# Italy

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## A. Users and content

### What are the main materials/categories of objects being digitised?

Libraries are digitising and rendering usable on line cultural material of a heterogeneous nature: from bibliographical information to complete texts to historical catalogues, as well as collections of photographs, posters and musical scores. Within the archive area the practice is to first of all digitise the inventories of archives in relation to collections, size and producing bodies, while the collecting of information into data bases of the images regarding the archive papers, carried out also and especially to preserve the original while avoiding its excessive handling by users, is for the most part entrusted to special projects. Digitising carried out within the area of museums includes on the other hand typologically different material. For example besides the SIGEC, the general catalogue (see below), at the National Gallery of Modern and Contemporary Art <http://www.gnam.arti.beniculturali.it/> both the works of art (paintings, sculptures, drawings, prints, photographic works, decorative works of art) preserved in the structure are being digitised, as is the catalogue of the associated library and also some historical papers of artists that form part of the museum's collections.

### How is the digitised CH content being distributed?

The cultural digital contents prepared by the institutions attached to the Ministry are usually rendered usable through the web sites of the institutes that produced them or through regional or national portals. During 2006 the General Directorate for technological innovation and the promotion of MiBAC <http://www.rio.beniculturali.it/index.php?it/75/direzione-generale-per-linnovazione-tecnologica-e-la-promozione>

promoted and funded three campaigns for digitising and publishing cultural information on the web within the sphere of the "ICT cultura" programme:

1) creation of digital contents
2) Archaeology on Line
3) the Portal of Culture

The first was addressed to the creation of digital contents. With over two million Euro 3 lines of action were in fact funded:

- creation or restructuring of the web sites of offices, museums, archives and libraries of the MiBAC following the guidelines of the MINERVA project;
- adaptation of software to join the Culture Portal
- censoring of the digital collections within the sphere of the MICHAEL project

The project has involved numerous offices of the Ministry for Cultural Heritage and Activities and will moreover involve the creation or restructuring of 66 institutional sites following the MINERVA parameters thanks to the use of the Museo&Web Content Management System.
Another digitising programme funded during 2006 is "Archeologia On Line – AOL" the goal of which is promoting knowledge of the archaeological heritage of some regions that form part of Objective 1 of the Structural Funds (Basilicata, Calabria, Campania, Puglia, Sardinia), through the use of new technologies. There are eleven institutions involved, with three lines of action:

- Virtual Archaeological Visits (VAV) that can be consulted through Internet
- ArcheoAtlante 3D: a virtual atlas of some archaeological sites that permits the visitor to navigate in real time in the modern territory and in the ancient one

- Archeoguida: multimedia guides that can be used within archaeological sites the contents of which are seen on palm tops

Each module also involves the brand new creation of implementation of the museum web sites of the Regional Directorates and of the Archaeological Departments involved with a view to giving the user the possibility of access to the digitised material. In this case also MINERVA's Museo&Web was used for creating new sites (for example, the Archaeological Museum of Sassari `<http://www.museosannasassari.it/>` and the Archaeological Museum of Nuoro `<http://www.museoarcheologiconuoro.it/>`). Among the large initiatives being implemented it is only right to mention the Italian culture portal "Culturaltalia" `<http://www.culturaitalia.beniculturali.it>`, on line by the end of 2007): it is an integrated point of access that, through a system of research and indexing, develops Italian cultural heritage throughout the country, easing the identification and interconnection of the existing resources. It is an interdisciplinary tool that sees the involvement of all sectors of the cultural heritage. Through Culturaltalia it will be possible to access and consult many of the Ministry's data bases or those produced by other public and private cultural institutions, of a national, regional or local character. The Portal also contains the information gathered in the Italian portal of the MICHAEL project `<http://michael-culture.it/mpf/pub-it/index.html>`. Culturaitalia is an experimental project that has an innovatory system of working inasmuch as it is based on the cooperation and integration of the digital contents of museums, archives, libraries, universities and all the other actors on the Italian cultural stage. In order to make it interactive and usable a management architecture of resources was adopted; it is based on international standards that put the project at avant-garde level in the construction of the European Digital Library and the network of European culture portals. The territorial points of access to the cultural heritage are on the other hand formed of the portals of the Regional Managements. The Italian Ministry is in fact organized into Regional Directorates that administrate the offices that at territorial level look

