

Virtual MultiModal Museum (ViMM)

- Co-ordination and Support Action for a
- European strategy on Virtual Museums and Digital Cultural Heritage

Museos Digitales Multimodales (ViMM): diseño, gestión, y proceso estructurado de toma de decisiones. Mejorar el impacto social, la sostenibilidad y hacer frente a los retos tecnológicos sociales y científicos.

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- Juan Torrejón (7reasons)

The ViMM project

1. **Analyse and promote** the role of VM as a **strategic resource** for Europe with cultural, social, environmental and economic **value**.
2. **Broaden and intensify discussion** among CH stakeholders and work towards necessary levels of consensus on key technical, legal and policy areas **important for the goals and principles of VM**, bringing together public and private stakeholders in partnership.
3. Define, develop and promote a **unique sustainable platform** engaging a large number of EU CH stakeholders across the whole community.

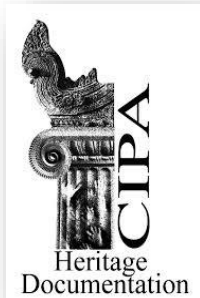
THE MAIN OBJECTIVES of ViMM

4. Gain **high visibility** through social media, TV, newspapers, publishers, professional associations, conferences and other forms of outreach within Europe and internationally.
5. Establish more accurately the **exact nature** of the key economic **drivers** for VCH and especially for VM and their added **value** for society, their economic impact and multipliers, including the potential for both **public and private** investments.
6. Support the inclusion of VCH and especially of VM in the move towards an **integrated policy** approach to Cultural Heritage for Europe, in readiness for the **European Year of Cultural Heritage** in 2018

THE MAIN OBJECTIVES of ViMM

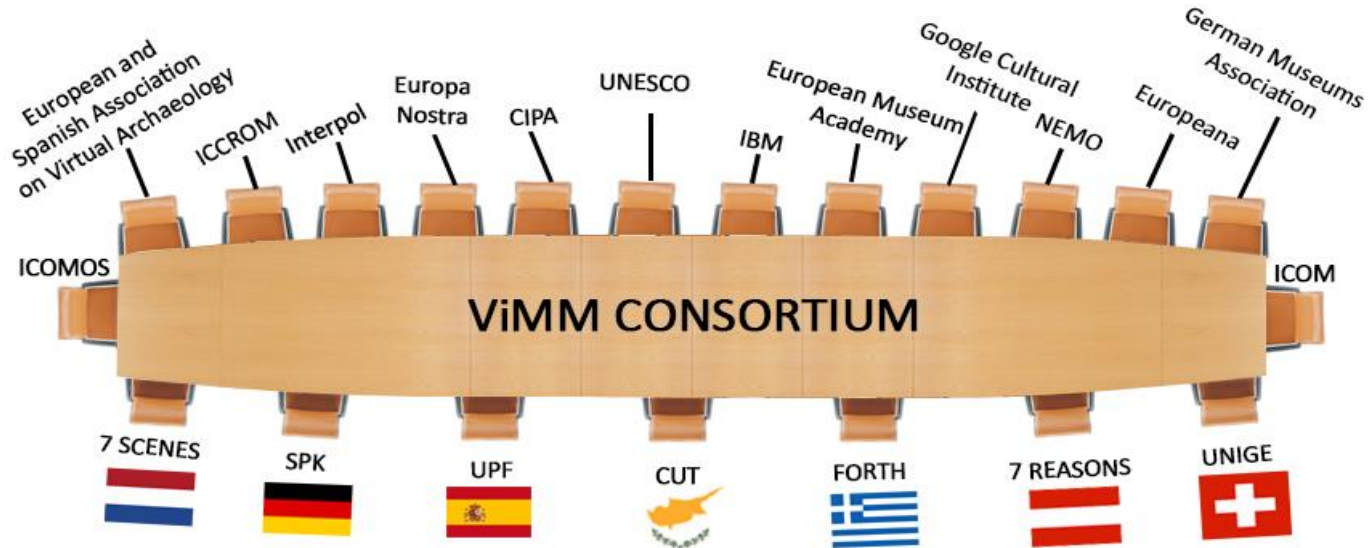
7. Articulate **communication** and **consultation** with European and international organisations such as UNESCO, ICOM, ICOMOS, CIPA, ICCROM, Getty, Europeana Foundation, Wikipedia, in order to **gain common understandings** and establish positions of mutual **support**.
8. Define and demonstrate the various **functions and approaches** of VM based on latest **innovations and advances** in the state-of-the-art in VR/AR, why different audiences need them to understand and interact with European CH, why and how VM are necessary to support the accessibility, conservation, use and re-use of CH.

ADVISORY BOARD (Group of Experts)



ViMM's Consortium Proposal

ADVISORY GROUP



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The Vi-MM on line cultural heritage community platform

The ViMM project has created an on-line platform, for the interlinking of the cultural heritage professionals, where already are registered and communicate tens of hundreds of archeologists, museum professionals, cultural technology developers, policy makers.

You will find in the platform an extensive source of information on projects, funding and collaboration opportunities, experts, cases of excellence, news and you can also post your own. The platform promotes directly to the social media, linked in, tweeter, facebook the members' posts.

You will also find the current presentation, as many others of the ViMM workshops and network. It is not necessary to take notes!

vi-mm.eu

- Post and promote your views, news, work, publications, congresses, projects and find those of all members of the community, comment and discuss them on line
- Find, interconnect and talk with experts in the field of digital cultural heritage
- Present your self and your expertise, and promote your work and organizations

Register now!

LEGATUM2.0.

Museos Digitales Multimodales (ViMM): diseño, gestión, y proceso estructurado de toma de decisiones. Mejorar el impacto social, la sostenibilidad y hacer frente a los retos tecnológicos sociales y científicos.

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The concept

A. Study of Digital cultural Heritage policies and projects , institutional framework in 3 Mediterranean Regions:

- Catalonia / Spain
- Thessaloniki / Greece
- Cyprus

The concept

B. Develop an coherent and effective decision making process for the design, implementation and operation of Digital Heritage projects, in order to improve effectiveness, sustainability and maximize the cultural and end socioeconomic added value of digital heritage

The regional studies

The approach of the study has been articulated in two complementary levels: the “macro” level, which corresponds to community and economic political and institutional framework policies, priorities, objectives, incentives, and resources;

And the “micro” level, in which we chose some representative digital cultural heritage projects and analyzed the design process, objectives, stakeholders, community engagement, and effectiveness based on evidence based representative project cases case examples in 3 European areas.

