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Europe's cultural heritage at the click of a mouse

**Progress on the digitisation and online accessibility of cultural material and digital
preservation across the EU**

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1. INTRODUCTION AND AIM OF THIS PAPER

Europe's cultural institutions — archives, museums, libraries, audiovisual archives — hold a hugely valuable resource, representing Europe's collective memory. Information and communication technologies provide powerful tools to exploit this heritage, for the benefit of all citizens. By bringing it online, citizens will have easier access to this information. It will enable them to appreciate their own past as well as their common European history. Moreover, it has major creative and economic potential. It attracts new users and new demands and drives the emergence of media-rich services to use and re-use the material.

Many cultural institutions are already using the new technologies successfully, digitising their collections and providing users with improved access and services. Much more remains to be done, however, to speed up digitisation activities and improve the accessibility and long-term availability of cultural information in Europe. The goals set for the Digital Libraries initiative call for action at all levels — political, strategic, and technical — to show both the heterogeneity and the connections that can be made between countries, domains, institutions and collections. Digitisation policies and strategies therefore need to be joined up, through coordination at national and at European level.

This paper deals with questions related to progress on the digitisation and online accessibility of cultural material and digital preservation across the EU. Its aim is to support the Commission Communication 'Europe's cultural heritage at the click of a mouse' and expand on it with further background information. The information is based largely on progress reports from all 27 Member States received between February and April 2008 in reply to a request from the Commission to the Member States' Expert Group on Digitisation and Digital Preservation.

2. i2010 — DIGITAL LIBRARIES INITIATIVE: MAIN STEPS TAKEN 2005-2008

Digital libraries, and in particular the vision of a European Digital Library, have been on the political agenda at European level for more than three years now. This has led to the adoption of a set of political and legislative acts by most of the EU institutions (Commission, Council, Parliament, Committee of the Regions and Economic and Social Committee). What has emerged is a broad consensus between the different institutions on the overall objectives of the Digital Libraries initiative, as well as on the means to achieve them. An overview, in chronological order, of the steps taken at European level is given below:

- 30 September 2005 — Adoption of the Commission Communication 'i2010: digital libraries', which outlines the vision underlying the Digital Libraries initiative and deals with Europe's cultural heritage. The Communication is accompanied by an online consultation of stakeholders.
- 14 November 2005 — Council, exchange of views. The Communication is well received by all Member States, which are willing to contribute to the European initiative.
- 15 June 2006 — Committee of the Regions, opinion welcoming the Digital Libraries initiative and emphasising the role of regions and cities.

- 24 August 2006 — Commission Recommendation on digitisation and online accessibility of cultural material, and digital preservation (referred to in the rest of this document as ‘the Recommendation’).
- 13 November 2006 — Council conclusions, including priority actions and an indicative timetable, adopted on the basis of the Commission Recommendation.
- 14 February 2007 — Commission Communication on scientific information in the digital age: access, dissemination and preservation.
- 22 March 2007: Commission Decision setting up the Members States’ Expert Group on Digitisation and Digital Preservation. The group’s task is to monitor and assess progress in the implementation of the Commission Recommendation and the Council Conclusions.
- 27 September 2007 — Parliament Resolution on digital libraries. The resolution is very supportive of the initiative and the approach taken by the Commission.
- 22-23 November 2007 — Council Conclusions on scientific information in the digital age, welcoming the Commission’s initiative and inviting Member States to work together on the accessibility and preservation of scientific information.
- 13-14 February 2008 — European Economic and Social Committee, opinion supporting the launch of the European digital library in 2008.

For the audiovisual sector, the Parliament and Council Recommendation of 16 November 2005 on film heritage and the competitiveness of related industrial activities also contributes to the aim of making Europe’s cultural heritage more accessible and preserving it for future generations. A specific report on the implementation of this Recommendation has been prepared by Commission staff.

