

**The Joint Programming Initiative on
Cultural Heritage and Global Change:
a new challenge for Europe**

VISION DOCUMENT

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- The Document Index is based on the decision of the Governing Board at the 1st Meeting, Rome, 26 March 2010
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Preamble

- RECALLING the Council conclusions on Joint Programming of Research in Europe as adopted by the Competitiveness Council at its meeting in Brussels on the 3rd of December 2009 (17226/09 RECH 454 SAN 359) that welcomed the theme “Cultural Heritage, Climate Change and Security” as one of the three themes in the first wave of JPIs with a view to the adoption of JPIs by the Council;
- RECALLING the ensuing meetings with national representatives, organised by the Italian Ministry of Education, University and Research and the Italian Ministry of Cultural Heritage and Activities to discuss possible coordinated or joint activities.
- RECALLING the Commission Recommendation on the research joint programming initiative "Cultural Heritage and Global Change: a new challenge for Europe" C(2010)2535 final and the accompanying Commission Staff Working Document - SEC(2010)451 final - adopted by the European Commission on 26/4/2010 that encouraged Member States to "develop a common vision on how cooperation and coordination in the field of research at Union level can help to preserve cultural heritage in all its forms, ensuring its security and sustainable exploitation", "to develop a common strategic research agenda", " an implementation plan establishing priorities and timelines and specifying the action, instruments and resources required for its implementation" and " to set up a common management structure";
- RECALLING the conclusions of the Competitiveness Council of 26 May 2010 which welcomed the above mentioned Commission Recommendation [*the reference will be given immediately after the Council*]¹
- CONFIRMING that cultural heritage and global change constitutes a new challenge for Europe, and that rapid joint action at the European level is needed to meet this challenge;
- UNDERLINE the intention of the supporting countries to:
 - o agree on common goals to tackle this challenge, and WELCOME the Vision Document as a useful start in defining a coherent vision;
 - o prepare a common strategic agenda containing priorities for collaboration to achieve the common identified goals. In this context UNDERLINE the need to strike a balance between support for both basic- and strategic research and WELCOME the indicative list of research priorities in Section 2 of the Vision Document as the first basis for drafting this comprehensive agenda including both quick start topics, and issues that should be tackled on the longer term;
 - o reflect upon an effective and efficient use of resources that could be made available for implementing this agenda and UNDERLINE the importance of exploiting the potential of existing national initiatives as well as mechanisms and instruments for international cooperation, inter alia those available under the Framework Programme for Research and Development.
- And to implement these ambitions, WELCOME the adoption of an appropriate governance structure for the joint initiative as outlined in Section 3 and Annex 1.

¹ Council Recommendation To be added

Introduction

Europe's cultural heritage is the world's most diverse and rich patrimony that attracts millions of visitors every year to monuments, historical city centres, archaeological sites and museums. Moreover, this heritage is an important component of individual and collective identity. In both its tangible and intangible forms² it contributes to the cohesion of the European Union and plays a fundamental role in European integration by creating links between citizens.

European cultural heritage is of exceptional economic importance for the tourism industry, generating an estimated annual revenue of EUR 335 billion, and many of the 9 million jobs in the tourism sector are linked to it directly or indirectly. The market for conservation of this heritage is estimated at some EUR 5 billion per year³.

Apart from natural ageing, Europe's 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 concern for decision-makers, stakeholders and citizens in Europe. Research into strategies, methodologies and tools is needed 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 Europe's unique cultural patrimony.

A concerted research action is needed to allow Member States to maximise and exploit at best their research efforts. Joint Programming provides a framework within which Member States address jointly areas where public research programmes can respond to major societal challenges.

The 2008 Commission Communication defines Joint Programming as a process that involves identifying a Common Vision, defining a Strategic Research Agenda for research activities and implementing this Strategic Research Agenda through a Joint Programming Initiative⁴.

With the entry into force of the Treaty on the functioning of the European Union, there is now, for the first time, an explicit legal base for the adoption of measures necessary for the implementation of the European Research Area⁵.

The present document intends to develop the vision for the area of research on cultural heritage in a changing world.

² For the definition of "tangible and intangible cultural heritage", refer to: UNESCO, Convention concerning the Protection of the World Cultural and Natural Heritage, Paris, 16 November 1972; UNESCO, Convention for the Safeguarding of the intangible Cultural Heritage, Paris, 17 October 2003.

³ The Economy of Culture in Europe, a study carried out by KEA European Affairs for the European Commission, 2006, pp. 147-155 and pp. 303-306.

⁴ "Towards Joint Programming in Research: Working Together to Tackle Common Challenges More Effectively", COM(2008) 468 final of 15.07.2008

⁵ Article 179 TFEU

1 Challenges and Objectives

1.1. European and global challenge

The theme on cultural heritage is a key European challenge because:

- European citizens live in or around cultural heritage with which they identify closely, because of the uniqueness and irreplaceable value of historic buildings, museum collections, historic and archaeological sites, and cultural landscapes, both for their tangible and intangible value. Cultural Heritage is a key factor of European identity.
- Environmental changes and security risks menace cultural heritage, potentially exposing it to irreversible damage and losses because of its age and fragility. We owe present and future generations to protect and conserve it as a symbol of their culture and history.
- Societal changes affect the perception of Cultural Heritage by European citizens. It supported in the past the concept of nationality, but now must now adapt to a new concept of European citizenship, to Europe's cultural diversity and through intercultural dialogue must become a cohesion factor for the European identity.
- In a rapidly changing world, technological advancements must reflect in the way Cultural Heritage is studied, protected, and presented to citizens to enhance their appreciation and enjoyment of it.

Before these combined risks to Europe's cultural heritage become irreversible threats, concerted action is needed to protect, strengthen and transform the unique historic environment of Europe. Global change need to be studied and modelled including cultural heritage as part of the environment, the society and the economic development that will involve our society in the present century.

The challenges related to cultural heritage have several complex strands:

Challenge 1 probes the relation between tangible cultural heritage (i.e. historic cities and towns, historic landscape, archaeological sites, ancient buildings, museum collections, archives and libraries) and one of the most serious drivers of future change for communities - *climate change*. Climate change impacts severely on cultural heritage. The ways in which cultural heritage is adapted can mitigate climate change impact through a sensible use of energy, sustainable materials and passive design. This in turn also opens up new avenues for mitigation and adaptation measures across all sectors from construction to transport, both through re-learning of old traditions and practices and the adoption of mitigating measures for preventing the effects of catastrophic events induced by climate changes, such as glacial melt, floods and sea level rise.

Challenge 2 probes the issues of *protection and security of cultural heritage*. Here the global dimension is very clear: European conservation and security of cultural heritage can only be delivered against an improved understanding of the global context. Global change is driving the need to consider the whole assemblage and its context in the 21st century so that faced with cultural and environmental challenges, our understanding and the resilience of cultural heritage will be improved. Both environmental and anthropic risk factors must be taken into account. **Solutions for sustainable development and sustainable access to cultural heritage play as an important role in cultural heritage security as protecting it from adverse environmental conditions.**

Challenge 3 probes the relation between the protection of cultural heritage and its cultural uses by

society i.e. *the transformational challenge of cultural heritage*. The new relationships between cultural heritage and its meaning, history, value, significance, composition, conservation and enjoyment are community-related issues. Europe is a multi-faceted society and its cultural richness is based on the preservation of this diversity including minorities. It is necessary to understand and implement solutions to foster the role of cultural heritage as a factor of cohesion in such a diversified community. Furthermore, technology – information and communication technology, but also mass transportation – is inducing rapid societal changes, allowing mobility, and access to or exchange of information in an unprecedented way. **The overall approach to cultural heritage must be updated to take into account the new, larger and diverse audiences accessing it, and the new ways of communicating it enabled by technological advances.** In this respect, the indissoluble relation between the tangible appearance and the intangible component of cultural heritage is more evident. The development of the knowledge society based on IC T makes digitisation of cultural heritage a key challenge in order to make cultural heritage accessible for all and sustainable, support the cultural diversity, enhance the education and content industries, develop new preservation technologies.

The protection of cultural heritage under global change conditions will be a major concern for decision makers and researchers in Europe. It will be viewed as a measure of the enduring civilization of Europe as well as sustained recognition of its worldwide leadership in this research area. However, coordination is required to overcome the fragmentation of initiatives deriving by diverse and sometimes potentially conflicting approaches (research – administration – management – exploitation), the multiplicity and geographical dispersion of bodies and institutions involved with or in charge of cultural heritage, and the different local environmental, social and economic conditions. If there is a field in which joint action is required, this is cultural heritage, for its global value in human history and identity.

The conservation of the physical component of cultural heritage, protecting and securing it from natural catastrophes and man-made disasters, is the pre-condition of a global approach for preserving these remnants of the past and making them an actual key factor for better understanding our history, traditions and culture, and ultimately of our well-being.

While this theme will reinforce very interesting collaborations in Europe, it will also open opportunities for collaboration with non-European partners, including countries on the southern shores of the Mediterranean Sea, the emerging economies of BRIC (Brazil, Russia, India and China), Byelorussia and Ukraine whose histories are entwined with EU member states in the east, as well as the technologically advanced countries of USA and Japan. In addition this JPI is networked to international organizations including the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), the International Council on Monuments and Sites (ICOMOS), the International Council of Museums (ICOM), the Council of Europe and Europa Nostra.

This JPI is timely because of:

- The high level of research maturity of the pan-European cultural heritage sector
- The balanced composition of the Member States and Associated Countries supporting this JPI
- The need of streamlining and coordinating national research programmes with the ones of the European Commission in order to improve the efficiency of the scarce financial resources, avoid overlaps and exploit synergies

1.2. Objectives

The main objective of JPI on Cultural Heritage addresses the strong relationships that link cultural heritage, conservation, technological innovation and economic development within the dynamic framework of the challenges and competitiveness in an enlarged European Union and its efforts are striving to generate an in-depth, shared understanding of issues with the view of providing an improved knowledge base for policies in the fields concerned most important aspects as migration and integration, quality of life and global interdependence.

Social and regional cohesion, cultural and educational challenges are particular aspects of these due to a number of economic, social and cultural changes and instabilities in society and the recent EU enlargements posing some EU regions with particular development questions for the future.

Contextually, the main objective of JPI on Cultural Heritage addresses the strong relationships that link cultural heritage, conservation, technological innovation and economic development within the dynamic framework of the challenges and opportunities presented by an increasingly globalised, environmental and security-conscious society.

Moreover, appropriate responses will be developed through the application of research to the protection of cultural heritage through a multidisciplinary approach involving science, engineering, technology, conservation and culture in a multi-frame space called Scientific Cultural Area, an integrant part of European Research Area, aiming to re-calibrate and reaffirm the European cultural identity as ambassador of excellence for the world wide heritage.

Objectives and Specific objectives

European policy development

- To reinforce and develop joint foresight capabilities in order to identify common gaps and deficiencies which threaten cultural heritage sustainability, leading to enhancement or development of policy.
- To ensure that concerted research on cultural heritage assesses possible policy instruments that can contribute to adaptation strategies or mitigation of risks and opportunity from global change.
- To improve understanding of the role of policy coordination and harmonization in relation to cultural policies, especially scientific education, research, digitisation, socio-cultural development and cultural innovation, including governance at and across national and regional government levels.

European cohesion

- To exchange information on relevant national programmes and research activities and to exploit existing coordination mechanisms for higher efficiency and effectiveness through cross-boundary cooperation in response to various global hazards.
- To support the creation of a common action framework in order to avoid duplication and repetitions of initiatives at national and regional level and to reduce fragmentation of cultural heritage research identifying areas or research activities that would benefit from coordination or joint calls for proposals or pooling of resources;
- To create networks between centres dedicated to cultural heritage research

Growing the European research community

- To develop and apply new measures for assessing the carrying capacity of cultural heritage in dynamic and evolving conditions and situations using present and predicted knowledge of the resilience of cultural heritage in the 21st century

- To address the significant scientific challenge of implementing new digital management systems to ensure that cultural heritage is accessible to European citizens and world tourism under changing climate and security conditions.
- To support standardization in the fields of cultural heritage diagnostics, conservation, digitisation and use by elaborating a toolbox of methods or technologies to overcome a diverse research base and to increase knowledge transfer across the stakeholders and indirect beneficiaries.
- To strengthen the co-ordination of public research programmes in the field of technological research and e-Infrastructure in Europe in the sector of digital cultural heritage.

Quality and leadership among research communities

- To develop high quality research resources and environment in terms of theory, methods, sources, materials, tools and case studies which will enable comparative analyses of the risks to cultural heritage from global change.
- To address the twin challenges of new cultural heritage assessment and management systems to ensure sustainability and accessibility to European citizens and world visitors.
- To take into account cultural heritage diversity by promoting interdisciplinary, trans-disciplinary and multidisciplinary approaches in funding schemes to strengthen the link between cultural and scientific research questions.
- To reinforce European capacity to transform research results into societal and economics benefits, notably through the innovative capacity of European industry as well as through fostering demand for the resulting innovations.
- To encourage better collaboration between public and private sectors, as well as open innovation between different research activities and business sectors related to cultural heritage; including tourism, sustainable maintenance and construction or reconstruction of sites, buildings or landscapes and related business services.