Main objectives

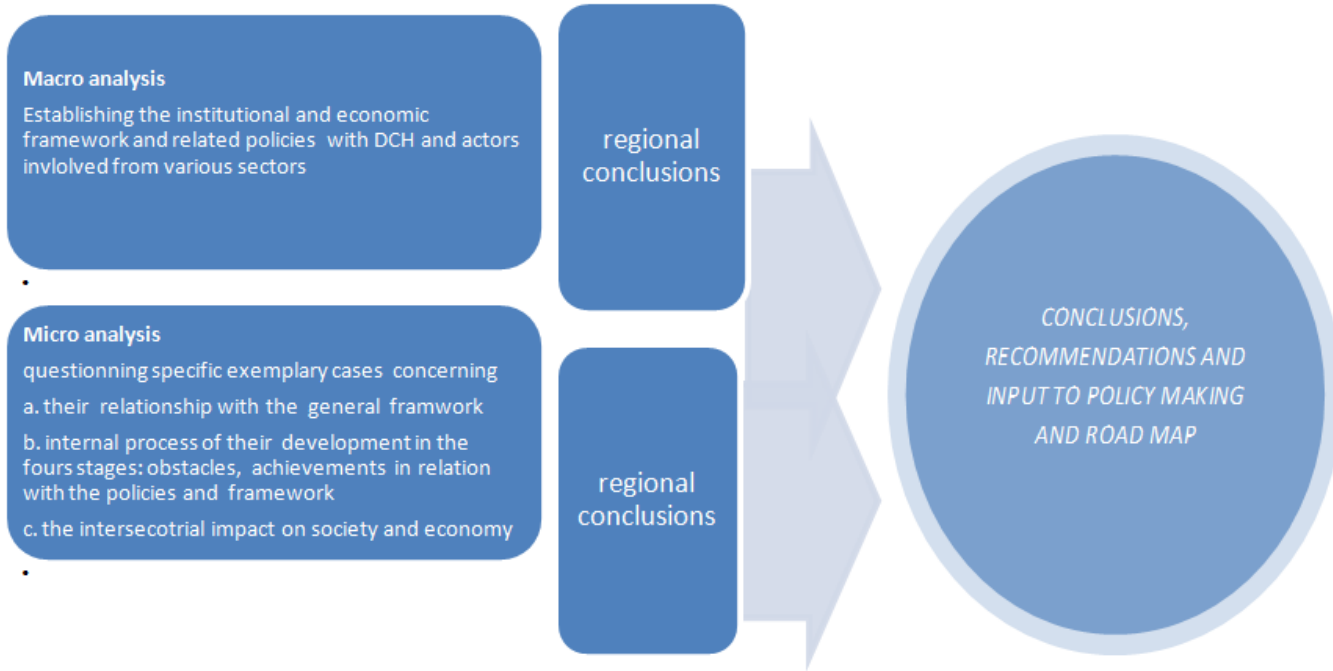
- to extract valid conclusions on the effectiveness of policies through DCH projects, in terms of regional and local development, the impact and/ or interlinking with various other sectors (tourism, technological and humanities research, education sector, intelligent urban development, community development). To identify positive effects and difficulties or areas for improvement.
- to identify critical issues related with risks/obstacles or achievements within the implementation of digital projects, in the (four) 4 phases of the project cycle as identified in the Decision-Making Process already elaborated by ViMM: a. Idea creation, b. Design and planning, c. Implementation, d. Operation / evaluation
- Propose policy actions and recommendations for stakeholders in order to improve effectiveness of the resources allocated in order to achieve sustainable operation, increase resources availability and improve the multiplier impact and engagement in the local economy and society.

The Micro Macro approach

The approach of the study has been articulated in two complementary levels: the “macro” level, which corresponds to community and economic political and institutional framework policies, priorities, objectives, incentives, and resources;

And the “micro” level, in which we chose some representative digital cultural heritage projects and analyzed the design process, objectives, stakeholders, community engagement, and effectiveness based on evidence based representative project cases case examples in 3 European areas.

