Civil (LNEC) of Lisbon, the Museu Nacional do Azulejo, the Museu de São Roque and the Laboratório HERCULES - Universidade de Évora. The azulejos of the São Roque Church, situated in its chapel, are justly considered one of the major majolica works made anywhere during the last quarter of the 16th century. This earliest known surviving group of Portuguese azulejos signed and dated (Francisco de Matos, 1584) has long puzzled art historians mostly because their magnificence seems to be an almost unique case with no predecessors and few immediate successors in Portugal. For them, it has been used analytical means to characterize the tiles. The fragments detached from the azulejos were stabilized in epoxy resin, lapped and polished to obtain a flat surface for observation and analysis by scanning electron microscopy coupled with an X-ray energy-dispersive spectrometer (SEM-EDS). Optical images of cross sections were obtained with a Leica DFC295 digital camera coupled to a Leica M205C stereomicroscope. The pigmented glaze was analysed in situ, over the face of the tiles, by energy-dispersive X-ray fluorescence (ED-XRF) with a hand-held Bruker Tracer III spectrometer. Spectra were interpreted with the ARTAX software. Principal component analysis (PCA) was made of EDS results using the SPSS® software platform by IBM Analytics.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • http://www.ncrestauro.pt/index.php/en/portfolio/conservation-and-restoration/243-sao-roque-chapel • https://www.lisbona.info/cosa-vedere-lisbona/chiesa-sao-roque/ • https://www.hisour.com/church-of-saint-roch-lisbon-portugal-55427/ • http://azulejos.lnec.pt/AzuRe/SHGC_n01/006-JMMimoso4_sao%20roque_final.pdf 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	

Keywords

*transversal tags among different fields of research
(add text)*

Ancient constructions

Conservation

Preservation

Valorisation

Image/s of the best practice

nr. 1/3 image/s to identify the type of best practice



<http://www.ncrestaur.o.pt/index.php/en/portfolio/conservation-and-restoration/243-sao-roque-chapel>




<http://www.ncrestaur.o.pt/index.php/en/portfolio/conservation-and-restoration/243-sao-roque-chapel>



<http://www.ncrestaur.o.pt/index.php/en/portfolio/conservation-and-restoration/243-sao-roque-chapel>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_035

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>São Roque Church</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>Building of public interest</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>http://www.ncrestauro.pt/index.php/en/portfolio/conservation-and-restoration/243-sao-roque-chapel</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Lisbon
		Address	Largo Trindade Coelho
		Country	Portugal
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Church	
		Century	16th-21st century	
		Start year	1533	
		End year	On-gong	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation of the church	
		Actor	Filippo Terzi	
		Century	16th century	
		Start year	1533	
End year		1533		
		Event	Realisation of the chapels	
		Actor		
		Century	16th-19th century	
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		Azulejo panels
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
		Virtual reality	
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal	Event		
	Actor		
	Century		

	<i>significant events in the history of the</i>	Start year		
		End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
		Exhibited		
		Preserved		
		Recorded		
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

3. CHARACTERISATION OF THE BEST PRACTICE

BP_035

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	São Roque Church Church chapel	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Glazed tiles (azulejos)
	Concrete	
	Concrete derivatives	
	Glass materials	
	Metal materials	
	Paints, varnishes and enamels	Mural paintings
	Plasters	Mono and polychromatic plasterworks
	Polymeric materials	
	Marbles, travertines, stones and granites	Stone materials
	Vegetable, mineral and animal fibres	
Wood	Treated, gilded and polychromatic woods	
Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	Scanning electron microscopy X-ray energy-dispersive spectrometer (SEM-EDS) Leica DFC295 digital camera Leica M205C stereomicroscope Energy-dispersive X-ray fluorescence (ED-XRF) Hand-held Bruker Tracer III spectrometer ARTAX software SPSS® software platform by IBM Analytics	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Professionals and SMEs providing services for preservation, conservation and restoration	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>

	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>	Studies on CH; Pre-consolidation, cleaning, consolidation and protection of CH materials; Dissemination through publications
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_035

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			<ul style="list-style-type: none"> Historic and bibliographic research Studies on CH Documentation of CH Communication of CH Preventive conservation 					
			Diagnostic activities		Skills on application of new technologies	Skills on taking care of Cultural Heritage materials		
			<ul style="list-style-type: none"> Identification of the risks and deterioration patterns Materials conservation tests 					
			Pre-consolidation, cleaning, consolidation and protection of CH materials			Skills on taking care of Cultural Heritage materials		
			<ul style="list-style-type: none"> Reinforcement of CH buildings Monitoring Maintenance practices Management and administration practices 					
			<ul style="list-style-type: none"> Promotion and support of interventions for conservation Project of restoration Reconstruction 					
			<ul style="list-style-type: none"> Adaptive re-use of CH Accessibility 					
			Dissemination through publications			Skills on training and educational activities		
			<ul style="list-style-type: none"> Organisation of events and festivals Encounters with communities Educational activities and programmes 					
			Creation of partnership and networking				Skills on encouraging and supporting the development of networks	
			<ul style="list-style-type: none"> Advertisements with CH Gaming with CH 					

1. CASE STUDY (INTRODUCTION)		BP_036
Best practice ref. <i>identification code (add text)</i>	BP_036	
Object <i>object of the case study (add text)</i>	CELICA HOSTEL, LJUBLJANA, SLOVENIA	
Intervention <i>subject of the case study (add text)</i>	Creative reuse of a former prison	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2001
	End date	2018
Actors <i>main actors involved (add text)</i>	Architects Aleksander "Sasa" Ostan, Janko Rozic and Ira Zorko, with more than 80 artists from all over the world; Lesnina MG Oprema company	
Description of the best practice <i>Brief abstract (add text)</i>	<p>After the Austro-Hungarian army built its army barracks at Metelkova, the building of Hostel Celica was used as a prison since 1883. In 1991, the Yugoslav People's Army (JNA) left the newly independent Slovenia and the army barracks were abandoned. The Network for Metelkova initiative, a collective of artists, wanted to formally acquire the vacant army barracks and to transform it into a multicultural centre. For this, it tried to obtain the proper paperwork for the use of the empty spaces, but with no success. Two years later, in 1993, the city authorities began demolishing the former army barracks, which prompted the artists to illegally occupy the spaces to prevent the demolition. The city authorities tried to evict them by turning off the water and electrical supply, but the artists' determination was unmatchable. At the same time, architects Aleksander "Sasa" Ostan, Janko Rozic and Ira Zorko put forward the proposal to convert the prison into a youth hostel. In 2001, after almost ten years of creative planning, renovation and transformation of the building, the project received financial support and the green light from the authorities. More than 80 artists from all over the world took part in the renovation and, in 2003, the first guests spent their night in Hostel Celica. In 2006 Lonely Planet selects Hostel Celica as the no. 1 Hippest Hostel in the world. Hostel Celica opened its doors again in 2018. Works, performed by the Lesnina MG Oprema company on the basis of a public tender, included the energy renovation of the heating room, new air-conditioning of the attic, a new cooling and heating system on the first floor and a comprehensive renewal of the cooling and ventilation system for the whole building. Building fire safety has also been improved. The majority of kitchen appliances were replaced to increase energy efficiency and the lighting installation was renovated or upgraded to LED technology. Another novelty is air-conditioning in the rooms.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Moore D., <i>Driving Home Both Ways</i>, Parthian, Cardigan 2018. • Signorelli L., <i>Da carcere a ostello per la gioventù. La storia del Celica Hostel a Lubiana</i>, in "Recupero e Conservazione", 95, 2011, pp. 64-71. • https://www.hostelcelica.com/en/ex-prison-hostel/ • https://www.ljubljana.si/en/news/renovated-hostel-celica-opened-its-doors-again/ • https://www.traveller.com.au/bed-down-in-the-lockup-in-slovenia-gwfwf9 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	

Keywords

transversal tags among different fields of research
(add text)

Post industrial revolution architecture

Preservation

Valorisation

Image/s of the best practice

nr. 1/3 image/s to identify the type of best practice



<https://www.hostelcelica.com/en/ex-prison-hostel/>




Signorelli L., op. cit., p. 67.



Signorelli L., op. cit., p. 67.

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_036

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Celica Hostel</p>	
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>		
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>	
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>		
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>		
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>		<p>https://www.ljubljana.si/en/news/renovated-hostel-celica-opened-its-doors-again/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Ljubljana
		Address	Metelkova ulica 8
		Country	Slovenia
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
Routes	<i>(trading, pilgrimage, etc.)</i>		
Settlement	<i>(towns, town centres, villages, etc.)</i>		
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Military prison
		Century	19th-20th century
		Start year	1883
		End year	1991
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation
		Actor	Austro-Hungarian Empire
		Century	19th century
		Start year	1882
	End year	1883	
	Event	Abandonment	
	Actor	Yugoslav People's Army (JNA)	
	Century	20th century	
	Start year	1991	
	End year	1991	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	Ancient prison
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
	Traditional craftsmanship		
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type <i>(of the artefact asset)</i> <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
		Mosaics	
	Digital	Art	
		Virtual reality	
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal	Event		
	Actor		
	Century		

	<i>significant events in the history of the</i>	Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_036

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Prison		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites		
	Vegetable, mineral and animal fibres		
	Wood		
	Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2 (add text)</i>	Anthropic risks (heritage management)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3 (add text)</i>	LED technology		
Users need <i>response by the best practice, if relevant - link to T1.4 (add text)</i>	Companies from the creative industry producing heritage-based content, apps, games, education and tourism services		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Adaptive re-use of CH
	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>	