Human resource development

- To develop structured programmes to underpin mobility and integration of new researchers and established researchers in academic, research and heritage institutions, SMEs and industry.

Infrastructure

- To develop new protocols for sharing existing regional research infrastructure and with the extended ESFRI roadmap regional facilities and the e-IRG roadmap envisaged facilities.
- To promote harmonized and coordinated databanks and monitoring, experimental and modelling infrastructures to enable downscaling of data for use at a regional and local level.

International impact

- To develop a strategy that involves major European personalities in promoting European research excellence outside the EU.
- To transform Europe's citizens into agents of change able to cope with cultural material change in the 21st century (including digital cultural heritage) by raising public awareness of research, by disseminating findings and by addressing public concern with societal change through outputs (including web pages, exhibitions, public lectures and broadcasts).
- To contribute to the establishment of a scientific benchmarking indicator system for the assessment of the impact of cultural heritage on the social dimension of Europe.

Long term development of the Cultural Research Area

- To identify converging areas of research activities and expertise that would strengthen the new created Cultural Research Area and ensure its sustainable development for a better integration in ERA.
- To develop a management framework that reflects the complexity faced by heritage managers across Europe in prioritizing the most serious threats to European society in the 21st century facing global change.
- To understand how digital technologies can contribute positively to changes in European cultural heritage in the medium and long term.

1.3. Research questions being addressed

The following Research Areas and Sub-Areas address the rich, complex and evolving panorama of European cultural heritage. The ‘visible’ expression is the physical sites, buildings and collections that are the tangible cultural heritage; the ‘living’ expression are the values, meaning, significance, philosophy and appreciation of cultural heritage that are the ‘intangible’ cultural heritage. Cultural heritage is not limited by time. New materials and media have been used in polymeric and digital cultural heritage, and in the digital resources used to document, research and disseminate cultural heritage.

1. Sustainable Management of Cultural Heritage

1.1 Defining carrying capacity and resilience for the protection of heritage assets

Data base information on the global change specific threats, their causes and new supports for cultural activities will be shared. Synergistic impacts on cultural heritage will be monitored in order to identify resilience levels and carrying capacity of cultural heritage. Observations, monitoring and modeling data will be pooled in order to provide the basis for a coherent framework for risk assessment and management.

1.2 Synthesizing data and modeling

A European network will be created utilizing data from extensively monitored European cultural heritage sites. These data will be supported by baseline heritage climatology. The focus will be to develop resilience-based management protocols for cultural heritage.

1.3 Development of condition indicators

Indicators will be developed to measure changes in appearance, material and structural integrity of cultural heritage, whether it is built, archaeological, immovable or moveable:

- Assess diagnostic tools for condition checks of cultural materials, assemblages and systems
- Establish and test predictive models from field data
- Validate standard protocols for risk assessment and emergency preparedness under field conditions

2. Natural and Man-Made Impacts on Cultural Heritage

2.1. A network for the protection of cultural heritage from natural and man-made hazards

Severe deficiencies in coordinated European prevention, emergency action and post disaster measures will be overcome by developing multiple risk models particularly for historic architecture and urbanized territories of cultural heritage value since the application of new Directives (flood, heavy rains, rise or fall in ground water levels), and Standards (Eurocode 8 on anti-seismic safety of buildings) require European coordination and cooperation. Research based knowledge on how European legislation affects the capability for sustainable management and conservation of the heritage fabric is necessary.

2.2 Regional earth observation for improved impact assessment of sites

Satellite infrastructure, non-intrusive and remote monitoring systems and technologies will be developed to improve monitoring and assessment of museums, galleries, archives, libraries, historic buildings, archaeological sites and cultural landscapes, including changes to coastal heritage.

2.3 Localized early warning (EWS), alarm and rapid response systems for the protection of cultural heritage

Risk management of long term or sudden disasters and severe weather events in order to avoid or reduce damage and loss to cultural heritage, human lives, economic development and quality of life requires the development of distinct early warning, alarm and rapid response systems for the protection of cultural heritage.

3. Cultural Heritage Treatment, Repair, Maintenance, Digitisation and Re-Use for the 21st Century

3.1 Advanced diagnostic tools and technologies

Long term and accelerated experiments will form the basis for the development of advanced diagnostic tools and technologies to protect cultural heritage from the synergistic effects of climate-human risks. Cultural-technological inputs for the protection of cultural heritage will be used to develop highly innovative hybrid solutions. This sub research area also includes threats, alteration mechanisms and conservation of digital heritage. Cultural heritage of the 20th century is in need of particular appreciation, care and research.

3.2 Applications of innovative technologies

The cross disciplinary application of new technologies, for example nanotechnologies, combined with traditional technologies and with an assessment of cultural acceptability of any new measures will be developed to improve the resilience of fragile and vulnerable cultural materials, respecting regional cultural differences and attitudes. New technologies can assist in transforming and re-using buildings while minimising damage to historic qualities and loss of historic fabric and value

3.3 Digitisation as challenge for long-term preservation and data transferability

Digitisation of cultural heritage contributes to the preservation fragile artifacts and monuments since their reproduction can make them accessible for future generations and save the originals thanks to a limited access. In order to make digital cultural heritage more accessible, more usable, transferable and sustainable, a research area is to be opened on digitisation methods, modeling, interoperability of content, terminologies and long term preservation..

3.4 Intelligent multi-sensor systems for remote control of cultural heritage

Wireless, non-hierarchical scalable and self-organised sensor networks integrating chemical, physical and biological sensors will ensure remote, reliable and durable data gathering that will be self powered for a period of up to 10 years. It will be used to alert managers to the risk of damage and to improve site management before, during and after a crisis.

3.5 New materials

An important aspect is the development of sustainable and compatible new materials and methods for all kinds of cultural heritage. At the moment, too often standard materials are being used for maintenance and restoration, whereas new insights and climate change ask for the development of new materials. Furthermore, post-war cultural heritage is in need of extra research. Both built and movable heritage are confronted with questions of new post-war techniques and materials but we hardly know how to protect them from decay. The use of new materials in building and in contemporary art (for instance plastics, photos, video) poses questions as to how to conserve and restore these materials. Research in the composition and ageing processes of these materials is needed in order to develop a proper model for maintenance and restoration.

Particular attention must be paid to the development of new techniques for structural and compositional characterization of materials. This is the case of aberration corrected electron microscopy. The use of spherical aberration correctors (Cs) adapted to scanning transmission electron microscopes (STEM) working with atomic resolution is an extremely powerful tool to study both structure and composition of pigments and materials in painting, building.

4. Social, Cultural, Political and Economic Value of Cultural Heritage

4.1 Socio-cultural benefits of cultural heritage

Intangible cultural heritage is a fundamental constituent of cultural heritage. As such, it comprises customs, representations, expressions, knowledge and skills which communities, groups and, on occasion, single individuals perceive as part of their cultural heritage. At the same time, the term

also comprises the instruments, objects and cultural spaces associated with this intangible cultural heritage. As a consequence of ongoing global change, traditional expressions will require a higher degree of protection and fostering since, compared to tangible cultural heritage, they are much more fragile. Globalisation and culture equalization disturbed intergenerational transmission of cultural heritage expressions. Numerous instances of oral cultural expression (e.g., of minorities, ethnic groups, immigrants) belong exclusively to the realm of intangible cultural heritage. Hence, it is all the more important to foster a cross-cultural dialogue between cultures and civilizations in order to maintain (social) harmony, cooperation and development.

4.2. Tourism flows, economic impact and sustainable management

European competitiveness for tourism income will not withstand the impact of global change which for the first time will be studied in this JPI. Tourism policies will be improved by access to scenarios derived from models of tourism flows. City branding should be part of this research and development. The economic models used to study this phenomenon will be tested, validated and applied to generate more valid and reliable data on the economic effects of cultural heritage at the EU level. Such data will uncover the importance of cultural heritage and assist in shaping the necessary sustainable policies allowing for a long term harvesting of economic benefits

4.3. Implementing the principles of sustainable development to cultural heritage

Cultural heritage must be recognized as a major societal issue in climate change discourses. Communities that live around cultural heritage must adapt to irreversible change in the appearance and condition of their historic surroundings. The risks imposed by the global threats will jeopardise not only cultural heritage, but also the wider ambition for sustainable development including the sense of tradition, belonging and identity manifested through intangible heritage outputs. Sustainable development policy will therefore be informed by outputs from the climatic-security-behaviour risk models.

4.4 Cultural inclusivity

Cultural inclusivity recognises European historic centres as places of cultural interaction including the integration of new European citizens and commercial activity. To maintain the sustainability of historic centres, the diversity and age distribution of communities, it is necessary to ensure that the history and transformation of relevant heritage environments and building are understood and appreciated so that they are conserved, restored and adapted to improve learning, enjoyment, access and comfort of all citizens from young families to older residents. Adaptive reuse of the heritage resources can provide a sense of stability and a sense of continuity for people and societies, which help counteract the feeling of disquiet felt as a result of economic globalization. Relevant comparative studies contributing to the understanding of such socio-physiological phenomena will assist development of supportive policies

4.5 Online accessibility and usability of cultural heritage

The objective of making visible and accessible European cultural and scientific content on line is to be met by effective access points to digital cultural content so their value can be re-calibrated. An objective is also to use the potential of cultural heritage for developing new digital services for the citizens allowing more interactivity and collaboration. Research is to be carried out in order to support quality and usability of the content, affordability and openness of software tools, and long-term accessibility and availability.

5. Training and Mobility

The Cultural Heritage JPI aims to improve advanced training of researchers and to stimulate mobility of researchers across the partners' research institutions and internationally for the exchange of knowledge, to drive technological excellence and to contribute to European cohesion policy to ensure that Europe's leadership in this area of research is enhanced.

6. Dissemination of Results out of Europe

The importance to Europe of propagating the results of this JPI internationally is highlighted by the way in which dissemination is integrated into the overall strategy and budget of this JPI. Research results will be propagated at different levels and to different degrees according to the audiences whether researchers, practitioners or the public. The common information platform, the Net-Heritage Observatory developed as part of the EU ERA-Net Net-Heritage project, will be enlarged for this purpose. This instrument has the potential to engage the participation of other countries in this JPI and to export European added value to emerging countries thus encouraging economic activities.

2. Political context and State of Play

2.1. Political context

There is a strong and clear position in EU policy that The Community shall contribute to the flowering of the cultures of the Member States and Associated Countries, while respecting their national and regional diversity and at the same time bringing to the fore the common cultural heritage. Action by the Community shall be aimed at supporting and supplementing action in the following areas...- *conservation and safeguarding of cultural heritage of European significance*⁶.

This provision in the Treaty on European Union are further clarified by the Council Conclusions of June 17, 1994, in which The Council points out that Article 128 of the Treaty establishing the European Community selected *cultural heritage as a priority field of action for the Community...* in both movable and immovable heritage.

The Council also considered that the various aspects of cultural heritage should be combined in one global action, highlighting the importance of: i) *taking into account the cultural dimension of other Community policies and programmes; ii) increasing the awareness of all those concerned, especially at local level; iii) mobility for professionals, the exchange of experience and information; iv) European networks and establishments devoted to conservation, training, and research in the field of cultural heritage and cooperation with third countries and the international organizations concerned.*

The Council of Ministers postulated on May 1999 wise management of natural and cultural heritage and stated : i) *the richness of Europe's cultural heritage and landscapes is an expression of its identity and is of world-wide importance; ii) to reverse any process of abandonment and decline and to hand this heritage on to future generations in the best possible conditions requires a creative approach involving the definition of integrated strategies for the preservation and restoration for landscapes and heritage and raising public awareness; iii) Cultural heritage is an economic factor becoming increasingly important for regional development and cultural places of interest are also an essential precondition for the development of tourism.*(European Spatial Development Perspective, May 10, 1999)⁷.

UNESCO defines cultural heritage in the meaning of the *tangible and intangible cultural heritage* as expressed in the Conventions concerning the Protection of the World Cultural and Natural Heritage and the Safeguarding of the intangible Cultural Heritage⁸.

New ICT technologies and medias gives new challenges for future development of new technologies and software that will bring closer cultural heritage to science and society as a whole. Global computer networks can be used for promotion and strengthening the field of Cultural Heritage (digital cultural heritage) but also for creation of new cultural content in digital form. The Council encourage European Commission and the Member States to facilitate cooperation and to exchange information and good practice at European level, to ensure accessibility to digital contents by every citizen of the European Union; quality-initiatives in cultural web sites; on the role of culture in the development of the European Union remarks the strategic role of culture.^{9,10,11,12}.