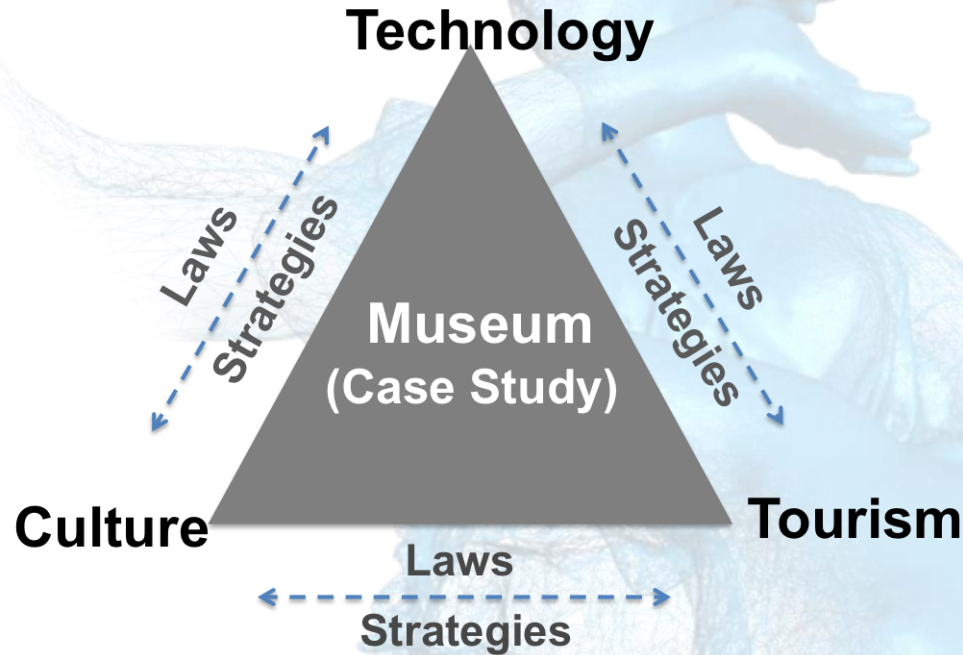
The Micro Macro approach



SPAIN / Catalonia

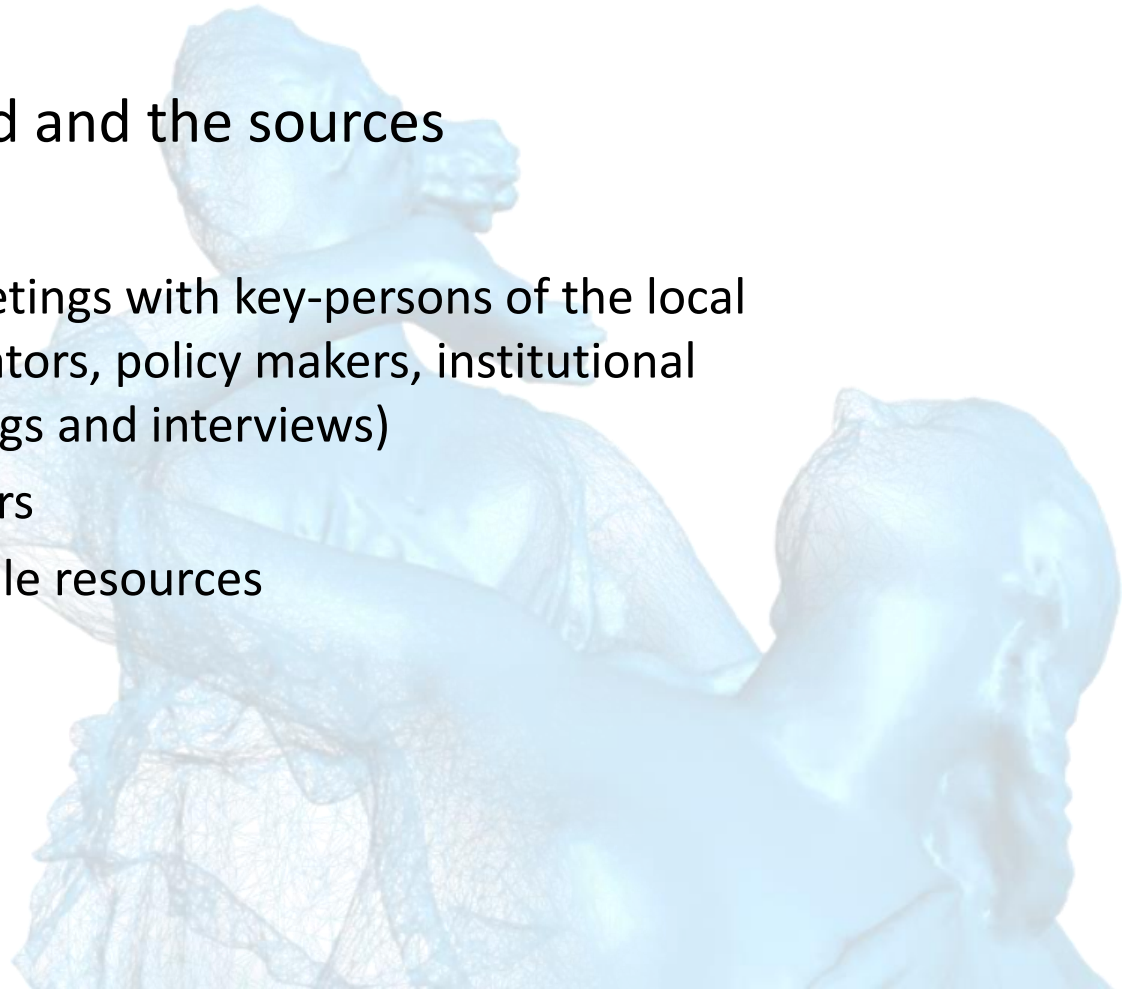


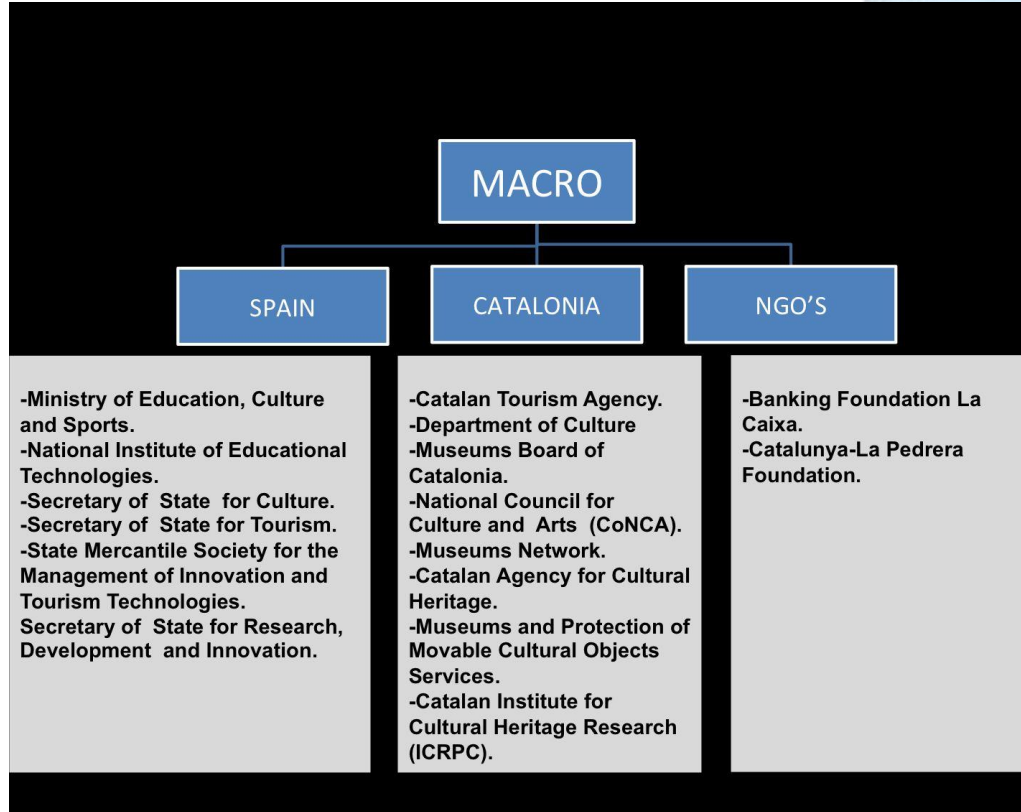
Macro Analysis



The Method and the sources

- Direct collaboration and meetings with key-persons of the local stakeholders, museum operators, policy makers, institutional actors (more than 30 meetings and interviews)
- Data provided by stakeholders
- Studies and publicly accessible resources
- Institutional framework





The stakeholders related with DCH have been identified and analysed

- Public policies with impact on the development of digital cultural heritage will be analyzed. The key from Spain and Catalonia are identified and analyzed at the national and regional level .

SPAIN	
Sector	Policy
Technology	<ul style="list-style-type: none"> -Law of Science, Technology and Innovation. -Spain's Strategy for Science, Technology and Innovation.
Tourism	<ul style="list-style-type: none"> -Spain's National and Integral Tourism Plan.
Other	<ul style="list-style-type: none"> -Law of Fiscal Regime of Entities without lucrative purposes and of fiscal incentives to patronage. -Law for the Foundations.

- Public policies with impact on the development of digital cultural heritage will be analyzed. The key from Spain and Catalonia are identified and analyzed at the national and regional level .

CATALONIA	
Sector	Policy
Technology	-Strategy of Research and Innovation for the Intelligence Specialization of Catalonia (RIS3CAT).
Culture	-Law of Museums. -Plan of Museums 2030. -Law of Catalan Cultural Heritage. -National Agreement for Museums of Catalonia.
Tourism	-Law of Tourism of Catalonia. -Strategic Plan of Tourism of Catalonia 2020.

Four representative digital project cases have been studied, using the Four Stages Decision Making model, in order to extract evidence-based generally applied conclusions and recommendations

The representative DCH projects have been selected in collaboration with the local administration experts, taking into account

- their level of maturity, the variety of cultural assets,
- environments and technologies used,
- the different kinds of operational objectives (e.i. digitize cultural assets and information facilitate access to various cultural sites and projects) and
- the availability of information and professionals involved.

The overall objective is to validate the general conclusions and generate evidence-based policy making recommendations in the micro and micro level.

MON SANT BENET.

Hologram and audio-visual technology .

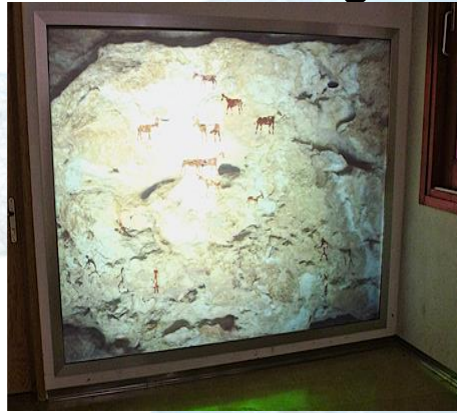
A set of holograms and audio-visual technologies that allow visitors to relive the highlights of the monument's history founded in 960.



www.montsbenet.com

CENTER FOR THE INTERPRETATION OF ROCK ART “ABRICS DE L’ERMITA”.