	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Adaptive re-use of CH

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_036



			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•			Reconstruction					
	•	•	Adaptive re-use of CH		Skills on achievement of environmental challenges and objectives		Skills on implementing measures to encourage people to practice heritage	
	•	•	Accessibility					
		•	Dissemination through publications					
		•	Organisation of events and festivals					
		•	Encounters with communities					
		•	Educational activities and programmes					
		•	Creation of partnership and networking					
		•	Advertisements with CH					
		•	Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_037
Best practice ref. <i>identification code (add text)</i>	BP_037	
Object <i>object of the case study (add text)</i>	CASA BATLLÓ, BARCELONA, SPAIN	
Intervention <i>subject of the case study (add text)</i>	Participatory preservation of a masterpiece	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2017
	End date	2019
Actors <i>main actors involved (add text)</i>	Xavier Villanueva (architect, director of the works), Joan Olona (architect), Mireia Bosch (architect), Ignasi Villanueva (civil engineer), Neus Zapata (head of the restoration team)	
Description of the best practice <i>Brief abstract (add text)</i>	<p>After two years of analysis and planning, short, medium and long term interventions and maintenance practices were defined for Casa Batlló. The intervention carried out in 2019 belongs to the short term ones. With regard to the façade, after the restoration work in 2001, an intervention of preservation was carried out. It was carefully tapped for the individuation of echoes, and then glass, ceramic, iron, wood and stone were pre-consolidated, cleaned, consolidated and protected. In the interior, stratigraphic tests carried out on the main floor revealed the original stucco coating, hidden under several layers of paint. Samples analysed in the laboratory using photomicrographs and X-ray diffraction further demonstrated the preciousness and quality of the wall and ceiling coverings. They had been made of lime mortar stucco with incisions, then filled in with lime mortar, and finished with wax paint; in other cases, the joints of the incisions were filled in with gold bread. In order to recover the original stucco hidden under the different layers of varnish, a mechanical peeling was carried out with a scalpel, followed by a chemical peeling. The surface was then cleaned. Elements such as doors, windows, lamps were also recovered, and works were carried out on strengthening the structures, providing water and electricity, and improving fire detection and extinguishing systems. In the central part of the inner courtyard Gaudí also installed a lift, with a wooden cabin, which is still in operation today. The choice was to combine cultural visit and restoration to share with visitors the discoveries of the shipyard and to show how the restoration team worked. There are also tablets with information, streams showing the work process and staff trained specifically to resolve visitors' doubts about restoration. Casa Batlló is now a space for cultural visits and events. It won the 2004 Europa Nostra Prize in recognition of the conservation of this architectural heritage. Europa Nostra is a pan-European cultural heritage organisation which is recognised by the European Commission, the executive body of the European Union, which established the European Union Prize for Cultural Heritage in 2002, and decided that this would be managed by Europa Nostra. The award ceremony for the prize for the intervention carried out at Casa Batlló took place in 2005 in Bergen in Norway. In 2017, the intervention also received the Restoration Special Mention in the framework of the European Award for Architectural Heritage Intervention, a biennial competition organised by COAC (Association of Architects of Catalonia) and AADIPA (Association of Architects for the Protection and Conservation of Architectural Heritage) under the patronage of the Ministry of Culture of the Government of Catalonia and the City of Barcelona.</p>	

<p>Bibliography and sitography main sources referred to the best practice (add text)</p>	<ul style="list-style-type: none"> • https://www.casabatllo.es/en/ • https://www.classicult.it/gaudi-dopo-oltre-cento-anni-torna-a-splendere-casa-batllo/ • https://whc.unesco.org/en/list/320/ • https://www.sunbell.it/2021/07/14/vincitori-european-award-for-architectural-heritage-intervention/
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<p>Documental references (add text)</p>	<p>CH general criteria framework (common framework, documents, CH)</p>
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<p>Keywords transversal tags among different fields of research (add text)</p>	<p>Post industrial revolution architecture Conservation Preservation Valorisation</p>
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<p>Image/s of the best practice nr. 1/3 image/s to identify the type of best practice</p>		<p>https://www.casabatllo.es/en/news/the-facade-is-back/</p>
		<p>https://www.casabatllo.es/en/news/the-facade-is-back/</p>



2. IDENTIFICATION OF THE HERITAGE ASSET

BP_037

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Casa Batlló</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>UNESCO World Heritage List</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>320</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.casabatlló.es/en/antoni-gaudi/casa-batlló/facade/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Barcelona
		Address	Pg. De Gràcia 43
		Country	Italy
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			
CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	House
		Century	20th century
		Start year	1906
		End year	1995
		Function	Space for events
		Century	20th-21st century
		Start year	1995
		End year	2002
		Function	Space for events and cultural visits
	Century	21st century	
	Start year	2002	
	End year		
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation
Actor		Antoni Gaudí	
Century		20th century	
Start year		1904	
End year		1906	
Event		Restoration works	
Actor			
Century		21st century	
Start year		2001	
	End year	2001	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	
		Artisanship	
		Authorship	Antoni Gaudí
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

Cultural Heritage Type			
ARTEFACTS (particular consideration for, if relevant)			
CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal significant events in the history of the heritage artefact <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	
		Recorded	
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology	
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
		Traditional craftsmanship	
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_037

Type of best practice <i>(select from list)</i>	Conservation Preservation Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Façade Roof terrace Interiors Main floor Patio Indoor garden	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials Ceramic materials Concrete Concrete derivatives Glass materials Metal materials Paints, varnishes and enamels Plasters Polymeric materials Marbles, travertines, stones and granites Vegetable, mineral and animal fibres Wood Wood derivatives	Ceramic Glass Iron Stucco Stone Wood
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Natural risks (biological)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	—	
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	General and educational users and visitors, tourists Professional researchers	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i> <i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>

	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of standards, replicable strategies)</i>	Diagnostic activities; Identification of the risks and deterioration patterns; Pre-consolidation, cleaning, consolidation and protection of CH materials; Maintenance practices
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Organisation of events and festivals; Encounters with communities; Educational activities and programmes

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

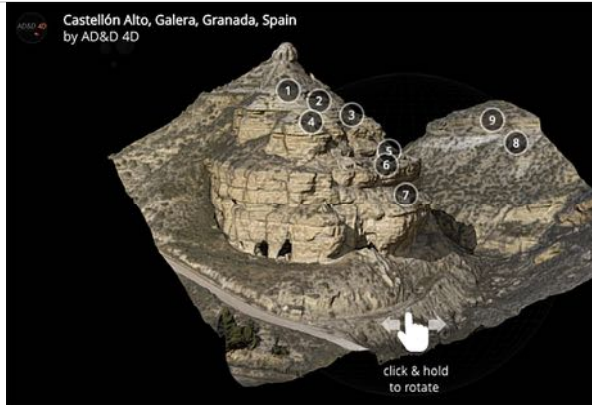
BP_037

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices			
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research				
•	•	•	Studies on CH				
•	•	•	Documentation of CH				
•	•	•	Communication of CH				
•	•		Preventive conservation				
•	•		Diagnostic activities				
•	•		Identification of the risks and deterioration patterns				
•	•		Materials conservation tests				
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials				
•	•		Reinforcement of CH buildings				
•	•		Monitoring				
•	•		Maintenance practices				
•	•		Management and administration practices				
•	•	•	Promotion and support of interventions for conservation				
•	•	•	Project of restoration				
•			Reconstruction				
•	•		Adaptive re-use of CH				
•	•		Accessibility				
	•		Dissemination through publications				
	•		Organisation of events and festivals				
	•		Encounters with communities				
	•		Educational activities and programmes				
	•		Creation of partnership and networking				
	•		Advertisements with CH				
	•		Gaming with CH				

1. CASE STUDY (INTRODUCTION)		BP_038
Best practice ref. <i>identification code</i> <i>(add text)</i>	BP_038	
Object <i>object of the case study</i> <i>(add text)</i>	GALERA, GRANADA, SPAIN	
Intervention <i>subject of the case study</i> <i>(add text)</i>	Management of the environment of an ancient village	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study</i> <i>(add text)</i>	Century	20th-21st century
	Start date	1960s
	End date	Ongoing
Actors <i>main actors involved</i> <i>(add text)</i>	CARARE Association (association funded by the European Commission's ICT Policy Support Programme)	
Description of the best practice <i>Brief abstract</i> <i>(add text)</i>	<p>The management of the environment of Galera is an exemplary model of growth through investment in research and the protection of its heritage. The village, threatened by abandonment and depopulation, has, after 19 years of managing its two archaeological sites, increased its number of inhabitants, revitalised the area, generated international interest and, created human, cultural and emotional links with other municipalities in Spain. Galera decided to open its heritage to the public, and there is not a single inhabitant who has not participated at some point in the archaeological work, sharing the dust of the ground and the inclemency of the sun with Iberian and Argaric scholars and experts from all over the world for years. Nationals and foreigners from all cultures, eager for knowledge, have found nourishment in the archaeological finds and in the close relationships with the local people who documented them with stories, songs and customs that they often shared as guests at the table in their homes. Living together experiences, spaces, values, work and leisure while investigating the past, has served to shape an economic model for the future, respectful, circular and sustainable, where people come first. The researchers left their mark and took away unique experiences, such as that of living in a house dug out of the rock, built by hands that did not know about architectural universities, but were full of popular wisdom. Moreover, it has been organised theatrical performances in the excavations in which children played the role of men and women of the Argaric culture, encouraging them to investigate and awakening their curiosity. The generation that took part in the 1960s excavations set themselves up as guardians of the treasure against the looters and some of the village children ended up studying geology and archaeology. Since the 1960s, archaeological excavations have continued uninterrupted with the constant participation of the people of the village. 1.5 km from the town of Galera we find Castellón Alto, a Bronze Age site of the Argaric culture, which preserves all the urban planning of a medium-sized settlement. The second oldest adult and child mummy in Europe were found on this site, perfectly preserved. A few kilometres from Galera it is possible to visit the Iberian Necropolis of Tútugi, which contains remains from the 5th to 3rd centuries BC. To the excavations of the Necropolis of Tútugi we owe one of the most important finds of the Iberian world: the Goddess of Galera and valuable information about the rituals of the Iberian world and its culture. Part of these two sites and their remains have been digitised in 3D and models are available to researchers and citizens from all over the world who want to get to know the</p>	

	<p>value of the area. These sites, among the most spectacular in Andalusia, have consolidated the area as one of the most attractive archaeological regions in Europe. In fact, they form part of the "Route of the First Settlers of Europe", as their remains show that this was one of the first inhabited territories in Europe. The Junta de Andalucía has declared the area a Geopark of Granada with the deposits of Galera as the centrepiece.</p>
<p>Bibliography and sitography <i>main sources referred to the best practice (add text)</i></p>	<ul style="list-style-type: none"> • https://www.carare.eu/en/news/galera-cultural-heritage-as-a-model-for-growth/ • https://en.unesco.org/global-geoparks/granada
<p>Documental references <i>(add text)</i></p>	<p>CH general criteria framework (common framework, documents, CH)</p> <p>ICOMOS, <i>Charter for the Protection and Management of the Archaeological Heritage</i>, 1990, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_fdf09c5b303f4fa09a283992ae16bcb8.pdf.</p> <p>Council of Europe, <i>Convention for the Protection of the Archaeological Heritage of Europe</i>, The Valletta Convention, 1992, https://www.coe.int/en/web/culture-and-heritage/valletta-convention.</p> <p>ICOMOS, <i>Salalah Guidelines for the Management of Public Archaeological Sites</i>, 2017, https://www.icomositalia.com/_files/ugd/57365b_36589194d828402e9380a363f8c4662b.pdf.</p>
<p>Keywords <i>transversal tags among different fields of research (add text)</i></p>	<p>Archaeological sites</p> <p>Conservation</p> <p>Preservation</p> <p>Valorisation</p>

