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**CULTURAL HERITAGE
FACING CLIMATE CHANGE:
EXPERIENCES AND IDEAS
FOR RESILIENCE AND ADAPTATION**

Edited by
Roger-Alexandre Lefèvre and Cristina Sabbioni

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Villa Rufolo - I 84010 Ravello - Tel. 0039 089 857669 - Fax 0039 089 857711 - <http://www.univeur.org> - e-mail: univeur@univeur.org
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Joint Programming Initiative on Cultural Heritage and Global Change: Strategies and Activities

Patrizia BIANCONI

JPICH Programme Manager

Abstract: Joint Programming Initiative in “Cultural Heritage and Global Change: a new Challenge for Europe” (JPICH) is one of the 10 initiatives launched in 2009 by the Council of the European Union with the scope of promoting all actions that can foster research and research planning both in academics and business domains. The aim is to face global challenges by defining an European common research area where R&D activities are channelled through innovation knowledge transfer.

In particular, JPICH is been working on developing this common area of research on Cultural Heritage that is to be intended as comprehensive field including three main dimensions: tangible, intangible and digital. The main objective of JPICH is to promote the safeguarding of Cultural Heritage in its broader meaning: climate change, protection and security, uses of cultural heritage by society.

Résumé: L’Initiative de Programmation Conjointe “ Patrimoine Culturel et Changement Global: un nouveau défi pour l’Europe” (JPICH) est l’une des 10 initiatives lancées en 2009 par le Conseil de l’Union Européenne dans le but de promouvoir toutes les actions pouvant encourager la recherche et sa planification à la fois dans les domaines académique et entrepreneurial. Le but est de faire face aux défis globaux en définissant une aire commune de recherche où les activités de R&D sont canalisées à travers le transfert de connaissances innovantes.

En particulier, JPICH travaille à développer cette aire commune de recherche sur le patrimoine culturel qui est considérée comme un champ inclusif comprenant trois dimensions principales: tangible, intangible et digital. L’objectif principal de JPICH est de promouvoir la sauvegarde du patrimoine culturel dans son sens le plus large: changement climatique, protection et sécurité, usages du patrimoine culturel dans la société.

Key words: Joint Programming, tangible, intangible, digital, climate change, common research area, technological innovation, joint activities.

Mots-clés: Programmation Conjointe, tangible, intangible, digital, changement climatique, aire commune de recherché, activités conjointes.

1. Introduction

Joint Programming is a process combining a strategic framework, a bottom-up approach and high-level commitment from the Member States and Associated Countries. It builds on the experience gained from existing schemes, coordinating national programmes by contributing to the reduction in fragmentation of research efforts of Member States, stepping up the mobilisation of skills, knowledge and resources, advancing research and innovation in the specific field.

The Joint Programming Initiative in “Cultural Heritage and Global Change: a new Challenge for Europe” (JPICH) was approved by the Council as one of the three short list JPI proposals on

December 2009, and was launched in January 2010. The JPICH has defined the Vision Document, the Terms of Reference, the Strategic Research Agenda (SRA) and the Action Programme and monitoring and evaluation procedure. The experience gained over the past 8 years in JPICH development and implementation has been achieved through the active participation of 20 EU Member States and Associated Countries. They include Italy (Coordinator), Belgium, the Czech Republic, Cyprus, Denmark, France, Ireland, Latvia, Lithuania, Moldavia, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, and the United Kingdom. In addition, 6 Countries are participating with the role of Observers: Austria, Bulgaria, Estonia, Germany, Greece and Israel.

Website: <http://www.jpi-culturalheritage.eu>.

2. The Strategic documents

The levels of implementation of the JPICH has fully addressed the GPC (High Level Group for Joint Programming) recommendations through the completion of the following phases:

Vision Document

The 3 Challenges agreed in the Vision Document approved by the JPICH Governing Board in March 2010, were:

Challenge 1: probing the relation between cultural heritage and one of the most important drivers of future change for communities - climate change.

Challenge 2: probing the issues of protection and security of cultural heritage.

Challenge 3: probing the relationship between the cultural heritage protection and the uses of cultural heritage by society i.e. the transformational challenge of cultural heritage.

Strategic Research Agenda (SRA)

The JPICH Strategic Research Agenda (SRA) was developed to present Cultural Heritage as a comprehensive integrated research area. Input was requested from a wide range of stakeholders across Europe reflecting the three key facets of Cultural Heritage: tangible, intangible and digital.