“We Hunters” Interactive digital experience.



An interactive game displayed on a large format touch screen that aims to provide users with an entertaining and educational experience about rock art history.

www.turismeuldecona.com

MUSEUM ETNOLOGIC DEL MONTSENY, LA GABELLA.

Visitmuseum platform.



Platform available from any mobile device, which provides information on the exhibitions, photographs and audio guides of the museums of Catalunya.



Maqueta del castell de Montseny en el ^{siglo} XV, fortaleza inexpugnable y palacio de los poderosos vicomtes de Cabrera. Maqueta elaborada en fibra de vidrio que muestra cómo era el castell de Montseny en el ^{siglo} XV, en el momento de su máximo esplendor, en plena época gòtica. La maqueta es el elemento central de la sala del mundo medieval y a su alrededor se presentan los objetos de la vida cotidiana del castell. La presencia y signifiación de Montseny en el museu quiere mostrar también la implicación de esta institución en la recuperación, investigación y divulgación del patrimonio cultural de su territorio.



www.visitmuseum.com

Archeological Museum of Catalonia – Ullastret. Immersive instalation “Ullastret 3D”.



The Immersive installation "Ullastret 3D", is a virtual reconstruction of the archaeological site of the Iberian town of Ullastret that allows users to travel 2000 years back in history.

www.macullastret.cat

Conclusions: Obstacles and challenges

1. Limited previsions in the business plans for:

- The operational needs of the digital applications in terms of additional content integration and extension .
- Technology infrastructure maintenance and update.
- Sufficiently trained and available personnel for the digital applications .

The technological projects did not consider the inclusion or hiring of new personnel, therefore, the activities related to the maintenance of the applications had to be covered by museum personnel who already had their own projects and activities.

In some cases, technical repairs could take a couple of days to be solve as the museum does not have trained personnel to make technical repairs related to the apps.

The lack of human resources is recognized in the **Plan of Museums 2030** as a weakness for most of the museums in Catalonia.

Conclusions: Obstacles and challenges

2. Centralization / limited autonomy of the decision making process for the integration of digital technologies.

-Instead of generally known and applied technical and methodological standards the process depends on centralized expertise provision and approvals.

Plan of Museums 2030, in its specific objective 2.3, aims to reinforce the autonomy of museums of public ownership.

Out of the 4 museums, 3 are public and report to the Generalitat / Heritage and Culture Departament.

3. Insufficient understanding and trust between the tourism and cultural professionals, particularly concerning potential risks for some sensitive cultural assets be of excessively high numbers of visitors, or visitors not sufficiently aware about museum process.

Diverging objectives and lack of conciliation and common understanding processes (such as information, training, common language and terminology, conciliation/negotiation processes) between cultural and tourist professionals.

For public museums, thinking about receiving large influxes of visitors can be a bit overwhelming, concerned about the damage that could be done to cultural assets. This may be a bit contrary to the intentions of the tourism sector to generate cultural products and attract a greater number of visitors.

The Law of Tourism of Catalonia, in its Art. 3, states as purposes: a) Protect and preserve cultural and historical values... and d) Increase tourist flows...

Law of Catalan Cultural Heritage, Art. 61, encourage the use and enjoyment of Catalan cultural heritage as a resource for social and tourism revitalization...

Conclusions: Obstacles and challenges

4. Lack of an adequate standardized evaluation methodology and process in the museum in terms of :
User satisfaction
Operational functionality.

Law of Museums 2030, specific objective 5.2, pursues to promote knowledge and proper identification of the museums' public. Focusing on gathering further accurate information , in order to develop better communication strategies.

Conclusions: Obstacles and challenges

5. There is limited information on the impacts that the museum has generated in the local community

- Lack of a complete and coherent set of specific economic impact indicators.
- Lack of a complete set of specific social impact indicators
- Lack of resources integrated in the initial planning for socioeconomic impact measurement in short, middle and long term.

Strategic Plan of Tourism of Catalonia. Subprogram 4.3 Intelligence. Projects are proposed aiming to conceive tools for information collection and data processing in order not only to generate knowledge, but also predictive intelligence and decision-making.

Law of Museums 2030, Specific objective 5.3 aims to strengthen and foster social commitment through the participation of citizens.

Conclusions: Obstacles and challenges

6. Insufficient operational staff in terms of quantity and know-how.

Art. 35 of Law of Museums, a function of the Administration of the Generalitat is d) Promote the training and recycling of museum staff.

Plan of Museums 2030, Key Strategy 7.2, Support the training and recycling of museum professionals, as well as the incorporation of new professional profiles.

Conclusions: Obstacles and challenges

1. An extensive network of Government entities and institutions in both the State and the Generalitat (local government).

Ministries in the fields of culture, tourism and education; Institutes of technology and innovation; Boards of culture, museums and tourism; State and local strategic agreements on digital innovation, tourism and culture; networks on museum management; Nonprofit cultural and arts organizations.

Achievements and Strengths

2. An important body of regulations and public support policies.

- Law of Science, Technology and Innovation.
- Spain Strategy for Science, Technology and Innovation.
- Spain National and Integral Tourism Plan.
- Law of Foundations.
- Law of Museums.
- Plan of Museums 2030.
- Law of Catalan Cultural Heritage.
- Law of Tourism of Catalonia.
- Strategic Plan of Tourism of Catalonia
- RIS3CAT Strategy.

Achievements and Strengths

3. Enhancement of Network of clusters and institutions dedicated to research in digital heritage, cultural heritage, education and tourism.

R+D+I units in Catalonia:

University Structures – 231

Research Centers – 71

Large research-support infrastructures – 13

Science and technology parks – 22

Technology centers – 13

Networks and research groups – 1541

Based on the Directory of Universities and Research, Generalitat de Catalunya.

Achievements and Strengths

4. Public strategic plans that highlight and promote interdisciplinary collaboration.

- Law of Science, Technology and Innovation, Art. 3 and 35.
- Europe 2020.
- Plan of Museums 2030, Objective 1.
- Law of Catalan Cultural Heritage, Art. 3, 54 and 65.
- Law of Tourism of Catalonia, Art. 9.
- Strategic Plan of Tourism of Catalonia 2020.

Achievements and Strengths

5. Tourist and cultural regulations that take into account the importance of information and digital technologies.

-Plan of Museums 2030, Objective 4.

-Strategic Plan of Tourism of Catalonia 2020, Program 4 and Subprogram 5.2.

-Law of Museums, Art. 3.

Achievements and Strengths

6. Museum networks development and deepening in terms of know-how transfer and exemplification.

Necessity of structure and amplify regionally the know-how transfer, the official and unofficial contacts among the professionals and the exemplification of successful cases as well as common obstacles and solutions.

The Arqueoxarxa and Xarxa de Museus de les Comarques de Girona, among others, are museums based networks considered to strengthen the management of museums in Catalonia, as they provide guidance on promotion, administration, funding, research, etc.

Achievements and Strengths

7. Enhancement of the link with educational institutions, of various levels, mostly in the primary and secondary education and more limited to tertiary (academic) educational system.

The primary and secondary education students are among the main beneficiaries of the digital applications.

