



Cultural Heritage and knowledge

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EC supporting the knowledge of cultural heritage

- Cultural heritage enriches the individual lives of citizens, is a driving force for the cultural and creative sectors, and plays a role in creating and enhancing Europe's social capital.
- It is also an important resource for economic growth, employment and social cohesion, offering the potential to revitalise urban and rural areas and promote sustainable tourism.
- Cultural heritage is eligible for significant EU funding from 2014-2020 - including for conservation, digitization, infrastructure, research and skills - from several EU programmes – including the main programmes like Horizon 2020, Creative Europe and the JPI

Cultural heritage: a priority in Horizon 2020



- It's strategic the contribution of the cultural heritage sector to securing Europe's position as a global leader in research and innovation
- Cultural heritage is a cross-cutting theme in the 3 H2020 pillars:
 - *Excellent Science*, which can guarantee the accessibility of research infrastructure (including *e-infrastructure*) to all researchers in Europe and beyond
 - Industrial Leadership, which aims to make Europe more attractive to new investment in research and innovation
 - Social Challenge, which reflects the goals established by the Europa 2020 strategy for employment, education, research and innovation, and social integration.

JPI priorities' for Strategic Research Agenda



- Developing a reflective society (identity, perception, values, ethics)
- Connecting people with heritage (ICT, use, sustainability, security)
- Creating knowledge (methods, measure, damage, integrating risks)
- Safeguarding our cultural heritage resource (conservation, adaptation and mitigation)
- <u>www.jpi-culturalheritage.eu</u>

Representing knowledge in CH inside the digital enviroment

Digital technologies sustain the knowledge of tangible and intangible cultural heritage, through activities like:

- Cataloging and archiving inside National and European Systems
- Digitizing and production of 3D
- On-line access and usability
- Discoverability and multilingualism
- Interoperability and multidisciplinary
- Quality and scientific contents
- Scientific analysis
- Social media

Sharing knowledge on CH: the Research Infrastructrures

A research infrastructure is a system comprising resources, services, and facilities, can be composed of:

- a single research centre of particular importance (such as CERN),
- a network of complementary institutes such as museums, libraries and archives – and competence centres that carry out shared programmes, or it can be virtual, and thus provide online services.

The main Italian National Research Infrastructures on cultural heritage

SBN, Servizio Bibliotecario Nazionale

www.sbn.it (5.800 libraries 13 M bibliographic records)



Internet Culturale, the Digital Library for the libraries' collections

www.internetculturale.it (1 M records, 10 M digital objects, 142 libraries)

Culturaltalia, the National Aggregator

www.culturaitalia.it (2.7 M metadata)

SAN, Sistema Archivistico Nazionale

http://san.beniculturali.it/ (835.321 resources)

SIGEC Web, Sistema Informativo GEnerale del Catalogo (10M records, 2.489.449 published records, 578 institutes participant)

http://www.iccd.beniculturali.it/

SITAR, Sistema informativo territoriale di Roma

http://sitar.archeoroma.beniculturali.it/ (100.000 digital objects)



cultura

talia UN PATRIMONIO



European Research Infrastructures for CH, arts & humanities

ARIADNE, Advanced Research Infrastructure for Archaeological

Dataset Networking in Europe

www.ariadne-infrastructure.eu/



DARIAH, Digital Research Infrastructure for the Arts and Humanities

www.dariah.eu/



CLARIN, Common Language Resources and Technology Infrastructure,

www.clarin.eu/



European Research Infrastructures for CH, arts & humanities

CHARISMA, Cultural Heritage Advanced Research Infrastructures, Synergy for a Multidisciplinary Approach to Conservation/Restoration

www.charismaproject.eu/



CENDARI, Collaborative European Digital Archive Infrastructure <u>www.cendari.eu/</u>

EUROPEANA, the European aggregator

www.europeana.eu/



Digital cultural heritage enviroment

- Memory institutions are creating a large volume of digital content that needs to be:
 - safely stored and preserved
 - permanently accessed
 - easily re-used over time by different end-user groups
- Challenge of a common e-infrastructure for cultural heritage will bring costs reduced and interoperability enhanced, by shared:
 - Common procedures
 - Workflows
 - New skills and competences

e-Infrastructure fostering the innovation potential of RIs

E-Infrastructure makes available to researchers and cultural institutions:

- backbone connectivity
- effective data storage and long term preservation
- computing resources for allowing simple and controlled online access to services
- resources and collaboration tools
- authentication and authorization systems for federated access
- A cross-disciplinary approach and sharing of best practice between disciplines

Three integrated EU projects leded by ICCU

The need to foster cooperation between cultural heritage institutions research infrastructures and e-Infrastrucrures was identified by:

- **1. DC-NET (2009-2012)**: joint activities plan for DCH e-infrastructure implementation
- 2. INDICATE (2010-2012): international cooperation, use case studies, pilots, policy harmonisation
- **3.** DCH-RP (2012-2014): developing and validating a Roadmap for digital preservation



DCH-RP: a Roadmap for the long-term preservation in DCH

To develop a commonly agreed vision of distributed digital preservation architecture relying on e-Infrastructures.

The DCH-RP Roadmap will lead to the realization of a federated preservation infrastructure for digital cultural heritage taking into account existing solutions and the services and tools of existing and upcoming einfrastructures.

Four areas identify the policy domains that require intervention:

- Harmonisation of data storage and preservation
- Improved interoperability, including integration of preservation
 within the overall workflows for digitisation and online access
- Establishment of conditions for cross-sector integration, transferring knowledge and know-how
- Governance models for infrastructure integration, to foster participation in larger e-Infrastructure initiatives, and aggregation and re-use of digital resources

AthenaPlus Project (2013-2015)



Coordinated by ICCU

Network of GLAMs

Consortium: 40 partners from 21 Member States

Ministries and government agencies, GLAMs, aggregators, research centres, SMEs.

Main goal: aggregation of 3,5 millions data to Europeana 80% from museums (about 500 institutions)

www.athenaplus.eu info@athenaplus.eu Twitter | https://twitter.com/AthenaPlusEU LinkedIn | http://linkd.in/19XwWOz

AthenaPlus Project (2013-2015)



Some AthenaPlus activities for the Museum community

• Terminologies and semantic enrichment:

A Terminology Management Platform

A Registry of terminologies for the cultural heritage sector

GLAMs may upload, edit and share their own terminologies within the community

• Creative applications for the reuse of cultural content

Tools for digital exhibitions, tourism and education

API for Europeana content reuse

Italian EU Presidency

- The digitisation and online access to cultural heritage represents a strong opportunity to foster the creative industries and the job creation throughout the reuse of the digital resources.
- The Presidency supports the development of Europeana as unique access point to the European cultural heritage, and the national aggregators that play a fundamental role in ensuring core quality content to the European portal.



Italian EU Presidency

Develop cooperation between researchers, providers of e-infrastructure and cultural institutions to:

- implement a federated infrastructure devoted to Cultural Heritage and Digital Humanities
- creation of Virtual Research Communities in the field of DCH and Digital Humanities
- development of recommendations and guidelines for the use of digital infrastructures by cultural institutions



Italian EU Presidency: two International Conferences

- Rome, 2 October 2014, National Library
 - The re-use of digital culture content in education, tourism and leisure organized in cooperation with ATHENAPlus project
- Rome, 13-14 November 2014, National Library
 - Research infrastructures and e-infrastructures for DCH organized in cooperation with ARIADNE project



2014 Italian Presidency of the Council of the European Union



DCH and Tourism: Reccommendations for cultural institutions

Digital cultural heritage can be a pillar of tourist marketing and an engine to attract tourists in more or less known locations can be an opportunity for creating new jobs and for creative industries

Recommendations edited by MIBACT in September 2014 and targeted to cultural institutions may represent an useful tool to orientate them and make them aware of the benefits coming from the digitization of cultural heritage



DCH and e-Infrastructures: Vision document

There is an enormous potential to be developed and new research methods to be fine-tuned in order to improve the access, use, and conservation of cultural heritage.

Nevertheless, several complex matters still need to be resolved concerning the management of privacy, data storage and security, IPR license policies, the interoperability of the various operating systems, the improvement of research and data retrieval systems, and multilingualism and semantics.

The vision document presented at the conference of 13-14 November in Rome summarize the sttate-of-art and the challenges for the next future.