after the state cultural heritage of a particular region. Many of these Offices have their own institutional site that makes all the information easily accessible (for example `<http://www.liguria.beniculturali.it/>`, the site of the Regional Directorate for the cultural and landscape heritage of Liguria). On the other hand other Regional Directorates have chosen a thematic approach for presenting their information on line; such is the case of the Regional Directorate for the cultural and landscape heritage of Friuli-Venezia Giulia which has created, together with other local bodies, a portal that is entirely dedicated to all the museums of the region with the aim of providing cultural information but above all immediate and attractive tourist information: `<http://www.museifriuliveneziagiulia.it/index.html>`. As has already been emphasised, many of the cultural institutes of the Ministry have chosen to use the Content Management System Museo&Web prepared within the sphere of the MINERVA project for creating or restructuring one's web site; based on open source software, this CMS is distributed free of charge to anyone who asks for it (some realization at the address `<http://www.minervaeurope.org/structure/workinggroups/userneeds/prototipo/cms/realizzazioni.html>`). As regards access to digital cultural contents through national thematic inventories, in the first place we can mention "Internet Culturale", the portal created by the General Directorate for Libraries and Cultural Institutes `<http://www.iccu.sbn.it/genera.jsp>` that provides access not only to the network of the Italian libraries of the National Library Service (SBN) but also to the digital cultural collections and contents preserved or produced by them. Internet Culturale includes besides the collective catalogue of the libraries of the National Library Service, to which over 2,300 libraries of every type belongs, the historical Catalogues and the special ones (manuscripts, 16th century editions, Greek palimpsests, etc.) . During the year 2006 Internet Culturale has also acquired a system of e-commerce `<http://www.internetculturale.it/>`. Access to the heritage of the Italian state archives is possible through SIAS, the Information System of the State Archives `<http://www.archivi-sias.it/>`,

an on line data base that makes it possible to carry out research with different parameters in the descriptions of documentary complexes. SIAS is divided into correlated modules, that respect international descriptive standards ISAD(G) and ISAAR(CPF).
For research in non-state public and private archive heritage access is through SIUSA, Joint information system for the Archive Superintendency `<http://siusa.signum.sns.it/>`. Both SIAS and SIUSA are projects in constant evolution and development; both were prepared by the General Directorate for Archives of the MiBAC. A special mention should be made of "Archivi del Novecento" (Archives of the 1900s) `<http://www.archividelnovecento.it/>`, a project in continuous update that unites in the network, under the coordination of the BAICR consortium `<http://www.baicr.it/index.htm>`, the archives of 61 public and private cultural institutions that possess documents that are important for Italian history of the 1900s.
Among the ongoing projects in the sphere of archives is the "Archivio Storico Multimediale del Mediterraneo", an initiative of the State Archive of Catania `<http://www.archivi.beniculturali.it/ASCT/>` that, through the digitising and cataloguing of the acts, intends joining in a common, multilingual and on line accessible virtual space, the documentary heritage of the countries that face on to the Mediterranean. In its first implementation stage that will be completed within 2007, the project will therefore make available on line 220,000 images with 60,000 texts of a like number of documents, from the late middle ages to the end of 1400, and cartographic documentation up to the end of 1700.
The sector of heritage has a national reference point in SIGEC, the General Information System of the Catalogue prepared by the Central Institute for Catalogues and Documentation – ICCD `<http://www.iccd.beniculturali.it>`.
At the moment SIGEC can only be consulted locally; a simplified version of the information it contains will soon be accessible through the portal CulturaItalia. This does not mean that there are no large data bases accessible on line; such is the case of the digital archives of the Polo Museale Fiorentino. At the moment it is in fact possible to question the data base of the works of art hosted at the galleries of the Polo, while the photographic archive and that regarding

the flooded works of art will soon be digitised and also made accessible `<http://www.polomuseale.firenze.it/archivi/#>`.
Finally, the results of the Art-Past project will soon be published `<http://www.artpast.org/>`, an initiative promoted by the General Directorate for technological Innovation and promotion that aims at putting on line for scholars, Public Administration workers, and also a wider public, the catalographic heritage of the works of art. Further services will be developed on this data base within the area of the circulation of works of art and restoration.
The archaeological sector has registered the publication of the site "Fasti on Line" `<http://www.fastionline.org>`, a project that was born within the sphere of the collaboration begun between the General Directorate for Archaeological Heritage of the Ministry and the International Association of Classical Archaeology `<http://www.aiac.org/>`; It has been decided to provide the public with brief notes regarding the archaeological digs taking place in Italy from 2000 to the present day.
The territorial information systems of the Ministry with national coverage are:

• SITAP, Territorial, Environmental and Landscape Information System `<http://www.bap.beniculturali.it/sitap/>` of the General Directorate for the Architectural and Landscape Heritage, that is the reference point for the protection of landscape heritage; it contains a catalogue of the areas with landscape restrictions declared to be of considerable public interest;
• The "RiskMap", prepared by the Central Institute for Restoration – ICR `<http://www.cartadelrischio.it/ita/index.html>`, a system of alphanumeric and cartographic data bases able to explore, superimpose and prepare information concerning potential risk factors for the cultural heritage `<http://www.cartadelrischio.it/ita/index.html>`.