Our case studies developed solid relationships with educational and research institutions. At the beginning of the ideation process of each CS, an important multidisciplinary collaboration was developed where the academy had an important contribution.

Subsequently, different educational activities were developed with schools which include the use of the digital applications.

- Law of Science, Technology and Innovation, Art. 2 and 38.
- Plan of Museums 2030, Objective 5.
- Law of Catalan Cultural Heritage, Art. 65.
- Research and Innovation Strategy for the

Achievements and Strengths

8. Improvement of attractiveness for younger audiences to cultural heritage.

The development of digital tools strengthens the offer of museums, especially in the sector of younger audiences who are strongly familiar to digital devices. The applications developed on Mon Sant Benet, Ullastret and CIAR-Uldecona, have resulted of interest within younger audiences. As an example, approximately 30% of the total of the visits in Mon Sant Benet is conformed by scholars.

Achievements and Strengths

9. Detonator of new digital projects.
Development of directly linked new projects based on the results of the digital applications (Ullastret 3D)
Creation of new digital projects ideas in the first stage of design, mature for complete study and implementation based on the expertise acquired (We Hunters).

As a result of technological projects, new ideas to promote cultural heritage have emerged, some of which could not be developed due to lack of economic resources.

After “We Hunters” of Ulldecona, new collaborations emerged to develop tools for the interpretation and protection of cultural heritage such as e-Art (an augmented reality app) and 4D Vull (a conservation project through high definition photographs and 3D environments creation).

Achievements and Strengths

10. Social and academic recognition of the project for its novelty, through awards and successful presentations in international conferences.

Ullastret 3D:

- Chosen to participate in the International Exhibition ArcheoVirtual 2016.

- A finalist and highly valued in the 2017 edition of Heritage in Motion Awards, European Museum Academy.

- Awarded in terms of design, in the A-Design Award and Competition, in the Cultural Heritage and Culture Industry Design 2017 category..

- Participation in The International Conference KAINUA 2017 Università di Bologna .

We Hunters Uldecona:

The projects developed have been key to receiving invitations to participate in congresses, forums and publications related to the use of technologies in cultural heritage.

Achievements and Strengths

11. Public -private sector collaboration enhancement.

- Involvement of private companies in the development and operation
- Effective use of public sector incentives and support framework (financial , institutional, and expertise provision)

There is an important participation of the private sector strengthening the multidisciplinary structure in the integration of the projects. Particularly in the cases of Ullastret 3D and Mon Sant Benet, the financing provided by non-governmental institutions have been fundamental. Ullastret 3D received financial resources from Obra Social La Caixa, and Mon Sant Benet is a private project developed by the Catalunya-La Pedrera Foundation.

Achievements and Strengths

12. The digital applications improve the relation with the public and the visibility particularly of museums with limited accessibility due to their location and limited public transportation (Visit Museum)

The location of the case studies and the limited transportation options, can make it difficult for people to reach to them, especially for those who do not have their own means of transportation, such as young students and tourists.

The Visitmuseum platform represents an excellent opportunity to bring the museography closer to society and encourage future visits.

Greece / Thessaloniki



Description of the area

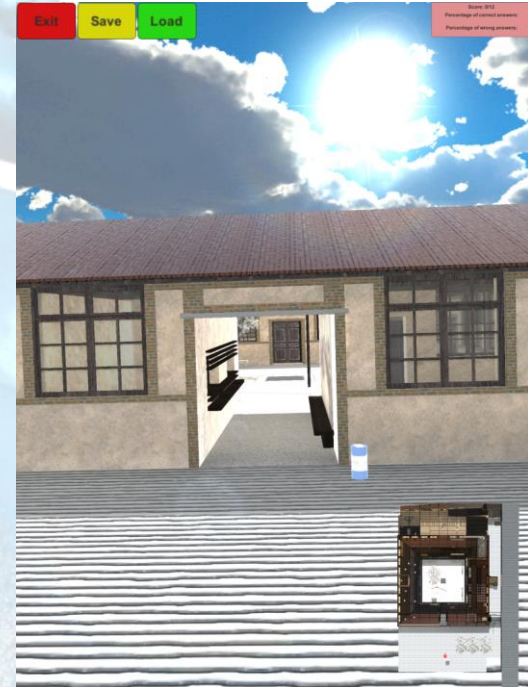
- The municipality of Thessaloniki has taken plenty of actions to keep the city among the most popular travelling destinations.
 - Recently, a mix of combined actions to further enhance the destination "Central Macedonia" and Thessaloniki in the global and domestic tourism market as a multidimensional competitive tourist destination have been taken, for instance.
 - Such actions give great weight to the promotion of thematic tourism, cultural heritage of the Region of Central Macedonia and addressing seasonality.

The need of DCH projects for the Region of Central Macedonia (Thessaloniki)

- Not many actions have been made regarding the Digital Cultural Heritage in Thessaloniki. There are a very few projects that exist. One of them is available for download and it is called “Thessaloniki VR” or “Thessaloniki VR (UNESCO Edition)” [1].
- Digital Cultural Heritage projects implemented through mixed-reality applications are vital to insuring cultural institutions’ sustained relevance and renewed public interest and engagement.
- Digital Cultural Heritage projects offer the possibility of expanding institutional capabilities by surpassing otherwise intractable limitations related to the material reality of:
 - the exhibits (e.g. conservation issues, unavailability of unique artworks and artifacts)
 - the infrastructure (e.g. fixed space, circumscribed resources)
 - the users (e.g. safety and security constraints, limited access especially when it comes to periphery locations)

A new DCH project about the Industrial Museum and Cultural Center of Thessaloniki

- In cooperation with the Industrial Museum and Cultural Center of Thessaloniki and the Service of Modern Monuments and Technical Works of Central Macedonia, a cross-reality mobile application is under development.
- This application consists of a cross-reality visit to the Industrial Museum and Cultural Center of Thessaloniki.
- This application is essentially a Virtual Museum.
- It is addressed to people that cannot travel to Thessaloniki or visit the museum but still want to explore the contents of the specific museum.
- The work that has been done until now is based on a 3D model of the institution that was provided by the museum officials.



Cyprus in the Map of Digital Cultural Heritage: the framework

Due to the financial crises on the island in 2013 a higher priority was given to HR and the recovery of the economy in the general services