⁶ Treaty on European Union, article 128, February 7, 1992

⁷European Spatial Development Perspective (ESDP), Potsdam, May 1999
http://ec.europa.eu/regional_policy/sources/docoffic/official/reports

⁸ UNESCO, Convention concerning the Protection of the World Cultural and Natural Heritage, Paris, 16 November 1972; UNESCO, Convention for the Safeguarding of the intangible Cultural Heritage, Paris, 17 October 2003.

⁹ Council Resolution of 21 January 2002 on culture and the knowledge society (2002/C 32/01)

¹⁰ Council Resolution of 21 January 2002 (2002/C 32/02)

¹¹ Council Resolution on Preserving Tomorrow's memory - Preserving Digital Content for future generations of the 25 June 2002 (2002/C/162/02) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:162:0004:0005:EN:PDF>,

¹² Recommendation on the Digitisation and Online Accessibility of Cultural Material and Digital Preservation (2006/585/EC) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:236:0028:0030:EN:PDF> and Council Conclusions of 13

This vision was strengthened by the Commission's strategy i2010 - A European Information Society for growth and employment¹³ and the specific action line i2010: Digital Libraries Initiative¹⁴, recently renewed by the strategy Europe 2020¹⁵. The richness of the cultural and scientific heritage in Europe demands that the highest attention is paid to its preservation and valorisation. The advent of the Information Society and the diffusion of the new information and communication technologies are affecting the policies of the Member States on their initiatives for cultural and scientific heritage and digitisation is an essential step that the European cultural institutions should make, aiming at preserving and valorising Europe's collective cultural heritage, at safeguarding cultural diversity, at providing improved access for the citizen to that heritage, at enhancing education and tourism and at contributing to the development of the new digital content and service industries.

The EC Conference on “*Sustaining Europe's Cultural Heritage: from research to policy*” held in London, in September 2004, highlighted as one of the most important issues the need to reinforce the contribution of *cultural heritage research*, aiming to include cultural heritage protection in EU directives and to promote favourable educational, training and knowledge transfer programmes (London Declaration¹⁶).

On November 2007, the Culture Ministers of the EU Member States endorsed the European Agenda for Culture on the basis of the Communication presented by the Commission in May 2007. The Council resolution includes five specific priority areas of action for the 2008-2010 Period, one of which is: *Promote access to culture, especially by promoting cultural heritage, cultural tourism, multilingualism, digitization, synergies with education (in particular arts education) and greater mobility of collections*¹⁷.

UNESCO identified future research needs and legal questions with regards to *suitable responses to climate change*, linkages to other UN and international bodies, including the IPCC (UNESCO, 2008¹⁸).

Council of Europe identified both gaps in the research area and in policy on vulnerability of cultural heritage to climate change. Cultural heritage (i.e. historic cities and towns, landscape, archaeology, ancient buildings and collections of artefacts) is exposed to one of the most serious drivers of future change for communities - *climate change*. Climate change impacts severely on cultural heritage. Change in the water cycle, both precipitation patterns and relative humidity, will enhance several damaging processes including salt crystallization, biodegradation, surface loss Europe.¹⁹

The European Parliament Temporary Committee on Climate Change for the first public hearing on "Climate impact of different levels of warming" included “Global climate change impact on our cultural heritage”²⁰

The threat of *climate change to cultural heritage* is not yet included in the latest IPCC report.²¹

Landscape is clearly referred to in the European Treaty demonstrating the importance of public

November 2006 (2006/C 297/01).

¹³ http://ec.europa.eu/information_society/eeurope/i2010/index_en.htm

¹⁴ http://ec.europa.eu/information_society/activities/digital_libraries/index_en.htm

¹⁵ Commission's communication Europe 2020: A strategy for smart, sustainable and inclusive growth http://ec.europa.eu/eu2020/index_en.htm

¹⁶ London Declaration, <https://www.ucl.ac.uk/sustainableheritage/conference-proceedings>

¹⁷ Resolution of the Council of 16 November 2007 on a European Agenda for Culture - 207/C 287/01.

¹⁸ UNESCO Policy document on the impacts of climate change on World Heritage Properties; *World Heritage Centre*, CLT-2008/WS/6, Paris, 32 p.. <http://whc.unesco.org/en/climatechange/>

¹⁹ Council of Europe, Vulnerability of cultural heritage to climate change, Report AP/CAT (2008) 44 <http://www.coe.int/t/dg4/majorhazards/ressources/Apcat2008>

²⁰ CLIMM Background documents public hearing 10 September 2007:

http://www.europarl.europa.eu/meetdocs/2004_2009/organes/clim

²¹ IPCC Fourth Assessment Report (2007)

interest in the cultural, ecological, environmental and social fields, and constituting a resource favorable to economic activity and contributing to job creation through the protection, management and planning of cultural heritage. Landscape contributes to the formation of local cultures and it is *the framework of European natural and cultural heritage, contributing to human well-being and consolidating European identity.*²²

The *increased threats of natural disasters and extreme weather phenomena* caused by climate change, such as increased flooding, storm surges, droughts and forest fires, have received special attention at the recent G8 held in L'Aquila, Italy²³

A study on the *protection of cultural heritage from natural disasters* for the EU Parliament Policy Department revealed numerous shortcomings in protecting and safeguarding European heritage; it identified the need for further jointly planned research and further extends the idea of the "Barnier report"²⁴.

Studies on the *loss of cultural heritage* from fires were developed within the COST 17 Activity "Fire loss to historic buildings"²⁵.

The proposal for a directive of the European Parliament and of the Council on the *assessment and management of flood risks* of January 2006 *does not include cultural heritage protection*²⁶. However the *Directive of the European Parliament and of the Council on the assessment and management of flood risks* of October 2007 *does finally include cultural heritage as such*²⁷.

Some European Codes, for example Eurocode 8, namely Part 3 requiring repair and strengthening of existing buildings against seismic loads, or codes on improved *energy efficiency cannot be applied to historic buildings without appropriate and coordinated research*²⁸.

The Commission launched an EU green paper in 2005 on Energy Efficiency, especially in buildings and the Energy Efficiency Action Plan from 2006. Both intimated that in Europe 40% of energy use is consumed in buildings, more than by industry or transport. Regarding the sustainability challenge, the "Energy-efficient Buildings (EeB)" Public Private Partnership was launched at the end of 2008 as a contribution of research to the "European Economic Recovery Plan", with the objective to deliver, implement and optimise building and district concepts that have the technical, economic and societal potential to drastically decrease the energy consumption and reduce CO2 emission due to existing and new buildings at the overall scale of the European Union. The Multi-Annual Roadmap 2011-2013 of EeB contains other issues related to the improvement of energy efficiency of Cultural Heritage buildings at district (like city centres) level²⁹. This JPI aims also at assessing the *potential of energy saving in historic buildings, archaeological areas, museums, library and archives, etc.*

Over 80% of European buildings are over 50 years old; they need to be adapted sustainably (i) to a climate undergoing change, and (ii) for uses that are more sophisticated for present and future living than was acceptable in the past. It is vital to recognize the lessons that historic buildings can provide to new construction, because historic buildings were designed to work with the climate, rather than resist it. Appropriately engineered solutions are required to adapt historic buildings to

²² European Landscape Convention (preamble) - European Treaty Series – Doc. No. 176

²³ Responsible leadership for a sustainable future, Document G8, L'Aquila, 2009

²⁴ EP, European Parliament 2007b. Protecting the Cultural Heritage from Natural Disasters, Brussels, by M. Drdácý et. al. (<http://www.europarl.europa.eu/activities/committees>)

²⁵ <http://www.heritagefire.net>

²⁶ Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks – <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:288:0027:0034:EN:PDF>

²⁷ Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks

²⁸ www.eurocode-resources.com/eurocode-8-en-a14.html

²⁹ <http://www.e2b-ei.eu/documents/EeB%20PPP%20Multiannual%20Roadmap%2018%20jan%202010%20last.pdf>

the problems they encounter with a changing climate, including more frequent moisture penetration, through higher ground water and increased rainfall, or longer dry periods that can lead to subsidence. To give one example, there are 25 million structures in the UK, 6% of which are historic buildings. 55% of all construction in the UK is connected to refurbishment, repair, maintenance and improvement of existing buildings and within 30 years, 92% of all constructions ever to be built in the UK will have been built.³⁰

The aim of *improved energy efficiency* has been set out in earlier existing legal instruments. Among the main Community legislation for the sector are the Boiler Directive (92/42/EEC), the Construction Products Directive (89/106/EEC) and the buildings provisions in the SAVE Directive (93/76/EEC). The *Directive on the energy performance of buildings* in force since January 2003 builds on those measures with the aim to provide an ambitious step forward to increase the energy performance of public, commercial and private buildings in all Member States.

The EU Heads of State and Government set a series of demanding climate and energy targets to be met by 2020 collectively known as the 20-20-20 targets.³¹ The Europe 2020 Strategy has put more sustainable economic growth at the heart of the vision for the future, creating new jobs and boosting energy security. The Commission will now undertake work to outline a pathway for the EU's transition to a low carbon economy by 2050. It will also strengthen resilience to climate risks and to increase our capacity for disaster prevention and response.

The "Agenda for a sustainable and competitive European tourism" approved by the European Commission in October 2007 outlines the future steps for promoting the sustainability of European tourism and further contributes to the implementation of the renewed Lisbon Strategy for Growth and Jobs and of the renewed Sustainable Development Strategy. It builds on the recommendations of the Tourism Sustainability Group, which were issued in February 2007. Action for more sustainable European tourism includes *conserving and giving value to cultural heritage*³².

Tourism is particularly important when it comes to offering job opportunities to young people, who represent twice as much of the labour force in tourism as in the rest of the economy. *Employment growth in the tourism sector has been significantly higher than in the rest of the economy in recent years*, making the sector a significant contributor to the Lisbon objective to create more and better jobs. Also the potential of Information and Communication Technologies can boost the development of new and innovative services for cultural applications in the field of tourism (e.g. through mobile applications).

The impacts or other effects on historic cities related to mass tourism have been discussed at numerous international conferences or workshops organized by the Organization of World Heritage Cities (Evora 1997), by the European Commission (EC Conferences in Bologna 1989, Strasbourg 2000, Krakow 2002, Prague 2006), by the Council of Europe (Riga 1999) and by relevant ICOMOS scientific committees. EC research projects were funded including IMPACT, PICTURE, AMECP, MIMIC, LiDo, VIDRIO, AERP (Assessment of Environmental Risk Related to unsound use of Technologies and Mass Tourism). These studies showed problems related to tourism as a source of potential or real risk on the one hand and benefits to cultural heritage on the other. There is a lack of reliable data concerning impact and risk generated by large numbers of visitors which are clearly linked to tourism.

Cultural heritage are targets of mindless vandalism and extremist actions. The former is represented mainly by graffiti as well as by the quest for souvenir (i.e. the desire to transport a particle or even a part of a monument home). In recent years a very specific phenomenon has

³⁰ UKCIP- Costing the Impact of Climate Change in the UK: a Heritage Case Study, 2004

³¹ 20 20 by 2020. Europe's climate change opportunity Brussels, 23.1.2008 COM(2008) 30 final

³² Action for More Sustainable European Tourism, Report of the Tourism Sustainability Group, February 2007

intensified: politically driven destruction with the aim of erasing community identity by irreversible damage to cultural heritage³³ such as the destruction of libraries during and after the Balkan wars of the 1990s.

The preservation of cultural heritage links materials and their physical condition (tangible) to their cultural significance and meaning (intangible), helping to improve quality of life. A Council of Europe's cultural event Art and Climate Change was aimed at encouraging citizens to reflect on the meaning to their lives of climate change through artistic expression³⁴ and the European Heritage Network HEREIN Forum³⁵ that brings together government departments responsible for cultural heritage under the Council of Europe launched a three month discussion on Cultural Heritage and Climate Change which had 380 visitors during that time.

The Salzburg Global Seminar on *Connecting to the World's Collections: Making the Case for the Conservation and Preservation of our Cultural Heritage*, with representatives of 32 nations around the world, produced a declaration acknowledging that “although we have made tremendous gains in the cultural heritage sector in education, facilities, new technologies, and partnerships, *our global cultural heritage is threatened by continuing deterioration and loss resulting from a shortage of trained conservation practitioners, natural and man-made emergencies and environmental risks, including climate change,*” and recommending “governments,..... to work together to strengthen the investment in research, networking, educational opportunities, and the exchange of knowledge and resources globally”.³⁶

Preservation is also a relevant challenge as to cultural heritage in digital formats. The risk of loss connected to the rapid evolution of technologies as well as the lack of awareness in this matter have been recalled several times by many EC official documents whereas “*this digital environment [...] is essential to guarantee access for all to the European cultural heritage and to ensure that heritage is preserved for the generations to come and that it forms part of our collective memory*”³⁷.

