DC-NET
Cultural Heritage &
Research without limits

Digital Cultural Heritage Network ERA–NET supporting cooperation for
research infrastructure in the digital cultural heritage field

Contacts and Credits

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The cultural heritage domain (libraries, museums, archives and other cultural bodies) has seen a quite revolution in the last twenty years. Increasing amounts of cultural heritage data are being converted to digital form and made available via the Worldwide Web to researchers, students and the interested public. This represents an important opportunity for the improvement of the quality of life of the European citizen, for the delivery of cultural education, for the promotion of cultural tourism, for the development of creative industries and for increasing the value which society enjoys from its common patrimony.

In order to progress in this direction it is necessary that the cultural sector and the technology sector establish a factual dialogue, it is necessary that the e-infrastructure providers present their offer to the cultural stakeholders to foresee the deployment of more powerful research infrastructures for the digital cultural heritage.

To establish a dialogue and a relationship between the cultural sector, the research sector and the research infrastructures in Europe is a challenging job. The sectors are differently organised from country to country. For each country it will be necessary to develop specific strategies that reflect its particular circumstances, including a direct link between the Ministry of Culture and the National Research and Educational Networks, a link at Ministerial level between the Ministries of Culture and of Research, a link with government funding bodies, a link between the Ministry of Culture and major research institutes in the country that will act as a sort of "interpreter" between the cultural sector and the technology sector.

DC-NET is the European Research Area Network that aims exactly to coordinate these actors and their programs towards a common vision: to bring the digital cultural heritage on the "wave" of the e-infrastructures.

The work of DC-NET is fully integrated into the vision of the Joint Programming Initiative for Cultural Heritage, chaired by the Italian Ministry of Cultural Heritage and Activities together with the Italian Ministry of Research. This integration is of high importance for the coordination and the creation of virtual synergies among the national and European programmes and in this light it is of vital importance for the sustainability of the next deployment initiatives that are planned to be launched through the DC-NET ERA-NET.

I wish to mention the precious work done by the Central Institute for the Unique Catalogue of the Italian libraries which coordinates the DC-NET project with high quality professionalism and dedication. The Institute is the national centre of excellence for digitisation, for the management of the main national online systems (namely, SBN-National Library Service and the two national portals Internet Culturale and CulturaItalia), for the definition and dissemination of national standards and for the participation of Italy to international initiatives.

Finally, I should express all my thankfulness to the DC-NET partners for their factual cooperation. The achievement of the results so far and the engagement with the future challenges are possible only because of the harmonious and exciting team spirit that pervades our project.

Arch. Antonia Pasqua Recchia
General Director, Italian Ministry of Cultural Heritage and Activities

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DC-NET is one of the results of 10 years of cooperation on the issues of the digital cultural heritage between the Ministries of Culture in Europe. The process started in 2001 with the Lund Principles for digitization of cultural heritage and the Brussels Quality Framework (which were endorsed by the EU Member States and the EC as part of eEurope). These were the foundation of MINERVA and MICHAEL initiatives. The former shaped a common framework of guidelines and recommendations. The latter implemented the first European online service giving multilingual access to digital cultural collections. A new Lund meeting on online access to digital cultural heritage took place in October 2009 under the aegis of the Swedish Presidency of the EU as part of i2010, just a few weeks before the beginning of DC-NET, establishing a tangible and concrete liaison among all these initiatives.

DC-NET is now moving within the area of the new Digital Agenda initiative of the European Commission. In this light, DC-NET is committed, through its coordination of programmes and implementation of joint activities, to contribute to the take-up of the "Virtuous cycle of the digital economy" as represented in the Digital Agenda for Europe.

Digital Cultural heritage has several exciting and important challenges which need to be addressed in order to increase the value that society as a whole derives from its heritage. These include:

• Multilingual and multi-national collaboration. Combining national cultural heritage research initiatives to European-wide and international scale;
• Access to everything. Enabling online access to more than a small proportion of holdings;
• Delivering the best. Providing access to the highest quality multimedia materials online, including audio-visual, 3D, text and images;
• Searching beyond text. Enabling users to use images, sounds, shapes and other aspects of items as search criteria;
• From active to passive. Allowing interaction and manipulation of digital items;
• Maintaining control and rights management. Cultural heritage material belongs to a huge number of autonomous entities, each with its own intellectual property rights;
• Long-term preservation of digital materials. Both digitized and born digital.

Each of these challenges can be met by exploiting the results derived from R&D projects for ICT applied to the cultural heritage, including national, regional and EC initiatives and by redeploying these results to e-Infrastructures.

For example, the potential exists for R&D projects to make good progress in the automated extraction semantic indicators from text. In the cultural heritage environment, this would be followed by automated translation of key concepts using SKOS-compliant multilingual thesauri. However, the actual feasibility of effective running systems demands more computing power and network bandwidth. This could be offered by the existing e-Infrastructures, as well as by their future evolution.

Massive repository space together with management and preservation facilities are needed if any substantial proportion of national and regional cultural holdings is to be placed online.

Today, the quality of data delivered to the end users – high resolution images, video, audio and other content - is still rare online. This affects all users, but particularly professional and researcher end users are affected the most. In order to achieve the quality needed, large-scale authentication and access control procedures are required. Suitable e-Infrastructures would enable controlled access to top-quality materials, while at the same time applying mechanisms and technologies to prevent the unauthorised re-use of these materials.

In the current online cultural services, there is little or no delivery of search tools for colour, shape, sound, melody, texture or other inherent characteristics of cultural heritage items. Promising results are available from the R&D projects, but, again, their deployment in the cultural heritage sphere requires e-Infrastructure levels of processing, connectivity and storage power.

An enormous amount of cultural heritage material is inherently three-dimensional. In order to get the full benefit from these resources, it is essential that the user be able to interact with them. Storage, processing and real-time user experience to support interactive 3D cultural heritage experiences requires massive storage, computing power and bandwidth. This is an ideal application of the e-Infrastructures in the cultural heritage domain.

In the framework of the DC-NET project, eight governments and research agencies are working to reach an agreement on a set of common priorities for digital cultural heritage research and are discussing with e-Infrastructures to identify how best to carry out this research using the National Research and Education Networks and the other Grid providers.

However, the scope of DC-NET goes beyond the current ERA-NET project.

The community of the digital cultural heritage is naturally larger then the eight Ministries participating to DC-NET. The network enlargement is on going and many cultural institutions, governmental agencies and Ministries in Europe and beyond are in the process to formalise their participation to DC-NET.

Further, this community is already working together.

At political level, there are two main bodies that should be mentioned: the Member States Experts Group for Digital Libraries established by the European Commission (MSEG); and the Joint Programming Initiative for Cultural heritage (JPI-CH) established by the Member States. The DC-NET community is fully involved in MSEG, where many experts of DC-NET participate as national representatives. With regard to the JPI-CH, DC-NET shares with NET-HERITAGE the operative foundation of the Initiative, being the former target to the research for the digital heritage and the latter to the research for the tangible heritage.

At project level, in parallel with DC-NET, the community is active at international level with the INDICATE project targeted to the Mediterranean region and in supporting Europeana with many projects, among which are the two Best Practice Networks ATHENA and LINKED HERITAGE.

The next step in the vision of DC-NET is the deployment

of a persistent and robust data infrastructure for digital cultural heritage, built on the facilities available from the e-Infrastructures sector. This data infrastructure should be able to deliver services and facilities that enable researchers to treat collections of data from many heterogeneous data sources as a continuum, overcoming linguistic, institutional, national and sectoral boundaries. It should also provide services and facilities for collection owners, so that they can store, protect and present their collections online without any loss of identity, ownership or intellectual property. Finally, it should address the most common causes of fragmentation in the digital cultural heritage sphere, including variations in policies, languages, metadata models and vocabulary. The design and implementation of such a data infrastructure dedicated to the digital cultural heritage is central to the vision of DC-NET and is at the core of its Joint Activities Plan.

Rossella Caffo
Director of the Central Institute for
the Unique Catalogue of the Italian Libraries
Italian Ministry of Cultural Heritage and Activities
DC-NET Project Manager

The last 10 years have been devoted mainly to initiate mass digitization in Europe, to develop a common platform of standards and recommendation for digitization and to create portals and websites.

The sector is now facing new challenges towards two directions: i) to reduce the cost of digitization and to increase the volume of data to a real "critical mass"; ii) to create advanced services for the access, use, re-use and preservation of digital content.

The e-Infrastructures across Europe and beyond represent a very important opportunity for the implementation of e-Infrastructure based services for the digital cultural heritage, where digital content shall move from the concept of silos to complex linked data.

Digital cultural heritage has been an important focus for Member States and for the European Union since several years. An increasing emphasis is placed on the need to coordinate and integrate the activities of Member States in order to maximise synergies and reduce overlap.

The recently launched Joint Programming Initiative for Cultural Heritage is moving in exactly in this direction.