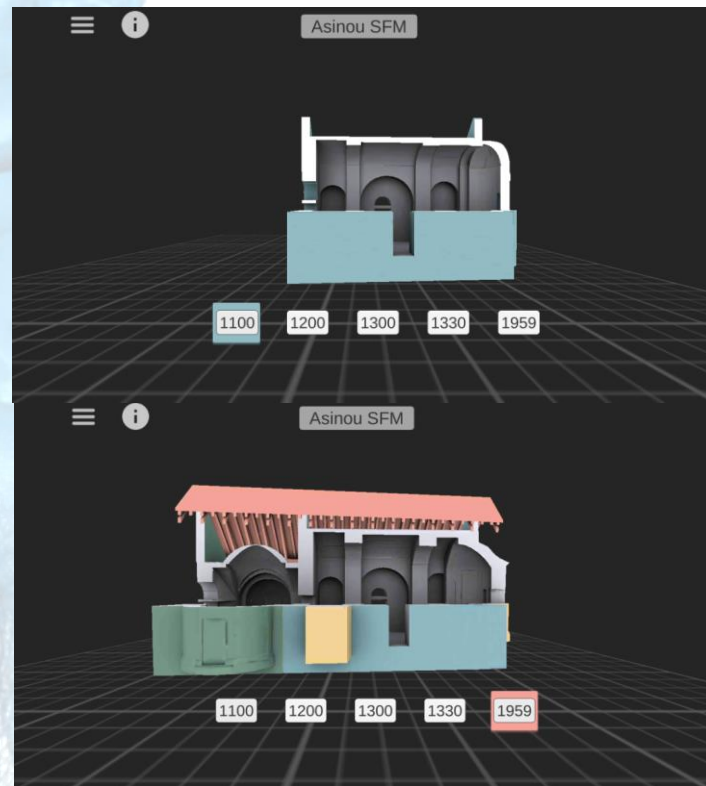
In 2017 the Council of Ministers of the Republic of Cyprus appointed a national committee to set up a national strategic plan for 2018-2023 and 2024- 2030 (2nd phase) including: a sustainable solid financial plan and a 1st proposal for a massive digitalization in cooperation with Europeana.

The national committee consists of all the main stakeholder actors in the area of Cultural Heritage

The stakeholders

- Department of Antiquities (responsible for all the antiquities and public Museums on the island)
- Ministry of Education and Culture
- National Library
- National Archive
- The Church of Cyprus
- The state University libraries
- The Press and Information Office of the CY Government (The press agency of the government since the English colonial time)
- CY National Committee for Digital technologies

Micro case: Assinou Church - Cyprus





- Financial recovery period → no budget available for new investments
- Education: No ICT courses in syllabi and curricula in the social sciences courses and in general humanities in any of the 8 Universities on the island
- No national policy on vocational training for Museologists, Archeologists, conservators, etc on new high techs in ICT
- Lack of **Policy makers awareness**
- **Lack of National strategy**

UNESCO Chair and EU ERA Chair on DCH

The Cyprus University of Technology received this special Year for the EU the two most prestigious Awards:

- 1) UNESCO Chair on Digital Cultural Heritage
- 2) EU ERA Chair on Digital Cultural Heritage with 2,5 Meuro and a duration of 5 Years.

UNESCO Chair Objectives

- 1) Massive digitisation and crowdsourcing
- 2) New curricula and syllabi for the Education in DCH for UNESCO and UniTwin Network of Universities
- 3) Awareness campaigns like the International conference EuroMed2018 in Cyprus (www.euromed2018.eu): Regionally and Internationally
- 4) Acting as a knowledge Hub for UNESCO in all issues related to DCH

EU ERA Chair on DCH objectives

- To develop a 5 years strategic plan for an outstanding research agenda in the area of DCH
- Invest in the AI and Big complex Multimodal Data and structures in DCH
- Create a hub of novel research kernel on DCH regionally and in Europe in general

Overall conclusions of the regional studies and recommendation of priorities for future policies of Europe included in the Road map elaborated by ViMM

Establish as a separate annex project of any digital cultural project the medium-term evaluation and impact in a period of 2-3 years of operation and allocate funds and expertise

(lack of middle term evaluation of the operation for the institution and socioeconomic impact of digital CH projects)

Overall conclusions and recommendation of priorities for future policies of Europe included in the Road map elaborated by ViMM

Intensification of multidisciplinary training policies for museum professional, in order to promote a common understanding of integration of digital apps in their institutions .

There is significant lack of expertise for the management of digital heritage projects within the cultural institutions, at all levels, from the directors to the operational staff

Overall conclusions and recommendation of priorities for future policies of Europe included in the Road map elaborated by ViMM

Enhancement of common training activities at the local and regional level among professionals of cultural heritage management (researchers, curators, managers) and the professional of interconnected sectors:

tourism, education, levels, technological institutions, local authorities and planners, commercial and productive representative of the local society, in order to develop a common understanding of mutual views, priorities and even common language.

Activities such as regular workshops and meetings leaded by external experts, structured processes of regular collaboration

Overall conclusions and recommendation of priorities for future policies of Europe included in the Road map elaborated by ViMM

Development and integration of processes and relevant simple and common technologies supporting the structured public participation along with experts in the cultural heritage assets modern significance and narrative.

In order to keep the Cultural assets scientifically accurate and at the same time alive, as talking items to the interests and understanding of our present

Overall conclusions and recommendation of priorities for future policies of Europe included in the Road map elaborated by ViMM

Simple solutions that allow public participation, particularly in the idea generation and the design of a project, through open calls, awards, and the public participation in the achievements of the project, such as local storytelling, guides, applications linking cultural heritage digital and physical assets with local landmarks or commercial products, shops etc.

Overall conclusions and recommendation of priorities for future policies of Europe included in the Road map elaborated by ViMM

Simple solutions that allow public participation, particularly in the idea generation and the design of a project, through open calls, awards, and the public participation in the achievements of the project, such as local storytelling, guides, applications linking cultural heritage digital and physical assets with local landmarks or commercial products, shops etc.

- Inclusion of resources for middle and long term socioeconomic impact studies and evaluation processes in the development of DA, in order to document their influence in the society and the valorization and preservation of cultural heritage itself
- Standardization of various technologies and enhancement of regional and European networks of users (museums and curators) of similar technological applications
- Interconnect the resources, know how, experts and projects in digital heritage all over Europe and make them available to the professionals of the field.

Overall conclusions and recommendation of priorities for future policies of Europe included in the Road map elaborated by ViMM

- Integration of digital culture in the curricula of the humanity studies.
- Enhancement of common activities (training, congresses, structured processes of regular collaboration and meetings) , at the local and regional level among professionals of cultural heritage management (researchers, curators, managers) and the professional of interconnected sectors : tourism, education of all levels, technological institutions, commercial and productive representative of the local society, in order to develop a common understanding of mutual views, priorities and even language.