Finally, an integrated point of access to the digital and digitised collections of archives, libraries, museums, administration and heritage protection offices is the portal MICHAEL Italia `<http://michael-culture.it/mpf/pub-it/index.html>`, the national interface of the European project MICHAEL. MICHAEL uses a unique description model for cultural

collections belonging to different areas (libraries, archives, museums). MICHAEL Italia gives access not only to the digital collections published in the Internet network, but also to those which can only be consulted at the institutions that produced them.

**Are there any eLearning or creative industry uses for the digitised CH material?**

The use of digitised cultural material for learning or for the creation of services is by now the practice of the cultural institutions that deal with digitisation projects because by now it is clearly understood that the simple digitisation of the cultural heritage without a reprocessing of the contents in the form of services is a job only half done.
For example, in the Internet Culturale portal there is a series of learning objects prepared in various formats: virtual paths in 3D, virtual exhibitions, cultural tourist itineraries and hypertexts `<http://www.internetculturale.it/genera.jsp?s=8>`.
These are formulations not only of the Ministry but also of other institutions that have made their mark in the creation of virtual exhibitions and web paths of great tourist and cultural interest.
The Central Institute for Cataloguing and Documentation (ICCD) has prepared digital didactic material for the on line training of cataloguers according to ministerial parameters `<http://80.205.162.235/Catalogazione/formazione/prodotti>`;
the training modules also foresee face to face lessons and are organized in cooperation with various universities.
A great success with the public was obtained by the experimental project Archeoguida of the archaeological site of Villa Adriana near Rome; within the sphere of the Archeologia On Line programme an integrated service of multimedia guides on line accessible within the site was produced. Virtual reconstructions of the site are visualized on palm-tops, for an adult public, and on game-boy, for children, so involving the tourist in a multisensory path.
An important development of digital contents was carried out by Fratelli Alinari, the oldest and largest photographic archive in Italy; this is the "E-dotto" `<http://www.e-dotto.it/>`, an aid to didactics addressed to teachers that is divided into three didactic laboratories: Historical, Artistic and Scientific, and presents a separate section dedicated to the History of Photography. Each laboratory is seen as a virtual building in which, through 50 rooms

and 5,000 images, the most important episodes of history and art and the fundamental questions of the main scientific subjects are presented in chronological order.

**Are there any special issues that deal with the general accessibility of the digitised cultural content?**

The Ministry is working on various fronts to promote accessibility of digital cultural contents. It is supported in this also by the current laws in force, that is to say the *Codice dell'Amministrazione Digitale* (see Progress Report 2005; `<http://www.cnipa.gov.it/site/it-it/Attivit%C3%A0/Codice_Amministrazione_Digitale/>` that underlines the centrality of the internet function as a privileged point of access to information and establishes some parameters for its use on line that the public institutions, including cultural institutions, are compelled to observe. The MINERVA network (active at the moment with the MINERVA eC project) has given a considerable contribution at national level for promoting the accessibility of the cultural contents on line considering also and especially the European context: guidelines for digitising, a manual for reducing the costs of digitising, study on the web and multilingualism, on the rights of intellectual property and on business models have contributed to forming a greater awareness among Italian experts about the problems of digitisation, while at the same time promoting the use of metadata and international standards for cultural heritage on line. As far as the right to reproduce in the Internet work of arts is concerned, is observed the law protection of the author's rights (l. 633/1941 - `http://www.siae.it/documents/BG_normativa_leggedirittoautore.pdf>`. Finally, taking the meaning of accessibility as «the capacity of an instrument, a service or a resource to be easily usable by any category of user» `<http://it.wikipedia.org/wiki/Accessibilit%C3%A0_%28informatica%29>`, reference should be made to the law n. 4 of 2004 *Rules for promoting access of disabled subjects to computer tools* that imposes on web sites and generally speaking multimedia products of the public administration respect for the rules of accessibility inspired by the international guidelines of the W3C consortium `<http://www.pubbliaccesso.it/normative/ legge_20040109_n4.htm>`. All the web sites of the institutions of the Ministry that received funding for the year 2006 are currently being updated where they were not already in order.