3. PROGRESS TOWARDS A COMMON ACCESS POINT TO EUROPE’S DIGITAL CULTURAL HERITAGE

3.1. The vision of a European Digital Library

Digitisation has benefits beyond improved accessibility. Coordination of digitisation between institutions and the various cultural domains leads to reunification of dispersed collections or the linking of seemingly disconnected documents and artefacts. This provides both a convenience to the user and a more complete picture of the heritage preserved in the collections all over Europe. Therefore, through the Recommendation, the Commission has triggered support for the creation of a European Digital Library: a unique resource providing access to Europe’s distributed cultural heritage. It will ensure that millions of great paintings, historical writings, ancient manuscripts, personal photos, and important national documents from Europe’s libraries, archives and museums will become more available, valuable and usable, and it will facilitate new added value services in education, media and entertainment.

In November 2006 the Commission’s plans for a European Digital Library were endorsed by the Culture Ministers of all EU Member States and backed by the European Parliament in a Resolution in September 2007. The rapid development of a single, direct and multilingual

access point to Europe's cultural heritage therefore also serves an important operational purpose, in providing a showcase of what will be possible if Europe's digitised collections in libraries, archives and museums become accessible to citizens. This is essential if we are to capitalise on and retain the interest that all stakeholders have shown so far.

3.2. *Europeana*

The work towards a European Digital Library involves tackling political, human, technical and semantic issues in order to facilitate an interoperable system between the cultural institutions in Europe. In autumn 2007, seventy senior managers and technical experts from museums, archives, audiovisual collections and libraries all across the EU started work in a thematic network co-funded by the European Commission's *eContentplus* programme, to prepare a detailed plan for realising the vision of the European Digital Library and for what they have named *Europeana*. Their work builds on the success of earlier initiatives — the longest running one being a service called The European Library (TEL), a search facility across 150 million titles from 172 collections in 31 European national libraries.

By November 2008, *Europeana* will provide a multilingual interface with direct access to at least two million digitised objects selected from among what is already digitised and available from some of Europe's major museums, archives and libraries. Content will be taken in from aggregators and national portals or will be harvested from individual organisations. Special attention is paid to the needs of the visually impaired. By 2010 the number of digital items accessible through *Europeana* will go far beyond the six million originally envisaged. Moreover, *Europeana* will not just be limited to public domain material but, where possible, will also concentrate on representing Europe's more recent cultural records.

The French National Library helped the Europeana service move a step closer to the goal of a comprehensive collection of cultural heritage by raising funds for uploading 80 000–100 000 items each year from the library's Gallica collection. The French National Library also provided a starting template for what will be used as the basic Europeana interface.

3.3. European Digital Library Foundation

For the purpose of creating an organisational entity at European level that will be in charge of building and sustaining the *Europeana* service, a foundation was established on 8 November 2007 in The Hague, the Netherlands, formalising the agreement between European archives, museums, audiovisual archives and libraries to work together in the delivery of *Europeana*. The Foundation's first priority is the launch of the *Europeana* prototype in November 2008 that will demonstrate proof of concept. The Foundation is open to content holders (such as individual museums, archives and libraries) and national and European associations of content holders. Ministries and funding organisations can support the work of the foundation through an associate partnership. Signatories so far include most of the professional associations that act on behalf of the European cultural heritage domains (European Regional Branch of the International Council on Archives, International Federation of Television Archives, Association Cinémathèques Européennes, European Museums Forum, Conference of European National Librarians, Ligue des Bibliothèques Européennes de Recherche, International Council of Museums Europe, Consortium of European Research Libraries).

4. PROGRESS IN THE MEMBER STATES: DIGITISATION

4.1. Introduction

Digitisation is expensive and time consuming for many institutions and work is needed on strategic and operational levels. Even though in some Member States support for the Digital Libraries initiative has stimulated more attention to digitisation and additional funding, a lot still needs to be done to create coordinated approaches at national level. The i2010 — Digital Libraries initiative aims to have a lasting effect on existing structures at European level and in the individual Member States. Member States have started to recognise the value of digitised culture and have urged for European action to coordinate digitisation efforts. Whereas in the past initiatives within and across Member States were unknown, at the heart of the Digital Libraries initiative today is concern to optimise the leveraging effects between the various actions taking place.

4.2. Overviews of current and planned digitisation

One first step is to improve the identification of what is and will be digitised. A number of different practical and organisational solutions have already been taken up.