The SRA contents were produced through a bottom-up process, which included consultation of the Scientific Committee and the National Consultation Panels set up by the JPICH Participating Countries and validation by additional analyses (including a Foresight Study):

- Input from the JPICH Scientific Committee on the framework and process;
- Identification of research areas, activities, gaps and needs by the National Consultation Panels (NCP);
- Identification of research priorities by Participating Countries (ranking 12 top priorities);
- Real-Time Delphi Study on the Future of Cultural Heritage Research. A total of 208 invitations to participate were sent out for the survey, and 100 experts did effectively participate;
- Future Literacy Scenario Workshop;



- Workshop for the involvement of BRICS, Advanced Economies and Neighbourhood Mediterranean Countries.

This procedure addressed national priorities and also aggregated them into four research priority areas on a higher level.

Thus, Cultural Heritage was presented as:

1. an integrated research area not focusing on one topic one discipline or one category, but approached via cross-category priority research areas;
2. a broad field varying among Europe's Member States, approached via a summary of national priorities.

The four research priority areas on which the JPICH SRA is structured are:

1. **Developing a reflective society.** This is broadly based on recognition that the world is changing and that research questions, approaches, methods and reporting need to reflect this change.
2. **Connecting people with heritage.** This concentrates on exploring access by addressing themes and issues that enable people and communities to connect with Cultural Heritage, underpinned by sustainable management plans.
3. **Creating knowledge.** This involves deepening our understanding of the context in which cultural heritage exists and is formed, and developing innovative approaches, applications and tools that will create added value for society from Cultural Heritage.
4. **Safeguarding our Cultural Heritage resource.** This explores how we can protect our heritage, and the research required to support protection.

Enabling framework for SRA implementation

The JPICH SRA identifies the enabling framework as essential for its implementation:

Capability and Capacity

- to cover the provision of training to enable researchers to work across disciplines and all forms of heritage; support is required by researchers at different stages of their careers;
- to identify best practice to increase the capacity and scope of cultural heritage research;
- to develop strong leaders that inspire a new generation of cultural heritage researchers across Europe.

Management Strategies

- to ensure that the technological, organisational and institutional structures are in place to enable cultural heritage to be managed efficiently and effectively.

Knowledge Sharing

- to build a culture that enables researchers to share their findings not only with researchers in other disciplines, but also with international managers such as NGOs and users of cultural heritage, other industries and the wider public;
- to develop a range of methods and educational tools to engage the broader public;
- to share the results of cultural heritage research with a wide variety of audiences.

Research Infrastructure

- to examine the infrastructure needed for each form of cultural heritage and where it crosses over, for example from the tangible to the digital, to ensure continued preservation and access.

Policies, Laws and Regulations

- to map out the policies, laws and regulations within and beyond the EU;
- to assess the consequences of various political frameworks and legal interventions and minimise any conflicts.

The Long Term Strategy

The most recent document delivered by the JPICH is the Long Term Strategy. In this document, seen as a live document, the JPICH participants' countries defined the JPICH vision and the main goals for the next years to respond to the European societal challenges:

- JPICH will focus on heritage as an important component of individual and collective identity. In both its tangible and intangible forms, cultural heritage contributes to the cohesion of the European Union and plays worldwide a fundamental role in integration by creating links between citizens.
- JPICH will promote cultural heritage research for achieving instruments and impact addressed to economic goals. Cultural heritage is of great economic importance, not only for tourism. It's a resource for inner-city rejuvenation and redevelopment. In important ways cultural heritage can serve as an example *avant la lettre* of the sustainable use of resources. Traditional ways of using the countryside act as a source of inspiration for dealing with problems related to change. Finally, cultural heritage takes central stage in local community building.
- JPICH will reinforce research into strategies, methodologies and tools to safeguard cultural heritage against continuous decay. Before irreversible damage is done, concerted actions, based on sound science, are needed to protect, strengthen and adapt our unique cultural patrimony. Apart from natural ageing, cultural heritage is exposed to many threats such as climate change and pollution, increasing urbanisation, mass tourism, human negligence, vandalism and even terrorism. It is a fragile and non renewable resource, much of which has been irretrievably lost over the last century. Protection of cultural heritage in the face of global change is thus becoming a major challenge for decision-makers, stakeholders and citizens.