³³ M. Drdácý and T. Drdácý Impact of tourism on Historic materials, structures and the environment: a critical review. In Heritage, Weathering and Conservation (Ed. R. Fort, M. Alvarez de Buergo, M. Gomez-Heras and C. Varquez-Calvo) Taylor and Francis Group, London, 2006 (ISBN 0 415 412722 2)

³⁴ Council of Europe, Culture, Heritage and Nature, *Cultural Event of the Council of Europe: Art and Climate Change*, 29th September 2009 http://www.coe.int/t/dg4/cultureheritage/culture/events/artclimat_EN.asp

³⁵ Council of Europe, European Heritage Network HEREIN Forum, *Cultural Heritage and Climate Change*, November 2009-January 2010 http://www.coe.int/t/dg4/cultureheritage/heritage/Herein/Default_en.asp

³⁶ Salzburg Declaration on the Conservation and Preservation of Cultural Heritage, 31 October 2009, Salzburg, Austria

³⁷ European Parliament resolution of 27 September 2007 on i2010: towards a European digital library (2006/2040(INI) <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT%20TA%20P6-TA-2007-0416%200%20DOC%20XML%20V0//EN>.

2.2. State of Play

1.2.1. Actions at Member States and Associated Countries level

As a result of the ERA-NET 'NET-HERITAGE'³⁸ project an overview of existing research programmes relating to cultural heritage in the EU and associated countries³⁹ is being obtained.

Some 41 funding mechanisms have been reported by "NET-HERITAGE", and 13 key research programmes in 10 countries (BG, DE, FR, IT, MT, PL, RO, SI, ES and UK) have been identified. Three of those focus mainly on cultural heritage (BG, FR, UK) and seven include the topic in wider research programmes (DE, IT, MT, PL, RO, SI and ES).

Among the dedicated programmes, the focus varies between analysis, testing, conservation and restoration to deal with the challenges of ageing, environmental conditions and global change.

There are more similarities than differences in the management of these programmes. Most of them organise open calls on a regular basis and six programmes do so annually. Evaluation procedures rely in almost all cases on independent peer review and steering committees having the final say.

Scientific excellence is always considered as the main evaluation criterion. Application procedures are standardised and formalised. It is worth noting that in most cases applications have to be made also in English for external evaluation purposes. Control procedures in respect of ongoing projects are also quite similar, involving periodic and final reports.

Some other countries not involved in the 'NET-HERITAGE' project also have programmes where cultural heritage research is mentioned or embedded in broader programmes (AT, CY, CZ, DK, EL, LT, NL)

Information on the state of research in Member States is, however, still fragmented and non-homogeneous. It can nevertheless be estimated that overall research funding for the conservation of tangible cultural heritage ranges between EUR 100 million and EUR 150 million per year, but it is not yet possible to estimate the funds dedicated to other aspects of research in this field.

A very short description of the main programmes and research actors in the Member States and of FP7 Associated Countries for which information is available is reported in ANNEX 2 and ANNEX 3.

1.2.2. Actions at European level

Cultural heritage research is present in European Framework Programmes since 1986, with a particular emphasis on preservation research. A peak of activities was reached during the 5th Framework Programme when the Key Action "The City of Tomorrow and Cultural Heritage" was set-up. In parallel, other research activities have been carried out on the digitisation of Cultural Heritage, through the ICT programmes, and on research infrastructures.

Within the 7th Framework Programme following research activities are prioritised:

- Environment (including climate change) theme: research on preservation, impact of pollution, impact of climate change, advanced diagnostic and conservation technologies;
- Social Sciences and Humanities theme exploring European identity, diversities and commonalities;
- ICT research programmes related to digitisation of libraries, archives and museum collections and to the use of ICT technologies for cultural tourism,

³⁸ ERA-NET project NET-HERITAGE 'European network on research programme applied to the protection of tangible Cultural Heritage' www.netheritage.eu

³⁹ Countries participating in 'NET-HERITAGE': BE, BG, FR, DE, EL, IS, IT, LT, MT, PL, RO, SI, ES, UK.

- Research Infrastructures developing research on artwork materials and their deterioration and optimising the use of infrastructures through a coordinated program of transnational access, joint research and networking activities.

Moreover different ERA-NETS are especially dedicated to cultural heritage issues:

- ensuring an overview of cultural heritage research throughout Europe ("NET-HERITAGE" project);
- undertaking research on cultural heritage and memory ("HERA" project);
- developing sustainable practices for tourism ("ERNEST" project);
- developing and strengthening coordination in the sector of digital heritage ("DC-NET" project).

The average investment in the last 7 years (FP6 and FP7) was about EUR 35 million per year, representing a very relevant percentage of the project budget available as a whole in Europe (EC+Member States) (for more details see ANNEX 2).

Through DG AIDCO, the 'Euromed Heritage'⁴⁰ Regional Programme has since 1998 committed a total of EUR 57 million to fund partnerships between conservation experts and heritage institutions from Mediterranean countries. In line with the 'Strategy for the Development of Euro-Mediterranean Heritage: priorities from Mediterranean Countries (2007-2013)⁴¹, and funded through the European Neighbourhood Partnership Instrument (ENPI), Euromed Heritage 4 (2008-2012) aims to make it easier for local populations to learn about their own national and regional cultural heritage and to benefit from it.

International cooperation for the protection and conservation of cultural heritage, with a particular focus on the Mediterranean region, was supported within FP5 and FP6, and is a mainstream activity in FP7.

- Actions at intergovernmental level

COST and EUREKA are intergovernmental programmes that actively contribute to networking, research and innovation in the cultural field.

Within COST, the Cultural Heritage Interest Group currently supports various networks, such as 'EnviArt'⁴² and 'WoodCultHer'⁴³, which focus on the environmental protection of tangible cultural heritage.

In 2006 the new EUREKA umbrella E!3790 EurekaBuild was launched on the initiative of the European Construction Technology Platform (ECTP) as follow-up to EURO CARE2000; it also promotes projects related to cultural heritage in cooperation with the Focus Area Cultural Heritage (FACH) of ECTP⁴⁴.

The benefit of better coordination

It is already apparent from the "NET-HERITAGE" project that European research in the field – and the connected educational/training activities – is very fragmented, and will benefit greatly from more widespread coordination.

⁴⁰ <http://www.euromedheritage.net/index.cfm?lng=fr>

⁴¹ <http://www.euromedheritage.net/doc/Culture%20strategy%202007%20-%202013.pdf>

⁴² D42 'Chemical Interactions between cultural Artefacts and Indoor Environment'
www.costd42.org

⁴³ IE 0601 'Wood Science for Conservation of Cultural Heritage' www.WoodCultHer.org

⁴⁴ Strategic Research Agenda of the ECTP/FACH 'Cultural Heritage - Vision 2030', February 2009 www.ectp.org

There also appears to be considerable overlap of the financial resources used by Member States. Joint Programming will therefore help to streamline the national programmes addressed by the JPI in order to reduce overlaps and to exploit synergies.

The focus of actions at European level will thus be sharpened, addressing the research gaps and the key challenges that can be better tackled on a Europe-wide scale.

The preparatory stages of the JPI 'Cultural Heritage and Global Change: a new challenge for Europe' indicate that the scale and scope of its activity go well beyond what either the EU or Member States can achieve on their own.

The JPI will also foster mutually reinforcing alignments between research and other policies at European level. Such synergies will ensure that the impact of research in addressing societal challenges can be maximised.

3. The governance structure

For the JPI implementation the supporting Member States decided to adopt a governing structure with the following aims:

- activate the most suited combination of public research instruments, regional, national and/or European ones;
- monitor and evaluate the achievement of the objectives;
- report at the political level to member states and associated countries, the GPC and the CREST.

The following three-layered governance structure is proposed with a Governing Board (GB), an Executive Board (EB) and a number of Task Forces (TF) as core implementation bodies, as in the Figure reported at the end of the present document. Their work will be supported by a Coordination Structure (CS) and two other bodies the Scientific Committee (SC) and Advisory Board (AB).

The following documents will be produced:

Vision Document (VD) – The VD is the basic strategic document containing the policy context, the objectives, the state of the art and early indications of broad research priorities.

Strategic Research Agenda (SRA) – The SRA is the strategic document that, starting from the visions described in the VD, captures the state of the art, outlines the priority research areas to be developed, the objectives, the outcomes and desired impacts, the types of intervention and resources available by country and sector of intervention. The SRA is a tool for preparing the Action Programme (APr).

Action Programme (APr) - The APr is a programme designed to implement the SRA. The APr will be divided into lines of action in which specific projects submitted for funding can be allocated.

During the meeting of the Governing Board held in Rome on the 26 of March 2010 the Term of Reference in ANNEX 1 was approved.

ANNEX 1

Terms of Reference of the Management Structure for the Joint Programming Initiative on Cultural Heritage and Global Change: a new challenge for Europe

The Management Structure

Mandate

The management structure shall be invited to:

- activate the most suited combination of public research instruments, regional, national and/or European ones;
- monitor and evaluate the achievement of the objectives;
- report at the political level to member states and associated countries, the GPC and the CREST.

In order to tackle major societal challenges, reasonable continuity of the management structure shall be ensured.

The management structure shall have an initial lifespan of 5 years.

2. Management bodies – composition, tasks, interactions and document

The following three-layered governance structure is proposed with a Governing Board (GB), an Executive Board (EB) and a number of Task Forces (TF) as core implementation bodies, as in the Figure reported at the end of the present document. Their work will be supported by a Coordination Structure (CS) and two other bodies the Scientific Committee (SC) and Advisory Board (AB).

The following documents will be produced:

Vision Document (VD) – The VD is the basic strategic document containing the policy context, the objectives, the state of the art and early indications of broad research priorities.

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Action Programme (APr) - The APr is a programme designed to implement the SRA. The APr will be divided into lines of action in which specific projects submitted for funding can be allocated.

2.1 Governing Board (GB)

The Governing Board shall be responsible for the strategic orientation of this Joint Programming Initiative. It shall have overall responsibility for the operations and shall oversee the implementation of its activities.

The Governing Board shall in particular:

- Modify and approve the draft Vision Document - the Vision Document is the basis for the Strategic Research Agenda (SRA).
- Modify and approve the draft SRA, after consultation with AB (Advisory Board).
- Building up an “à la carte” program in which several countries in variable geometry could participate voluntarily and on the basis of their political and financial commitment.
- Report at the political level to participating states and inform at the European level the European Commission, GPC, CREST (ERAC) and other EU political bodies on the implementation of the JPI
- Assess applications of new members and decide or recommend changes in membership.
- Approve the initiatives to amend the Governing structure of the JPI.
- Adopt its rules of procedure.
- Meets normally once per year.

Membership

Any Member State and Associated Country participating in the present joint programming initiative shall be represented in the Governing Board (GB) by a maximum of two representatives (coming for instance from ministries, research organisation, funding bodies, research councils...) with a governmental mandate, nominated by the competent Ministry of the country. Each country can also nominate one deputy representative.

If not otherwise decided by the participating countries, in accordance with their internal rules, the members of the Governing Board shall be appointed for a term of 5 years.

One of these representatives shall act as the official spokesperson with voting rights (one vote only).

Any accession and changes of membership shall be addressed to the Governing Board

The GB is always open to new participants.

Admission of observers

A representative of European Commission shall attend the Governing Board meeting with an observer status.

A representative of European Union Presidency shall be invited to attend the Governing Board meeting with an observer status.

At least one member of the Coordination Structure shall attend the Governing Board and Executive Board meetings.

Based on the agenda, representatives may make suggestions to the Chair to invite experts no later than 10 working days prior to the meeting, which should be approved by the Chair.

The Governing Board may also invite standing experts to participate on a regular basis in discussions, not necessarily based on the particular agenda.

Observers and experts do not have a right to vote.

Chairmanship

The GB shall have a Chair and a Deputy Chair.

The Chair is the Coordinator. The Coordinator will be nominated by the GB members and for three years in order to ensure the necessary continuity and ownership on the decision making all along the life cycle of the initiative.

The Deputy chair shall be elected among the other GB members, for a period of six months.

The Deputy Chair shall automatically take the place of the Chair if the Chair is prevented from attending to his/her duties.

The terms of office of Chairs and Deputy Chair shall begin on the first day after their predecessors' terms of office.

If both the Chair and the Deputy Chair are absent or unable to attend a meeting, the meeting shall be chaired by the longest serving representative or, in the event of equal length service, by the oldest of the longest serving representative.

Quorum

To ensure the quality of the discussions and the involvement of the representatives of the participating countries, at least the representatives of 40% of the participating countries shall constitute the quorum necessary for the meeting to be valid. In the absence of the quorum, the Chair will search an alternative solution such as discussion on important matters followed by a written procedure or shall close the meeting and convene another one as soon as possible.

Voting

Each participating country shall have one vote in the Governing Board, irrespective of the number of its representatives/alternates.

Any vote shall be indivisible.