Image/s of the best practice
nr. 1/3 image/s to identify the type of
best practice



<https://www.carare.eu/en/news/galera-cultural-heritage-as-a-model-for-growth/>




<https://www.carare.eu/en/news/galera-cultural-heritage-as-a-model-for-growth/>



<https://www.carare.eu/en/news/galera-cultural-heritage-as-a-model-for-growth/>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_038

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	Galera	
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>		
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>	
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	UNESCO Global Geoparks	
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	-	
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>		<p>https://www.carare.eu/en/news/galera-cultural-heritage-as-a-model-for-growth/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Granada
		Address	Galera
		Country	Spain
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
	Type B (of the heritage asset) <i>(select from list)</i>	Open surface	
		Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Village	
		Century		
		Start year		
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event		
		Actor		
		Century		
		Start year		
		End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		Social activities for the village
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)				

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	
		Actor	
		Century	
		Start year	
		End year	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	

		Preserved
		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_038

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses</i>	Galera		
	Castellón Alto		
	Necropolis of Tútugi		
	Geopark of Granada		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites		
	Vegetable, mineral and animal fibres		
	Wood		
	Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	Anthropic risks (heritage management)		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	3D models		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Associations, NGOs and local communities aiming at maintaining and communicating cultural heritage Professional researchers General and educational users and visitors, tourists		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Documentation of CH
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Studies on CH; Management and administration practices; Organisation of events and festivals; Encounters with communities

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
Training and educational activities	

4. SYNTHESIS SHEET




BP_038

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
				•	•	•	Historic and bibliographic research	
•	•	•	Studies on CH					Skills on implementing measures to encourage people to practice heritage
•	•	•	Documentation of CH	Skills on digitalisation				
•	•	•	Communication of CH					
•	•	•	Preventive conservation					
•	•	•	Diagnostic activities					
•	•	•	Identification of the risks and deterioration patterns					
•	•	•	Materials conservation tests					
•	•	•	Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•	•	Reinforcement of CH buildings					
•	•	•	Monitoring					
•	•	•	Maintenance practices					
•	•	•	Management and administration practices					Skills on implementing measures to encourage people to practice heritage
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration					
•	•	•	Reconstruction					
•	•	•	Adaptive re-use of CH					
•	•	•	Accessibility					
•	•	•	Dissemination through publications					
•	•	•	Organisation of events and festivals					Skills on implementing measures to encourage people to practice heritage
•	•	•	Encounters with communities					Skills on implementing measures to encourage people to practice heritage
•	•	•	Educational activities and programmes					
•	•	•	Creation of partnership and networking				Skills on encouraging and supporting the development of networks	
•	•	•	Advertisements with CH					
•	•	•	Gaming with CH					Skills on implementing measures to encourage people to practice heritage

1. CASE STUDY (INTRODUCTION)		BP_039
Best practice ref. <i>identification code (add text)</i>	BP_039	
Object <i>object of the case study (add text)</i>	Matadero, Madrid, Spain	
Intervention <i>subject of the case study (add text)</i>	Relationship between old and new in a former slaughterhouse	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2006
	End date	2017
Actors <i>main actors involved (add text)</i>	Arch. Arturo Franco, Arch. Fabrice van Teslaar	
Description of the best practice <i>Brief abstract (add text)</i>	<p>Conducted as part of a wider intervention carried out between 2006 and 2011, the pilot restoration project carried out between 2006 and 2007, by architects Arturo Franco and Fabrice van Teslaar, of the hall 17c of the former slaughterhouse in Madrid was born as part of a programme promoted by the City Council to convert the complex into a cultural centre for artistic events. Specifically, it promotes contemporary creations through a programme of grants and initiatives that combine artistic production and citizen participation. The intervention established a dialogue between old and new. The designers worked on the theme of restoration as respect for the ruin as a material proof of memories of the past, enhancing its values, maximising the conservation of existing, adding punctual integrations and making the structure safe. All the vestiges of the past remain visible, including the residue of cork insulation which recalls the former use as cold storage, as well as evidence of repair work, for example, of the columns. Missing portions of walls were left untouched, as if they had just been jackhammered; ducts and wiring are surface mounted and remain visible. These interventions are clearly legible. To this end they employed materials typically used in industrial settings, off-the-shelf, without further processing. A large steel sliding door in an exterior wall of the compound points the way, via a gently inclined steel ramp and then through a steel sliding door, to the foyer. Here a long counter, made of welded steel plate, dominates a space otherwise almost completely untouched. An office and the sanitary facilities are situated behind the counter, both also clad in steel plate. Polished concrete was selected as floor material and in the adjacent multi-purpose halls. A glass box in a long room along southwest façade contains the only climatized space. Sectional steel, primarily in the form of steel channels, is used here in a variety of ways: as floor material, both standard and in raised flooring, and as profiles to hold glazing in place.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • <i>Centre for Contemporary Culture in a Former Slaughterhouse in Madrid</i>, in "Detail", 11, 2009, pp. 1200-1205. • Franco A., <i>Exploring the limits</i>, in "Domus", 908, 2007, pp. 12-19. • <i>Riconversione di un mattatoio in centro culturale a Madrid. Nave 16 Matadero, Madrid, Spain</i>, Spagna, in "L'industria delle costruzioni", 429, 2013, pp. 96-101. • https://www.mataderomadrid.org • https://www.esmadrid.com/it/informazioni-turistiche/matadero-madrid 	
Documental references	CH general criteria framework (common framework, documents, CH)	


(add text)	ICOMOS-TICCIH, <i>The Nizhny Tagil Charter for the Industrial Heritage</i> , 2003, https://www.icomos.org/18thapril/2006/nizhny-tagil-charter-e.pdf .
	ICOMOS-TICCIH, <i>Joint ICOMOS-TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes</i> , Dublin Principles, 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_d251c1dbc22a4210a5d893cf058f8c41.pdf .

Keywords <i>transversal tags among different fields of research</i> (add text)	Industrial archaeology assets
	Conservation
	Preservation
	Valorisation

Image/s of the best practice <i>nr. 1/3 image/s to identify the type of best practice</i>		"Domus", 908, 2007, p. 19.
		"Detail", 11, 2009, p. 1204.
		"Detail", 11, 2009, p. 1200.

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_039

<p>Name <i>name by which the heritage asset is known</i> (add text)</p>	<p>Matadero</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> (add text)</p>	<p>Former slaughterhouse</p>
<p>Designation and Protection (if any) (select from list)</p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> (add text)</p>	
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> (add text)</p>	
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> (add image/s and source/s)</p>	 <p>"Detail", 11, 2009, p. 1201.</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Madrid
		Address	Pl. de Legazpi 8
		Country	Spain
		Continent	Europe (European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
		Symbolic and Memorial	<i>(monuments, plates, etc.)</i>
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		
Slaughterhouses			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Slaughterhouse
		Century	20th century
		Start year	1925
		End year	1996
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation
		Actor	Luis Bellido
		Century	20th century
		Start year	1910
	End year	1925	
	Event	Closure of the complex	
	Actor		
	Century	20th century	
	Start year	1996	
	End year	1996	
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology	Industrial archaeology asset
		Artisanship	
		Authorship	
		Knowledge/ideas	
		Performance	
		Rituals/festivals/folklore/ceremonies	
		Social activities/practices	
		Traditional arts	
		Traditional communication means	
		Traditional construction systems	
	Traditional craftsmanship		
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type <i>(of the artefact asset)</i> <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
			Mosaics
		Digital	Art
		Virtual reality	
Time period <i>(select from list)</i>	Ancient period		
	Post industrial revolution period		
Temporal	Event		
	Actor		
	Century		

	<i>significant events in the history of the</i>	Start year		
		End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
		Exhibited		
		Preserved		
		Recorded		
	Immaterial aspects connection to immaterial aspects <i>(select from list)</i>	Artefact typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
		Traditional craftsmanship		
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		

3. CHARACTERISATION OF THE BEST PRACTICE

BP_039

Type of best practice <i>(select from list)</i>	Conservation	
	Preservation	
	Valorisation	
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	Matadero Hall 17c	
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials	
	Ceramic materials	Bricks
	Concrete	Concrete
	Concrete derivatives	
	Glass materials	Glass
	Metal materials	Steel
	Paints, varnishes and enamels	
	Plasters	Plaster
	Polymeric materials	
	Marbles, travertines, stones and granites	
	Vegetable, mineral and animal fibres	
	Wood	
Wood derivatives	Cork	
Type of risk <i>the reason for the intervention, if relevant - link to T1.2 (add text)</i>	Natural risks (biological) Anthropic risks (heritage management)	
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3 (add text)</i>	—	
Users need <i>response by the best practice, if relevant - link to T1.4 (add text)</i>	Professionals and SMEs providing services for preservation, conservation and restoration Companies from the creative industry producing heritage-based content, apps, games, education and tourism services	
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Organisation of events and festivals; Creation of partnership and networking

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_039

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices			
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			• Historic and bibliographic research				
			• Studies on CH				
			• Documentation of CH				
			• Communication of CH				
			• Preventive conservation				
			• Diagnostic activities				
			• Identification of the risks and deterioration patterns				
			• Materials conservation tests				
			• Pre-consolidation, cleaning, consolidation and protection of CH materials		Skills on taking care of Cultural Heritage materials		
			• Reinforcement of CH buildings				
			• Monitoring				
			• Maintenance practices				
			• Management and administration practices				
			• Promotion and support of interventions for conservation				
			• Project of restoration		Skills on organisation and logistics of complex situations (management of means and resources)		
			• Reconstruction				
			• Adaptive re-use of CH		Skills on implementing measures to encourage people to practice heritage		
			• Accessibility				
			• Dissemination through publications				
			• Organisation of events and festivals				Skills on implementing measures to encourage people to practice heritage
			• Encounters with communities				
			• Educational activities and programmes				
			• Creation of partnership and networking				Skills on implementing measures to encourage people to practice heritage
			• Advertisements with CH				
			• Gaming with CH				