The cultural heritage community across Europe has not yet benefited fully from the development of e-Infrastructures such as National Research and Education Networks (NRENs), international initiatives like GEANT[1] and the European Grid Initiative. While 'hard science' has embraced the opportunities which massive computing power, storage and bandwidth offer for collaborative research, sharing of knowledge,

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simulation and processing of enormous amounts of data, the cultural heritage sector has not yet derived full benefit. The potential value of e-Infrastructures for digital cultural heritage has not yet been explored enough and few initiatives exist which take full advantage of e-Infrastructures for cultural heritage.

What is required at this stage is that cultural heritage and e-Infrastructure experts from across Europe and beyond establish collaborative links and explore the value that they can bring to one another. The enormous technological resources available in the e-Infrastructures offer new opportunities for advanced research, demonstration and user experience within the digital cultural heritage domain. In many cases, Ministries responsible for Cultural Heritage are already linked to NRENs at different levels (e.g. representatives of Cultural Ministries are members of the scientific boards, national and international cultural online services are hosted on the NREN servers, bodies that operate the NRENs are service providers of the Cultural Ministries for their digital cultural portals, etc.). However, these links should be re-evaluated and refocused in the light of the new opportunities. The collection of new 'cultural heritage/e-Infrastructures' liaisons constitutes the DC-NET network, one of the most important outcomes of the project. The network is a key element of the future implementation of e-Infrastructure enabled cultural heritage projects.

Coordination and integration are at the core of the DC-NET approach

- Co-ordination among the European countries, contributing to the joint programming of the public research programmes in the sector of the digital cultural heritage;

- Integration of the research capacities of the participant Member States;
- Identification of commonalities, standards, needs, solutions and best practices;
- Valorisation of existing projects and results.

The partners- of DC-NET are governments and national agencies in the cultural heritage sector.

The coordinator of DC-NET is the Central Institute for the Union Catalogue of the Italian Libraries and for Bibliographic Information (ICCU) of the Italian Ministry of Culture.

Eight partners participate to the DC-NET consortium from Italy (project coordinator), Belgium, Estonia, France, Greece, Hungary, Slovenia and Sweden. Latvia, Ireland and Catalonia joined the project recently.

NRENs from all the consortium's countries signed a Memorandum of Understanding with the national DC-NET partner (or the appropriate Ministerial body).

Cooperation agreements are ongoing with many other countries who expressed their interest to participate as well as with numerous networks and European projects.

The partners of DC-NET have a wide record of cooperation and they have already successfully participated together to European initiatives, among which MINERVA[2], MICHAEL[3], ATHENA[4], Linked Heritage[5] and INDICATE[6] projects.

DC-NET aims to coordinate the interactions and the
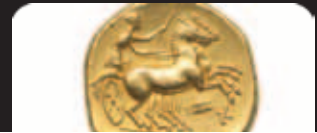
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[2] www.minervaeurope.org   [3] www.michael-culture.org   [4] www.athenaeurope.org   [5] linkedheritage.eu   [6] www.indicate-project.eu

liaisons across borders and across cultural heritage and e-Infrastructures. Across borders, the Cultural Ministries of the EU work together to identify and prioritise the new actions which should be undertaken in order to bring digital cultural heritage to a new level of development. Across sector boundaries, the cultural heritage experts and the e-Infrastructure experts work together to match the capabilities of the e-Infrastructure and the ambitions of the digital heritage community.

The European Ministries of Culture, who are the owners and the managers of the national research programmes in the field of the digital cultural heritage interact with their respective national executive bodies responsible for the e-Infrastructure development to develop joint activities able to strengthen their cooperation at national and cross-border levels. In some countries this interaction may be facilitated by the participation of other researchers in the arts, humanities and social sciences, as well as by the Ministries of Research that have political responsibility for the NRENs. The action plan of DC-NET aims to support the coordination of national & regional programmes in pursuit of a common objective: a European research and data infrastructure in the field of the digital cultural heritage.

Antonella Fresa
DC-NET Technical Coordinator

The project is structured as follows:

– WP1: Network of Common Interest

– WP2: e-Infrastructures Awareness

– WP3: New Service Priorities

– WP4: Technical Validation

– WP5: Dissemination

– WP6: Joint Activities Plan
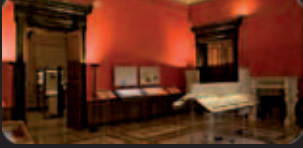
DC-NET Network of Common Interest

The aim of the DC-NET project is to increase cooperation and coordination between three stakeholder groups - cultural institutions, research organisations and e-infrastructure providers - in order to enable the use of e-Infrastructures in enhanced cultural heritage services.

WP1 mission is:
• to outlines the strategy for expansion of the network of common interest
• to monitor the establishment of the network of cultural heritage ministries and agencies, research organisations, e-Infrastructures
• to stimulate the participation of new countries expressing interest in joining the network

The DC-NET national working groups are a key mechanism for delivering this cooperation and coordinationThey consists of members of the three stakeholder communities, working together.

WP 1 has set up:
• the terms of reference, defining the rules and the methodologies at the basis of the activities of each working group
• the legal bases and agreements which are used to formally enrol new members and experts into the network of common interest

The key instruments for growth include the following
• the **membership agreement**, targeted to ministries and agencies, to become formal partners of the ERA-NET project
• the **cooperation agreement**, targeted to cultural heritage institutions, research institutions, academies and experts, to participate to the DC-NET working groups.

e-Infrastructure Awareness

This work package aims to explore the e-Infrastructures available in each member state, the policies, the programmes and regulations which govern access to the e-Infrastructures, and the mechanisms and technical standards that need to be complied with. The result of this work gives to the cultural heritage actors the knowledge they need about e-Infrastructures, at a level of detail sufficient to appreciate what can and cannot reasonably be achieved.

Each partner engaged with NREN and NGI in his own country. The facilities and services available from the e-Infrastructures have been explored. Intermediary agencies such as large research institutions or science ministries have also been involved as facilitators.

A *National Memorandum of Understanding* has been prepared and agreed within each member state. This Memorandum aims to establish a starting point for the cultural heritage to improve access to national eInfrastructures and to obtain a common understanding of all problems that digital cultural heritage institutions have in the field of the concerned e-Infrastructure. In a later stage a list of solutions will be established, as far as possible.

A *Concertation Seminar* was held in Tallin at the beginning of 2011, at which cultural heritage, research actors and e-Infrastructure representatives participated seeking to establish common understanding, approaches and mechanisms whereby multinational l projects can gain access to the resources provided by the e-infrastructures.

A *Cross-border Memorandum of Understanding,* addressing the international access to e-Infrastructures is also prepared by the project to interface with international organizations such as DANTE, EGI and TERENA.
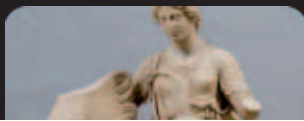
New Services and Best Practices

DC-NET is an ERANET project dedicated to enabling **users** to benefit from **content**, with the support of the **e-Infrastructures** community. To achieve this, it brings together **users, content providers** and **e-Infrastructures** communities to share perspectives, experience and requirements, leading to the definition of a joint research action plan which delivers new services for the future.

The target audience for DC-NET is made up of two groups – **content providers** and **content consumers**.

1 Content providers are organisations that provide cultural materials online (museums, galleries, etc.). They are the organisations that hold the content.
2 Content consumers are those who consume these materials for research. They typically include museum and gallery staff (so that memory institutions may be both content providers and content consumers), but additionally academic researchers and others.

Content consumers are also referred to as "end users".

The **content** in the DC-NET context is the digitised cultural heritage material which is held by memory institutions (content providers) across Europe. This includes the digital holdings of libraries, museums and archives, as well as the digital representations of historic landscapes, buildings and towns (text, images, video, sound, 3d). The content can also include data resulting from the scientific investigation of cultural objects (such as chemical analysis of paintings and sculptures for restoration, physical characterisation of the materials, geological inspections, etc.). There are very large amounts of this material already available in digital form, and much more is being continuously generated.

The DC-NET the project is largely concerned with **identifying new services for content consumers and exploring how content providers can use e-Infrastructures to help them to offer such new services**. The scope of these services include (a) the "content resources" or data bases where the content is stored and accessed, (b) the content itself and (c) the communities of end users who access, but also annotate and enrich, the content.