The Governing Board shall take its decisions as far as possible by consensus. However, in absence of consensus, decisions shall be taken by a simple majority of its members present and voting, on a proposal from the Chair. The absence of one or several members does not affect the result of the vote as long as the quorum is respected.

Each decision adopted by the Governing Board shall be recorded. A statement of the views may be entered in the minutes along with the decision, if a member so requests.

Transmission of documents/ Minutes of meetings

The draft minutes, with the attendance list, and draft of the deliberation taken shall be forwarded to the representatives not later than 15 working days after the end of each meeting.

Comments and/or objections need to be forwarded to the Chair within 10 working days of receipt of the draft minutes, with copy to each representative.

If no comments or objections are communicated to the Chair within the given timeframe, the draft minutes are considered approved.

Once approved by the Governing Board, the minutes shall be signed by the Chair. The signed copy of the minutes shall be kept in the archives of the Governing Board.

The final text of the minutes shall be forwarded to representatives not later than one week after its approval.

2.2 Executive Board (EB)

The Executive Board shall be responsible for the JPI management and for the implementation of the decision approved by the GB. It is composed by one technical representative from each Member State and Associated Country and it is chaired by the Coordinator

The Executive Board shall in particular:

- draw up the Draft Vision Document and submit it to the GB for approval;
- draw up the Draft SRA, with the support of the Scientific Committee (SC), and submits it to the GB for approval;
- draw up, with the support of the Scientific Committee (SC), and approve the Action Programme (APr). The EB will consult the AB and will present the APr to GB;
- be responsible for implementing the SRA and the Action Programme;
- be responsible for monitoring the Action Programme;
- ensure proper implementation of the GB decisions and monitor the follow-up
- meet at least twice per year;
- EB will be structured into:
 - o A limited number Working Groups (working on horizontal issues, for example WG State of art, WG Topics, WG Dissemination, WG Countries participation rules, WG Monitoring, etc) during the phase of writing of SRA. Each Working Group will nominate a rapporteur and only the rapporteur will report to the GB.
 - o Task Forces (working on Research Areas for example TF Sustainable Mng CH; TF Natural and Man-Made impact on CH; TF Social , cultural, political and economic value on CH; etc...) are composed of EB members responsible of the different research areas, during the phase to implement the SRA and APr. Each TF will nominate a rapporteur and only the rapporteur will report to the GB.

2.3 Task Force (TF)

Each TF is composed of members of the EB and is responsible for:

- Drafting APr in its research area.
- Proposing updates of both SRA and APr.
- Monitoring the implementation of SRA and APr and reporting to the EB the progress achieved, highlighting immediately any deviation from the approved APr.

2.4 Advisory Board (AB)

The Advisory Board is composed by a group of selected representative from European and international bodies relevant to this JPI. It is chaired by the Coordination Structure.

The AB:

- Will advise the GB on strategic issues, on the effectiveness of the JPI initiative and contribute to integrating this JPI into the global context.
- Meets normally once per year.

2.5 Scientific Committee (SC)

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

Each Member State and Associated Country should provide a maximum of 6 candidates from its own country and 6 from abroad: 4 experts on tangible cultural heritage research, 4 experts on intangible cultural heritage research and 4 experts on basic scientific research.

The GB will select the 12 components of the SC among the candidates proposed by the Member States and Associated Countries, taking into account the scientific excellence of the candidates and the number of “nominations” received by each of them.

In order to ensure a certain degree of continuity, initially, 6 members shall be nominated for a period of 4 years and another 6 members for a period of 2 years. Afterwards any new SC member shall be nominated for a period of 2 years.

The Scientific Committee will support the EB in its activities giving scientific advices.

Chairmanship

The Chair of the Scientific Committee shall be elect by the Executive Board among the members of the Executive Board itself, for a term of 2 years, with the possibility of one reappointment.

Meetings

The Scientific Committee shall meet as necessary to fulfill the requirement of the Executive Board.

Quorum

To ensure the quality of the discussions and the involvement of the representatives of the participating countries, at least three members of the Scientific Committee from three different Member States and Associated States shall constitute the quorum necessary for the meeting to be valid.

In the absence of the quorum, the Chair will search an alternative solution such as discussion on important matters followed by a written procedure or shall close the meeting and convene another one as soon as possible.

2.6 Coordination Structure (CS)

- The Coordination Structure will be responsible for coordinating the activities among GB, EB and SC to implement a mutually accepted and realistic vision.
- The CS will also support GB, EB, SC and AB in their activities.
- The CS will be constituted by the Coordinator and the JPI Management Office for the necessary support for the day-to-day management.
- CS will keep contact with the European Commission.

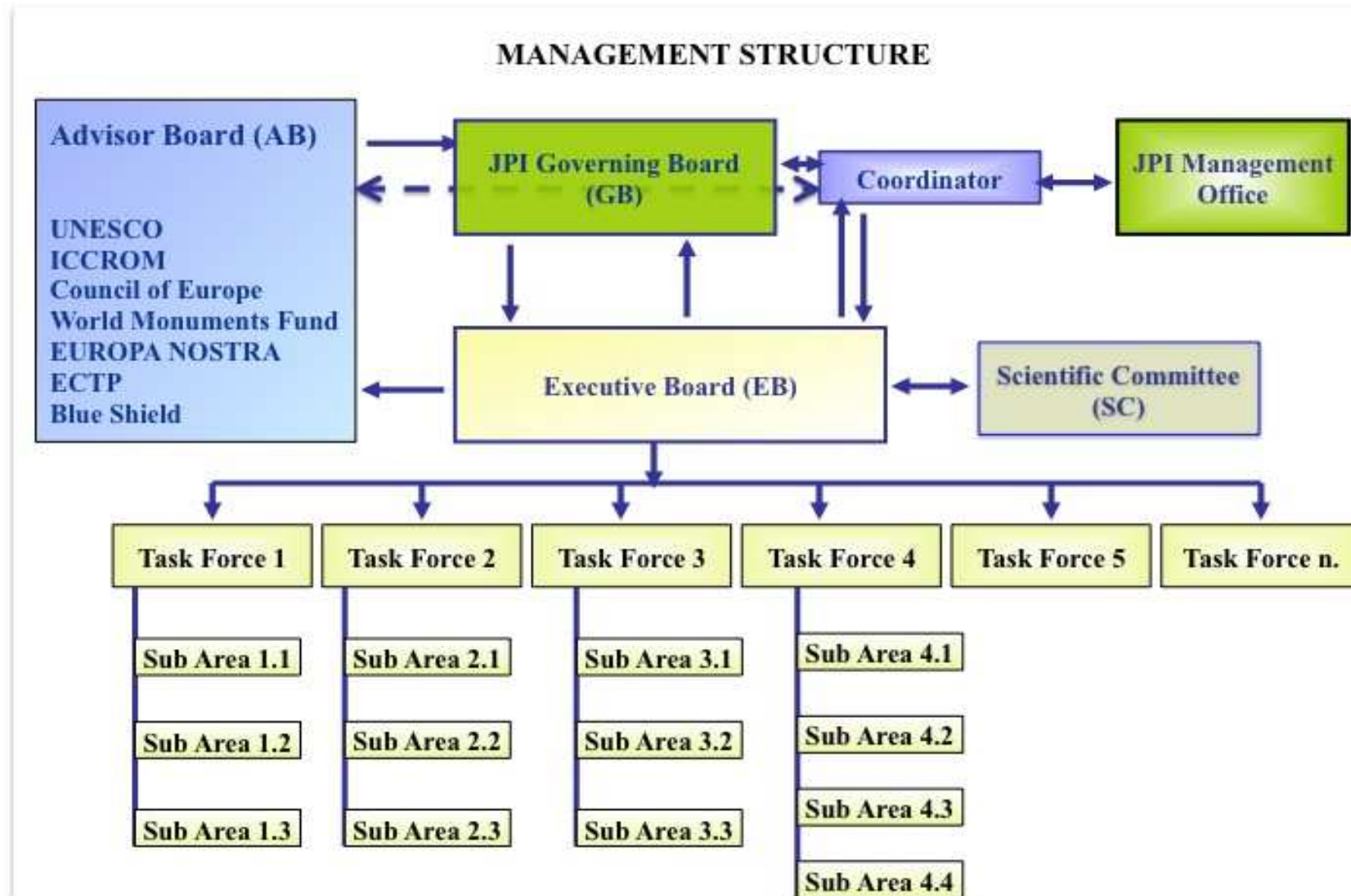
Miscellaneous provisions

Amendments

The Governing Board may approve amendments to the present Terms of References, by agreement of its members.

The present terms of reference shall be revised by decision of the Governing Board, at the request of at least one of its members.

Amendments to the present terms of reference shall enter into force as soon as they are adopted by the Governing Board.



ANNEX 2

Actions at Member States and Associated Countries level

Austria

Research on cultural heritage in Austria is financed mainly by public funds. The Austrian Federal Ministry for Education, Arts and Culture (BMUKK) is, inter alia, in charge of the museums as federal scientific institutions under public law, and of the Austrian Federal Office for the Protection of Monuments (Bundesdenkmalamt) as well as the Commission for Provenance Research. Furthermore, various other projects in the field of culture and cultural heritage receive funding and promotion. KulturKontakt Austria (KKA) is a non-profit organisation for cultural education, cultural dialogue and educational cooperation with Eastern and South Eastern Europe. On behalf of the Ministry of Education, Science and Culture, KKA makes important contributions to cultural dialogue and to the European integration of Eastern and South Eastern European countries.

The Austrian Federal Ministry of Science and Research (BMWF) finances most of the research in the field of cultural heritage via the Austrian universities (especially those with faculties of the humanities and cultural studies). All-embracing research in museums is currently funded via the strategic program for Muse-Forschung an Museen. The main part of the budget dedicated to basic research is passed on to the Austrian Science Fund (FWF), Austria's central funding organization for basic research. The ongoing Program for Arts-based Research (PEEK), for instance, seeks to promote both increased internationalization and networking between different branches of the arts. The Austrian Science Fund (FWF) is part of HERA ERA-Net (Humanities in ERA) on European level.

The Wiener Wissenschafts-, Forschungs- und Technologiefonds (Vienna Science and Technology Fund) is a non-profit organisation established to promote science and research in Vienna. Some of its calls are explicitly directed at promoting promising young scientists. It comprises a series of regular competitive calls focusing on "Science-Art-Culture" (2008-2010).

Organisations involved in research on cultural heritage in the broadest sense: e.g., The Austrian Academy of Sciences (OeAW), Austrian Institute of Technology (AIT), Joanneum Research, Salzburg Research, Austrian universities, Austrian museums (particularly scientific federal institutions under public law) and the Austrian Commission for UNESCO. In addition to these, various regional funds, initiatives and activities are currently active, partially in conjunction with European funding, e.g., LEADER+, Culture Programme 2007-2013.

Overall funding dedicated to research on Cultural Heritage in Austria amounts to approximately € 300-500 K per year

Belgium

The Belgian Federal Science Policy (BFSP) is the federal administration responsible for the preparation and implementation of research programmes in several fields (sustainable development, information society, space technology, fundamental research etc.) aiming to develop a permanent knowledge resource within scientific and technical spheres at the service of the Belgian federal authority (ca 65 % of our budget). The BFSP manages an annual budget of 520 million Euro and is also responsible for 13 Federal Scientific and Cultural Institutions, which receive from the BFSP an annual budget of 100 MEuro and have an important contribution in the field of Belgium Cultural Heritage research. The BFSP provides also a budget line for collaborating research activities (including cultural heritage) in the framework of bilateral agreements for economic, industrial, scientific and technological cooperation. Notwithstanding cultural heritage is also a regional competence, including 6 governments responsible for Cultural Heritage, the PPS Science Policy, together with its scientific and cultural institutions, is the only government body in Belgium that has Multi-annual research programmes where the item of cultural heritage is integrated, and that stimulates public and private institutions of the different regions to work together on this item, as well as bringing scientists of different disciplines together (e.g. in the Multi-annual information

society support programme: Duration of the research: 2001 - 2007 ; Budget: 17 MEUR; in the Interuniversity attraction poles phase VI (2007-2011). The budget is 143 MEuro; in the Belgian Coordinated Collections of Micro-organisms, Duration of the research: 2004 - 2008 ; Budget: 17 MEuro.

Bulgaria

In Bulgaria an important number of national research institutions are working in the field of cultural heritage research. The National Science Fund (NSF) at the Ministry of Education and Science is the main research-funding organization that supports both fundamental and applied research. Through its specialized schemes, the NSF strongly supports the development of research activities in the field of cultural heritage. More specifically, since 2006 the NSF supports cultural heritage research via the following portfolio of instruments: i) Targeted research programme for preservation, restoration and socialization of cultural sites of national significance, where 16 projects were supported at the amount of 1,5 MEuro. ii) Development of national research infrastructure, where in the period 2006-2009 about 10 projects in the area of cultural heritage infrastructure were supported amounting to approx. 2 MEuro. iii) Thematic research project competition where one of the priorities is preservation of cultural heritage; iv) Co-funding of European research programmes, where matching funds are provided for successful research teams in Framework programme 7th and COST programme. Other instrument that supports cultural heritage is the Operational programme “Regional development” under the structural Funds: Measure 2.1: Protection of environment, nature and historical and cultural heritage. Measure 2.2: Capacity building for sustainable use of natural resources, cultural and historical heritage.