1. CASE STUDY (INTRODUCTION)		BP_040
Best practice ref. <i>identification code (add text)</i>	BP_040	
Object <i>object of the case study (add text)</i>	Shelter for Roman Ruins, Chur, Switzerland	
Intervention <i>subject of the case study (add text)</i>	Protection and valorisation of Roman ruins	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	1985
	End date	1986
Actors <i>main actors involved (add text)</i>	Atelier Peter Zumthor & Partner AG	
Description of the best practice <i>Brief abstract (add text)</i>	<p>The Shelter for Roman Ruins in Chur is a protective housing for the remains of the foundations of two Roman buildings, and a third building of which only a corner is visible. This museum allows the excavations to be protected and visited. The new protective casing for the archaeological finds (Roman buildings and artefacts) was conceived as a kind of abstract reconstruction of the Roman volumes: a lightweight framework of walls, made of timber lamella which admit light and air, exactly follows the Roman outer walls, thus producing a package-like effect which gives a visible form to the location of the Roman buildings in today's city landscape. The spaces inside the shell refer to Roman interiors. The treatment of the entrances represents a play on the relationship between history and the present: the Roman entrances, discernible as projecting sections of wall, are encased in peepshow-like constructions which afford a glimpse into the interior. However, the building is accessed by a modern steel footbridge which runs the length of the buildings at a raised, a-historical observation level. The visitor walks along a path through dark connecting tunnels from one spatial unit to another, and down some steps to the excavation level, the Roman soil. The Roman walls are backed by black cloths, and mellow zenithal light enters through black skylights. Inside the building, the sounds of the town penetrate the lamella structure of the walls. In 2020, Peter Zumthor received the Cultural Award of the City of Chur.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • https://www.atlasofplaces.com/architecture/shelter-roman-archaeological-site/ • https://arch3281fall14.files.wordpress.com/2014/10/casestudybooklet_template.pdf • https://www.archdaily.com/884003/explore-peter-zumthors-1986-shelter-for-roman-ruins-in-quiet-solitude • https://divisare.com/projects/397572-peter-zumthor-august-fischer-shelter-for-roman-ruins • https://www.abitare.it/it/architettura/2009/04/17/impassibileincandescente/ • http://architettura.it/sopralluoghi/19990901/index.htm • https://www.cdt.ch/cultura-e-societa/premio-culturale-della-citta-di-coira-a-zumthor-IC3433082?refresh=true 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
	ICOMOS, <i>Charter for the Protection and Management of the Archaeological Heritage</i> , 1990, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_fdf09c5b303f4fa09a283992ae16bcb8.pdf .	

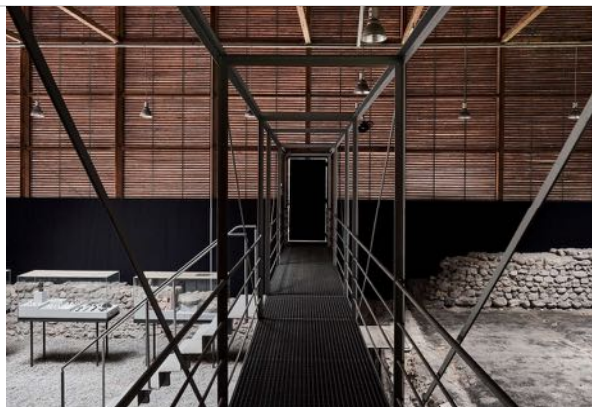
	<p>Council of Europe, <i>Convention for the Protection of the Archaeological Heritage of Europe</i>, The Valletta Convention, 1992, https://www.coe.int/en/web/culture-and-heritage/valletta-convention.</p> <p>ICOMOS, <i>Salalah Guidelines for the Management of Public Archaeological Sites</i>, 2017, https://www.icomositalia.com/_files/ugd/57365b_36589194d828402e9380a363f8c4662b.pdf.</p>
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<p>Keywords <i>transversal tags among different fields of research</i> <i>(add text)</i></p>	Archaeological sites
	Conservation
	Preservation
	Valorisation

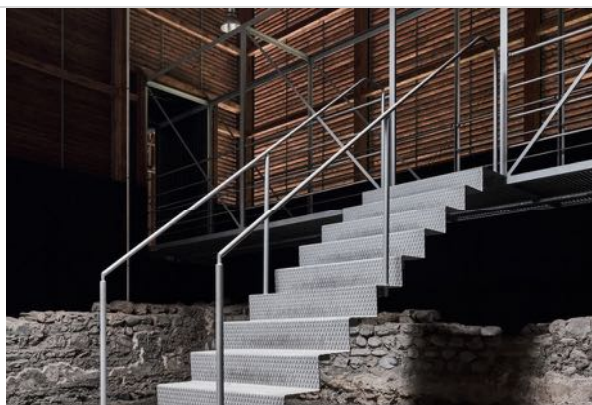
Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



<https://www.atlasofplaces.com/architecture/shelter-roman-archaeological-site/>




<https://www.atlasofplaces.com/architecture/shelter-roman-archaeological-site/>



<https://www.atlasofplaces.com/architecture/shelter-roman-archaeological-site/>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_040

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Shelter for Roman Ruins</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Shelter for Roman Archaeological Site</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>–</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>–</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://www.atlasofplaces.com/architecture/shelter-roman-archaeological-site/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	Altenburg
		Address	Abt-Placidus-Much-Straße 1
		Country	Austria
		Continent	Europe
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
	Settlement	<i>(towns, town centres, villages, etc.)</i>	
Symbolic and Memorial	<i>(monuments, plates, etc.)</i>		
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Roman buildings	
		Century	Roman period	
		Start year		
		End year		
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Realisation	
		Actor		
		Century	Roman period	
		Start year		
	End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		Roman construction systems
Traditional craftsmanship				
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)				

Cultural Heritage Type

ARTEFACTS (particular consideration for, if relevant)

CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type <i>(of the artefact asset)</i> <i>(select from list)</i>	Movable	Architectonic features	
			Art works	
			Eco-facts	
			Ethnographic	
			Historic replica	
			Utilitarian	
			Written evidences	
		Immovable	Carved	
			Frescoes	
			Graffiti	
			Mosaics	
			Art	
	Digital	Art		
	Virtual reality			
Time period <i>(select from list)</i>	Ancient period			
	Post industrial revolution period			
Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	Realisation		
	Actor			
	Century	Roman period		
	Start year			
	End year			
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
		Exhibited		

		Preserved
		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_040

Type of best practice <i>(select from list)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #0056b3; color: white;">Conservation</td></tr> <tr><td style="background-color: #0056b3; color: white;">Preservation</td></tr> <tr><td style="background-color: #0056b3; color: white;">Valorisation</td></tr> </table>		Conservation	Preservation	Valorisation																							
Conservation																												
Preservation																												
Valorisation																												
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #e0e0e0;">Roman buildings</td></tr> <tr><td style="background-color: #e0e0e0;">Roman artefacts</td></tr> </table>		Roman buildings	Roman artefacts																								
Roman buildings																												
Roman artefacts																												
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #e0e0e0;">Bituminous materials</td><td></td></tr> <tr><td style="background-color: #e0e0e0;">Ceramic materials</td><td></td></tr> <tr><td style="background-color: #e0e0e0;">Concrete</td><td></td></tr> <tr><td style="background-color: #e0e0e0;">Concrete derivatives</td><td></td></tr> <tr><td style="background-color: #e0e0e0;">Glass materials</td><td></td></tr> <tr style="background-color: #0056b3; color: white;"><td style="background-color: #e0e0e0;">Metal materials</td><td style="background-color: #e0e0e0;">Steel</td></tr> <tr><td style="background-color: #e0e0e0;">Paints, varnishes and enamels</td><td></td></tr> <tr><td style="background-color: #e0e0e0;">Plasters</td><td></td></tr> <tr><td style="background-color: #e0e0e0;">Polymeric materials</td><td></td></tr> <tr style="background-color: #0056b3; color: white;"><td style="background-color: #e0e0e0;">Marbles, travertines, stones and granites</td><td style="background-color: #e0e0e0;">Stone</td></tr> <tr><td style="background-color: #e0e0e0;">Vegetable, mineral and animal fibres</td><td></td></tr> <tr style="background-color: #0056b3; color: white;"><td style="background-color: #e0e0e0;">Wood</td><td style="background-color: #e0e0e0;">Wood</td></tr> <tr><td style="background-color: #e0e0e0;">Wood derivatives</td><td></td></tr> </table>		Bituminous materials		Ceramic materials		Concrete		Concrete derivatives		Glass materials		Metal materials	Steel	Paints, varnishes and enamels		Plasters		Polymeric materials		Marbles, travertines, stones and granites	Stone	Vegetable, mineral and animal fibres		Wood	Wood	Wood derivatives	
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Wood derivatives																												
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #e0e0e0;">Anthropic risks (heritage management)</td></tr> </table>		Anthropic risks (heritage management)																									
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Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #e0e0e0;">–</td></tr> </table>		–																									
–																												
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #e0e0e0;">Professionals and SMEs providing services for preservation, conservation and restoration</td></tr> <tr><td style="background-color: #e0e0e0;">General and educational users and visitors, tourists</td></tr> </table>		Professionals and SMEs providing services for preservation, conservation and restoration	General and educational users and visitors, tourists																								
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Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #e0e0e0;">DIGITAL INNOVATION</td> <td style="background-color: #e0e0e0;"><i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i></td> <td></td> </tr> <tr> <td style="background-color: #e0e0e0;">DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES</td> <td style="background-color: #e0e0e0;"><i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i></td> <td></td> </tr> <tr style="background-color: #0056b3; color: white;"> <td style="background-color: #e0e0e0;">TRANSFERABILITY</td> <td style="background-color: #e0e0e0;"><i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i></td> <td style="background-color: #e0e0e0;">Project of restoration; Accessibility</td> </tr> </table>		DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>		DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>		TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	Project of restoration; Accessibility																	
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TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	Project of restoration; Accessibility																										