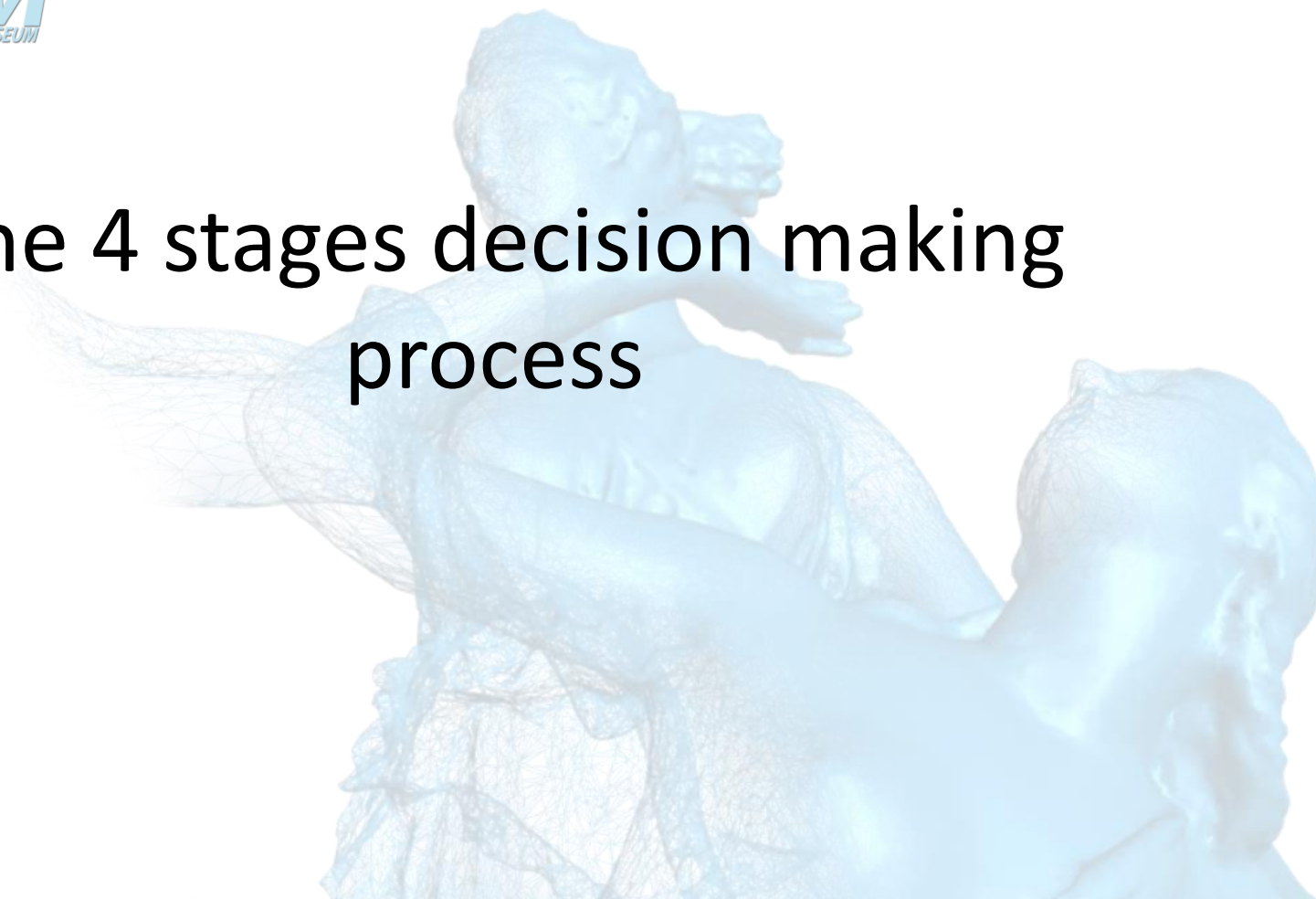
Overall conclusions and recommendation of priorities for future policies of Europe included in the Road map elaborated by ViMM

- Standardization of the 4 stages decision making process: “concept generation - design – implementation – operation” for digital applications in the museums and cultural heritage

Overall conclusions and recommendation of priorities for future policies of Europe included in the Road map elaborated by ViMM

- Boost European excellence in the field of Digital Cultural heritage and integrate massive and standardized digitization including 3D models, and accurate metadata, of the tangible and intangible assets , for ultimate preservation line in case of disasters and losses of any type, for improving accessibility, and for research purposes.

The 4 stages decision making process



The method

- ViMM created a team of more than 100 CH experts from various fields who worked together during more than one year on various subjects, in workshops and on-line.
- A team of experts worked under the scientific coordination of UPF on the decision making process, analyzing and questioning a large number of cases of digital applications in order to understand the process, identify weaknesses and improvements, and finally propose a structured decision making process for the Digital Apps integration in cultural heritage .

<https://www.vi-mm.eu/vimm-experts/>



The 4 stages decision making process

Stage 1: Idea / concept creation

Stage 2: Design, study, planning

Stage 3: Implementation of the DH project

Stage 4: Operation (maintenance, evaluation, extension, study of impact in the institution and the economy society)

The 4 stages model

In each stage the experts have identified :

A. The stakeholders (internal and external) involved, persons and institutions: directors, managers, curators, personnel, technology providers,, application and operation designers, business plan developers, public authorities, stakeholders of other sectors (tourism, education, businesses etc).

The 4 stages model

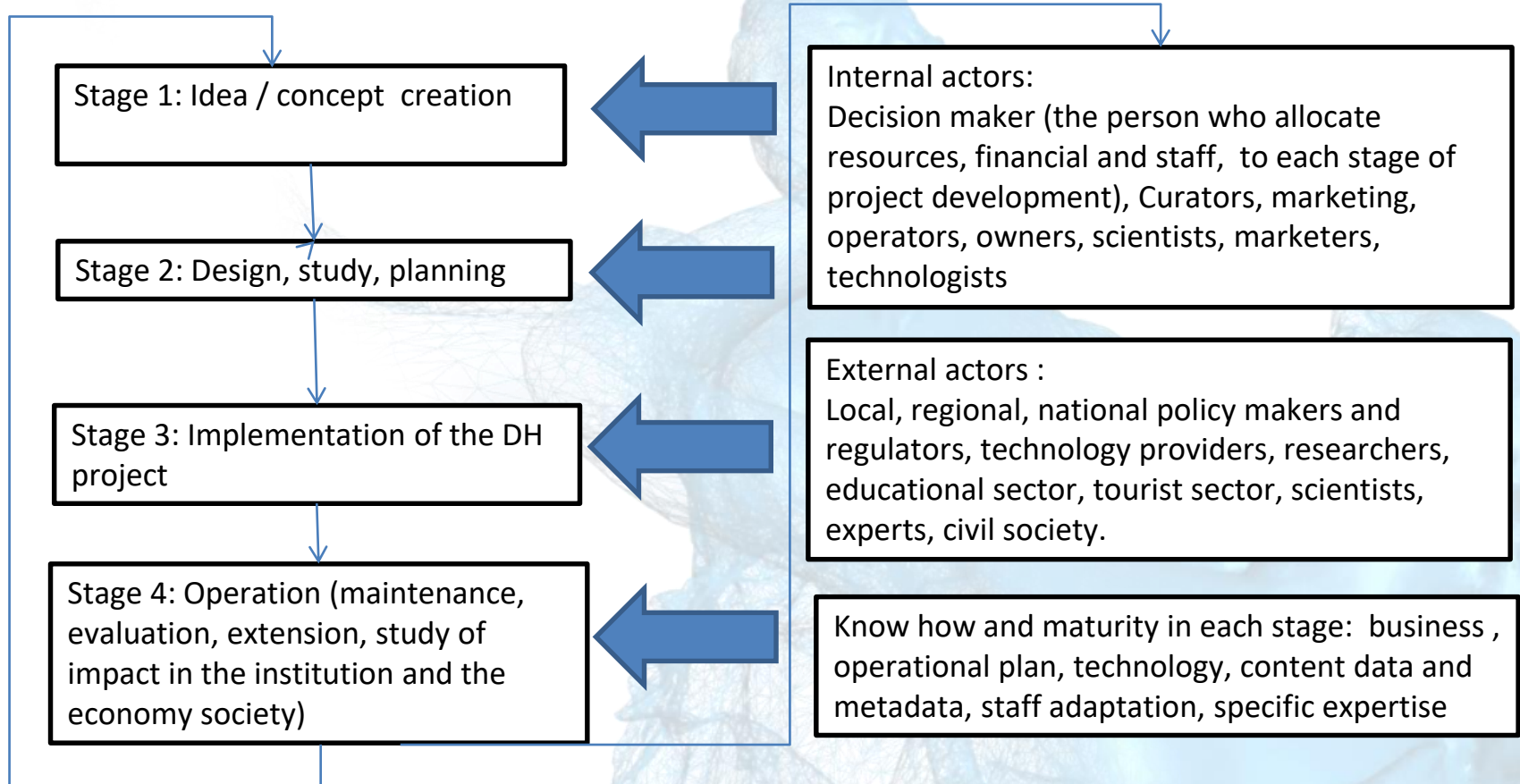
In each stage the experts have identified

- B. The challenges and the decisions to be made in order to proceed to the next stage and allocate resources in various fields: main objectives, cultural assets selection, technology selection, business and operational plan elaboration, evaluation and internal and external impact measurement.