Croatia

The Ministry of Culture of the Republic of Croatia overall role is to help make Croatia culture visible and accessible and it provides and manages cultural resources on behalf of government for the benefit of all Croatians and takes care of cultural heritage. In addition Ministry of Culture of the Republic of Croatia carries out its activities in protection of cultural heritage through two organization units: 1) The Directorate for the Protection of Cultural Heritage - carries out administrative and expert tasks of protecting and preserving cultural goods, inscribed in the Register of Cultural Goods as stipulated in the Law on the Protection and Preservation of Cultural Goods. 2) The Directorate for Archive Activities and Archaeological Heritage of the Ministry of Culture of the Republic of Croatia - carries out activities on the protection and preservation of archival and archaeological material as cultural goods within the framework of its competence and in accordance with the law. Moreover, activities on the restoration, conservation and reconstruction of cultural goods are carried out by the Croatian Restoration Institute as a public institution in the ownership of the Republic of Croatia. The Institute is financed from the state and cooperates directly with the conservation departments of the Directorate for the Protection of Cultural Heritage of the Ministry of Culture of the Republic of Croatia.

Cyprus

Governmental institutions in charge of Cultural Heritage research in Cyprus include the Department of Antiquities (Τμήμα Αρχαιοτήτων), a department of the Ministry of Communication and Work, with competence on archaeological sites and museums, monuments and historical buildings; and the University of Cyprus, Archaeological Research Unit. Non-governmental institutions also play a very important role, in particular the Church of Cyprus, and private research centers. Apart from core funding provided by the above organizations for their institutional goals, including but not limited to research, the main source of research funding is the Research Promotion Foundation (Ιδρυμα Προώθησης Έρευνας, ΙΠΕ), an independent organisation governed by a Board of Directors appointed by the Council of Ministers to promote research through competitive calls, with a yearly allocation of government funds. RPF programmes usually do not distinguish Cultural Heritage from

other Humanities and, in some cases, are not discipline-related, so the amount of budget addressing CH issues may only be evaluated a-posteriori by examining funded projects. CH research benefits also of private funding by cultural foundations – among others, the Leventis Foundation – and of the outcomes of the activity of international teams operating in Cyprus.

Czech Republic

Czech Republic has a significant history of participation in the joint EU research and concerting projects in the field of cultural heritage (19 projects within the recent Framework Programmes). The Grant Agency of the Czech Republic supports with about 0,4 MEUR yearly in average about 6-7 projects of basic research into cultural heritage themes. The Ministry of Culture of the Czech Republic has prepared a new programme of applied research specifically focused on the National and Cultural Identity (NAKI) which was officially launched on May 5, 2010 and calls for projects. The programme contains four main thematic priorities with several sub-themes corresponding to the proposed JPI themes. The overall budget for the exclusively cultural heritage research NAKI programme reaches 12,5 MEUR/year. Czech Republic further contributed to the FP joint projects and has been supporting cultural heritage research through institutional budgets in the National Heritage Institute, the Academy of Sciences, universities, various museums and specific research institutes.

Denmark

The major sources of funding of research are governmental institutions in charge of cultural heritage research in Denmark and other existing structures for implementation of programmes. These include research at museums, archives and libraries as well as higher education institution within the Ministry of Culture. The funding covers 2009 programmes dedicated to research in humanities and cultural heritage and conservation research. All figures should only be considered as indicative estimates. In some cases figures for conservation of cultural heritage were not available or cannot be identified in the short time available. Moreover, research funds covering humanities in all its aspects of the Danish universities and research institutions outside the Ministry of Culture are not included. The total estimated funds for humanities were 36,000.000 Euro, for cultural heritage 8,000.000 Euro and 1,300.000 for conservation.

Finland

In Finland the Academy of Finland is the main funding organisation of basic research. Therefore most of the funding for the cultural heritage research is channelled through the Academy. As examples of research relevant to the current proposal on the Joint Programming Initiative of the Cultural Heritage and Global Change: a new challenge for Europe, The Department of Architecture of the University of Oulu does research on planning and urban design, urban environment and building renovation. Individual researchers in other universities are also specialized in urban and suburban environments, housing, urban architecture, church history and medieval churches. The National Board of Antiquities preserves Finland's material cultural heritage: collects, studies and distributes knowledge of it. It is a cultural and research institution charged with the protection of archaeological sites, built heritage, cultural-historically valuable environments and cultural property, in collaboration with government authorities and museums. The Board can conduct a limited amount of scientific research and is mainly in charge of collections and archives. The National Board of Antiquities of Finland is attached to the Ministry of Education and receives its core funding from the Ministry.

France

In France, the national research policy is organised on three levels in which cultural heritage is inscribed.

- The strategic level where policy positions are defined by the Ministry of Higher Education and Research (MESR) linked to other ministries in charge of research activities within their sector. These positions are officially laid out in a national strategy of research and innovation (2009). The French Ministry of Culture and Communication (MCC) is in charge of applying the state policy to cultural heritage, particularly in terms of its protection, preservation and development. Within this context, the MCC backs a policy of research, transmission of knowledge and training linked to the MESR. The Ministries for Ecology, Sustainable Development and Sea (MEEDDM) also fosters research actions mainly dedicated to the impact of environment on historical building.

- The level responsible for research programmes implementation with funding agencies, research organisations, departments and institutions of the MCC, and some other ministries as funding actors (National Research Agency, major CNRS, CEA, ...).

- The application of research depending mainly upon organisms of public national research (CNRS...) and universities, under the responsibility of the MESR. The MCC has its own laboratories which act in partnership with these different institutions.

The French public research funded within the framework of the State budget (24.2 billion Euro of payment credits in 2009, including research and higher education) supports both operating costs for public research teams and laboratories, and calls for incentive projects (particularly the National Research Agency – budget 872 M€ in 2009). This sum includes credits for cultural research: budgetary programme 186 “cultural and scientific culture research” (47 M€ in 2009) – they are assigned to the MCC by the Ministry of Higher Education and Research.

Germany

In Germany the responsibility for culture and cultural affairs lies within the realm of the *Bundesländer*. Germany has no national research programme for CH. The only programme still operational for this area of research is located since 1991 at the German Federal Environmental Foundation (DBU). In 2008, the *Fraunhofer-Gesellschaft*, the *Leibniz Gemeinschaft* and the *Stiftung Preussischer Kulturbesitz* signed a Memorandum of Understanding to build up a Research Alliance for the Preservation of CH in Germany which serves as the German platform for research to protect cultural heritage. The research alliance consists of 15 Fraunhofer Institutes, 7 research museums of the Leibniz Gemeinschaft and of 22 state museums of Berlin including the five main institutions of the foundation plus further associated partners which are currently the Bundesanstalt für Materialprüfung (BAM) Berlin, Materialprüfanstalt (MPA) Stuttgart and the University of Bamberg plus several restoration/conservation companies.

Greece

The Hellenic Ministry of Culture and Tourism is the main governmental instrument for the protection of cultural heritage in Greece. It is in charge of the organization, supervision and funding of excavations, restorations, conservation, works of infrastructure, protection of cultural goods from the illicit traffic, educative programs, publications and exhibitions. The Hellenic Ministry of Culture and Tourism comprises, among others, the following research services: 1) Under the General Directorate of Antiquities and Cultural Heritage are 1.1. The Directorate for Documentation and Protection of Cultural Goods 1.2. The Department of Applied Research within the Directorate of Conservation of Ancient & Modern Monuments, 1.3. The Department of Physical and Chemical Research within the National Archaeological Museum, 1.4. The Center for Stone. 2) Under the General Directorate of Restoration, Museums and Technical Works: The Directorate of Restoration of Ancient Monuments. The research interests of the Ministry are: i) Development of Non Destructive, Mobile, Diagnostic equipment, ii) Scientific documentation, iii) Active Conservation, iv) Preventative Conservation (natural hazard risk map etc), v) Development of Standards in procedures and materials, vi) Monitoring of the Environment and of changes in cultural heritage.

Iceland

The *Architectural Heritage Fund*, whose role is to provide grants for maintenance and renovation of listed buildings and structures, and of other buildings deemed by the Architectural Heritage Board to be of historical/cultural value had a budget of just over 255 million ISK in 2008. The Archaeological fund which provides grants for archaeological research has a budget of 25 million ISK, but the Althingi, or Parliament in Iceland has also provided direct grants to archaeological research this amount varies from year to year.

Rannís, the Icelandic Centre for Research reports to the Ministry of Education, Science and Culture with the purpose of providing professional assistance in the preparation and implementation of science and technology policy in Iceland. One of its main functions is the operation of the financial support system for research and technological development. Rannís serves the Icelandic science community across all areas of science and the humanities. Rannís operates on an annual budget of about 130 million ÍSK, of which about half comes from the direct budget and the rest from service fees and contracts. The grants funds operated by Rannís have following annual budge of around 1000 million ISK is divided by the Research Fund, the Fund for Research Equipment, the Technology Development Fund, the Graduate Research Fund and the Fund for Non-fiction Writers.

Ireland

The Department (Ministry) of the Environment, Heritage and Local Government is responsible for providing an enhanced policy and legislative framework to promote increased public awareness and appreciation of the national built heritage. The Office of Public Works is responsible for the day-to-day conservation and presentation of national monuments and historic properties in State care. The Heritage Council proposes policies and priorities for the identification, protection, preservation, and enhancement of the national heritage. The Department of the Environment, Heritage and Local Government commissioned research by ICOMOS- Ireland on Ireland's world heritage sites and provides funding to the Heritage Council for its activities. The Department provides funding for the INSTAR (Irish National Strategic Archaeological Research) Programme, which is administered by the Heritage Council. This programme is dedicated to the refining and dissemination of archaeological research information. The majority of Office of Public Works conservation projects would include a research phase which would normally cover both material and method analysis.

Israel

Ministry in charge of the culture heritage is the Ministry of Culture, but mainly as a backing for the real involved in the topic- the Israel Antiquities Authority [IAA]. There are some other institutes/offices involved in the subject as the Council for the Historic Buildings and Sites [half-volunteer], the Israel UNESCO Branch, the Planning Directory in the Ministry of Interior and Municipalities of Tel-Aviv and Jerusalem – all of them secondary in the Conservation of Built Cultural Heritage.

Returning to the Israel Antiquities Authority, it has today two main directories: the Archeological Directory and the Conservation Directory. Today it has two main parts: A)the Project Conservation Implementation Unit, including; Design, implementation and Art Sections; B) the Legal Unit, including: Legal, Research, Information and Inspection Sections.

Italy

The *Ministry of Education, University and Research (MIUR)*, which includes the General Directorate for Internationalization of Research, acts as a controller, among the others, of the *National Research Council (CNR)*, of which the *Dpt. of Cultural Heritage (DPC)* is mainly focused on science and technology applied to the protection of tangible and intangible cultural heritage. MIUR, which funds research projects through FIRST, FAR, PRIN, FAS, FIRB, PON), is preparing with the *Ministry for Cultural Heritage and Activities (MiBAC)* a *National Research Programme (PNR) 2010-2012* and in the period 2005-2007 has allocated 15 M€/year in cultural heritage research, as planned for the 2010. The CNR, only in DPC, managed in 2009 a budget of 11.7 M€.

MiBAC institutional mission is preservation and enhancement of cultural heritage and landscape. Research is carried out by its research institutes: *ISCR, OPD, ICPAL, ICCD and ICCU*. MiBAC invested about 97M€ in 2010 in research programs and activities, including preservation, restoration, online accessibility and enhancement of cultural heritage. Part of the revenues from Italian Lottery (Lotto) -around 500 M€ for 2006/2009- is assigned to MiBAC, that takes part at the realization of technological districts.

The Ministry for Public Administration and Innovation allocated in the framework of the plan e-gov 2012 M€ 3,2 to MiBAC for the implementation of the online accessibility and production of digital cultural content.

The *Ministry of Economic Development, MSE*, has within its organisation a General Directorate for Production Development and Competition and acts as a controller of the *Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)*, which has allocated on projects and technologies for cultural heritage more than 5 M€ from 2006 to 2009.

Latvia

Cultural values that are eligible for inscription in the list of state protected cultural monuments are subjected to state inventory, irrespective of their ownership, possession or use. The state inventory of monuments includes their exploration and survey, determination of their historical, scientific, artistic, architectural, ethnographic or other cultural value, their registration, investigation, and preparation of inventory documentation.

The State Inspection for Heritage Protection performs the inventory, examination and research, preparation of draft cultural monument lists and development of inscription documents, as well as ensuring research of cultural monuments. Research materials are stored in the Monument Documentation Centre of the State Inspection for Heritage Protection.