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_040

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•	•	Historic and bibliographic research					
•	•	•	Studies on CH					
•	•	•	Documentation of CH					
•	•	•	Communication of CH					
•	•		Preventive conservation					
•	•		Diagnostic activities					
•	•		Identification of the risks and deterioration patterns					
•	•		Materials conservation tests					
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials					
•	•		Reinforcement of CH buildings					
•	•		Monitoring					
•	•		Maintenance practices					
•	•		Management and administration practices					
•	•	•	Promotion and support of interventions for conservation					
•	•	•	Project of restoration			Skills on organisation and logistics of complex situations (management of means and resources)		
•			Reconstruction					
	•	•	Adaptive re-use of CH					
	•	•	Accessibility			Skills on implementing measures to encourage people to practice heritage		
		•	Dissemination through publications					
		•	Organisation of events and festivals					
		•	Encounters with communities					
		•	Educational activities and programmes					
		•	Creation of partnership and networking					
		•	Advertisements with CH					
		•	Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_041
Best practice ref. <i>identification code (add text)</i>	BP_041	
Object <i>object of the case study (add text)</i>	STREETMUSEUM, LONDON, UNITED KINGDOM	
Intervention <i>subject of the case study (add text)</i>	Augmented Reality for the visualisation of the past	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study (add text)</i>	Century	21st century
	Start date	2010
	End date	On-going
Actors <i>main actors involved (add text)</i>	Museum of London, creative agency Brothers and Sisters	
Description of the best practice <i>Brief abstract (add text)</i>	<p>Streetmuseum is a Museum of London app which shows London scenes from a bygone era. They give people the chance to get a glimpse into London's history on their smartphones. The pictures show the jostling life from past and present of some of the capital's best-known sites juxtaposed next to one another when users take a picture of where they are. They show the difference in the city between now and 100 years earlier, highlighting the change which has taken place in the past century. As well as seeing the changes, this smartphone app allows people to walk side by side with Londoners from the past by using GPS to recognise different locations it is being used in. Developed by the creative agency Brothers and Sisters, it allows people to look through the cameras on their phones at hundreds of sites, where an overlay showing historic photographs will appear across the present-day scene. Users can select a destination from a map of London, or use geo-tagging and Google Maps to pinpoint their own current location. Once selected, a historic image of their London location appears onscreen. That image can then be expanded, with historical information about a range of subjects also available. The images featured on the app are taken from the Museum of London's extensive collection, and they are the work of renowned photographers including Henry Grant, Wolfgang Suschitsky, Roger Mayne and George Davison Reid. More than 100 pictures have been added in the update, with dates ranging from 1863 to 2003. Streetmuseum won the 2011 Clio Awards Bronze.</p>	
Bibliography and sitography <i>main sources referred to the best practice (add text)</i>	<ul style="list-style-type: none"> • Panciroli C., Macaуда A., Russo V., <i>Educating about Art by Augmented Reality: New Didactic Mediation Perspectives at School and in Museums</i>, in "Proceedings", 1, 1107, 2017, pp. 1-11. • https://www.museumoflondon.org.uk/discover/museum-london-apps • https://www.standard.co.uk/news/london/streetmuseum-app-creates-a-stunning-picture-of-you-in-a-london-scene-from-a-bygone-era-9153842.html • https://www.dailymail.co.uk/sciencetech/article-2567739/Streetmuseum-app-creates-hybrid-images-London.html • https://clios.com/awards/winner/interactive/streetmuseum-8669 	
Documental references <i>(add text)</i>	CH general criteria framework (common framework, documents, CH)	
	Vv.Aa., <i>Gubbio Charter</i> , 1960, https://www.italianostra.org/la-carta-di-gubbio-del-1960/ .	

	<p>Vv.Aa., <i>Noto Charter</i>, 1986, https://ipce.culturaydeporte.gob.es/dam/jcr:c985ba29-4817-442b-8cde-e2a490140936/1986-carta-de-noto.pdf.</p> <p>ICOMOS, <i>Charter for the Conservation of Historic Towns and Urban Areas</i>, Washington Charter, 1987, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_012ee3b47bea4183b8a7d344d1bcd340.pdf.</p> <p>ICOMOS, <i>The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas</i>, 2011, https://5129c385-3847-464f-90f1-46e3571d8ee3.filesusr.com/ugd/57365b_b4260164b6a74386a9bc53253775bb98.pdf.</p> <p>UNESCO, <i>Recommendation on the Historic Urban Landscape</i>, 2011, https://whc.unesco.org/uploads/activities/documents/activity-638-98.pdf.</p> <p>Vv.Aa., <i>Urban Agenda for the EU</i>, Pact of Amsterdam, 2016, https://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf.</p> <p>UNESCO, <i>The UNESCO Recommendation on the Historic Urban Landscape</i>, 2019, https://whc.unesco.org/en/hul/.</p>
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<p>Keywords transversal tags among different fields of research (add text)</p>	Urban spaces/assets
	Conservation
	Valorisation

Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



<https://www.standard.co.uk/news/london/streetmuseum-app-creates-a-stunning-picture-of-you-in-a-london-scene-from-a-bygone-era-9153842.html>




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<https://www.standard.co.uk/news/london/streetmuseum-app-creates-a-stunning-picture-of-you-in-a-london-scene-from-a-bygone-era-9153842.html>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_041

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>Streetmuseum</p>	
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>n.a.</p>	
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>	
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>	
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>	
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>		<p>https://architexturez.net/pst/az-cf-179976-1471508589</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION <i>(the location of the heritage asset)</i>	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	London
		Address	
		Country	United Kingdom
		Continent	Europe (outside the European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
Underground			
Cave			
Find spot			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
Symbolic and Memorial		<i>(monuments, plates, etc.)</i>	
Vernacular			
Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>		
Cities			

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	City	
	Time period <i>(select from list)</i>	Century		
		Start year		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	End year		
		Ancient period		
		Post industrial revolution period		
		Event	Pictures dates	
		Actor	Streetmuseum	
	OTHER	Investigation status <i>(select from list)</i>	Un-documented	
			Archived	
Studied				
Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>		Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
	Traditional arts			
	Traditional communication means			
	Traditional construction systems			
Traditional craftsmanship				
Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)		Memory of the past		

Cultural Heritage Type			
ARTEFACTS (particular consideration for, if relevant)			
CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
	Mosaics		
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
	Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event	
	Actor		
	Century		
	Start year		
	End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	

		Recorded
	Immaterial aspects connection to immaterial aspects (select from list)	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
OTHER		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	

3. CHARACTERISATION OF THE BEST PRACTICE

BP_041

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	City		
	Buildings		
	Streets		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites		
	Vegetable, mineral and animal fibres		
	Wood		
	Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2</i> <i>(add text)</i>	-		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3</i> <i>(add text)</i>	App GPS		
Users need <i>response by the best practice, if relevant - link to T1.4</i> <i>(add text)</i>	Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization Companies from the creative industry producing heritage-based content, apps, games, education and tourism services General and educational users and visitors, tourists		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	Communication of CH; Reconstruction
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	
	TRANSFERABILITY	<i>(i.e. provision of training/upskilling for traditional and new profession, guidelines for data acquisition, management and</i>	

		<i>storage, catalogue of standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
Sustainable management of Cultural Heritage	
Taking care of Cultural Heritage materials	
Training and educational activities	

4. SYNTHESIS SHEET

BP_041

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			• Historic and bibliographic research					
			• Studies on CH					
			• Documentation of CH	Skills on digitalisation				
			• Communication of CH					
			• Preventive conservation					
			• Diagnostic activities					
			• Identification of the risks and deterioration patterns					
			• Materials conservation tests					
			• Pre-consolidation, cleaning, consolidation and protection of CH materials					
			• Reinforcement of CH buildings					
			• Monitoring					
			• Maintenance practices					
			• Management and administration practices					
			• Promotion and support of interventions for conservation					
			• Project of restoration					
			• Reconstruction	Skills on digitalisation				
			• Adaptive re-use of CH					
			• Accessibility					
			• Dissemination through publications					
			• Organisation of events and festivals					
			• Encounters with communities					
			• Educational activities and programmes					
			• Creation of partnership and networking					
			• Advertisements with CH					
			• Gaming with CH					

1. CASE STUDY (INTRODUCTION)		BP_042
Best practice ref. identification code <i>(add text)</i>	BP_042	
Object <i>object of the case study</i> <i>(add text)</i>	THE LOST PALACE, LONDON, UNITED KINGDOM	
Intervention <i>subject of the case study</i> <i>(add text)</i>	Sound experience of the past	
Temporal <i>time period of the intervention, referred to the actions/activities of the case study</i> <i>(add text)</i>	Century	21st century
	Start date	2015
	End date	On-going
Actors <i>main actors involved</i> <i>(add text)</i>	Royal Palaces, design studio Chomko & Rosier, theatre company Uninvited Guests (with sound artist Lewis Gibson), software developers Calvium Ltd	
Description of the best practice <i>Brief abstract</i> <i>(add text)</i>	<p>Until it was destroyed by fire in 1698, the Whitehall Palace was the largest royal residence in Europe. Some of the most significant, defining moments in British history took place here. To bring this rich history to life Historic Royal Palaces launched an open call competition in 2015, for artists, creatives and technologists to create an immersive storytelling experience. It asked for creative responses to the project's brief and distributed to the widest possible range of creative industries. From these, five were selected to create working prototypes that were tested on real family and adult audiences. The creators of the most successful prototypes - Chomko & Rosier, Uninvited Guests and Calvium Ltd - were then asked to collaborate on creating the full visitor experience. This full version was created using iterative, user-centred-design principles with over 15 rounds of user testing, and a final full public scratch test ahead of launch. In order to realise the ambitions for this project, it has been worked with different types of partners, moving away from a traditional commissioning model to an R&D based approach. Also key was extensive stakeholder work with security partners around Whitehall, the most security sensitive street in the UK. The Lost Palace allows to explore the largest palace in Europe 300 years after it burnt to the ground with a unique combination of immersive audio theatre, interactive technology, architectural installations and live performance. It takes visitors through modern streets to the exact places where Whitehall Palace's most remarkable history happened, and enables them to hear, touch and feel the past. The technology that powers The Lost Palace is a bespoke hardware and software system that uses NFC, GPS, haptics, accelerometer, gyroscope and compass. However, all this technology is hidden within a wooden object, and completely free of screens. Removing this interface and making the triggers for the digital content either human actions or interactions between organic physical objects, means focus is on spaces and characters, and imagination is free to engage with the stories in meaningful and memorable ways. Based on this, the Lost Palace created a series of moments which combined a physical location, a historic story and a tech interaction in order to cast the visitor as present in the specific event, as a contemporary to the characters, and as an active participant in the action. The effect of this was the creation of a rich virtual reality, but a non-visual one. They augmented reality, not with CGI visuals but with an experiential layer of history. The following design choices were key to this world creation: use of binaural sound to create immersive 3D sound worlds; use of multisensory technology (especially haptics to utilise</p>	

	sense of touch) to create visceral experiences; gestural recognition to make physical actions in the contemporary world have implications in the virtual historic world; and giving real agency to the visitor, so everyone had a different, personalised experience. The Lost Palace won the Museums + Heritage Award for Innovation in 2017.
<p>Bibliography and sitography <i>main sources referred to the best practice</i> <i>(add text)</i></p>	<ul style="list-style-type: none"> • https://www.museumnext.com/article/new-immersive-heritage-experience-lost-palace/ • https://heritageinmotion.eu/himentry/slug-b8d95e6193daf8032ca31da893c3e59b • https://calvium.com/projects/the-lost-palace/ • https://advisor.museumsandheritage.com/features/lost-palace-ii-return-historic-royal-palaces-vr-sensation/ • https://www.timeout.com/london/attractions/the-lost-palace
<p>Documental references <i>(add text)</i></p>	<p>UNESCO, <i>Convention for the Safeguarding of the Intangible Cultural Heritage</i>, 2003, http://unesdoc.unesco.org/images/0013/001325/132540e.pdf.</p> <p>UNESCO, <i>Convention for the Safeguarding of the Intangible Cultural Heritage</i>, 2011, https://ich.unesco.org/doc/src/15164-EN.pdf.</p>
<p>Keywords <i>transversal tags among different fields of research (add text)</i></p>	<p>Intangible Heritage Valorisation</p>