## B. Technologies for digitisation

### What common standards are most commonly used in digitisation?

#### Libraries
The ICCU, the Central Institute for the Union Catalogue of the libraries, uses the following standards:

- metadata: Dublin Core Metadata Element Set, METS (Metadata Encoding and Transmission Standard) and MAG scheme, a standard for encoding descriptive, administrative, and structural metadata regarding objects within a digital library, expressed using the XML schema language of the World Wide Web Consortium `<http://www.iccu.sbn.it/genera.jsp?id=99>`;
- for images: JPG and TIFF;
- for text: TEI scheme;
- for audio: Mpeg;

The standards for cataloguing are released by the Central Institute for Cataloguing and Documentation of the Ministry (ICCD).

#### Heritage
ICCD defined the standard for the multimedia documentation of the heritage's catalogues `<http://80.205.162.235/Catalogazione/standard-catalografici/resolveUid/e35788f7ae9c10e1db4a4a221e3c2d54>`. The regulation defines parameters for the creation or acquisition of static or dynamic digital files:

- photos (3 essential parameters: format, colour, image dimension in pixel)
- text (the use of the PDF format, standard *de facto,* is foreseen)
- graphics (2 essential parameters: format, version or type of format)
- video (2 essential parameters: MPG or AVI format, version or type of format)
- audio (2 essential parameters: MP3 or WAV format, version or type of format)
- other types of digital resources.

These values have been defined taking into account the most widely used standards all over the world.

#### Archives
All the Archive Information Systems have adopted the international standards ISAD(G) and ISAAR(CPF) over the years. However, digital inventories are still deeply heterogeneous and are not always integrated in the Archive Information Systems and treated as separately accessible digital resources; they can in fact not be integrated but linked in text format (HTML) or print format (PDF) or even not be linked at all. At the moment, the study and diffusion of the XML-EAD format, invented in the United States to bring together inventories produced in different contexts, is appearing as one of the most effective technical solutions for avoiding the dispersion of the inventory archive descriptions on the net. As regards metadata, many digitisation projects that have taken place in the area of archives have adopted the MAG model, originally invented specifically for library use, for the creation of administrative-managerial metadata, the use of which fully guarantees the contextualization, management and conservation of digital resources.

#### OTEBAC – Technological Observatory for cultural heritage and activity
OTEBAC is an office of the Ministry for Cultural Heritage and Activity created for monitoring and supporting cultural institutions in the creation of web sites and for a correct digitisation and accessibility of the cultural contents `<http://www.otebac.it/>`. Since its foundation in 2005 OTEBAC has promoted the use of international standards for the digitisation and diffusion of guidelines shared at European level and created by the MINERVA project. In particular, it has advanced the use of the OAI-PMH protocol for harvesting metadata in order to promote the interoperability of information systems.

### How is interoperability ensured?

The interoperability of the systems is usually ensured by the application of international standards for the description of data (for example, Dublin Core), for the management of digital libraries and for protocols for information exchange. Some examples: the portal Internet Culturale ensures interoperability by the use of common standards (Web Services and SOAP) and by an unqualified Dublin Core metadata exchange in XML format through the OAI-PMH protocol; the Culture Portal - Cultura Italia

`<http://www.culturaitalia.beniculturali.it>`, on line shortly, in order to make the many data bases of the Ministry dialogue, produced in different times and in different ways, uses the potential offered by the OAI-PMH protocol for harvesting metadata and by Dublin Core for the description of metadata. The application profile of the Portal (PICO AP) does in fact extend the Qualified Dublin Core, introducing further elements of refinement and encoding schemes, with the aim of describing not only digital resources but also the tangible heritage, the people (artists, authors), institutions (museums, libraries, archives, etc.) The PICO AP is in fact becoming the standard for interoperability of the Ministry's data bases.

**Have any research needs emerged?**

Most of the efforts carried out in the research field are concerned with the preservation of the media used for storage.
The Centre of photo-reproduction, binding and restoration of the State Archives `<http://www.cflr.beniculturali.it/>` is continuing with the OptiMA-Optical Media Analysis project (2006-7).
The project, carried out with the Digital Renaissance Foundation, at the Centre for the Pathology of Books and the State Sound Library, aims at investigating the real trustworthiness and lasting qualities of CDs and DVD, to define the best methods for their conservation and for setting up a stable consultancy service on the state of preservation of digital collections. The expected results are:

• guidelines for the optimal conservation of disks;
• publication of the results through the web and other distribution, information and awareness creating channels;
• training activity addressed to the operators of the sector in Italy and through the TAPE project in Europe;
• use of community building tools (helpdesk) ;
• setting up of a permanent monitoring and control system of the quality of the optic supports for the digital memories, that on the basis of consolidated benchmark provides answers to those who preserve or intend preserving their own digital patrimony on optic supports.