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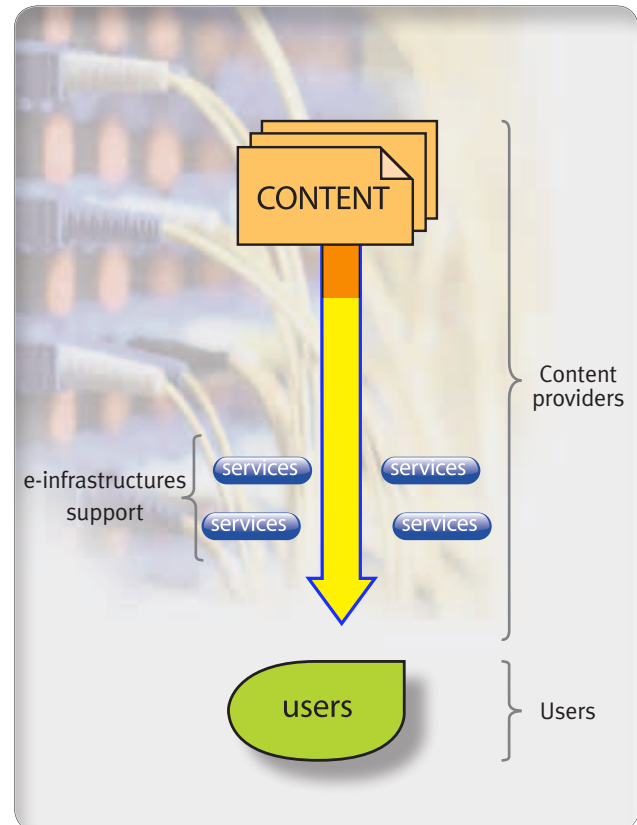
This categorization of the service context among users (the content consumers), content providers and e-Infrastructure providers as support for the implementation of the services is at the basis of the service priorities identified by the partners of DC-NET.

Service Categories

The services priorities can be usefully divided into three categories. These are

1 Services for content providers and related to the creation of online data resources for DCH
2 Services for managing and adding value to the content itself
3 Services which enable, support and enhance virtual research communities and the activities of content consumers

These three categories encapsulate three key aspects of digital cultural heritage.

Content providers are those memory institutions which digitise and place content online. Their work includes not only selecting and digitising the content, but also preparing metadata, building data resources such as websites, portals, digital libraries and repositories. The creation of data resources is a core task for any DCH initiative. Every DCH project needs some type of "database" or online data resource, as a structure within which digital content can be placed. Important issues here include interoperability across resources, tools for searching and navigating the resources, long-term value of the resources, etc.
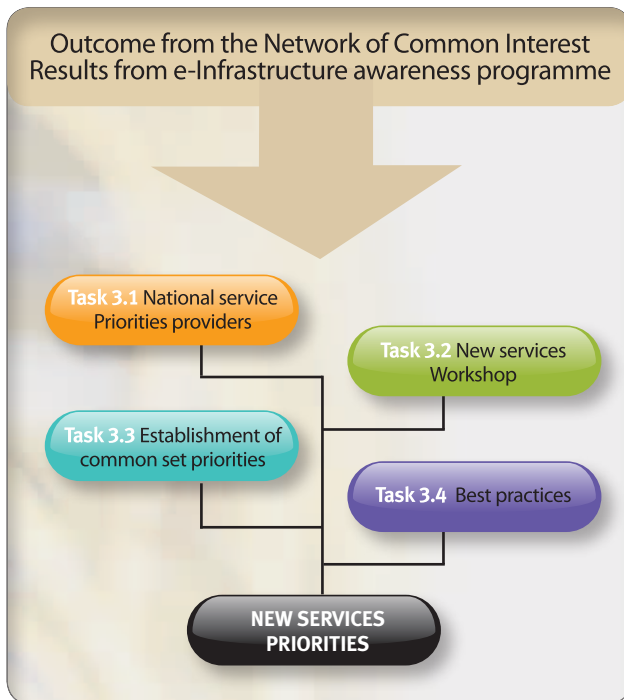
Of great importance to content providers is effective **networking** and sharing of information across DCH initiatives, the building of consensus and best practice, so that content providers can learn from one another, and the development of skills within the DCH community, to enable new research to be carried out.

Managing and adding value to the content itself goes beyond simply publishing digitised material online. There are many attractive ways to enhance the data, make it more user friendly and attractive and to facilitate its re-use in education, in commercial ventures, in collaborative projects, etc. Key issues here include visualisation, geo-referencing, 3D representation and manipulation, IPR management, annotation, statistical analysis and other activities which add value to the actual content and/or make it easier to manage. This is an area of critical value to Europeana, as it seeks to add value to the metadata corpus which it holds.

Services for virtual research communities focus more on the **users of the content** and less on the content itself. A major priority for the holder of any DCH corpus is to add value to it by nurturing a research community around the material, by enabling annotation, discussion and user-contributed content. Underpinning such new facilities are requirements for user management (authentication, auditing, accountability), for tools and environments which stimulate collaboration across virtual communities of researchers, for communications, conferencing and publishing.

General overview of the tasks carried out for the definition of the New Service Priorities

Outcome from the Network of Common Interest
Results from e-Infrastructure awareness programme

Task 3.1 National service Priorities providers

Task 3.2 New services Workshop

Task 3.3 Establishment of common set priorities

Task 3.4 Best practices

NEW SERVICES PRIORITIES

Service priority ordering

The priority ordering (from the most important service, to the least important) must reflect both the input of the DCH community and also the impact which e-Infrastructures support can make. In addition, the amount of R&D needed to make the new service a reality must also be taken into account – "low-hanging fruit" should be prioritised, so that tangible benefits are achieved in the short term. *None of the services listed is "low priority"* – all of the services

promise substantial benefit to the DCH community. The following ordered list takes these into account. It should be noted that the priorities provided, and indeed the items on the list, may be updated in WP4 and WP6 of DC-NET as further input is received from both DCH and e-Infrastructures partners.

Priority 1: Long term preservation.
This is given top priority because
- e-Infrastructures are in a position to offer substantial storage immediately
- Preservation is an urgent issue, with hardware obsolescence and the need for media migration a looming problem for many digital culture collections
- Relatively minor R&D is needed for "raw" or "simple" storage (clearly, digital repository frameworks and other middleware are another issue7)
- Moving critical DCH holdings to a cloud environment places it on a new and stable platform for other new services.

Priority 2: Persistent identifiers.
This is given second priority because
- Broken links and moving digital content due to website redevelopment, etc. are an urgent problem impacting on all portals and aggregators (thus, for example, PIDs are a key element of the Europeana Content Development Strategy)
- There is excellent research and development already done in this area, and one or more of the existing schemes (e.g. DOI, ARK, URI, URN, etc.) could be adopted with minimal adjustment
- A PID registry is a service which can benefit significantly from a centralised, cloud-based implementation; e-Infrastructures have much to offer here

The PID requirements do not vary significantly from one DCH initiative to another – this represents a service useful to most DCH work, 'out of the box'.

Priority 3: Interoperability & Aggregation.
This service receives third priority because:
- Although very important for European DCH, it is technically challenging and will require substantial effort and investment. The effort increases linearly with the number of data resources made interoperable – a solution for one resource will not often be immediately applicable to another.
- Once achieved, interoperability can underpin aggregation, some advanced search services and some elements of digital rights management. As such, it is strategically important, even if difficult to achieve.

Priority 4: Advanced Search.
This service receives fourth priority because:
- It is technically challenging and requires a great deal of effort. Several initiatives are underway, others have been completed and more will be needed before this realises its full potential.
- It can benefit significantly from interoperability and from PIDs; thus, these should be addressed first. Because it includes topics such as multilingual support, it can be argued that this should be completed before interoperability; it may emerge that both of these services will be addressed hand-in-hand.
- Of course, this is perhaps the single most important user-facing new service.

Priority 5: Data Resource Setup.
This service receives fifth priority because:
- It is effectively an "add-on" for persistent storage and preservation, rather than a key issue in its own right
- It will require customisation and adjustment for each DCH organisation which sets up a data resource thus as a research proposition it is not a neat package like PIDs or multilingual terminologies, for example.

However:
- It is identified as valuable by many DCH organisations
- It can aid in interoperability and in advanced search
- It can facilitate the migration of data to the e-Infrastructures environment, with associated benefits in stability, scalability and network access.

Priority 6: User Authentication and Access Control.
This service receives sixth priority because:
- persistent storage/preservation and advanced search are higher priority
- the R&D required will be significant, and customisation (especially for access control) for each data resource means that the research itself will not be "neat package".
None the less:
- This research is essential for community-focused, collaborative and interactive/annotation services
- This research is an important element of the enforcing of IPR and DRM policies
- User authentication is an ideal centralised and scalable services for e-Infrastructure implementation

**Priority 7: IPR and Digital Rights Management**:
This service receives seventh priority because:
- Other services are also of very high priority, and benefit more from e-Infrastructures
However:
- IPR is an urgent issue for all collaborative and portal initiatives
- DRM must be addressed effectively if a content industry is to be nurtured in the EU

In summary, **all the services identified here are important and valuable**. Ordering them in terms of priority is both difficult and somewhat subjective. The ordering presented here combines short-term feasibility of implementation with e-Infrastructures added-value and DCH strategic importance, but even the last items are critically important for digital cultural heritage in Europe.