Triggered by the Recommendation, national ministries and other government departments have started to collect information on digitisation at national level. In Germany, Sweden, Ireland and the Netherlands, for example, thorough qualitative evaluation of digitisation policies is being carried out with the aim of assessing the impact of digitisation so far and/or steering future policy and funding. In most Member States dedicated committees, expert groups, newly established authorities and evaluative and exploratory surveys have been established since 2005 to provide a more accurate basis for claims about the digitisation efforts taking place and the need for improvements.

The overviews and surveys of digitised material show that much of the digitised material is not yet accessible on the web, thus limiting its usability.

In Poland, according to research conducted in 2007 by the Committee for Digitisation, the number of digital objects in libraries was estimated at 200 000, of which over 130 000 were accessible online. In Polish archives, of the ca. 500 000 digital objects only one percent is estimated to be accessible over the internet. For museums, only one to two percent of the ca. 500 000 digital objects can be found online.

In Germany, the Institut für Museumsforschung recently requested all German museums to provide information on their current digitisation status. Although about a thousand museums reported possessing digitised artefacts, only 250 of them replied that they had made arrangements to offer actual online access to these objects.

The reasons for this can vary. They can be of a practical nature (e.g. lack of resources and know-how; digitisation may be seen mainly as a preservation tool), of a legal nature (issues related to data-protection or intellectual property rights), or a mixture of both.

In most Member States cultural organisations have recognised how registries of digitised collections can contribute to improving the information available on digitisation status. In the

UK, for example, the Strategic Content Alliance will develop a strategy for content and service registries. And, although registries are mainly domain-specific, in a few cases integration is planned, such as in Sweden where the online catalogues of national archives, libraries and audiovisual archives will all be brought together from 2008 on. This could allow easy comparison and steer future digitisation policy.

In Slovenia, a new Cultural Heritage Protection Act was adopted in early 2008 that manages interoperability between the digital sources of different institutions in one national register. The Act also requires digitised cultural content to be made accessible through the register if the digitisation is financed from public money.

Besides the creation of registries, many Member States stress the useful role of portal websites for creating overviews of digitisation activities, e.g. as developed under the MICHAEL project (presenting a catalogue of a variety of digital collections, services, projects and institutions) or the European Library project (providing access to the digital catalogues of national libraries). However, it is not yet always clear to what extent such information is actually taken into account in further decision making, and different information sources will need to be made interoperable and usable not only to identify digital collections but also for profiling so that digitisation priorities can be set up.

In Belgium, the Heritage Preservation and Exploitation Programme will establish for the French Community an online inventory of digital collections, a directory of institutions and an overview of progress on digitisation funds, as well as projects per sector and per institution. Similar initiatives exist for the Flemish and the German-speaking communities with the purpose of avoiding duplication of efforts.

At the same time, as more and more cultural institutions make their digital items harvestable through *Europeana*, a more complete picture will emerge of the digitised material already available at European level. *Europeana*'s central index will provide descriptive information at object level and will include direct links to the original digital objects, enabling a detailed overview.

Not only the Member States, but also the Commission itself is involved in digitisation projects. At the end of 2007 the EU Publications Office launched its digital library project. This project intends to offer European citizens free online access to all official publications ever produced by the European Union institutions, agencies and other bodies. The entrance portal to this digital library dating back to 1952 shall be the EU Bookshop website making available all publications for free downloads. The PDF files will contain searchable text layers and will comply with the latest guidelines for long-term preservation. A print-on-demand option will also be available. The digital library created by the Office will, in due course, also be accessible through Europeana. A pilot phase of the Office digital library project (PODL) started beginning of February 2008. 6 000 publications, requiring around 1 million pages to be scanned, will then be available in EU Bookshop as of summer 2008. Based on the results of the pilot phase, the main phase envisages the treatment of the complete physical archive of the Office, demanding the scanning and handling of about 13 million pages by October 2009. This makes this project one of the most ambitious digital library projects in the world, given the timescale and volume.