3. The JPICH in the context of actual political agenda on cultural heritage

The EU policy context is outlined in the following documents:

- Towards a European strategy for international cultural relations, EC – High Representative for Foreign Affairs and Security Policy (joint communication to EP and Council): very important for the role CH plays in diplomacy towards neighbouring states including

- Mediterranean countries (immigration), June 2016, Brussels 8.6.2016 JOIN (2016) 29 final;
- The Faro Convention, the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention) ratified in 2015: the inclusion of natural heritage emphasizes the importance of this convention;
 - The role of heritage policies for delivering social and economic benefits was highlighted Council conclusions on participatory governance of cultural heritage (2014/C 463/01) OJ C 463, 23.12.2014 and European Parliament resolution of 8 September 2015 Towards an integrated approach to Cultural Heritage for Europe (2014/2149(INI)) P8_TA(2015)0293.
 - The preservation of culture and cultural heritage is also supported in five Cross-Border Cooperation (CBC) programmes. Programme “3. Reinforcing cooperation on cultural heritage” develops three priorities: 3.1. Research on cultural heritage; 3.2. Combat trafficking of heritage; 3.3. Protect heritage.
- For all these reasons and the EC’s proposal to make 2018 the European Year of Cultural Heritage (EYCH), Cultural Heritage is currently a strategic element in the European policy scenario and the JPICH is prepared to play a leading role in this context. The EYCH will provide excellent opportunities for the JPICH to address issues like citizen involvement, including heritage management and governance.

4. The JPICH Governance

MiBACT (the Italian Ministry of Cultural Heritage, Activities and Tourism), in liaison with MIUR (the Italian Ministry of Education, University and Research), provide the coordination of the JPICH.

The JPICH is based on a three-layered governance structure with a Governing Board (GB), an Executive Board (EB) and a Coordination Office (CO). Two additional bodies, the Scientific Committee (SC) and the Advisory Board (AB), support the GB and EB on scientific and strategic issues.

Governing Board (GB)

The Governing Board is responsible for the strategic orientation of this Joint Programming Initiative. It has the overall responsibility for the operations and oversees the implementation of its activities. It is composed of a Chair and a maximum of two representatives of each Members States and Associated Countries participating in the JPICH.

Each participating Member States and Associated Countries has one vote at the Governing Board.

These representatives coming from ministries, research organisation, funding bodies, and research councils have a governmental mandate, nominated by the competent Ministry of the country.

The Governing Board has in particular:

- Approved the Vision Document, which is the basis for the Strategic Research Agenda (SRA).
- Approved the draft SRA, after consultation with AB (Advisory Board).
- Built up “à la carte” programs in which several countries in variable geometry have participated voluntarily and on the basis of their political and financial commitment.
- Reported at the political level to participating States and informed at the EU level the European Commission, GPC, CREST (ERAC) and other political bodies at European level on the implementation of the JPICH
- Assessed applications of new Members
- Met normally twice per year.

In addition following the Terms of Reference JPI Observers are Countries which have not yet decided to participate at the common activities of the JPICH (and consequently no EB member representative are appointed) but they have expressed the interest to follow the JPICH process of implementation. Observer countries appoint one representative for participating at the GB who does not have a right to vote.

Executive Board (EB)

The Executive Board is responsible for the JPICH management and for the implementation of the decision approved by the GB. One

technical representative from each Member State and Associated Country was appointed, which are chaired by the Coordinator. The Executive Board performed in particular:

- the Draft Vision Document , which was submitted to the GB for approval;
- the Draft SRA, with the support of the Scientific Committee (SC), which was submitted to the GB for approval;
- the preparation of the Action Programme (AP)
- the implementation of the SRA and the Action Programme;
- the implementation of the GB decisions and monitor the follow-up;
- meet at least twice per year.

The EB is structured into:

- A limited number of Working Groups (working on horizontal issues, for example WG Strategic research Agenda, WG Common activities, including calls, WG Monitoring, WG Communication, WG Countries participation, etc.) during the first phase of JPICH implementation.
- Task Forces are composed of EB members responsible of the different research programming transversal areas, such as alignment, research impact, sustainable cultural heritage management etc., during the phase to implement the SRA and Action Programme.

The Scientific Committee (SC)

The Scientific Committee includes 12 experts from countries involved in this JPI and abroad, selected by peer-review.

Advisory Board (AB)

The Advisory Board is composed by a group of selected representative from European and International bodies relevant to this JPI.

5. The Joint transnational actions

The JPICH launched two calls within the frame of the CSA JHEP “Coordination action in support of the implementation of a Joint Programming Initiative (JPI) on Cultural Heritage and Global Change : a new challenge for Europe Heritage European Programme“ and the HERITAGE

PLUS Project: i) the JPI-JHEP pilot call in 2013; ii) the JPI-HERITAGE PLUS call in 2014.

The main information regarding call topics, participating countries, evaluation process, call budget and proposals submitted, are summarized in Table I.