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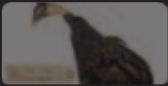
Technical Validation

The "next step" for the DC-NET project is to provide a validation of the priority services. This represents an important stage, before the drawing up of a joint action plan for research. Clearly, there is little value in including specific priority services in the joint action plan, if there remain still technical problems to address them. The "technical validation" aims to ensure that (i) the service is feasible, from an e-Infrastructures perspective, (ii) to pursue each service and (iii) to prepare messages that can be transferedr to decision makers to convince them of the feasibility and the soundness of the technical approach as well as of the strategic motivations.

The **validation methodology** includes:

- Exploration of how the services could be facilitated by e-Infrastructures, expressed in terminology and language suitable for the DCH community, for policy makers and funding agencies.
- Technical feasibility and relationship with state of the art – have similar services been supported by e-Infrastructures to date, and how successful has this been? This will consider, inter alia, other arts and humanities projects which have used e-Infrastructures to date.
- Policy alignment – do e-Infrastructures policies allow the facilitation of the services and how the services fit with the (existing) research programmes?
- International aspects – are there any cross-border issues which mitigate for, or against, the provision of the service by e-Infrastructures?

The results of the validation exercise, expected to be available in early 2012 represent an important step ahead and are aimed to be shared within the whole DC-NET network.

The position paper

Public Consultation about the Green Paper on a Common Strategic Framework
for future EU Research and Innovation Funding

POSITION PAPER OF DC- NET AND LINKED HERITAGE

May 2011

Foreword

The partners of DC-NET ERA-NET[8] and of LINKED HERITAGE[9] Best Practice Network have agreed on the following 7 points that represent very important key aspects for the progress of the research and innovation in the domain of the digital cultural heritage.

A wide community exists in the digital cultural heritage acting in the frame of the research, development and innovation deployment. This community has been successfully working together in the last 10 years on standards, recommendations, deployment of innovative services and program coordination. The same continuously growing community is currently committed to progress on the digitization and digital access to the European heritage, for the research, for the education and for the long-life learning, with actions both at local, regional and European levels.

The community participates to the DC-NET and to the LINKED HERITAGE projects (supported by the European Commission respectively under FP7 and CIP ICT-PSP programmes) and within the scope of the projects it agrees to contribute to this open consultation on a jointly basis.

The following 7 points represent the synthesis of the common shared priorities and pre-requisites for the success of the new framework for the European Competitiveness and Research in the domain of the digital cultural heritage.

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1. **European Coordination: the role of Member States and European Commission**

2. **Europeana: towards its full deployment**

3. **Preservation: a task for the Member States**

4. **Digital Cultural Heritage: the need for a research e-Infrastructure**

5. **Research and innovation in the digital cultural heritage: an international matter**

6. **Users involvement: the success factor**

7. **Coordination and demonstration actions: a requirement for the sector**

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[8] www.dc-net.eu   [9] www.linkedheritage.eu
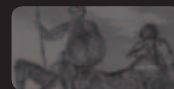
1. European Coordination: the role of Member States and European Commission

The sector of the cultural heritage is changing very rapidly.
The new ICT technologies are opening new areas of research, development and growth for the sector that need to be monitored and accompanied carefully.

The integration of investment from the private and the public sector, within a dimension that becomes more and more global demand for the attention and the reflection of the Member States and the European Commission, together, in a coordinated and synergic manner.

The experience of the National Representatives Group for the digitization of cultural heritage, supported by the Minerva series of projects[10], which run from 2001 to 2007 and which prepared for the advent of Europeana has demonstrated the validity of such an approach.

The new Member States Expert Group established by the European Commission to support the evolution of European reinforces the idea.

The time is mature now to re-launch a more ambitious approach to cooperation and pooling of resources, not restricted to Europeana but addressing the whole range of the Digital Cultural Heritage needs, where Member States and EC representatives work together, with the support of the EU Presidencies and of a coordination project acting as the operational arm of the action. From this point of view, the example of Minerva and of the Joint Programming Initiative are important models of reference.

2. Europeana: towards its full deployment

The Digital Agenda for Europe, one of the seven flagship initiatives of the Europe 2020 Strategy has pointed out the importance of strengthening Europeana, the EU public digital library.

The DC-NET and LINKED HERITAGE projects acknowledge the importance of the role that Europeana can have for the cultural heritage sector.

It can be also said that Europeana has completed its innovation loop and the project is now entering into its full deployment phase. In this light, the identification of a specific and tailored mechanism for the provision of the EC funding is recommended , complemented by the mechanisms for its continuous innovation.

3. Preservation: a task for the Member States

The task of preservation of digital master copies is the responsibility of the Member States; it takes place via the national memory institutions or through other public institutions under the direct responsibility of governments. National frameworks that regulate this area, like rules on legal deposit and handling of public records differ from country to country; the publishing sector is also involved, for example where born digital material is concerned.
For this reason, the task of preservation and the creation of a "dark archive" where master copies of digital resources in the public domain and born digital works can be stored is a delicate and relevant matter and can not be an appropriate task for Europeana, as hypothesised in the New Renaissance report[11] .

4. Digital Cultural Heritage: the need for a research e-Infrastructure

Research in digital cultural heritage is rapidly becoming data intensive.

This is largely due to the creation of large bodies of digital material through mass digitisation programmes12;

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[10] www.minervaeurope.org   [11] www.Report of the "Comité des Sages". Reflection group on bringing Europe's cultural heritage online.
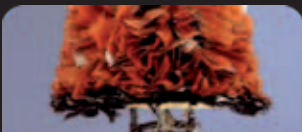
best estimates suggest that only a small proportion of all cultural heritage material has been digitised to date, and there is significant commitment to further digitisation at national and institutional levels across Europe13. Further, substantial amounts of born-digital material exist, such as heritage-related data produced by scientific research and by the digital analysis of cultural objects.

This amount of data creates a strong demand of service and data facilities where data can be stored, preserved, accessed, re-used and annotated by the researchers of the digital cultural heritage.

Such collaborative data infrastructure should include multilingual and interoperable approaches and it must be based on and valorise the initiatives that each institution is carrying out at national, regional and local levels. It will be a major tool for developing virtual Digital Cultural Heritage communities.

The multicultural aspects are also fundamental for the sector that is committed to replicate in the digital dimension the same democracy that the cultural heritage is aiming at, in the tangible dimension.

To achieve these results, the governance model should facilitate involvement in the decision making by all levels institutions.

It should be avoided to be blinded by impression of an immediate efficiency generated by a centralistic approach.

Only deep roots among the actual stakeholders represent a real guarantee for the continuity of the services, the sustainability of the initiatives and a long lasting life of the infrastructure. The participation to the Joint Programming Initiative for the cultural heritage can be definitely beneficial to this.

5. Research and innovation in the digital cultural heritage: an international matter

Research and innovation in the digital cultural heritage is an international matter in its own essence.

Exchange of best practices, common awareness initiatives, as well joint research, development and innovation projects should be constantly launched in cooperation with the other regions of the world, from the Americas to the Far East, from Africa to Australia.

6. Users involvement: the success factor

The involvement of the users in each phase of the research, development and innovation processes is a determining factor for the success of the new ventures. Users should be actively involved into pilots, awareness and training activities possibly on a regular basis, in each project.

This aspect is particularly relevant for the cultural heritage sector that is moving into the technologies very rapidly and therefore is demanding for even a major attention than other sectors in the actual engagement of its users in the innovation processes.

## 7. Coordination and demonstration actions: a requirement for the sector

The digital cultural heritage sector is new to the ICT.

The last 10 years have seen a revolution in the sector that still needs to be accompanied by coordination and demonstrations actions, able to accelerate the access to the new platforms by targets and to obtain longer and stable commitments from stakeholders.

Communication and advocacy are fundamental aspects for the sector.

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12 Not least those funded by the EU under the eContent+ programme and Google.