As regards results of research, the CFLR offers to provide storage services to institutes for preserving cultural heritage at national level, using not only the aforesaid machines but also the climatized storage that is has available.
Other fields in which new roads are being experimented are those of multilingualism and the semantic web. The MultiMatch European project `<http://www.multimatch.eu/index.html>`, coordinated by the Institute of Science and Technology of Information of the National Council of Research `<http://www.isti.cnr.it/>`, deals with both. The aim of the MultiMatch project is to enable users to explore and interact with online accessible cultural heritage content, across media types and languages boundaries.
At the end of the project (2008), the MultiMatch search engine will be able to:

• identify relevant material via an in-depth crawling of selected cultural heritage institutions, accepting and processing any semantic web encoding of the information retrieved;
• crawl the Internet to identify websites with cultural heritage information, locating relevant texts, images and videos, regardless of the source and target languages used to write the query and/or describe the results;
• automatically classify the results in a semantic-web compliant fashion, based on document content, its metadata, its context, and on the occurrence of relevant CH concepts in the document, and automatically extract relevant information which will then be used to create cross-links between related material, such as the biography of an artist, exhibitions of his/her work, critical analyses, etc.;
• organize and further analyse the material crawled to serve focused queries generated from user-formulated information needs;
• organize and display search results in an integrated, user-friendly manner, allowing users to access and exploit the information retrieved regardless of language barriers.

## C. Sustainability of content

### What funding models and funding sources are most commonly used in digitisation?

The  policy of digitisation in the public sector is defined by the DG for the technological innovation and promotion of the Ministry for Cultural Heritage and Activities, but funding comes from different channels:

• The Ministry for Cultural Heritage and Activities `<http://www.beniculturali.it>`;
• CIPE `<http://www.cipecomitato.it/ML_Cipe.asp>`, the Committee responsible for the national financial planning;
• MiUR `<http://www.miur.it/DefaultDesktop.aspx>`, the Ministry of University and Research;
• DIT `<http://www.innovazione.gov.it/dit/>`, the Department for innovation and technologies of the Presidency of the Council of the Ministers;
• The Ministry for the economic development `<http://www.sviluppoeconomico.gov.it/>`;
• The Regions, which are responsible of the management and exploitation of a large part of the Italian cultural heritage.

In some cases, as for example for the European MICHAEL service, alternative models of economic management that foresee the creation of non-profit associations in partnership with the Ministry.

### Have you any examples of cost-reduction?

The technological Observatory of the Ministry promotes reusing software; Italian cultural institutes can in fact benefit from an increasingly more extensive catalogue of products available to them: from the already mentioned Museo&Web, to the *repository* for the storage of metadata or the software for the management of digital libraries (soon available). The manual *Cost reduction in digitisation*, produced within the sphere of the MINERVA project is one of the fundamental instruments for defining a strategy for reducing costs of digitisation and is itself one of the instruments that OTEBAC makes available to the cultural institutes `<http://www.minervaeurope.org/publications/costreduction.htm>`. The National Centre for Informatics in Public

Administration (CNIPA) has published on line the Portale del Riuso (Portal of Reuse) in which the user can find not only the catalogue of available applications, but also technical assistance `<http://www2.cnipa.gov.it/site/it-IT/Attivit%c3%a0/Riusabilit%c3%a0_del_software_nella_PAC/>`
Generally speaking, there are few cases where specific strategies for lowering digitisation costs are applied; an exception worthy of note is that prepared by the Guide Committee of the Italian Digital Library which has streamlined procedures for reducing the financial impact of document scanning and metadata creation. In the private field, a real case of good practice of digitisation is that followed by Fratelli Alinari `<http://www.alinari.it/default_en.asp>`, for the digitisation of its archives and museum collection is another example of good practice in cost reduction. The production costs are reduced since the digitised content is self-annotating. Similarly, the use of automatic translating software cuts down the expenses of the translation of the catalogue content.

### Have you any examples of national competence centres in digitisation of cultural content?

Digitisation competences are organised in Italy into two main segments:

• the **institutional sector**, composed of central and specialised competence centres, belonging to the Italian Ministry of Culture (MiBAC – Ministero per i Beni e le Attività Culturali);
• local competence centres, belonging to independent public and private bodies, whose activities and expertise are focused on specific **thematic areas** that are of a certain interest for the institutions concerned with access to digital cultural content and preservation.

Within the institutional sector belonging to the Italian Ministry of Culture, competences can be grouped in three lines.