6. The alignment activities

Taking into account the difference among the JPIs, the proposed definition of Alignment by the GPC Report on Alignment in the context of Joint Programming (October, 2014), is “*The strategic approach taken by Member States*”

In the context of the SRA, the actual phase of the JPICH is to contribute to the coordination, structuring and prioritisation of science policies related to Cultural Heritage and thus foster the alignment process at European and National levels. Strategic activities will also include the focus on Cultural Heritage in Horizon 2020 and especially the report from the Expert Group on Cultural Heritage “Getting cultural heritage to work for Europe”, hereby taking into account the innovative uses of heritage.

This was been achieved by mapping national research programmes and activities relevant to Cultural Heritage, identified best practices in alignment of governance, organization, policy initiatives and policy instruments. The alignment of national research programmes and activities relevant to Cultural Heritage was achieved by engagement with decision-makers across the consortium and outside the JPICH, and a specific workshop on alignment to be held in the European Year of Cultural Heritage in March 2018.

The alignment of national research and innovation programmes and activities will be able to reinforce this unique and fundamental role, creating a “mini ERA” on Cultural Heritage from this fragmented field.

7. The internationalization activities

EC recommendations strongly influence the JPICH internationalization strategy and serve to focus on its objectives, in line with

Call	JPI JHEP Pilot Call	JPI HERITAGE PLUS Call
Topics	Research topics: - Methods, tools and modelling for understanding damage and decay mechanisms on tangible heritage (including buildings, sites and landscapes). - Materials, technologies and procedures for the conservation of tangible cultural heritage. - Use and re-use of buildings and landscapes, including the relationship between changes in use and public policy, including costs and added value. - Increasing understanding of cultural values, valuation, interpretation, ethics and identity.	Research topics: - Safeguarding tangible cultural heritage and its associated intangible expressions - Sustainable strategies for protecting and managing cultural heritage - Use and re-use of all kinds of cultural heritage
Eligible applicants	Universities, Research organizations, Enterprises Minimum of 3 Partners from 3 Countries	Universities, Research organizations, Enterprises Minimum of 3 Partners from 3 Countries
Countries involved	14 Countries:16 funding programme owners	15 Countries:18 funding programme owners
Call Process	One step process National eligibility evaluation + common scientific evaluation	Two step process Step 1: National eligibility evaluation + common scientific evaluation Step 2: remote scientific evaluation + Independent international panel evaluation
Time Schedule	Call Launch: 10 January, 2013 Proposal deadline: 5 April, 2013 Eligibility check: 10 May, 2013 Selection list: July, 2013 Start projects: November, 2013	Call Launch: 4 March, 2014 Pre-Proposal deadline: 28 April, 2014 Eligibility check: 10 May, 2014 Step 1 - evaluation: July, 2014 Final Proposal deadline : 22 October, 2014 Step 2 - remote evaluation: January, 2015 Step 2 - Independent international panel evaluation: February, 2015 Start projects: March-April, 2015
Call Budget	3.3 M€	National Funding: 6.6 M€ Maximum EC contribution (HERITAGE PLUS Project): 3.1 M€ Total call budget: 9.7 M€
Funding schema	Virtual common pot National funding decisions according to selection list	Virtual common pot National funding decisions according to selection list
Proposals received	89	Pre-proposal submitted Step 1: 352 Pre-proposal passed in Step 2 : 61 Final proposal submitted in Step 2: 58
Number of funded projects	10	16

Tab. I. - Data on JPI JHEP Pilot Call 2013 and JPI-HERITAGE PLUS Call 2014.

Données sur l'Appel 2013 du Programme pilote JPI JHEP et de l'Appel 2014 du Programme JPI-HERITAGE PLUS.

European priorities. The EC considers openness to institutions and governmental agencies in non-EU countries a core aspect within the neighbourhood cooperation framework, not only because of the knowledge exchange that stems from interconnections, but also because it is a

way to foster diplomatic relations with non-EU Countries:

- Enlarge the partnership to boost the excellence of the *European Research Area*;
- International research collaborations to enhance competitiveness;

- Increase the visibility of both the JPICH and the role of Cultural Heritage research;
- Strengthen cooperation among researchers to consolidate global networks.

The JPICH has adopted a dual internationalization strategy: i) strengthening relations with EU Member States and Associated States not currently JPICH partners; ii) building synergies with non-EU countries. Outside Europe JPICH activities will focus on the Eastern Partnership, the European network including non-EU Black Sea and EaP Countries (Armenia, Azerbaijan, Georgia and Ukraine), and the United States and South America. A concrete example is the “International Course on Wood Conservation Technology” (ICWCT) to be held in Norway in 2018 with the participation of countries from Europe, Africa, Asia, America, the Caribbean and Latin America, and Oceania.