13 For details, see the NUMERIC project final report at http://cordis.europa.eu/fp7/ict/telearn-digicult/numeric-study_en.pdf
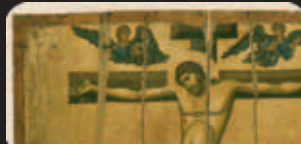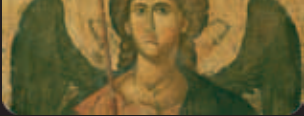
KEY STEPS

October 2009
Pre-launch of DC-NET in the frame of the Presidential Conference in Lund. Under the aegis of the Swedish Presidency of the EU

December 2009
DC-NET kick-off

February 2010
DC-NET public launch, Rome

October 2010
First DC-NET Conference, Brussels. Under the aegis of the Belgium Presidency of the EU

January 2011
Concertation Seminar, Tallin

February 2011
New Service Workshop, Paris

May 2011
Submission of the joint Position Paper by DC-NET and Linked Heritage projects
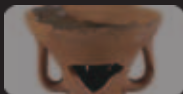
June 2011 – Second DC-NET Conference, Budapest. Under the aegis of the Hungarian Presidency of the EU

End of 2011
delivery of the DC-NET Joint Activities Plan

February 2012
Final DC-NET Conference

ITALY http://www.iccu.sbn.it/

The Italian Ministry for Cultural Heritage and Activities is coordinating the most important initiatives at the national level in the field of digitisation:
- Management and coordination of the National Library System (SBN), gathering more than 4000 libraries
- CulturaItalia: portal of Italian culture giving access to digital contents from Italian cultural institutions, acting also as Italian aggregator towards Europeana
- MuseiD-Italia: 31 projects to create the register of museums, and digitise and retrieve museum digital resources
- Internet Culturale: portal giving access to digital objects from Italian libraries
- Coordination of participation in the World Digital Library with masterpieces from Italian Libraries
- Agreement with Google for the mass digitisation of books from Rome, Florence and Naples national libraries
- Management and coordination of the general information system (SIGEC) of the Italian cultural heritage
- Maintenance of the MICHAEL Service for the access to digital cultural collections
- Development of the national information system for archives (SAN).

Il Ministero per I beni e le attività culturali coordina le maggiori iniziative a livello nazionale nel settore della digitalizzazione:
- *Gestione e coordinamento del Sistema bibliotecario nazionale (SBN), con più di 4000 biblioteche partecipanti*
- *CulturaItalia: portale della cultura italiana che dà accesso ai contenuti digitali delle istituzioni culturali italiane, con funzione di aggregatore*

italiano verso Europeana
- *MuseiD-Italia: 31 progetti per realizzare l'anagrafe dei musei, la digitalizzazione e il recupero di risorse digitali museali*
- *Internet Culturale: portale per l'accesso agli oggetti digitali delle biblioteche italiane*
- *Coordinamento della partecipazione alla World Digital Library con i capolavori delle biblioteche italiane*
- *Accordo con Google per la digitalizzazione su larga scala dei libri posseduti dalle biblioteche nazionali di Roma, Firenze e Napoli*
- *Gestione e coordinamento del Sistema informativo generale del catalogo (SIGEC) del patrimonio culturale italiano*
- *Mantenimento del servizio MICHAEL, per l'accesso alle collezioni culturali digitali*
- *Sviluppo del sistema archivistico nazionale (SAN).*

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FRANCE http://www.culture.gouv.fr/

The French policy regarding the Digital Cultural Heritage is structured since 1996 by a national strategy : a cross-domain National Digitisation Plan and massive digitisation programmes launched by two major cultural institutions (INA, BnF). The national digitisation plan organises an annual "call for project" to support the creation of a digital offer of cultural content freely available on-line for the public and organised by a thematic approach (six thematic programmes : territories, people, French and languages of France, art/ archaeology, architecture, contemporary creation). Contents are available through the national aggregator Collections on culture.fr The national digitisation plan also organises the dissemination of recommendations and good practice in the field of digitisation, on-line accessibility
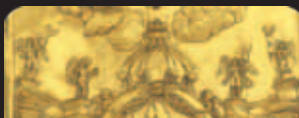
and long term preservation. Co-operations with Higher education and Research institutions is also supported in order develop to new uses of digital cultural content in these fields and to enhance the tools used for digitising and valorising the cultural heritage. This is facilitated by the existence of research laboratories and higher education institutes under the umbrella of MCC, that benefit from national programmes (ANR) and eInfrastructures (RENATER and TGE Adonis). There is a close collaboration with the ministry of higher education and research (MESR), which operates "NUMES, a sister platform of MCC's "Patrimoine numérique" in the framework of MICHAEL. A frame agreement with the national centre for scientific research CNRS fosters also co-operations in the field of digital humanities and new digital devices.. Lastly, in order to complement the effort of digitisation, a new programme CultureLabs was launched by MCC in 2010 to support innovative digital cultural services based on new partnerships between cultural institutions, private sector and research laboratories.

The Department for Research, higher Education and Technology (DREST) of the French Ministry of Culture and Communication is especially involved in the implementation of this actions, and to develop connections between digitisation, research and higher education. This department also ensures the integration of the national strategy into the European level both for digitisation of cultural heritage (Europeana, Minerva, Michael, Athena, Linked heritage) as for its preservation (Net Heritage) and the combination of both (DC-Net, JPI "Cultural heritage").

La stratégie française en matière de numérisation du patrimoine culturel est structurée depuis 1996 par le plan national de numérisation, transversal, et des programmes de numérisation de masse de deux établissements publics nationaux (INA et BnF). Le plan national organise un appel à projets annuel

afin de soutenir la création d'une offre de contenus numérisés, gratuite et disponible en ligne pour les publics. Cette offre est organisée autour de six thèmes nationaux : territoires, personnes, français et langues de France, art/archéologie, architecture, création contemporaine ; elle est disponible notamment via l'agrégateur national Collections de Culture.fr. Le plan national de numérisation organise également la diffusion de recommandations et de bonnes pratiques dans le domaine de la numérisation, de l'accessibilité en ligne et de la conservation à long terme.
Les coopérations avec l'enseignement supérieur et les institutions de recherche sont favorisées afin de développer de nouveaux usages des contenus culturels ainsi que pour améliorer les outils de numérisation et de diffusion. Elles sont facilitées par l'existence de laboratoires de recherche et d'écoles d'enseignement supérieur sous la tutelle du MCC, qui bénéficient des programmes nationaux de recherche (ANR) et des eInfrastructures nationales (RENATER, TGE Adonis). Le MCC collabore étroitement avec le Ministère de l'enseignement supérieur et de la recherche (MESR), qui a développé « NUMES », une plate-forme sœur de celle du MCC « Patrimoine numérique » dans le cadre de MICHAEL. Un accord cadre avec le CNRS permet des coopérations dans le domaine des « humanités numériques » et le développement de nouveaux dispositifs numériques. Enfin, en complément de la numérisation des collections, le MCC a lancé en 2010 un nouveau programme « CultureLabs » afin de soutenir des services numériques culturels innovants basés sur de nouveaux partenariats entre des institutions culturelles, le secteur privé et des laboratoires de recherche.
Le Département de la Recherche, de l'Enseignement supérieur et de la Technologie (DREST) du MCC est particulièrement impliqué dans la mise en œuvre de ces actions et dans le développement de liens entre

numérisation, recherche et enseignement supérieur. Ce département assure l'intégration de la stratégie nationale au niveau européen, aussi bien pour la numérisation du patrimoine culturel (Europeana, Minerva, Michael, Athena, Linked heritage) que pour sa préservation (Net Heritage) ou encore au sein de projets plus globaux combinant ces différentes approches (DC-Net, JPI "Cultural heritage").

ESTONIA   www.kul.ee   www.kultuuriministeerium.ee

The Estonian Ministry of Culture coordinates and implements many important initiatives at national level in the field of digitisation:

• The Ministry is assisted by the Council for Digital Preservation of Cultural Heritage, which is made up of representatives of various memory institutions.
• The Ministry has launched a central portal on cultural heritage, "e-Kultuuripärand", which helps us to offer better and more access to our cultural heritage through Europeana.
• Development and management of the Central Museum Information System "MuIS" (www.muis. ee): our central museum information system, which maintains records on museum objects and provides the public access to information on the objects (also images and videos).
• Development and management of the public libraries system URRAM (www.lugeja.ee), used by ca 400 libraries all over Estonia. The system also includes the home studies portal Kodulugu.ee, where library employees enter information on their localities.
• The Ministry participates in several international projects, such as ATHENA and CARARE, which enables to substantially increase, in the near future, the number of objects available through Europeana.

Eesti Vabariigi Kultuuriministeerium koordineerib ja korraldab riiklikul tasandil kultuuripärandi digiteerimist ja kättesaadavaks tegemist:

• *Kultuuriministeeriumi juurde on moodustatud Kultuuripärandi Digitaalse Säilitamise Nõukogu, mille eesmärgiks on anda nõu kultuuripärandi digiteerimise, digitaalsena kättesaadavaks tegemise ja digitaalse säilitamisega seotud küsimustes.*
• *Kultuuriministeerium on loonud keskse kultuuripärandi otsinguportaali "e-Kultuuripärand" (www.e-kultuur.ee), mis võimaldab ühtset juurdepääsu digitaalsele kultuuripärandile.*
• *Kultuuriministeeriumi eestvõttel on loodud keskne muuseumide infosüsteem MuIS (www.muis.ee), mille eesmärk on museaalide üle arvepidamine ning avalikkuse juurdepääs muuseumides talletatud kultuuripärandile.*
• *Kultuuriministeerium arendab rahvaraamatukogudele ja lugejatele mõeldud tarkvara URRAM (www.lugeja.ee), mida kasutab üle 400 raamatukogu ning mis sisaldab ka koduloolise info andmebaasi (www.kodulugu.ee).*
• *Kultuuriministeerium osaleb mitmetes rahvusvahelistes projektides, nagu ATHENA ja CARARE, mille abil tehakse Eesti rikkalik kultuuripärand kättesaadavaks läbi Europeana.*

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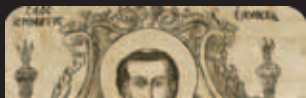
SLOVENIA

Digital cultural heritage is recognized in Slovenia as one of the major fields of information society and is understood as the including of the up to date information communication technology into the basic processes of creating, saving, disseminating, presenting to the public, protecting and reusing cultural content both as regards the creators of cultural goods and as well as libraries, museums, galleries, archives, mass media and other cultural institutions.