INSTITUTIONAL SECTOR

## 1. Added value services

**ICR – Istituto Centrale per il Restauro**
ICR (Central Institute for Restoration) is the central
institute that manages all the restoration processes
that apply to the Italian cultural heritage.
Within the framework of its institutional vocation,
ICR elaborated the "Risk Map": a tool, based on GIS
technologies, aimed at supporting the research
and administrative activities both of the Local Body
responsible for the protection of the territory concerned
and the Central Administration offices.
`<http://www.icr.beniculturali.it>`

**Comando Carabinieri Tutela Patrimonio Culturale**
`<http://servizi.carabinieri.it>`)

CCTPC (System of the Carabinieri for the Surveillance
on the Cultural Heritage)
It is a very large data base that is accessible at different
levels and that provides the most exhaustive
information about any illegal event that has occurred
to the 2.5 million censored artistic objects.
The system is connected with a similar system held by the
French Authorities and represents a very unique resource
centre for all of Europe. The database can be accessed via
a normal browser on the web and it is complemented with
a wide set of analytic tools for professional users.

## 2. Integration and liaison among national and regional cultural digitisation initiative

It is a major priority in Italy, also because of the extreme
richness of cultural heritage in our country
and the consequent need to coordinate distributed
responsibilities. In this general framework, a set
of regional/national integrated systems have been
established and they represent another area
of competence in Italy.
In particular, regional/national integrated systems
for cataloguing and digitisation exist for each
of the concerned areas of heritage, namely:

a) *The arts, architecture and archaeology heritage*
   In this area, the most important competence is held
   by the ICCD.

**ICCD** – Istituto Centrale per il Catalogo
e la Documentazione (Central Institute for Cataloguing
and Documentation – `<http://www.iccd.`
`beniculturali.it>` is the national institute
that issues guidelines and recommendations
for the management of digital information related
to the artistic heritage. ICCD also manages the general
information system of cultural heritage in Italy,
named SIGEC.
The actual cataloguing and digitisation
is then carried out by the Regions
and by the Soprintendenze, i.e. the territorial
branches of the Ministry of Culture.
The Regions of Lombardia, Campania, Sardinia
and Piedmont are worth being mentioned
for their successful results in compiling the unique
regional catalogues in their respective regions
(through a real cooperation between the state
and the regions) and they are considered as a best
practice that is planned to be soon replicated
in the other Italian regions.
`<http://iccd.beniculturali.it>`.

b) *The archives*
   **SAN**
   In this area, the General Management of the Archives
   of the Italian Ministry of Culture elaborated a shared
   platform named SAN - Sistema Archivistico Nazionale
   (National System of Archives - for the management
   of all the information concerning the Italian state
   archives and its administration offices, respectively
   SIAS – Sistema Informativo degli Archivi di Stato
   (Information System of the State Archives)
   and SIUSA – Sistema Informativo Unificato
   per le Soprintendenze Archivistiche (Joint Information
   System of the Archives Regional Offices).
   The SAN project is still on-going and will represent
   a unique access point both for the final users
   and for the Administrations which need to access
   any kind of documentary heritage of the country.
   These systems are realised in full cooperation
   between the state and the regions.
   `<http://www.archivi.beniculturali.it/>`

c) *The libraries*
   In this area, the cataloguing and digitisation activities
   are coordinated by ICCU – Istituto Centrale del Catalogo
   Unico (Central Institute for the Single Catalogue)

<http://www.iccu.sbn.it> and carried out by the national central libraries of Rome and Florence as well as by the other state libraries and the public libraries depending on Regions and local Authorities and University Libraries depending on Universities.

SBN – Servizio Bibliotecario Nazionale (National Library Service) includes more than 2,500 libraries and provides access to 14 million bibliographic records related to ancient, modern and musical heritage. SNB is coordinated by ICCU. Another important initiative coordinated by ICCU is the Italian Digital Library <http://www.internetculturale.sbn.it>.

d) *Audiovisual*
**Discoteca di Stato**: The National Sound Archives is the institute devoted to the digitisation of audiovisual heritage. The Discoteca has an ongoing digitisation and cataloguing activity and provides online access to its collections.
<http://www.dds.it>.

e) *Promotion of standards and guidelines*
**OTEBAC - Osservatorio tecnologico per I beni e le attività culturali**; it monitors and supports the Italian cultural institutes in their digitisation activities, in the development of access services and for the realisation of good quality web sites. OTEBAC promotes the use of standards for digitisation elaborated by the Central Institutes and developed by the MINERVA project; it also organises training modules, supports public-private partnerships, contributes to internationalisation and connects the national centres into an integrated system of competences.
<http://www.otebac.it/>

**3. Competences and services for preservation**

The following institutional centres are worth being mentioned:

**Centro di fotoriproduzione legatoria e restauro degli archivi di stato**
This is the centre for photo-reproduction, bookbinding and restoration of the State Archives and adopts digital technologies extensively.
<http://www.cflr.benicultrali.it>

The **National Central Library of Florence** and its web archiving service.
<http://www.bncf.firenze.sbn.it>

In addition to the above mentioned institutions, another important competence centre on digital preservation is in progress at the University of Urbino, Faculty of Literature, at the Institute for the Study of preservation of the library and archive heritage <http://www.uniurb.it/>.