Image/s of the best practice
nr. 1/3 image/s to identify the type of best practice



<https://calvium.com/projects/the-lost-palace/>




<https://heritageinmotion.eu/himentry/slug-b8d95e6193daf8032ca31da893c3e59b>



<https://heritageinmotion.eu/himentry/slug-b8d95e6193daf8032ca31da893c3e59b>

2. IDENTIFICATION OF THE HERITAGE ASSET

BP_042

<p>Name <i>name by which the heritage asset is known</i> <i>(add text)</i></p>	<p>The Lost Palace</p>
<p>Alternative names (if any) <i>names by which the asset has been known in the past</i> <i>(add text)</i></p>	<p>Whitehall Palace</p>
<p>Designation and Protection (if any) <i>(select from list)</i></p>	<p>No protection</p> <p>Local listing (a monument, building, urban area or landscape which is listed on a local register for protection)</p> <p>National listing (i.e. a monument, building, urban area or landscape which is listed on a national register for protection)</p> <p>International protection (i.e. UNESCO World Heritage)</p>
<p>Source (if any) <i>the body or information system on which the heritage asset is registered</i> <i>(add text)</i></p>	<p>—</p>
<p>Reference number (if any) <i>identification of this heritage asset within the information system</i> <i>(add text)</i></p>	<p>—</p>
<p>Image/s of the CH asset <i>nr. 1/2 image/s to identify the type of CH asset</i> <i>(add image/s and source/s)</i></p>	 <p>https://fortheLoveofHistory.home.blog/2019/06/17/whitehall-palace-the-remains/</p>

Cultural Heritage Type

MONUMENTS / GROUPS OF BUILDINGS / SITES (AND LANDSCAPE)

SPATIAL INFORMATION (the location of the heritage asset)	Named location <i>reference to Geonames to capture the location (add text)</i>	Place name	London
		Address	Westminster
		Country	United Kingdom
		Continent	Europe (outside the European Union)
	Environment <i>(select from list)</i>	Urban	
		Rural	
		Coastal	
		Natural	
	Location <i>(select from list)</i>	On ground	
		Underwater/maritime	
	Underground		
	Cave		
	Find spot		
CHARACTERISATION OF THE HERITAGE ASSET (the main characteristics of the heritage asset)	Structure/scale <i>(select from list)</i>	Stand-alone / individual	
		Group	
		Complex	
		Settlement	
		Landscape	
		Route	
	Type A (of the heritage asset) <i>(select from list)</i>	Built	
		Carved	
		Natural	
		Earthworks	
		Open surface	
	Type B (of the heritage asset) <i>(select from list)</i>	Agricultural	<i>(farms, vineyards, canals, etc.)</i>
		Burial	<i>(mounds, cemeteries, mausolea, tombs, etc.)</i>
		Commercial	<i>(passages, markets, etc.)</i>
		Cultural	<i>(libraries, archives, etc.)</i>
		Cultural Landscape	
		Dwellings	<i>(villas, palaces, houses, etc.)</i>
		Educational	
		Expositive	<i>(museums, galleries, etc.)</i>
		Gardens and Parks	
		Health and Welfare	<i>(hospitals, spas, etc.)</i>
		Industrial and Technological	<i>(factories, power plants, etc.)</i>
		Infrastructure and Maritime	<i>(stations, ports, canals, roads, railways, etc.)</i>
		Military and defensive	<i>(castles, forts, battlefields, etc.)</i>
		Mining	<i>(mines, etc.)</i>
		Other, Public	<i>(law courts, city hall, etc.)</i>
		Performing	<i>(theatres, etc.)</i>
		Religious and ritual	<i>(churches, monasteries, temples, etc.)</i>
		Routes	<i>(trading, pilgrimage, etc.)</i>
		Settlement	<i>(towns, town centres, villages, etc.)</i>
		Symbolic and Memorial	<i>(monuments, plates, etc.)</i>
		Vernacular	
	Watermanagement systems	<i>(canals, dams, irrigation, etc.)</i>	

CHARACTERISATION OF THE HERITAGE ASSET <i>(the main characteristics of the heritage asset)</i>	Function <i>significant uses of the heritage asset</i> <i>(add text)</i>	Function	Royal residence	
		Century	11th-17th century	
		Start year	1049	
		End year	1698	
	Time period <i>(select from list)</i>	Ancient period		
		Post industrial revolution period		
	Temporal <i>significant events in the history of the heritage asset</i> <i>(add text)</i>	Event	Burnt to the ground	
		Actor		
		Century	17th century	
		Start year	1698	
	End year	1698		
OTHER	Investigation status <i>(select from list)</i>	Un-documented		
		Archived		
		Studied		
	Immaterial aspects <i>connection to immaterial aspects</i> <i>(select from list)</i> <i>(add text)</i>	Architectural typology		
		Artisanship		
		Authorship		
		Knowledge/ideas		
		Performance		
		Rituals/festivals/folklore/ceremonies		
		Social activities/practices		
		Traditional arts		
		Traditional communication means		
		Traditional construction systems		
Traditional craftsmanship				
	Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)	Burning to the ground		

Cultural Heritage Type			
ARTEFACTS (particular consideration for, if relevant)			
CHARACTERISATION OF THE HERITAGE ARTEFACT <i>(the main characteristics of the heritage artefact)</i>	Type (of the artefact asset) <i>(select from list)</i>	Movable	Architectonic features
			Art works
			Eco-facts
			Ethnographic
			Historic replica
			Utilitarian
			Written evidences
		Immovable	Carved
			Frescoes
			Graffiti
		Mosaics	
	Digital	Art	
		Virtual reality	
	Time period <i>(select from list)</i>	Ancient period	
		Post industrial revolution period	
Temporal <i>significant events in the history of the heritage artefact</i> <i>(add text)</i>	Event		
	Actor		
	Century		
	Start year		
	End year		
OTHER	Investigation status <i>(select from list)</i>	Un-documented	
		Archived	
		Studied	
		Exhibited	
		Preserved	

		Recorded
	Immaterial aspects <i>connection to</i> <i>immaterial aspects</i> <i>(select from list)</i>	Artefact typology
		Artisanship
		Authorship
		Knowledge/ideas
		Performance
		Rituals/festivals/folklore/ceremonies
		Social activities/practices
		Traditional arts
		Traditional communication means
		Traditional construction systems
		Traditional craftsmanship
		Value (spiritual/sacred, beliefs, individuals, events, symbolic, etc.)

3. CHARACTERISATION OF THE BEST PRACTICE

BP_042

Type of best practice <i>(select from list)</i>	Conservation		
	Preservation		
	Valorisation		
Main component or aspect <i>main component or aspect of the heritage asset on which the best practice focuses (add text)</i>	Immaterial dimension of the lost palace		
Materials <i>materials on which the best practice focuses, if applicable</i> <i>(select from list)</i> <i>(add text)</i>	Bituminous materials		
	Ceramic materials		
	Concrete		
	Concrete derivatives		
	Glass materials		
	Metal materials		
	Paints, varnishes and enamels		
	Plasters		
	Polymeric materials		
	Marbles, travertines, stones and granites		
	Vegetable, mineral and animal fibres		
	Wood		
	Wood derivatives		
Type of risk <i>the reason for the intervention, if relevant - link to T1.2 (add text)</i>	—		
Technologies <i>Technologies for the diagnosis, if relevant - link to T1.3 (add text)</i>	Hardware and software system that uses NFC, GPS, haptics, accelerometer, gyroscope and compass		
Users need <i>response by the best practice, if relevant - link to T1.4 (add text)</i>	Decision-makers and national public bodies (i.e. ministries) promoting policies and strategies for conservation, preservation and digitization Companies from the creative industry producing heritage-based content, apps, games, education and tourism services General and educational users and visitors, tourists		
Relevance of the best practice <i>main focuses, fields of relevance, relevant fields to the specific best practice and reasons that make the case study a best practice</i> <i>(select from list)</i> <i>(add text)</i>	DIGITAL INNOVATION	<i>(i.e. ICT solutions and tools, 3D documentation and digitisation, digital twin, digital storytelling)</i>	
	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	<i>(i.e. use of special and advanced materials, technologies and/or methodologies, interdisciplinarity and transversal approach, sustainable and green solutions)</i>	Communication of CH; Reconstruction
	TRANSFERABILITY	<i>(i.e. provision of training/up-skilling for traditional and new profession, guidelines for data acquisition, management and storage, catalogue of</i>	

		<i>standards, replicable strategies)</i>	
	POLICIES AND GOVERNANCE STRATEGIES	<i>(i.e. guidance on policies and governance strategies, advice on funding opportunities, brokerage between heritage and related industries)</i>	Creation of partnership and networking
	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION	<i>(i.e. bottom up approaches, heritage communities involvement, stakeholders and volunteers management and advocacy, exploitation of CH as social and economic resource, exploitation results, social innovation)</i>	Communication of CH

Skills (on) <i>main skills highlighted by the best practice</i> <i>(select from list)</i> <i>(add text)</i>	Achievement of environmental challenges and objectives
	Application of new technologies
	Developing knowledge banks on Cultural Heritage materials, techniques and know-how
	Digitalisation
	Encouraging and supporting the development of networks
	Encouraging creative industries' involvement in CH domains
	Implementing measures to encourage people to practice heritage
	Mapping and analysis of users' needs and requirements
	Organisation and logistics of complex situations (management of means and resources)
	Social media
	Sustainable management of Cultural Heritage
	Taking care of Cultural Heritage materials
	Training and educational activities