Cultural industry is based on knowledge, it requires creativity, and is the driving force of technological innovation, particularly in the field of the information communication technology. Digitalisation, digital content, digital services and public accessibility in the field of culture and cultural heritage are of essential importance, not only for the marketing of the related fields of creative industry and tourist economy, but also as the basis of a use of digital cultural content in the processes of education, training, lifelong learning and contribution to knowledge for greater quality of life. Digital cultural content is one of the most effective instrument for the enhancement of Slovenia's identity and competitiveness, and its economy as a whole.

The focus of digital cultural heritage policy and programmes is:
- Encourage the digitalisation of all kinds of cultural content, including appropriate documenting, development of Slovenian terminology and long term preservation of digital content.
- Development of digital content, e-services, and interoperability framework for cooperation among cultural institutions, with citizens and with other information society institutions.
- Inclusion into the European digital cultural space in the field of contents, standards, protocols and system for the management of digital rights.

V Sloveniji je digitalna kulturna vsebina prepoznana kot eno izmed pomembnih področij informacijske družbe in se jo razume kot vključevanje sodobne informacijsko komunikacijske tehnologije v osnovne procese ustvarjanja, shranjevanja, razširjanja, predstavljanja javnosti, zaščite in ponovne uporabe kulturnih vsebin tako pri neposrednih ustvarjalcih kulturnih dobrin kot tudi pri knjižnicah, muzejih, galerijah, arhivih, medijih ter ostalih kulturnih institucijah.

Kulturna industrija temelji na znanju in zahteva ustvarjalnost ter je gonilna sila tehnoloških inovacij, predvsem na področju informacijsko komunikacijske tehnologije. Digitalizacija, digitalne vsebine, digitalne storitve in javna dostopnost na področju kulture in kulturne dediščine so bistvenega pomena, ne le za trženje omenjenih in z njimi povezanih področij kreativne industrije in turističnega gospodarstva, temveč pomenijo tudi osnovo za neposredno uporabo digitalnih kulturnih vsebin v procesih izobraževanja, usposabljanja, vseživljenskega učenja ter znanju kar dviguje kvaliteto življenja. Digitalne kulturne vsebine so eden najbolj učinkovitih instrumentov za dvig prepoznavnosti in konkurenčnosti Slovenije in njenega gospodarstva kot celote.
Politika in programi na področju digitalne kulturne dediščine so osredotočeni na:
- *Podporo digitalizacije vseh vrst kulturnih vsebin vključno z ustreznim dokumentiranjem, razvojem slovenske terminologije in trajnim hranjevanjem digitalnih vsebin.*
- *Razvoj digitalnih vsebin, e-storitev in medopravilnih okvirjev za sodelovanje med kulturnimi institucijami, z državljani in z ostalimi institucijami informacijske družbe.*
- *Vključevanje v evropski digitalni kulturni prostor na področju vsebin, standardov, protokolov in sistema upravljanja z digitalnimi pravicami.*

GREECE www.culture.gr

The aim of Greece in the field of digital cultural heritage is the preservation of national cultural content through digitisation, in parallel with the use of digital services in knowledge transmittance in Greece and abroad using European thematic sector standards. The Hellenic Ministry of Culture and Tourism and the Hellenic Ministry of Education, Lifelong Learning and Religious Affairs are the main contributors in this effort.

Following the projects that took place in the context of the Operational Programme "Information Society" and involved the digitization of the collections of more than 200 cultural institutions (with structural funds of about 100 MEuro) and branches of the Archaeological Service and Ephorates of Contemporary and Modern Monuments of the HMCT, 18.000.000 pages from the public libraries' network and more than 5.000.000 pages from State Archives:
- Digital cultural content is promoted through access to national portals, eg Digital Collections (http://collections.culture.gr/) and the national Michael portal, with the Hellenic Ministry of Culture and Tourism having the role of the national aggregator within DC-NET.
- Digitisation is still conducted in the context of the Operational Programme "Digital Convergence" involving books, 2-D objects, images, video and film, sound documents, music, 3-D archaeological artefacts and monuments from the Hellenic Ministry of Culture and Tourism and other smaller organizations, e.g. the Hellenic National Audiovisual Archive (HeNAA) with the digitization of newsreels and films (700 hours) from the recent history of Greece.
- The mapping of monuments with the use of GIS is planned (Archaeological Cadastre).
- Regional development is supported through the active participation of the regions.

- Further interaction of GrNET (NREN) and SYZEFXIS (official network provider for public administration) in the cultural sector for the further development of digital cultural services using e-infrastructures is promoted.

Οι δράσεις της Ελλάδας για την ψηφιακή πολιτιστική κληρονομιά, που εκτελούνται από το Υπουργείο Πολιτισμού και Τουρισμού, καθώς και από το Υπουργείο Παιδείας, Διά Βίου Μάθησης και Θρησκευμάτων, στοχεύουν στη διάσωση του Εθνικού Πολιτιστικού Αποθέματος μέσω της ψηφιοποίησής του, παράλληλα με την παροχή πληθώρας ψηφιακών υπηρεσιών στον τομέα της μετάδοσης της γνώσης στο εσωτερικό και στο εξωτερικό με βάση ευρωπαϊκά θεματικά πρότυπα.

Σε συνέχεια των έργων που υλοποιήθηκαν στο πλαίσιο του Επιχειρησιακού Προγράμματος «Κοινωνίας της Πληροφορίας» και αφορούσαν στην ψηφιοποίηση συλλογών περισσότερων από 200 πολιτιστικών φορέων (και με προϋπολογισμό πάνω από 100 εκατομμύρια Ευρώ), Εφορειών Αρχαιοτήτων και Νεωτέρων Μνημείων, 18.000.000 σελίδων από συλλογές δημόσιων βιβλιοθηκών και περισσότερων από 5.000.000 σελίδων από τα Γενικά Αρχεία του Κράτους:
- *ποστηρίζεται η ανάδειξη του ψηφιακού πολιτιστικού αποθέματος δίνοντας πρόσβαση σταδιακά μέσα από εθνικές δικτυακές πύλες, όπως οι Ψηφιακές Συλλογές (http://collections.culture.gr/) και η δικτυακή πύλη του Michael, με το ΥΠΠΟΤ να έχει τον ρόλο του εθνικού συσσωρευτή στο πλαίσιο του DC-NET.*
- *Συνεχίζεται στο πλαίσιο του Επιχειρησιακού Προγράμματος «Ψηφιακή Σύγκλιση» το πρόγραμμα της ψηφιοποίησης βιβλίων, διδιάστατου οπτικού υλικού, βίντεο και φιλμ, ηχητικών ντοκουμέντων, μουσικής, τριδιάστατων κινητών και ακίνητων μνημείων από το Υπουργείο Πολιτισμού και Τουρισμού καθώς και από μικρότερους*

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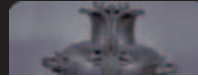
οργανισμούς, όπως το Εθνικό Οπτικοακουστικό Αρχείο με την ψηφιοποίηση ειδήσεων και ταινιών διάρκειας 700 ωρών από τη σύγχρονη ελληνική ιστορία.
- *Ξεκινάει η χαρτογράφηση των μνημείων με εφαρμογές GIS (Αρχαιολογικό Κτηματολόγιο).*
- *Ενισχύεται η περιφερειακή ανάπτυξη με την ισότιμη και ενεργή συμμετοχή της περιφέρειας.*
- *Προωθείται η σύμπραξη ΕΔΕΤ (NREN) και ΣΥΖΕΥΞΙΣ (e-infrastructure για τον δημόσιο τομέα) στον πολιτιστικό τομέα για την περαιτέρω ανάπτυξη πολιτιστικών υπηρεσιών με τη βοήθεια e-infrastructures.*

SWEDEN http://www.riksarkivet.se/

The Swedish Government initiated in April 2010 a work process aiming at a national strategy regarding digitisation, electronic access and digital conservation. All government-funded cultural heritage institutions were asked to provide basic information. Other cultural heritage institutions were also invited. The answers indicates that in the archival sector, only a minor part of the holdings have been digitised by private and municipal archives, mostly photo collections. In the state archival institutions about 3 % of the holdings have been digitised.
In the library sector, the National Library has digitised less than 1 % of their holdings of printed materials. Out of their audiovisual collection about 17 % is digitised. In the museum sector, there is a tendency to prioritise digitisation of metadata. Some of the smaller and medium sized museums have digitised rather much of their collections of artefact and photos, in some cases up to 60 %. In 2011 Riksarkivet (the National Archives) has been given the task by the Swedish Ministry of Culture to set up a secretariat for coordinating digitisation, on line access and digital preservation for all state cultural heritage institutions. In the budget bill for 2012 the government has announced a three-

year initiative for the cultural heritage sector aiming at digitisation and other preservation activities. The costs are estimated to around 800 millions SEK.