THEMATIC AREAS

Six thematic areas have been identified as the most urgent priorities for the public cultural institutions. In each of these areas, some centres of competence are mentioned as they represent some of the most valuable providers of expertise, technological components and advisory services to the cultural institutions.

**1. Virtual reality, 2D / 3D modelling, animations, multimedia for cultural dissemination services**

**IMSS – Istituto e Museo di Storia della Scienza**. The Institute and Museum of History of Science in Florence is a centre of competence in the area of cultural digitisation, with particular regard to research on the integration of the new media and the application of the information and communication technologies for the dissemination and popularization of scientific culture.
<http://www.imss.firenze.it/index.html>

**2. Digital Rights Management Systems**

**MICC - Media Integration and Communication Center**
MICC was established in 2001 as an Excellence National Centre at the University of Florence to gather all the experiences and expertise developed by the University in the area of the DRMS during its decennial work within the framework of national and European projects (e.g. Aquarelle, Rama, Vasari, Tradex, Chance, Bricks, etc.)
<http://www.micc.unifi.it>

**3. Standard and Metadata**

**Scuola Normale Superiore of Pisa**
The Scuola Normale Superiore of Pisa is a centre for teaching and research, the excellence of which is acknowledged at international level. A specific

competence is held in the area of standards
for interoperability of systems and metadata
for the description of cultural content. Because of its
excellence in this area, the Scuola Normale has been
appointed by the Italian Ministry of Culture to design the
architecture of the Italian Cultural Portal and to develop
its prototype that was successfully presented early this
year, and that is currently under full deployment.
`<http://www.sns.it>`

**4. Multilingualism and Automatic Language Processing**

**NLPG – National Language Processing Group,
Department of Informatics of the University of Turin**
Linguistic resources, instruments for syntactic analysis,
semantics and ontologies are the core research
interests and competences of the Group.
Technologies and tools developed by the group have
already been tested in practice, within the implementation
of some experimental online public services (e.g.
to implement a multilingual access to cultural events
(ref. HOPS project `<http://www.bcn.es/hops>`).
`<http://www.di.unito.it>`.

**ISTI – Istituto di Scienza e Tecnologia dell'Informazione**,
CNR Pisa
The Institute of Information Science and Technology
(ISTI) of the National Research Council in Pisa has been
active for several years in the area of software
applications for digital libraries, with a special focus
on multiligualism and this competence is particularly
requested by cultural institutions, when implementing
their digital systems. Its major current activity
is the coordination of the MultiMatch project (see above).
`<http://www.isti.cnr.it>`

**5. Copyright**

Within the framework of Creative Commons Italy a joint
workgroup has been established between
the Department of Juridical sciences at the University
of Turin and the IEIIT-CNR.
The group represents an extremely valuable centre
of competence on the matter of copyrights,
with particular regard to the use of digital content
on the Internet and open-content licences. The group
participates in the iCommons project for the development
of a harmonised system of national licences, that refer

to the general base-licence and that are customised
in order to comply with their own national laws.
`<http://www.creativecommons.it>`

**6. Audiovisual**

**Archivio Luce.** The archive of the Istituto Luce is one
of the largest and most important historical audiovisual
archives in Italy, with material from 1897 up to now
(more than 4,000 hours of cinema-news
and documentaries, more than 3 million photos).
Most of this heritage is digitised and accessible on line.
`<http://ricerca.archivioluce.com/h3/h3.
exe/al/fric_avanzata>`

**RAI Teche** (the national broadcasting archive). A large
portion of the archive of the national broadcasting
company has been digitised and catalogued in recent
years and this activity is still ongoing. A sophisticated
cataloguing system has been developed and put
in place to offer the most extensive set of added-value
services to the whole chain of professionals interested
in access to the archive.
An important selection of the digital archive is made
available online free of charge and it allows Internet
users to download some historical documents
of public domain.
`<http://www.teche.rai.it>`

**D. Digital preservation**

**Are there national policies for digital preservation?**

Usually, the institutes that take care of preservation
establish internal guidelines. In any case,
some national and international initiatives must
be highlighted.
First of all, the work done by the National Central
Library of Florence `<http://www.bncf.firenze.
sbn.it/>` which collects on line publications
and the web pages depositated on a voluntary basis.
Secondly, it is worth mentioning that the Central
Institute for the Union Catalogue and Bibliographic
Information – ICCU `<http://www.iccu.sbn.it/
genera.jsp>` participates in the European
coordination action DigitalPreservationEurope – DPE
`<http://www.digitalpreservationeurope.eu/>`,

with the General Directorate for Library Heritage and Cultural Institutes; this ensures that guidelines that are shared at European level are followed by Italian libraries.