The JPICH will also foster specific exchange and collaboration with the international organizations in the JPICH Advisory Board to enhance international partnerships and extend other collaborations, e.g. with the European Heritage Heads Forum (EHHF). The EHHF specifically offers opportunities to reach out to European countries that are not yet JPICH Participants to facilitate the inclusion of Cultural Heritage in national and transnational policies.

The JPICH internationalization strategy will also dovetail with JPICH SRA priorities and objectives. Future internationalization activities will include:

- International events (Parades, Cross-cutting JPI event, Infrastructures event);
- New transnational joint calls.

8. The JPICH expected impact

Because of the subsidiarity principle of the Treaty of the EU MS, Cultural Heritage is an area of research in which the launch and implementation of the JPICH has the maximum impact in terms of common governance, adoption of a common SRA, management of two calls, set up of the Heritage Portal and discussion of the Action Plan. No previous cooperation of this size has ever existed, in terms of Countries, number of public organizations involved and response from researchers.

By aligning and co-ordinating the institutional and competitive funding committed under national research programmes, which accounts for 88% of public research in Europe, MS and AC participating in the JPICH can better exploit their resources for maximum societal impact, as recommended by the past Commissioner Geoghegan-Quinn (Dublin Conference, February, 2013).

This JPICH initiative will *strengthen Europe's leadership* in developing Cultural Heritage research, and it will assure to Europe a unique role in the world for a long lasting period. Without this JPI, this area of research will be diminished or even extinguished, as there is no other part in the world where such competences have been developed to such an advanced degree.

The impact of this JPI is both intended and expected to be felt in the *international sphere*. A *significant* role that Europe can play in the world is to export heritage values, which will influence sustainable development and economic advancement in particular locations and areas across the globe, thereby assisting in its environmental, social and cultural well-being in future decades.

9. JPICH future activities

JPICH Countries selected the following topics to be developed in the next years by different actions (Networking, workshop, joint calls, researcher mobility):

- Social, cultural, political and economic value of Cultural Heritage;
- The changing meaning and value of Cultural Heritage across Europe for ‘old’ and ‘new’ citizens as well as ‘outside’ visitors;
- Enjoyment of Cultural Heritage by means of new and old media;
- Research on the role of Cultural Heritage in the reconstruction of (national) identity in post-conflict situations;
- Changing (urban) landscapes - changing landscapes: landscape with its Cultural Heritage and natural environment;
- Re-use and continued use of buildings, historic urban centres and landscapes;
- Community as actor in heritage management;

- Migration and identity;
- Methodology development for assessing the cultural and socio-economic value(s) of digital Cultural Heritage;
- Sharing knowledge of conservation measures for historical buildings in areas that are sensitive for earthquakes and landslides;
- International Course on Wood Conservation Technology;
- Analysis and interpretation of topics posted on the Heritage Portal;

Joint calls

Four calls were planned in the period 2018-2020.

1. Heritage in Changing Environments
2. Conservation & Protection
3. Digital Heritage
4. Identity & Perception

In addition research on *satellite technologies* applied to Cultural Heritage will be proposed and submitted to DG Growth within the Copernicus Programme. Major issues to be developed include: i) Preventive conservation through aerospace and in *situ* data; ii) Operative standards for the safeguarding and conservation of Cultural Heritage; iii) Landscape conservation and monitoring; iv) Geomap of Cultural Heritage and related environmental multi-risk assessment and support for emergency intervention.

10. JPICH Heritage Portal

The JPICH manages and promotes the Heritage Portal website (<http://www.heritageportal.eu/>) launched within the Era-Net NET HERITAGE

Project (2007-2010). The Heritage Portal is a dynamic online community for both researchers and practitioners operating in the multi-disciplinary field of Cultural Heritage. It aims to address the very real problem of fragmentation within a research area where the topics covered range from art history to nanotechnology, microbiology, sociology, anthropology, and structural engineering. The Heritage Portal provides a previously lacking online forum for the broad Cultural Heritage community.

The Heritage Portal currently provides members with the opportunity to share their research findings, press releases, news items and upcoming events. Funding, Vacancies and Training opportunities can also be posted on the Portal. All site content is available to visitors, but only registered members can contribute new material. The Portal also provides a limited networking function by allowing members to view each other's profiles and previous contributions and to contact each other via the site. This helps to provide a sense of community and encourage member participation. The Heritage Portal issues a monthly newsletter summarising new contributions during the preceding four weeks.

In addition to developing a cohesive Cultural Heritage research community, the Heritage Portal also serves as a useful communications vehicle for the JPICH.

All the contents of this article are taken from JPICH official documents and projects funded by the EC supporting the JPICH implementation.