E-Infrastructures for cultural heritage and Humanities

Introduction

The Italian Presidency of the European Union supports the use of e-infrastructure (or digital infrastructure) for the development of research, conservation, and access in the cultural heritage sector, and aims to place the cultural sector within the new model of global multidisciplinary research currently making headway thanks to e-Science, and which can meet the emerging social and economic challenges of the EU. Agreat many digital resources are currently available in the cultural heritage and digital humanities fields: bibliographic, archival, and catalogue data; digital collections belonging to museums, libraries, and archives; 3D models and replices; audio and video resources; scientific data produced through chemical, physical, and sectorial analyses; and documents produced during archaeological and conservation restoration activities. This enormous mass of data increases constantly thanks to the growing use of information technology, and has already generated new ways of working, increasingly based on multi-disciplinary scientific collaboration For such purposes, e-Infrastructure takes on a crucial role, thanks to its ability to not only acquire, select, organize, and preserve data, but also to analyze them and view them in accordance with shared modalities. In order for such infrastructure to be implemented, it must be able to provide on-domand access to information content, computing resources, and e-services that can meet the needs of modern forms of scientific collaboration in so-called Virtual Research Environments (VREs). The European plan, defined in the Work Programme for Horizon 2020, is one of the most effective initiatives for the development of major research networks. since it encourages international collaboration. improves the competitiveness of the European Union, and stimulates the transfer of knowledge to society and the economy. In brief, it is an important opportunity for the development, integration, and adaptation of existing infrastructure serving the cultural heritage user community. Horizon 2020 concentrates its resources on three main assets: Excellent Science, which can guarantee the accessibility of research infrastructure (including e-infrastructure) to all researchers in Europe and bayond; Industrial Leadership, which aims to make Europe more attractive to new investment in research and innovation; and Social Challenge, which reflects the goals established by the Europe 2020 strategy for employment, education, research and innovation, and social integration.

5-Infrastructure and research intrastructure in the cultural heritage field

E-Infrestructure makes available to researchers and scholars - today, especially in the so-called hard sciences - simple and controlled online access to services, resources, and collaboration tools. It harnesses the power of ICT for computing, connectivity, storage, long-term preservation, and instrumentation. Indeed, a basic assumption is that the existence of e-infrastructure for research and academia is also an efficient channel for providing efficient services for the digital cultural heritage field. In particular, e-Science is currently engaged in creating virtual research environments (VREs) that can meet the needs of modern forms of scientific collaboration VREs are environments conceived to support - at both small and large scales - research activities that require access to great quantities of data, the intensive use of computing resources. and collaborative efforts involving research communities that may span different sectors and multiple institutions

A research infrastructure is a system comprising resources, services, and facilities, and can be composed of a single research centre of particular importance (such as CERN), a network of complementary centres that carry out shared programmes, or it can be virtual, and thus provide online services. This is evident in sectors such as astronomy, physics, chemistry, and where instruments of great importance are shared by researchers from numerous countries. The advisory panel instituted by the Europea Commission to establish priorities in this field, ESFRI (European Strategy Forum on Research Infrastructures) has underlined the need to create research infrastructures in the humanities and social sciences as well, and especially for cultural heritage, ESERI has identified DARIAH (Digital Research Infrastructure for the Arts and Humanities) as the instrument to coordinate support for researchers in the arts and humanities through the creation of an environment in which to share digital technologies, data, and innovative methodologies. This is the contact in which are located individual infrastructures related to specific sectors in the humanities: they coordinate specific actions in their own sectors, and are responsible for integrating at the European level all of the research infrastructures already present at the national level, such as research centres, projects, networks, and data archives.

Through the national cataloguing and data archival systems for the digitalization and preservation of cultural heritage, archives, libraries, and museums become producers of data organized in research infrastructure.

Italy is a leader in some of the main initiatives in the cultural bentage field, with CHARISMA (*Cultural Heritage Advanced Research Infrastructures, Syneagy for a Multidiscplinary Approach to Conservation/Restoration*) focusing on conservation restoration, ARIADNE on

Overall goals for the next future

- Go ahead in collaborating with e-Infrastructures providers
- Joint policies and solutions for the cultural and humanities data lifecycle, from acquisition to access, management, curation, and long-term preservation
- Strengthening the cohesion of research in the broad sector of humanities, cultural heritage, archaeology and related fields belonging to e-Science
- Developing Virtual Research Enviroments based on services delivered by e-infrastructures and domain specific services co-developed and cooperated by researchers, technology and e-infrastructure providers
- Enable **long term preservation** of our cultural and scientific memory and keep the records of science accessible to future generations of researchers
- Enhance the **quality and the amount of cultural contents** for the re-use in creative industries and tourism





Thanks!

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