4. SYNTHESIS SHEET

BP_042

			(select from list) (add text)	Area of effectiveness in Conservation, Preservation and Valorisation practices		
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
			<ul style="list-style-type: none"> Historic and bibliographic research Studies on CH Documentation of CH 			
			<ul style="list-style-type: none"> Communication of CH 	<p>Skills on application of new technologies</p>		<p>Skills on implementing measures to encourage people to practice heritage</p>
			<ul style="list-style-type: none"> Preventive conservation Diagnostic activities Identification of the risks and deterioration patterns Materials conservation tests Pre-consolidation, cleaning, consolidation and protection of CH materials Reinforcement of CH buildings Monitoring Maintenance practices Management and administration practices Promotion and support of interventions for conservation Project of restoration 			
			<ul style="list-style-type: none"> Reconstruction 	<p>Skills on application of new technologies</p>		
			<ul style="list-style-type: none"> Adaptive re-use of CH Accessibility Dissemination through publications Organisation of events and festivals Encounters with communities Educational activities and programmes 			
			<ul style="list-style-type: none"> Creation of partnership and networking 		<p>Skills on encouraging and supporting the development of networks</p>	
			<ul style="list-style-type: none"> Advertisements with CH Gaming with CH 			

Appendix 3 – Common framework – Best practices

			Area of effectiveness in Conservation, Preservation and Valorisation practices					
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
				•	•	•	Historic and bibliographic research	BP_007; BP_028
•	•	•	Studies on CH	BP_007; BP_028		BP_008; BP_035		BP_038
•	•	•	Documentation of CH	BP_002; BP_005; BP_007; BP_012; BP_026; BP_028; BP_038		BP_015		
•	•	•	Communication of CH	BP_005; BP_007; BP_011; BP_012; BP_021; BP_026; BP_028; BP_041	BP_011; BP_042	BP_011; BP_017	BP_012; BP_026	BP_007; BP_018; BP_027; BP_042
•	•		Preventive conservation		BP_023	BP_022; BP_023; BP_033		
•	•		Diagnostic activities		BP_035	BP_001; BP_008; BP_022; BP_033; BP_037		
•	•		Identification of the risks and deterioration patterns			BP_019; BP_020; BP_022; BP_033; BP_037		
•	•		Materials conservation tests			BP_019; BP_020; BP_022		
•	•		Pre-consolidation, cleaning, consolidation and protection of CH materials		BP_014	BP_001; BP_003; BP_008; BP_013; BP_016; BP_019; BP_020; BP_022; BP_029; BP_030; BP_032; BP_033; BP_034; BP_035; BP_037; BP_039		
•	•		Reinforcement of CH buildings			BP_001; BP_019; BP_034		
•	•		Monitoring	BP_006	BP_023; BP_033	BP_008; BP_020; BP_023	BP_011	
•	•		Maintenance practices		BP_014	BP_020; BP_022; BP_023; BP_033; BP_037		

			Area of effectiveness in Conservation, Preservation and Valorisation practices					
Conservation	Preservation	Valorisation	Activities	DIGITAL INNOVATION	DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
•	•		Management and administration practices	BP_005; BP_006	BP_004; BP_032	BP_033	BP_010; BP_011	BP_038
•	•	•	Promotion and support of interventions for conservation		BP_004		BP_004; BP_010; BP_014	
•	•	•	Project of restoration		BP_009; BP_016; BP_019	BP_001; BP_008; BP_013; BP_014; BP_015; BP_016; BP_019; BP_026; BP_029; BP_030; BP_039; BP_040	BP_008	
•			Reconstruction	BP_002; BP_041	BP_042	BP_004; BP_013	BP_004	
	•	•	Adaptive re-use of CH		BP_014; BP_019; BP_027; BP_029; BP_032; BP_036	BP_001; BP_013; BP_014; BP_015; BP_025; BP_027; BP_029; BP_032; BP_033; BP_039		BP_027; BP_036
	•	•	Accessibility		BP_027	BP_001; BP_010; BP_013; BP_017; BP_022; BP_025; BP_027; BP_029; BP_033; BP_040		
		•	Dissemination through publications			BP_016; BP_029; BP_034; BP_035	BP_008; BP_033	
		•	Organisation of events and festivals	BP_022		BP_025	BP_010	BP_009; BP_011; BP_012; BP_022; BP_027; BP_032; BP_034; BP_037; BP_038; BP_039

			Area of effectiveness in Conservation, Preservation and Valorisation practices				
Conservation	Preservation	Valorisation		DEVELOPMENT AND/OR EXPERIMENTATION OF TECHNIQUES AND METHODOLOGIES	TRANSFERABILITY	POLICIES AND GOVERNANCE STRATEGIES	ENGAGEMENT, EXPLOITATION AND SOCIAL INNOVATION
		Activities	DIGITAL INNOVATION				
		• Encounters with communities					BP_006; BP_009; BP_010; BP_011; BP_024; BP_025; BP_026; BP_027; BP_033; BP_037; BP_038
		• Educational activities and programmes	BP_026		BP_017		BP_003; BP_009; BP_015; BP_018; BP_033; BP_034; BP_037
		• Creation of partnership and networking		BP_031	BP_004; BP_026; BP_031	BP_004; BP_005; BP_006; BP_007; BP_008; BP_010; BP_025; BP_027; BP_032; BP_033; BP_035; BP_038; BP_042	BP_024; BP_027; BP_039
		• Advertisements with CH		BP_031	BP_031		
		• Gaming with CH	BP_002; BP_021		BP_021		



Appendix 4 – Common framework – All sources

		ASSET TYPE										
PURPOSE	SOURCE	Ancient constructions	Post industrial revolution architecture	Industrial archaeology assets	20th century architectural heritage	Archaeological sites	Assets with signs of conflicts/natural hazards	Urban spaces/assets	Landscape and historical gardens	Water's heritage	Artefacts	Intangible heritage
CONSERVATION	Best Practices	BP_001; BP_007; BP_012; BP_019; BP_020; BP_022; BP_023; BP_026; BP_028; BP_030; BP_034; BP_035	BP_003; BP_029; BP_037	BP_009; BP_025; BP_039	BP_008; BP_014; BP_015; BP_018; BP_032; BP_033	BP_005; BP_010; BP_022; BP_038; BP_040	BP_004; BP_013; BP_016	BP_006; BP_011; BP_041	BP_022			

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">CONSERVATION Documents</p> <p>VVAA_1883; VVAA_1931; SCAFA_1932; ICOMOS_1964; UNESCO_1972; MPE_1972; ICOMOS_1975_a; ICOMOS_1975_b; A_ICOMOS_1979; A_ICOMOS_1981; CE_1985; A_ICOMOS_1987; CNR_1987; A_ICOMOS_1988; ICOMOS_1994; ENCRE_1997; A_ICOMOS_1988_a; A_ICOMOS_1988_b; A_ICOMOS_1988_c; A_ICOMOS_1988_d; CEC_1998; A_ICOMOS_1999; ICOMOS_1999_b; ICOMOS_1999_c; VVAA_2000; ECCO_2002; ICOMOS_2003_a; CE_2005; ICOMOS_2005; ICOMOS_2008_a; ICOMOS_ISCS_2008; ICOMOS_2008_c; EC_2010; VVAA_2011; ICOMOS_2011_b; ICOMOS_2011_c; EU_2012_a; EU_2012_b; UNESCO_ICCROM_ICOMOS_IUCN_2013; A_ICOMOS_2013; VVAA_2014_a; VVAA_2014_b; CEU_2014; EU_2014_b; ICOMOS_2014; CHCfE_2015_a; CHCfE_2015_b; ICOMOS_2015; EC_2015; EU_2015; UN_2016; ICOMOS_2017_a; VVAA_2017; EC_2017_a; EC_2017_b; ICOMOS_2017_c; ICOMOS_2017_d; EC_2018_a; EC_2018_b; EU_2018; ICOMOS_2018; VVAA_2019; EC_2019; UNESCO_2019_b; ICOMOS_2020; EC_2021_a; EC_2021_b</p>	<p>CH general criteria framework (common framework, conservation, documents, CH)</p>	<p>CH general criteria framework (common framework, conservation, documents, CH)</p>	<p>CH general criteria framework (common framework, conservation, documents, CH); ICOMOS_TICCIH_2003; ICOMOS_TICCIH_2011</p>	<p>CH general criteria framework (common framework, conservation, documents, CH); VVAA_1991; ICOMOS_ISC20C_2011; GCI_2013; ICOMOS_ISC20C_2014; ICOMOS_ISC20C_2017</p>	<p>CH general criteria framework (common framework, conservation, documents, CH); ICOMOS_2017_b</p>	<p>CH general criteria framework (common framework, conservation, documents, CH); UNESCO_1954; VVAA_2010; UNESCO_2018</p>	<p>CH general criteria framework (common framework, conservation, documents, CH); VVAA_1960; VVAA_1986; ICOMOS_1987; ICOMOS_2011_a; UNESCO_2011_b; UNESCO_2019_a</p>	<p>CH general criteria framework (common framework, conservation, documents, CH); IFLA_2017_a; ICOMOS_IFLA_2017_b</p>	<p>CH general criteria framework (common framework, conservation, documents, CH); ICOMOS_1996; UNESCO_2001</p>	<p>CH general criteria framework (common framework, conservation, documents, CH); ICOMOS_2003_b</p> <p>UNESCO_2003; UNESCO_2011_a</p>
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CONSERVATION EU - Projects	EP_001; EP_003; EP_007; EP_013; EP_015; EP_020; EP_031; EP_033; EP_037; EP_038; EP_040; EP_049; EP_050; EP_051; EP_052; EP_053; EP_054; EP_057; EP_059; EP_061; EP_062; EP_064; EP_067; EP_068; EP_071; EP_082; EP_085; EP_087; EP_088; EP_090; EP_097; EP_100; EP_106; EP_107; EP_108; EP_110; EP_112; EP_113; EP_114; EP_118; EP_119; EP_121; EP_122; EP_123; EP_124; EP_125; EP_126; EP_127; EP_128; EP_129; EP_132; EP_133; EP_135; EP_136; EP_137; EP_138; EP_140; EP_142; EP_146; EP_148; EP_149; EP_152; EP_153; EP_155; EP_156	EP_002; EP_083	EP_012; EP_102	EP_065	EP_010; EP_022; EP_031; EP_080; EP_081; EP_117	EP_004; EP_016; EP_043; EP_056; EP_058; EP_109	EP_030; EP_045; EP_055; EP_094	EP_019; EP_030; EP_141	EP_009; EP_023; EP_025; EP_029; EP_032; EP_047; EP_048; EP_066; EP_069; EP_072; EP_073; EP_086; EP_089; EP_091; EP_092; EP_093; EP_111; EP_139	EP_024 ; EP_026 ; EP_035 ; EP_079
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		ASSET TYPE										
PURPOSE	SOURCE	Ancient constructions	Post industrial revolution architecture	Industrial archaeology assets	20th century architectural heritage	Archaeological sites	Assets with signs of conflicts/natural hazards	Urban spaces/assets	Landscape and historical gardens	Water's heritage	Artefacts	Intangible heritage
PRESERVATION	Best Practices	BP_001; BP_007; BP_012; BP_019; BP_020; BP_022; BP_023; BP_026; BP_028; BP_030; BP_034; BP_035	BP_003; BP_029; BP_036; BP_037	BP_009; BP_025; BP_039	BP_008; BP_014; BP_015; BP_018; BP_032; BP_033	BP_005; BP_010; BP_022; BP_038; BP_040	BP_004; BP_013; BP_016	BP_006; BP_011	BP_022			