In 2000, the Ministry of Culture in cooperation with the State Inspection for Heritage Protection elaborated the under-programme “Cultural Heritage” of the National programme “Culture”, including one article about the necessity to encourage the cultural heritage scientific research.

Lithuania

Lithuanian research policy is conducted by the Ministry of Education and Science (MES), which is also the biggest government source of research funds. The Research Council (RC) of Lithuania contributes to the formation of science policy and finances national research programmes. The RC closely cooperates with the Ministry of Culture and Department of Cultural Heritage of the Ministry. Main research activities are concentrated in the state institutes and universities, e.g. Lithuanian Institute of Cultural Research (tangible and intangible heritage), Institute of Literature and Folklore (intangible heritage).

Malta

Malta's main strategic document concerning research and innovation policy is the ‘National Strategic Plan for Research and Innovation 2007-2010’ (NSPRI), championed by the Malta Council for Science and Technology (MCST) and working in close collaboration with various other entities. MCST also manages the R&I Programme, which funds applied research projects in Malta's four priority research areas, and promotes industry-academia collaboration. The ‘Cultural Heritage Fund’ is another component of the local cultural heritage research system. This body corporate receives and manages monies paid to it under the provisions of the Cultural Heritage Act of 2002, as well as other assets that may be donated by non-governmental sources. The Fund is administered by the Committee of Guarantee, and the monies in the Fund may be used solely for the purpose of research, conservation or restoration of cultural heritage.

Research on tangible cultural heritage, especially the built environment, has been supported over many years by the University of Malta. This has included long-term research on traditional building materials, and their deterioration and conservation, also in collaboration with foreign institutions,

and has resulted in numerous conference papers and publications over the years. Heritage Malta, the national agency for museums, conservation practice and cultural heritage, has also been very active in research related to this field, in particular through its participation in a number of EU programmes and collaboration with various foreign universities and institutes.

Norway

The Ministry of the Environment finances most of the research in the field of cultural heritage. The funding is passed on to the The Research Council of Norway (Forskingsret) which, based on applications, distributes the funds to Research & Development institutions. These institutions are basically Universities and free standing research institutes.

In 2008 6,8 mill. NOK (app. 0,9M€) were dedicated to research in the cultural heritage field within the programme area Norwegian environmental research towards 2015.

The funding from the Ministry is primarily intended for applied research; i.e. research that has practical use functions for the cultural heritage management. Riksantikvaren, Directorate for Cultural Heritage communicate their research needs and priorities to the Ministry, which in turn communicate their priorities to the Research Council of Norway.

Poland

Two governmental bodies are responsible for funding research supporting the preservation of cultural heritage. The Ministry of Culture and National Heritage is the main governmental body responsible for cultural politics in Poland. One of the major responsibilities of the Ministry is the care for the preservation and conservation of national heritage. Among others the Ministry is financing the Faculties of Conservation-Restoration at Academies of Fine Arts in Warsaw and Cracow and the most important national museums, which carry out broad research tasks in the field of heritage science. The Ministry also finances the National Centre of Investigation and Documentation of Cultural Heritage and the Centre for the Protection of Public Collections in Warsaw. On the other hand, the Ministry of Science and Higher Education is the major central governmental source of funds for research in general, as well as N.Copernici University in conservation training in Torun. It covers around 60% **all** funds for R&D spent in Poland every year. Cultural heritage research is financed through core funding for statutory R&D activities of various research organizations and through individual research projects, applied for within open, peer reviewed competitions held bi-annually.

In 2008, the government established the National Programme of Scientific Research and Development, as a principal tool of the state policy in the area of research and innovation. The programme identified priority areas, research objectives and programmes for the coming 5 years.

The National Programme comprises research programmes in the cultural heritage sector in: priority area 1 “Society in conditions of a secure, accelerated and sustainable socio-economic development”; priority area 3 “Energy and infrastructure”.

The Sejm(Polish Parliament) passed a law reforming Polish science. On March 18, the Sejm adopted a package of six government acts reforming Polish science. The acts provide establishing a relationship between science and business, establishing the National Science Center and eliminating research institutes with lowest ratings. The reform further assumes the establishment of the politically independent National Science Center. The Center will be a payment agency with its seat in Kraków, where the scholars themselves will decide on the allocation of public funds for research. In turn, the existing National Research and Development Center will be responsible for preparing a strategic research program for the development of Poland.

Portugal

Fundação para a Ciência e Tecnologia (FCT) is the Portugal's main funding agency for research under the aegis of the Ministry of Science, Technology and Higher Education. FCT's mission is to continuously promote the advancement of scientific and technological knowledge in accomplished

through the financing of proposals presented by institutions, in public open calls. That happens either through calls for applications in any scientific area or calls targeted at specific themes or domains. Since 2004, FCT under the History and Archeology domain has included a topic on History and Cultural Heritage.

Romania

On 23 May 2007, the Romanian Government approved the second National Plan for Research, Development and Innovation (PN II). The National Authority for Scientific Research is the Governmental organization charged with the implementation of PN II. The specific programme “Partnerships in priority fields” counts among the specific objectives the valorization and the development of the national cultural patrimony with three axes focused on cultural heritage, as follows: i) Patrimony preservation techniques ii) Preserving and restoring the patrimony insuring the community viability; iii) New patrimonialization practices.

The research direction “Material/non-material patrimony, cultural tourism, creative industries“ has a budget of approximately 13 mil. EUR allocated for the period 2007-2013.

The Ministry of Culture, Religious Affairs and National Heritage has also a specific annual programme to preserve national cultural heritage but is not devoted to research. It finances only restorations and preservation works of monuments specified in the National List of Monuments.

Slovak Republic

The top priorities themes on culture heritage research in Slovakia is science framework Conception for Sustainable Development. In area a tangible culture heritage and material study are included themes: influence appraising of atmospheric deposition of substances that polluted atmosphere in ecosystem and culture heritage object, acidification and eutrophication, modeling of biogeochemical cycles (*wooden little church in North Slovak region*). In area intangible Slovakia put the accent to research of digitalisation of culture heritage, specially in traditional culture (artefacts, customs and folklore). A characteristic for Slovakia is a dislocation subjectes of culture heritage in area of nature heritage. Multi-disciplinary research of global change is science application research procedures in culture and nature together (UNESCO World heritage - Banská Štiavnica, Levoča, Spiš castle, Vlkolínec, Bardejov). There is important research of sustainable development of tourism (UNESCO Improvement of Tourism and Visitor Management Skills). Culture heritage is determined for identity of many regions, localities, ethnicity. Research in impact global civilizational changes to concrete cultures is culture anthropological and ethnological approach in culture heritage research. In culture of minorities (Gypsy) and *Genius loci* localities is this research an rescue science work.

Slovenia

Slovenian research policy is on the national level conducted by the Ministry of Higher Education, Science and Technology (MHEST), which is also the major governmental source of funds for research.

The National Research and Development Programme is implemented by the Slovenian Research Agency, which was established by the Government of the Republic of Slovenia. The Agency performs professional, development and executive tasks relating to the National Research and Development Programme at every level, as well as other work to promote research and development activities.

On the field of tangible cultural heritage agency closely cooperates with the Ministry of Higher Education, Science and Technology and the Ministry of Culture. In the field of cultural heritage it involves also the Directorate for Cultural Heritage, Information-Documentary Centre for Heritage (register of cultural heritage) and Institute for the protection of cultural heritage of Slovenia.

Current main topics are: informatisation of cultural heritage, new law on protection of cultural heritage, establishment of a unified register of cultural heritage, new approaches in the field of

written cultural heritage, volatile organic matters in cultural heritage collections, mobile archaeological heritage.

In regards to FP7 programme, MHEST is a partner in HERA (Humanities in ERA) ERA-NET initiative and actively contributing to the common pot with a goal to financially support also research projects from the field of cultural heritage.

Spain

The Ministry of Science and Innovation (MICINN) is mainly responsible for funding scientific research in Spain, although other Ministries, Autonomous Regions and other organisms also finance programmes.

Studies in the conservation of cultural heritage first received institutional support in the first four-year National Plan (1988-1991) defining mechanisms and priorities for supporting research, which included a research programme on Cultural Heritage. This programme disappeared from subsequent National Plans, although other National Programmes prioritised cultural heritage. Cultural heritage research is thus spread among national and regional programmes, mainly in sciences and humanities.

On the other hand, the Spanish scientific community has a real interest and potential in the subject, with strong groups working on conservation science, materials, etc. A significant number of quality research projects are funded yearly in National Programmes, and Spanish researchers participate in European Programmes and other initiatives. The last call (2009) for projects on cultural heritage conservation and materials received about 3.5 million € from an overall budget of 430 million € for projects under the National Plan.

Sweden

In Sweden Cultural Heritage is funded by different actors in research field, under their general heading of humanistic and social research or under natural sciences. The Swedish Research Council - Vetenskapsradet distributed 3220 M SEK to research to areas from medicine to human sciences during 2009. A particular call for Cultural Heritage amounting to 50 M SEK is currently available. Riksbankens Jubileumsfond (RJ) is an independent foundation with the goal of promoting and supporting research in the Humanities and Social Sciences. The Swedish Research Council Formas deals with research for a sustainable development. During 2009 roughly 400 M SEK was distributed to research, including also Cultural Heritage projects. The Swedish Arts Council allocates general cultural grants to cultural projects that enhance aspects such as pluralism, equality and quality. Important aspects for funding are activities directed towards children and that deals with physical access to culture and has an emphasis on non-urban areas. The National Heritage Board - Riksantikvariambetet has a research grant of 14 M SEK that is directly tied to research in culture heritage. Furthermore the Knowledge Foundation finances universities with the goal of strengthening Sweden's competitiveness and value creation. During 2009 they allocated 297 M SEK to different research projects, including also Cultural Heritage projects.

The Netherlands

In the Netherlands expertise in the JPI is present in the agencies of the Ministry of Education, Culture and Science and in most universities. The Cultural Heritage Agency (RCE) is the national knowledge institute for archaeology, historic buildings and cultural landscape; main programs: definition of CH; degradation, upkeep and intervention; planning and environment; monitoring; quality assessment. They also deal with digital heritage (Kimomo/Knowledge Infrastructure Modernisation CH). The Netherlands Institute for Cultural Heritage (ICN) is the national knowledge institute for management and preservation of moveable cultural heritage. The research of ICN focuses on value and value attribution, object in context, risk management, accessibility and museometry. The National Archives and the National Library (KB) have programs in the field of conservation (e.g. Metamorfoze) and digitization. At the Research Institute for the Heritage and

History of the Cultural Landscape and Urban Environment (CLUE) of the Free University the focus is on the long-term history of landscapes and the historical backgrounds of contemporary spatial planning issues. Wageningen University has a Land-use Planning Group and Landscape Centre. At Delft University the institute rmit (restoration, modification, intervention, transformation) research is conducted on materials/compatibility, (re)design of CH and effects of changes in water cycle. In Eindhoven University research is done on climate and heritage. At Nijenrode they do research on monuments and sustainability. In conservation science the University of Amsterdam has expertise in the Ateliergebouw, combined with the Rijksmuseum and ICN. At NWO a Science for Arts programme is being developed, aiming at interdisciplinary research in conservation and restoration. CATCH (Continuous Access to Cultural Heritage) is the NWO-programme on digitized cultural heritage, a cooperation of humanities, computer science and heritage institutions.

Turkey

Being the leading agency for the management, funding and conduct of research in Turkey, TUBITAK is the primary institution to fund cultural heritage related research. In line with the major principles of Turkish National S&T Policies Cultural Heritage is one of the key issues to be greatly tackled in order to achieve the strategies of long term sustainable development. The key principles are the preservation of monuments not individually but together with their immediate surroundings in accordance with international rules and standards; preservation, restoration and reviving of historical urban and rural settlements revealing traces of a civilization or a historical moment; adapting architectural preservation in urban planning in line with historical plot, addressing all aspects of cultural existence and creativity in politics of culture for development, developing further policies and mechanisms to protect cultural heritage to encourage initiations towards cultural heritage. From 2000 up to 2010; 137 projects in various areas related to cultural heritage has been funded by Academic Research Funding Programme Directorate of TUBITAK. The total budget dedicated to research on cultural heritage by TUBITAK amounts to around 10 M Euro for the last decade. A wide array of research topics and activities has been dealt through the aforementioned projects in the fields of archaeology, preservation and restoration, sociology, urban planning etc. The number and variety of the projects funded are expected to rise up considerably given the new momentum towards further supporting research in the field of cultural heritage.