Since April 2009, three databases have been brought together in a cross-border search service called Sondera (www.sondera.kb.se), which makes it possible to search simultaneously in the National Archival Database (NAD), the National Library´s database LIBRIS and Swedish Media Database SMDB. Since 2008, a national database system on metadata from Swedish museums, called K-samsök, is under construction. One of its applications operating on the Internet is Kringla (www.kringla.nu). Plans are made to coordinate K-samsök with Sondera.

Sveriges regering har i april 2010 initierat en arbetsprocess med syfte att få fram en nationell strategi för digitalisering, elektronisk tillgång och digitalt bevarande. Alla kulturarvsinstitutioner som är statligt finansierade fick under våren 2010 i uppdrag att lämna grundläggande information till Kulturdepartementet som underlag för strategiarbetet. Även andra kulturarvsinstitutioner bjöds in att lämna in ett underlag. Preliminära sammanställningar av svaren pekar på att endast en mindre del av arkivbestånden, i de flesta fall fotosamlingar, har digitaliserats vid privata och kommunala arkiv. Vid de statliga arkivinstitutionerna har ca 3% av bestånden digitaliserade, och inom bibliotekssektorn, har Kungl. biblioteket digitaliserat mindre än 1% av sina samlingar med tryckt material men ca 17% av sina audiovisuella samlingar. Inom museisektorn finns det en tendens att prioritera digitalisering av metadata. Några av de mindre och medelstora museerna har digitaliserat stora delar av sina samlingar av föremål och fotografier, i vissa fall upp till 60%. Under 2011 har Riksarkivet fått i uppdrag från Kulturdepartementet att inrätta och driva ett samordningssekretariat för digitalisering, digitalt bevarande och digital förmedling av kulturarvet.

Uppdraget omfattar alla statliga kulturarvsinstitutioner. I budgetpropositionen för 2012 har regeringen annonserat att man planerar avsätta sammanlagt cirka 800 miljoner kronor på tre år till en satsning på digitalisering och andra bevarandeåtgärder inom kulturarvssektorn.

Sedan april 2009 har tre databaser förts samman i en samsökningstjänst kallad Sondera (www.sondera. kb.se), som gör det möjligt att söka samtidigt i den nationella bibliotekskatalogen LIBRIS, i den nationella arkivdatabasen NAD och i Svensk mediedatabas SMDB. Sedan 2008 utvecklas nationell metadatadatabas, K-samsök. En av dess tillämpningar på Internet är Kringla (www.kringla. nu). Det finns planer på att samordna K-samsök med Sondera.

HUNGARY   http://www.culture.hu/

In 2003 the Hungarian Information Society Strategy was prepared including the cultural information society strategy. Parallel to this the national cultural heritage to be digitised was also mapped.
At the end of 2010 a new strategic document is adopted titled Digital Hungary 2010-2014. It outlines Hungarian priorities and measures in accordance with the Digital Agenda for Europe 1010-1020. The support of cultural diversity and the creative industries are of main concern in the document.
Measures promoting the preservation of digital cultural heritage are:
• preservation of the digital copies of the entire Hungarian heritage, to this end ensure the conditions of digitisation, define basic quality requirements.
• making public and thus accessible freely the national digitised heritage with respect for copyright regulations.

The majority of big heritage institutions have a

webpage or a portal which contains the digital copies of an ever growing part of the collections they hold. Public heritage institutions first of all use the basic services of those the Hungarian NREN, NIFFI offers for membership fees depending on the band width. Services become available by signing an association and service contract between the heritage institution and the NREN. For extended services a supplementary contract is necessary. As an effect of the DC-Net project there has been a move towards better covering the eInfrastructure needs of heritage institutions.

A magyarországi helyzet áttekintése

2003-ban elkészült a Magyar Információs Társadalom Stratégia (MITS) és ezen belül az információs társadalom kulturális ágazati stratégiája. Ezzel párhuzamosan megtörtént a magyar kulturális közvagyon feltérképezése is.

2010 végén elfogadásra kerül a Digitális Magyarország 2010-14 c. stratégiai dokumentum, amely a Digitális Menetrendhez kapcsolódóan fogalmazza meg a magyar prioritásokat és intézkedéseket. A dokumentumban kiemelt prioritást kap a kulturális sokszínűség és a kreatív tartalmak támogatása.
Digitális kulturális örökség megőrzését elősegítő intézkedések:
• A teljes magyar kulturális örökség digitális másolatának megőrzése, ennek érdekében a digitalizálás feltételeinek megteremtése, minőségi alapkövetelmények meghatározása.
• A digitalizált nemzeti adatvagyon közkinccsé, ezáltal szabadon hozzáférhetővé, felhasználhatóvá tétele a szerzői jogi szabályok tiszteletben tartása mellett.

A nagyobb közgyűjtemények többségének van honlapja vagy portálja, amelyen a gyűjteményeikben

található kulturális javak egy része digitálisan is elérhető. A magyar NREN az NIIFI szolgáltatásai közül a közgyűjtemények elsősorban az alapvető eInfrastruktúra szolgáltatásokat veszik igénybe tagsági szerződés alapján. A szolgáltatások igénybevételéért hozzájárulást kell fizetniük a biztosított sávszélesség függvényében. Az alapszolgáltatásokon túli szolgáltatásokhoz külön szerződés keretében juthatnak hozzá. A DC-Net projekt hatására megkezdődött az igények és szolgáltatások egymáshoz közelítése.

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Within the federal institutional structure of Belgium, the Communities – the *Flemish Community*, the *French Community* and the *German-speaking Community* – are each responsible for their own cultural policy. Moreover a series of federal scientific and cultural institutions remain under the responsibility of the federal State. Most of those are placed under the authority of the *Belgian Federal Science Policy Office (BELSPO)*, among which the national library and State archives, and several large federal museums and scientific institutes.

BELSPO is currently preparing the second phase of its encompassing *Digitisation plan of the federal scientific and cultural institutions.* This plan aims at (i) preserving sensitive or endangered as well as other prioritary collections and (ii) increasing sustainable access and valorisation of the collections held by twelve institutions, for scientists as well as for the general public. During the *first phase (2005-2011)* of the Digitisation plan, nine prioritary projects will have been executed for a total of 18.5 million euro. Clear priorities were set for the distribution of the financial means among the various documents and materials:

25% of the total budget has been allocated to the digitisation of the national newspapers which will be an important contribution of Belgium to Europeana. This huge amount of three million pages represents only 3% of the total estimated amount of pages of the Belgian newspapers. The other main priorities are: the digitisation of important archival documents and monographies, the achievement of the digitisation of the library catalogues, the digitisation of a selected set of photographic plates, film negatives, photos, drawings and audiovisual material. The selection of the priorities was made on the basis of a comprehensive preliminary study of all the collections and by consensus among all the institutions concerned. For the *second phase*, a PPP is being considered. The budget could be an estimated 150 million euro. The federal institutions are active in a variety of EU projects dedicated to digitisation and digital preservation.

In 2007, the *French Community* set up a General delegation for the digitisation of cultural heritage, within the framework of the *Plan for the preservation and exploitation of cultural heritage.* The Delegation launched a website integrating all information regarding digitisation related activities in the French Community. For the period 2009-2013, the budget for digitisation activities will be 10.5 million euro. A digital aggregator for all cultural institutions - a portal website which will contribute to Europeana and other European projects - is in development and will be operational in 2011. The French-speaking Radio-TV Broadcasting company has also worked out a strategic plan aimed at digitising over a period of five years its radio and TV archives and at providing long-term access to them.

The *Flemish Community* published in 2005 the *Digital Action Plan Flanders* whose general aims were to create an advanced information society and to do away with the digital divide. One of the seven priorities

is an integrated digitisation policy. The *Cultural Policy 2010-2011* announces a further commitment to enhance e-culture and digitisation. For 2011, the amount of institutions and heritage communities involved in digitisation activities and projects will be increased considerably, resulting in a larger contribution to Europeana and further development of a digitisation policy. A series of ongoing research projects aim to determine how to implement a sustainable archive of diverse and complex digital, audiovisual and multimedia objects, within the given Flemish decentralised archival infrastructure. Relying on the results of these projects a Flemish institute for multimedia archiving of audiovisual heritage will be developed.