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">PRESERVATION Documents</p> <p>VVAA_1883; VVAA_1931; SCAFA_1932; ICOMOS_1964; UNESCO_1972; MPE_1972; ICOMOS_1975_a; ICOMOS_1975_b; VVAA_1978; A_ICOMOS_1979; A_ICOMOS_1981; A_ICOMOS_1987; CNR_1987; A_ICOMOS_1988_a; A_ICOMOS_1988_b; A_ICOMOS_1988_c; A_ICOMOS_1988_d; ICOMOS_1994; ENCRE_1997; A_ICOMOS_1998; CEC_1998; A_ICOMOS_1999; ICOMOS_1999_b; VVAA_2000; ECCO_2002; ICOMOS_2003_a; UNESCO_2005; ICOMOS_2005; ICOMOS_2008_a; ICOMOS_2008_c; EC_2010; VVAA_2011; ICOMOS_2011_b; ICOMOS_2011_c; EU_2012_a; EU_2012_b; UNESCO_ICCROM_ICOMOS_IUCN_2013; A_ICOMOS_2013; VVAA_2014_a; VVAA_2014_b; CEU_2014; EU_2014_b; ICOMOS_2014; CHCfE_2015_a; CHCfE_2015_b; ICOMOS_2015; EC_2015; EU_2015; UN_2016; ICOMOS_2017_a; VVAA_2017; EC_2017_a; EC_2017_b; ICOMOS_2017_c; ICOMOS_2017_d; EC_2018_a; EC_2018_b; VVAA_2018; EU_2018; ICOMOS_2018; VVAA_2019; EC_2019; UNESCO_2019_b; ICOMOS_2020; EC_2021_a; EC_2021_b</p>	<p>CH general criteria framework (common framework, preservation, documents, CH)</p>	<p>CH general criteria framework (common framework, preservation, documents, CH)</p>	<p>CH general criteria framework (common framework, preservation, documents, CH); TICCIH_2003</p>	<p>CH general criteria framework (common framework, preservation, documents, CH); VVAA_1991; ICOMOS_IS C20C_2011; GCI_2013; ICOMOS_IS C20C_2014; ICOMOS_IS C20C_2017</p>	<p>CH general criteria framework (common framework, preservation, documents, CH); ICOMOS_1990; CE_1992; ICOMOS_2017_b</p>	<p>CH general criteria framework (common framework, preservation, documents, CH); UNESCO_1954; VVAA_2010; UNESCO_2018</p>	<p>CH general criteria framework (common framework, preservation, documents, CH); UNESCO_2011_a; UNESCO_2011_b; UNESCO_2019_a</p>	<p>CH general criteria framework (common framework, preservation, documents, CH); ICOMOS_1981; ICOMOS_IFLA_2017_b</p>	<p>CH general criteria framework (common framework, preservation, documents, CH); ICOMOS_1996; UNESCO_2001</p>	<p>CH general criteria framework (common framework, preservation, documents, CH); UNESCO_1970; UNIDROI_1995; ICOMOS_2003_b</p>	<p>UNESCO_2003</p>
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		ASSET TYPE										
PURPOSE	SOURCE	Ancient constructions	Post industrial revolution architecture	Industrial archaeology assets	20th century architectural heritage	Archaeological sites	Assets with signs of conflicts/natural hazards	Urban spaces/assets	Landscape and historical gardens	Water's heritage	Artefacts	Intangible heritage
PRESERVATION	EU - Projects	EP_001; EP_014; EP_015; EP_017; EP_020; EP_031; EP_033; EP_037; EP_038; EP_040; EP_049; EP_050; EP_052; EP_053; EP_054; EP_057; EP_059; EP_061; EP_062; EP_064; EP_067; EP_068; EP_071; EP_076; EP_085; EP_090; EP_096; EP_097; EP_098; EP_100; EP_101; EP_106; EP_108; EP_110; EP_112; EP_113; EP_114; EP_118; EP_119; EP_121; EP_122; EP_123; EP_124; EP_125; EP_126; EP_127; EP_128; EP_129; EP_132; EP_133; EP_135; EP_136; EP_137; EP_138; EP_140; EP_142; EP_146; EP_148; EP_149; EP_152; EP_153; EP_155; EP_156	EP_002; EP_011; EP_083	EP_012; EP_102	EP_065	EP_022; EP_031; EP_080; EP_081; EP_117		EP_016; EP_043; EP_058; EP_109	EP_018; EP_030; EP_045; EP_078	EP_019; EP_030; EP_03; EP_060; EP_141	EP_023; EP_032; EP_047; EP_073; EP_075; EP_084; EP_086; EP_093; EP_099; EP_111; EP_115; EP_130; EP_144; EP_147	EP_011; EP_024; EP_026; EP_028; EP_035; EP_041; EP_042; EP_077; EP_105; EP_116; EP_143; EP_151; EP_154

		ASSET TYPE											
PURPOSE	SOURCE	Cultural Heritage	Ancient constructions	Post industrial revolution architecture	Industrial archaeology assets	20th century architectural heritage	Archaeological sites	Assets with signs of conflicts/natural hazards	Urban spaces/assets	Landscape and historical gardens	Water's heritage	Artefacts	Intangible heritage
VALORISATION	Best Practices		BP_001; BP_007; BP_012; BP_019; BP_022; BP_026; BP_028; BP_030; BP_034; BP_035	BP_003; BP_029; BP_036; BP_037	BP_009; BP_025; BP_039	BP_008; BP_014; BP_015; BP_018; BP_032; BP_033	BP_002; BP_005; BP_010; BP_021; BP_022; BP_038; BP_040	BP_004; BP_013; BP_016	BP_006; BP_011; BP_024; BP_027; BP_031; BP_041	BP_017; BP_022			BP_042

ASSET TYPE													
PURPOSE	SOURCE	Cultural Heritage	Ancient constructions	Post industrial revolution architecture	Industrial archaeology assets	20th century architectural heritage	Archaeological sites	Assets with signs of conflicts/natural hazards	Urban spaces/assets	Landscape and historical gardens	Water's heritage	Artefacts	Intangible heritage
VALORISATION	Documents	VVAA_1931; SCAFA_1932; CE_1985; ICOMOS_1994; CEC_1998; ICOMOS_1999_a; UNESCO_2005; CE_2005; ICOMOS_2005; ICOMOS_2008_a; ICOMOS_2008_b; ICOMOS_2008_c; EC_2010; VVAA_2011; ICOMOS_2011_b; ICOMOS_2011_c; EU_2012_a; EU_2012_b; UNESCO_ICCROM_ICOMOS_IUCN_2013; A_ICOMOS_2013; VVAA_2014_a; VVAA_2014_b; EU_2014_a; CEU_2014; EU_2014_b; ICOMOS_2014; CHcFE_2015_a; CHcFE_2015_b; ICOMOS_2015; EC_2015; EU_2015; UN_2016; ICOMOS_2017_a; VVAA_2017; EC_2017_a; EC_2017_b; ICOMOS_2017_d; EC_2018_a; EC_2018_b; VVAA_2018; EU_2018; ICOMOS_2018; EUHeritage_2019; VVAA_2019; EC_2019; UNESCO_2019_b; ICOMOS_2020; EC_2021_b	CH general criteria framework (common framework, valorisation, documents, CH)	CH general criteria framework (common framework, valorisation, documents, CH)	CH general criteria framework (common framework, valorisation, documents, CH); TICCIH_2003	CH general criteria framework (common framework, valorisation, documents, CH); ICOMOS_IS C20C_2011; ICOMOS_IS C20C_2014; ICOMOS_IS C20C_2017	CH general criteria framework (common framework, valorisation, documents, CH); ICOMOS_IS C20C_2017	CH general criteria framework (common framework, valorisation, documents, CH); UNESCO_1954; VVAA_2010; UNESCO_2018	CH general criteria framework (common framework, valorisation, documents, CH); VVAA_1960; UNESCO_2011_b; VVAA_2016; UNESCO_2019_a	CH general criteria framework (common framework, valorisation, documents, CH); ICOMOS_IFLA_2017_a; ICOMOS_IFLA_2017_b	CH general criteria framework (common framework, valorisation, documents, CH); UNESCO_2001	CH general criteria framework (common framework, valorisation, documents, CH); UNESCO_1970; UNIDROIT_1995	UNESCO_2003; UNESCO_2011_a

		ASSET TYPE											
PURPOSE	SOURCE	Cultural Heritage	Ancient constructions	Post industrial revolution architecture	Industrial archaeology assets	20th century architectural heritage	Archaeological sites	Assets with signs of conflicts/natural hazards	Urban spaces/assets	Landscape and historical gardens	Water's heritage	Artefacts	Intangible heritage
VALORISATION	EU - Projects	EP_001; EP_005; EP_006; EP_008; EP_014; EP_017; EP_021; EP_034; EP_036; EP_037; EP_038; EP_039; EP_040; EP_046; EP_050; EP_052; EP_053; EP_054; EP_062; EP_064; EP_067; EP_068; EP_070; EP_071; EP_085; EP_095; EP_096; EP_097; EP_100; EP_103; EP_104; EP_106; EP_108; EP_110; EP_112; EP_113; EP_114; EP_118; EP_119; EP_120; EP_121; EP_122; EP_123; EP_124; EP_129; EP_131; EP_134; EP_140; EP_145; EP_146; EP_152; EP_153	EP_011		EP_012; EP_102		EP_022; EP_074		EP_058	EP_044; EP_045; EP_094	EP_019; EP_063; EP_141	EP_023; EP_025; EP_027; EP_047; EP_072; EP_111	EP_011; EP_021; EP_150