United Kingdom

Responsibility for culture in England resides with the Department (Ministry) of Culture, Media and Sport (DCMS). Culture is a devolved responsibility in Scotland, Wales and Northern Ireland. DCMS sponsors a wide range of Non- Departmental Public Bodies (NDPBs). The largest is English Heritage, which is responsible for the conservation of the historic environment, including the historic maritime environment, archaeology and landscapes in England. DCMS also sponsors the National Museums and Galleries. Most of the NMGs invest a proportion of their core funding in conservation and research, and in many cases they have world-class reputations in their fields. Recently, in response to recommendations by a House of Lords Science and Technology Select Committee Inquiry on *Science and Heritage*, the Arts and Humanities Research Council has become the lead research council for heritage science and together with the Engineering and Physical Sciences Research Council, has launched the Science and Heritage Programme which has invested almost 10 million Euro in research and other activities in this area. Due to the devolved nature of governance for heritage science research in the UK, the whole sector (both moveable and immovable heritage) has recently published a National Heritage Science Strategy.

ANNEX 3

Actions at European level

Cultural heritage research has featured in all Framework Programmes since 1986, with the aim of reinforcing the scientific and technical basis for protecting and rehabilitating the European patrimony and setting up joint methodologies, technologies and tools⁴⁵.

In FP5 (1998-2002), the Key Action "City of Tomorrow and Cultural Heritage" was especially designed to ensure rapid EU-wide take-up of practical new approaches to urban governance, planning and management. Regarding cultural heritage the research goals were related to improved damage assessment, development of innovative conservation strategies and integration of cultural heritage in the urban setting. Around 40 projects were funded to the tune of EUR 40 million. Other funds were provided through the 'Socio-economic research' Key Action and through the 'Fellowship' and 'Infrastructure' programmes.

In FP6 (2002-2006), "Cultural Heritage and Conservation Strategies" was funded through the "Scientific Support to Policies" (SSP) Programme, including for the first time the impact of climate change, as well as of tourism. It supported 23 projects with funding of EUR 18 million. The 'Citizens and Governance in a knowledge-based Society' Programme looked at cultural heritage in the context of perceptions of history and identity, while, as in FP5, other funding was provided by the Marie Curie and the Research Infrastructure programmes.

Within FP7 (2007-2013), cultural heritage is mainly funded within the sub-activity "Protection, conservation and enhancement of cultural heritage, including human habitat" of the "Environment (including climate change)" Theme. Research goals are focussed on models and tools for advanced and non-destructive techniques for damage diagnosis, new products and methodologies for conservation, mitigation and adaptation strategies for the sustainable management of both movable and immovable cultural assets.

In its first four years, FP7 has supported 16 projects with total funding of EUR 32.5 million, including the large-scale project "CLIMATE FOR CULTURE"⁴⁶ on the impact of climate change on cultural heritage conservation strategies, a subject first addressed by the FP6 "NOAH'S ARK"⁴⁷ project, which was awarded the Europa Nostra Prize in 2009. "CLIMATE FOR CULTURE" aims to identify the risks for cultural heritage associated to climate change in specific regions. Appropriate sustainable mitigation/adaptation strategies will be developed and applied. The results will be incorporated into an assessment of the economic impacts and are intended to be a European contribution to the future IPCC Reports.

Within the Public-Private-Partnership on Energy Efficient Buildings, launched by DG RTD in cooperation with industrial partners as part of the European Economic Recovery Plan in 2008⁴⁸, the large-scale project "3ENCULT" on improving the energy efficiency of historic buildings has been selected following a cross-thematic call including the topic on "Compatible solutions for improving the energy efficiency of historic buildings in urban areas" launched at the end of 2009.

Moreover, within the FP7 actions on Research Infrastructure, the Integrated Infrastructure Initiative "CHARISMA"⁴⁹ (7,6 Million Euro) has been funded, bringing together 21 leading European institutions developing research on artwork materials and their deterioration finalized to the conservation of cultural heritage. The consortium has the objective to optimise the use of infrastructures through a coordinated program of transnational access, joint research and networking activities.

⁴⁵ For all funded projects see the following website: http://ec.europa.eu/research/environment/index_en.cfm?pg=cultural

⁴⁶ CLIMATE FOR CULTURE "Damage risk assessment, economic impact and mitigation strategies for sustainable preservation of Cultural Heritage in times of climate change" www.climateforculture.eu

⁴⁷ NOAH'S ARK "Global climate change impact on built heritage and cultural landscapes" <http://noahsark.isac.cnr.it>

⁴⁸ COM(2008)800 final.

⁴⁹ CHARISMA "Cultural Heritage Advanced Research Infrastructures: Synergy for a Multidisciplinary Approach to Conservation/Restoration" <http://ec.europa.eu/research/infrastructures/pdf/charisma.pdf>

In the framework of ERA-NET projects, the NET HERITAGE project built up a partnership between ministries, funding agencies and national research directorates from 14 countries. It will ensure a comprehensive overview of the status of cultural heritage research throughout Europe and provide help in coordinating the sector by allying different domains such as art, history, conservation, maintenance and restoration with architecture, chemistry, physics and engineering. It acted as a cradle for the development of this JPI.

In the FP7 theme 'Research in the Social Sciences and Humanities (SSH)', cultural heritage is explored in relation to European diversities and commonalities. The use of cultural heritage in shaping identities is examined by the "CRIC"⁵⁰ and "IME"⁵¹ projects. Current SSH projects deal with 'European identities: inner and outer perceptions of Europe and the EU', and 'Reinterpreting Europe's Cultural Heritage: towards a 21st Century Library and Museum'.

The Network of Excellence CLIOHRES.net⁵² aims at achieving and disseminating greater understanding of both the actual histories and the self-representations of the past, and looks at the role of CH in the context of history.

The MuSOMED project⁵³ aims at making source material that includes tangible CH available to researchers. DG RTD SSH has an open call on "Reinterpreting Europe's Cultural Heritage: towards a 21st Century Library and Museum".

In addition, the ERA-NET Plus action "HERA"⁵⁴ recently launched research projects on issues such as cultural heritage and memory, cultural heritage in music, and cultural heritage and intellectual property. "HERA" brings together one pan-European and 13 national research funding agencies across Europe in order to coordinate research activities and to develop new Europe-wide research agendas.

"ERNEST"⁵⁵ is another ERA NET Project gathering a large group of regions and organisations developing sustainable practices for tourism including cultural tourism.

The European Agenda for Culture⁵⁶, proposed by DG EAC and endorsed by the Council, is founded on three common sets of objectives: promoting cultural diversity and intercultural dialogue, promoting culture as a catalyst for creativity in the framework of the Lisbon Agenda for growth and jobs (including the further development of cultural and creative industries), and promoting culture as a key component in international relations, with a clear and vital role for cultural heritage in these three dimensions.

In the digital field, outstanding cooperation between Member States already exists and a Commission Recommendation on digitisation and related tasks, endorsed by the Council⁵⁷, has been issued. The Commission, through DG INFSO, is actively pursuing policies, networks and projects that provide considerable support for research into and introduction of digital libraries, archives and museum collections, and new forms of access to and use of these cultural resources⁵⁸.

⁵⁰ "Identity and conflict. Cultural heritage and the reconstruction of identities after conflict" http://ec.europa.eu/research/social-sciences/projects/363_en.html

⁵¹ "Identities and modernities in Europe: European and national identity construction programmes and politics, culture, history and religion" <http://fass.kingston.ac.uk/research/european/ime/>

⁵² "Creating Links and Innovative Overviews for a New History Research Agenda for the Citizens of a Growing Europe" www.cliohres.net

⁵³ "Mutual Sources on Modern Mediterranean Architecture: towards an open and shared system" <http://invisu.inha.fr/musomed-Mutual-Sources-on-Modern>

⁵⁴ "Humanities in the European Research Area – Joint Research Programme" www.heranet.info/

⁵⁵ Europe Research Network on Sustainable Tourism. The following regions of Member States are involved: Regione Toscana (Italy) as coordinator, Cité de la Culture et du Tourisme Durable (France), Basquetour (Spain), Prefecture of Ilia (Greece), South-East Romania Development Agency (Romania), Govern de Illes Balears (Spain), Regional Development Agency of North Hungary (Hungary), South West Tourism (United Kingdom), Danish Forest and Nature Agency, Nord Zealand (Denmark), Generalitat de Catalunya (Spain), Conseil Régional d'Aquitaine (France), Regione Emilia Romagna (Italy) http://cordis.europa.eu/fp7/coordination/pdf/ernest_en.pdf

⁵⁶ http://ec.europa.eu/culture/our-policy-development/doc399_en.htm

⁵⁷ Commission Recommendation on the digitisation and online accessibility of cultural material and digital preservation (2006/585/EC) and Council Conclusions of 13 November 2006 (2006/C 297/01).

⁵⁸ http://ec.europa.eu/information_society/activities/digital_libraries/cultural/index_en.htm

In particular, research on the digitisation and visualisation of tangible cultural heritage and on the preservation, access and use of digitised cultural assets can contribute significantly to reducing the stress on fragile objects and sites⁵⁹.

The 5th and 6th FPs boosted the actions related to the digitization of cultural heritage. In particular two programmes aimed at supporting the coordination among Member States: the MINERVA and MINERVAplus projects; both of them gathered the Ministries of Culture of the European Union that worked together for the harmonization of digitization policies and programmes. The MINERVA projects still have a strong impact on digitization policy makers and experts thanks to the wide range of tools, publications, guidelines, and strategic documents produced. They also lead to implementations actions (funded under eContentplus or CIP) such as MICHAEL⁶⁰ and ATHENA⁶¹.

It is worth mentioning that the digitisation and virtual representation of cultural artefacts and sites might be of interest to the JPI. Projects such as "EPOCH (NoE)", "3D-COFORM", "V-City", "Venus" and TNT conduct research in the creation of digital 3D representation of artefacts, sites and cities as well as related aspects concerning the use of ICT in cultural heritage, thus reducing the stress on the real objects and sites which might endanger their sustainable conservation.

As far as the conservation of digital cultural heritage is concerned, the two Integrated Projects "PRESTOSPACE" (FP6) and "PrestoPRIME" (FP7) specifically address issues of preservation and use of audiovisual sources and the intangible cultural heritage that is preserved in these collections.

In addition, the DG INFSO supported several actions on the use of ICT for Cultural tourism. A number of FP6 projects like "ISAAC", "iTACITUS", "CINeSPACE", "AGAMEMNON" conducted research on enabling users to enjoy and discover cultural heritage sites or whole cities with the use of ICT, using augmented reality and virtual reality technologies, often applied to mobile devices. Although these projects are central to research, the developed applications may potentially contribute to the conservation of intangible cultural heritage and to link it virtually to objects and sites.

DG INFSO recently launched the ERA-NET "DC-NET"⁶² under the e-Infrastructure-Capacities Programme of the FP7. The main aim is to develop and to strengthen the co-ordination of the public research programmes among the European countries in the sector of the digital cultural heritage.

Cooperation with Mediterranean Countries

Through DG AIDCO, the 'Euromed Heritage'⁶³ Regional Programme has since 1998 committed a total of EUR 57 million to fund partnerships between conservation experts and heritage institutions from Mediterranean countries. In line with the 'Strategy for the Development of Euro-Mediterranean Heritage: priorities from Mediterranean Countries (2007-2013)⁶⁴, and funded through the European Neighbourhood Partnership Instrument (ENPI), Euromed Heritage 4 (2008-2012) aims to make it easier for local populations to learn about their own national and regional cultural heritage and to benefit from it.

International cooperation for the protection and conservation of cultural heritage, with a particular focus on the Mediterranean region, was supported within FP5 and FP6, and is a mainstream activity in FP7.

Actions at intergovernmental level

COST and EUREKA are intergovernmental programmes that actively contribute to networking, research and innovation in the cultural field.

⁵⁹ For all funded projects see the following website: http://cordis.europa.eu/fp7/ict/telearn-digicult/digicult-projects_en.html

⁶⁰ <http://www.michael-culture.org>

⁶¹ <http://www.athenaeurope.org>

⁶² Digital Cultural heritage NETWORK www.dc-net.org

⁶³ <http://www.euromedheritage.net/index.cfm?lng=fr>

⁶⁴ <http://www.euromedheritage.net/doc/Culture%20strategy%202007%20-%202013.pdf>

Within COST, the Cultural Heritage Interest Group currently supports various networks, such as 'EnviArt'⁶⁵ and 'WoodCultHer'⁶⁶, which focus on the environmental protection of tangible cultural heritage.

In 2006 the new EUREKA umbrella E!3790 EurekaBuild was launched on the initiative of the European Construction Technology Platform (ECTP) as follow-up to EURO CARE2000; it also promotes projects related to cultural heritage in cooperation with the Focus Area Cultural Heritage (FACH) of ECTP⁶⁷.

⁶⁵ D42 'Chemical Interactions between cultural Artefacts and Indoor Environment' www.costd42.org

⁶⁶ IE 0601 'Wood Science for Conservation of Cultural Heritage' www.WoodCultHer.org

⁶⁷ Strategic Research Agenda of the ECTP/FACH 'Cultural Heritage - Vision 2030', February 2009 www.ectp.org