Within the area of the archive sector, the Centro di Fotoriproduzione, Legatoria e Restauro (Centre for photo-reproduction, bookbinding and restoration) of the Ministry <http://www.cflr.beniculturali.it/> acts as a reference point for the Italian State Archives in the sphere of long-term preservation of digital memory. The digital library of the Institute carries on research activity in the are of preservation both at national level (see above the OPTIMA project) and at international level (it is, for example a partner in the TAPE projects - <http://www.tape-online.net/>.

Finally, it is worth to mention the Digital Preservation Europe - DPE project <http://www.digitalpreservationeurope.eu/>, an initiative shared by the General Directorate for Library Heritage and Cultural Institutes of the Ministry's. Digital Preservation Europe (DPE) fosters collaboration and synergies between many existing national initiatives across the European Research Area. DPE addresses the need to improve coordination, cooperation and consistency in current activities to secure effective preservation of digital materials.

**Can you give examples of tools or technologies used for digital preservation of CH content?**

The Archivio storico del Mediterraneo initiative used the Linear Tape Open – LTO technology; it also made an effort to identify some technology that would reasonably assure long term compatibility such as the use of the Linux tar program in order to produce a simple raw copy with a control of the file integrity option. This choice should allow a "simple" restoration even in a future where it will not be possible to use the same tar version. Another example is the Digital Repositories project elaborated by ICCU with the coordination of the Biblioteca Nazionale Centrale of Florence (one of the Italian competence centres for preservation) that confronts the large-scale experimentation of a storage system of digital objects that is sure and reliable over time.

## E. Monitoring progress

**Input/Output indicators**

| Input | MEUR / Posts | Comment |
|---|---|---|
| Archivio Storico Multimediale del Mediterraneo project | 0,44 | |
| Archeologia On Line project | 1 | years 2005-6 |
| Digitisation and creation of web sites for the Italian Culture Portal and the MICHAEL Italian Portal (year 2006) | 2,62 | |
| Italian Culture Portal: scientific project, prototype, technical support (3 years), software and CMS, editorial staff, marketing and translations | 2,48 | years 2004-2007 |
| The National Gallery of Contemporary and Modern Art Office | 0,015 | cataloguing, digitisation of museum objects and book catalogue |
| | 0,018 | creation of 6 institutional web sites |

Funding allocated to support digitisation.

Please take note that these data do not concern the whole sector of digitisation but only the some activities of the Italian Ministry.

## Output

The survey of the Italian digital collections
from all cultural sectors is ongoing through
the MICHAEL project; at present, 825 digital collections
and 256 institution records have been validated
and published on the MICHAEL Italian portal
`<http://michael-culture.it/mpf/
pub-it/index.html>`.
The statistical office of the Italian Ministry
(SISTAN - `<http://www.statistica.
beniculturali.it/Sistan_e_ufficio.htm>`
is studying a set of indicators to develop statistics
related to the amount of digitised cultural objects
and collections as well as the related investments.

## Assess any user-need surveys made on digital heritage content services

*User needs: a survey*
The Rinascimento Digitale Foundation
`<http://www.rinascimento-
digitale.it/index.php>` promoted the Digital
Libraries Application Project, focused
on the requirements of digital libraries users.
The initiative aims at evaluating the services currently
offered by the digital libraries in Italy, to identify
the actual state of the art and eventual obstacles
to improving their services in order to stimulate greater
cooperation between different cultural institutions.
To realize this goal, a Study Group was established
in the summer of 2005. It was composed of a wide
group of experts, representing different cultural
institutions that offer digital services or make
their collections accessible digitally and projects
dealing with digital library themes.
The survey's results indicated that different users
have different needs and they usually use the services
of more than one cultural institution. Although
there is a positive attitude towards digital libraries,
the survey also underlines that users often don't know
how to use the libraries and are unaware
of all of the services offered. The usability
of the interface is considered important, and the more
it becomes sophisticated to offer further services,
the more the user needs staff assistance. The survey
also served to experiment with quality indicators
and inquiry methodologies that focus on library users.
`<http://www.rinascimento-digitale.it/index.php>`