The 4 stages decision making model

In each stage the experts have identified

C. The adequate level of maturity to be achieved and the resources required.



Overall conclusions Stage 1.

- Lack of standardized processes for the idea/within concept generation within the organization and open participatory procedures to the personnel and the society.
- Lack of resources in time, know-how and incentives for the idea generators, such awards, on line submission procedures of ideas to the decision makers, time for brainstorming

Overall conclusions Stage 2.

- The design and study of the Digital Cultural projects is underestimated in most of the cases and focusing mainly in the design of the development and implementation (stage 3).
- There is insufficient provision for analytical operational and business plans, in medium and long term, maintenance and operational costs, updates, adaptations and extensions, raising risks and final costs for the stakeholders.
- The organizations lack know-how expertise, and does not dedicate sufficient resources in the design within the overall project.

Implementation

- The implementation (development of the application, digitization, debugging) is considered THE PROJECT. Most of effort and resources are dedicated to this stage.
- However important elements and information of expertise are missing in the monitoring by the stakeholders while back and forward events, due to insufficient design and planning are in many cases raising the costs and reduce effectiveness .

Overall conclusions Stage 4. Operation

The operation is the stage where all previously overlooked issues appear:

- Meeting with the needs of the public and the scientific objectives at the same time.
- Costs of maintenance and lifetime of the digital app expectation and necessary investment of updates
- Lack of resources and trained personnel to maintain and operate.

Overall conclusions Stage 4. Operation

- Insufficient medium and long term evaluation and impact studies, in the organization, the cultural assets themselves, the society and economy, in order to justify the investment and attract more funding and resources

ViMM propositions and tools

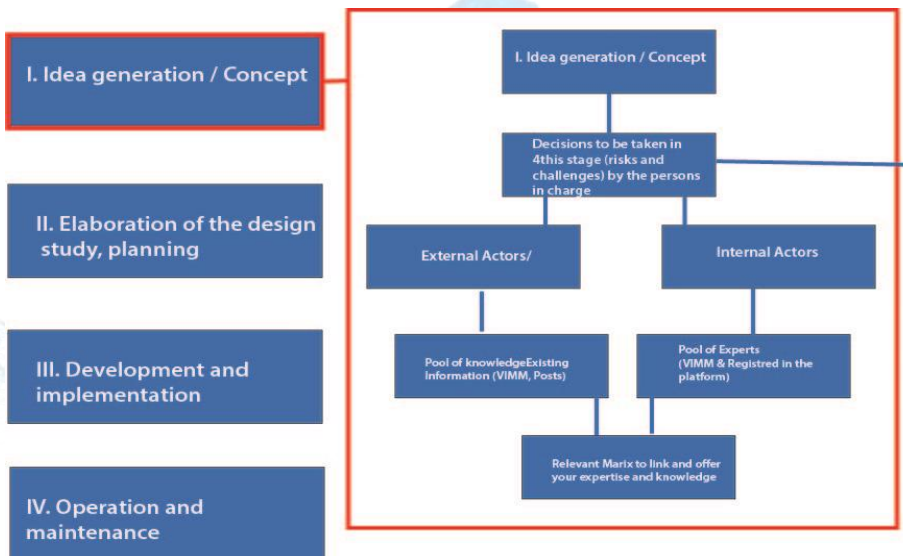
- a. Identify clearly the decision maker in each stage, and establish standardized procedures, maturity standards , and adequate stakeholders involvement in order to proceed in the next stage
- b. Allocate adequate resources (time, effort, funding, expertise) in the stage 1, 2, and 4 (in longer term base). This is expected to reduce very significantly the cost and effort of the stage 3, boost creativity, selection of adequate technologies following the cultural and operational and business objectives, and not adapt the objectives to the technology in order to enhance sustainability.

ViMM Decision Making tool

- The detailed scheme of decisions, stakeholders, and challenges in each stage will be available in ViMM platform specific part, soon.
- The tool also provides the possibility to the registered members of the platform to link their personal profiles and posts to precise points of the process, for example :

stage 2: technology design and selection, suggesting the offer of information and services to other users

stage 4: evaluation and impact study, educational aspects etc.



Negotiate and accept the detailed objectives of the design including the level of detail of the deliverables of the study.
 -All the major decisions in a step by step design to be taken by the project owner in collaboration with the designers in the following order:
 -A. Cultural Assets to be developed through digital application (tangible, intangible) and operational objectives and business plan. Taking into account
 -A1. Various possibilities of technological solutions

and respective costs and requirements
 -A2. Cultural, added value of each technological solution
 -A3. Operational added value of each solution
 -A4. Marketing and business added value of each solution
 -A5. Other social benefits of each solution outside the organization
 -A6. Other economic benefits and returns of each solution outside the organization and returns

Second Form:

I. Ideageneration / Concept	II. Elaboration of the design, study, planning	III. Development and Implementation	IV. Operation and maintenance
Acceptance Process	Operational Personnel, Training	Operational Planning Adaptation	Quality Control
Technical Implementation			

Operational Planning Adaptation

Commercial and operational planning adaptation. Selection of the operational personnel, training and implementation of the operational structure before the completion of the project implementation.

I can write my text here.

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The questionnaire is categorized in the broad topics:

- Elaboration of the design, study, planning
- Development and Implementation
- Operation and maintenance

Each Topic has sub topics eg for “Elaboration of the design, study, planning” those are:

Ideageneration / concept

1 Asset Valorisation 2 General Objectives 3 Implementation budget 4 Research and Design Budget 5 Technologies 6 Done

Technical decisions. Changes due to deviations, failures, technology changes, to be examined and approved. Commercial and operational planning adaptation. Selection of the operational personnel, training and implementation of the operational structure before the completion of the project implementation.

Technologies *

I can write my text here.

Next

Here to user can enter general information the new Idea / Concept (Asset Calorisation / General Objectives / Implementation Budget / Research & Design Budget / Technologies) Each point has to be filled out to proceed to the next form.

The current help texts are not sufficient in my opinion.

Second Form:

Operational Planning Adaptation

- Please do not forget to catch the opportunity to register in the digital cultural heritage community platform of ViMM.

vi-mm.eu

- Post and promote your views, news, work, publications, congresses, projects and find those of all members of the community, comment and discuss them on line
- Find, interconnect and talk with with experts in the field of digital cultural heritage
- Present your self and your expertise, and promote your work and organizations







THANK YOU