Dans la structure institutionnelle fédérale de la Belgique, les Communautés (flamande, française et germanophone) sont chacune responsables de leur politique culturelle. Une série d'institutions scientifiques et culturelles restent cependant sous la tutelle de l'Etat fédéral. La plupart d'entre elles dépendent de la Politique scientifique fédérale (BELSPO, Belgian Federal Science Policy Office), dont la bibliothèque nationale et les archives de l'Etat, et une série de grands musées et instituts scientifiques fédéraux.

BELSPO prépare actuellement la deuxième phase d'un ambitieux Plan de numérisation des institutions scientifiques et culturelles fédérales. Ce plan a pour double objectif: (i) de préserver les collections sensibles ou menacées ainsi que d'autres collections jugées prioritaires et (ii) d'accroître l'accès durable et la valorisation des collections détenues par douze institutions, tant pour les scientifiques que pour le grand public. Au cours de la première phase (2005-2011) du Plan de numérisation, neuf projets prioritaires auront été exécutés, pour un budget total de 18,5 millions d'euros. Des priorités ont été clairement définies pour répartir les moyens financiers

entre les différents documents et matériaux: un quart du budget total a été alloué à la numérisation des journaux nationaux qui constituera une contribution importante de la Belgique à Europeana. Ce grand ensemble de trois millions de pages ne représente que 3% du nombre total estimé de pages des journaux belges. Les autres priorités principales étaient: la numérisation d'importants documents d'archives et de monographies, l'achèvement de l'informatisation des catalogues de bibliothèques, la numérisation d'un ensemble sélectionné de plaques photographiques, de négatifs de films, de photos, de dessins et de matériel audiovisuel. La sélection des priorités a été réalisée sur la base d'une étude exhaustive préalable de toutes les collections et par consensus entre toutes les institutions concernées. Pour la seconde phase, un partenariat public-privé (PPP) est envisagé. Le budget estimé pourrait être de l'ordre de 150 millions d'euros. Les insitutions fédérales sont également actives dans divers projets européens de numérisation et de conservation numérique.

En 2007, la Communauté française a créé une Délégation générale à la numérisation des patrimoines culturels, dans le cadre du Plan de préservation et d'exploitation des patrimoines – PEPs. La Délégation a lancé un site web qui intègre toutes les informations relatives aux activités liées à la numérisation en Communauté française. Pour la période 2009-2013, le budget dédié à la numérisation se montera à 10,5 millions d'euros. Un agrégateur numérique pour tous les établissements culturels - un portail qui contribuera à Europeana et à d'autres projets européens - est en développement et sera opérationnel en 2011. La société de Radio-télévision belge francophone (RTBF) a également établi un plan stratégique quinquennal visant à numériser ses archives radio et TV et à y fournir un accès à long terme.

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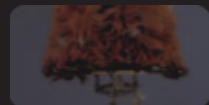
La Communauté flamande a publié en 2005 son d'ériger la Flandre en société de l'information avancée et d'y réduire la fracture numérique. Une des sept actions prioritaires concerne une politique intégrée de numérisation. La Note de politique Culture 2010-2011 prend l'engagement de promouvoir la culture en ligne et la numérisation. Pour 2011, on prévoit une augmentation considérable des institutions et communautés patrimoniales engagées dans les activités et projets de numérisation, entraînant une contribution accrue à Europeana et un développement supplémentaire de la politique de numérisation. Une série de projets de recherche ambitionnent de déterminer comment mettre en oeuvre une archive numérique durable d'objets divers et complexes, audiovisuels et multimédias, dans le cadre de l'infrastructure flamande décentralisée. Sur la base des résultats de ces projets, un institut flamand de l'archivage numérique multimédia du patrimoine audiovisuel sera développé.

In de gefederaliseerde Belgische staatsstructuur zijn de Gemeenschappen – de Vlaamse Gemeenschap, de Franse Gemeenschap en de Duitstalige Gemeenschap – elk bevoegd voor hun eigen cultureel beleid. Een aantal federale wetenschappelijke en culturele instellingen blijven echter onder federale bevoegdheid. De meeste hiervan hangen af van het Belgisch Federaal Wetenschapsbeleid (BELSPO), onder andere de nationale bibliotheek en het Rijksarchief en een aantal grote federale musea en wetenschappelijke instituten.

BELSPO bereidt op dit moment de tweede fase voor van een ambitieus Digitaliseringsplan van de federale wetenschappelijke en culturele instellingen Dit plan heeft twee doelstellingen: enerzijds gevoelige, bedreigde of prioritaire collecties te beschermen, en anderzijds collecties bewaard door twaalf instellingen beter te ontsluiten en te valoriseren voor wetenschappers en voor het grote publiek. Tijdens de eerste fase (2005-2011) van het Digitaliseringsplan werden negen prioritaire projecten uitgevoerd voor een totaal budget van 18,5 miljoen euro. De beschikbare middelen werden volgens duidelijk afgebakende prioriteiten aan de verschillende documenten en materialen toegewezen: een kwart van het totale budget werd toegekend aan het digitaliseren van nationale kranten, een belangrijke Belgische bijdrage aan Europeana. Dit geheel van drie miljoen pagina's zou slechts 3% van het geheel aan Belgische krantenpagina's uitmaken. De andere prioriteiten waren de digitalisering van belangrijke archiefdocumenten en monografieën, de voltooing van de automatisering van de bibliotheekcatalogi, de digitalisering van selecties van fotografische platen, film negatieven, foto's, tekeningen en audiovisueel materiaal. De keuze voor de prioriteiten stoelt op een voorafgaande exhaustive analyse van alle verzamelingen en op een brede consensus onder alle betrokken instellingen. Voor de tweede fase wordt een Openbaar-Privé Partnerschap (PPP) overwogen, waarvan het budget naar schatting 150 miljoen euro zou bedragen. De federale instellingen zijn eveneens actief in een aantal Europese projecten voor digitalisering en digitale bewaring.

In 2007 richtte de Franse Gemeenschap een Algemene afvaardiging voor het digitaliseren van cultureel erfgoed op in het kader van het Plan voor de erfgoed bewaring en – ontsluiting.

De Afvaardiging heeft een website gelanceerd, waar alle informatie in verband met digitaliseringsactiviteiten van de Franse Gemeenschap gecentraliseerd wordt. Voor de periode 2009-2013 zal het budget voor digitaliserinsgactiviteiten 10,5 miljoen euro bedragen. Een digitale aggregator wordt ontwikkeld voor alle culturele instellingen en zal operationeel zijn in 2011. Deze portaalsite zal bijdragen tot Europeana en andere Europese projecten. De Belgische Franstalige Radio en Televisie maatschappij (RTBF) heeft ook een strategische vijfjaren plan uitgewerkt voor het digitaliseren en het op langetermijnontsluiten van haar radio- en TV-archief. De Vlaamse Gemeenschap publiceerde in 2005 het Digitaal Actieplan Vlaanderen, met een dubbel doel: Vlaanderen verder uitbouwen als vooruitstrevende informatiemaatschappij en de digitale kloof overbruggen. Een van de zeven prioritaire acties bestaat in een geïntegreerd digitaliseringsbeleid. In de Beleidsbrief Cultuur 2010-2011 wordt bovendien het engagement genomen e-cultuur en digitalisering te bevorderen. Voor 2011 wordt een gevoelige toename voorzien van instellingen en erfgoedgemeenschappen die zich inzetten voor digitaliseringsactiviteiten en – projecten. De resultaten van deze inhaalbeweging moeten tevens zorgen voor een grotere toevoer van gegevens in Europeana. Een aantal lopende onderzoeksprojecten gaan na wat het concreet betekent om binnen een gedecentraliseerde Vlaamse digitale archiefinfrastructuur een duurzaam digitaal archief van diverse (complexe) digitale en multimediale objecten te implementeren. Verder bouwend op de resultaten van deze projecten zal een Vlaams instituut voor de multimediale archivering van het audiovisueel erfgoed ontwikkeld worden.

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DC-NET will bring the relevant institutions and people together. Establishing the community of common interest will support the development of the project and of each of its activities and will substantially contribute to the elaboration of a Joint Activities Plan. This will be the starting point of a new phase of integrated research, shared policies and high quality implementations.

Which are the benefits?

- Being part of a new interdisciplinary cross-domain community, which will be at the core of the Digital Cultural Heritage Virtual Research Community;

- Being able to contribute advice, expertise and ideas to the Joint Research Plan of the European Cultural Ministries in the field of digital cultural heritage;

- Networking with experts at national and international level: many advanced research projects can be expected to emerge from the new contacts and the circulation of new ideas;

- Participation in the new forum for coordination of research and implementation of services in the field of digital cultural heritage, as the operative arm carrying out the Joint Research Plan;

- Being kept informed on the progress made by digital cultural heritage research and policies internationally;

- Participating in dissemination and training activities;

- Being able to use project materials and outcome within academic and professional contexts.

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