4.3. Quantitative targets for digitisation and related financial resources planning

Real quantitative targets are still difficult to find for most Member States. Although the aim of funding programmes is normally to enhance access to collections, rather than simply increase the amount of content, quantitative targets can, for example, contribute to technological and organisational efficiency, prioritising the digitisation of specific content, or planning of budgets — both within Member States and at European level. Figures for most Member States, where they exist, are merely expressed in terms of quantitative results of projects already completed or funding made available in previous years. There are some exceptions: the major cultural organisations (national libraries, national archives, national museums) that run multi-annual digitisation plans as well as some national programmes (e.g. in Slovenia) or large digitisation schemes (e.g. in the Netherlands) that have planned in detail the number of objects for each domain or thematic area.

Information about available and planned budgets or funding for digitisation shows a very diverse picture across the whole of Europe. Overall, funding for digitisation is still being made available on a small scale and in a fragmented manner in most countries and, therefore, it is difficult for most Member States to present digitisation budgets and targets in an accurate and aggregated form — with the exception of the figures for some larger, individual institutions. Only in those Member States that have already prioritised digitisation at national level can the related financial resources and planned targets be provided normally and, therefore, is the coordination and planning of resources for digitisation easier.

In Romania, cultural content owners were requested to send a precise approximation of the estimated costs over a three-year period, taking into consideration the number of resources to be digitised, the timeframe, the necessary equipment and the identified training needs. This information will feed into a multi-annual programme and budget under the recently approved Public Policy Proposal on the digitisation of cultural resources and on the creation of a Digital Library of Romania.

In Finland, a national programme and action plan on digitisation, including quantitative and qualitative targets, will be launched in 2008. It will be based on the Commission Recommendation and the Council Conclusions and will be part of the broader national information society policy. In 2008, a new State budget line of €2 million was already made available for digitisation of cultural material and for the accessibility and preservation of digital cultural content.

In the Netherlands, €90 million (out of a total budget of €154m) was allocated to 'Images for the Future', a programme for the large-scale digitisation of film, video and audio heritage. This allocation was made possible on the basis of thorough economic research, including an impact assessment that calculated €176 million of eventual positive economic effects deriving, inter alia, from increased use of the digitised material and copyright and far-reaching cost reduction through better handling conditions and professional delivery services.

In Cyprus, the Press and Information Office has been working for two years on a pilot programme for the digitisation of its Press Archive, which dates back to as early as 1878 and includes about three million pages. The costs amount to around €1.2 million. The programme is carefully planned and will be completed in a number of phases, also in order to find financial resources outside the government budget. So far, 250 000 pages have been digitised and are available online.

A few Member States make use of the EU Structural Funds as a way of finding extra funding for digitisation, for example Finland, Slovakia and Lithuania. In Lithuania, a detailed national digitisation strategy has been drawn up and, with the support of €9 million from the EU Structural Funds, five large digitisation projects will be carried out between 2007 and 2013.

In 2007, the Commission launched the *Numeric* study. This two-year study will establish a framework of standardised methods for the collection and analysis of data on digitisation in the EU. More and better information should enable governments and institutions to more precisely identify their digitisation efforts, to make comparisons, and to plan further digitisation.

4.4. Partnerships between cultural institutions and private-sector organisations

Examples of public-private partnerships and sponsorships by private organisations are emerging in some Member States as a new way of funding the digitisation of cultural content, as an alternative to public funding. Certain Member States have also developed incentives to attract private investments in the cultural domain. Most of the smaller Member States report no experience at all, or, as in the case of Estonia, mention that the small size of the State and the language is hampering private-sector interest in digitisation, although there are exceptions, e.g. in Latvia.

In Latvia, to encourage partnership and cooperation in the digitisation process, a special purpose programme ‘Cooperation of Archives, Museums and Libraries in the Digital Environment’ was developed. Within this programme cooperation between archives, libraries and museums, authors and users as well as with private companies is being stimulated within various, relatively small-scale projects.

In Slovenia, a Public-Private Partnership Act entered into force in 2007. The Act provides new opportunities for private promotion of digitisation projects in public institutions. The new legislation includes general provisions on public-private partnerships that are also applicable to the area of digitisation. Pilot projects started in the National Archive and the National Library, ranging from simple sponsorships for digitisation to new business models based on joint exploitation of digitised content.

The size of successful collaborative ventures involving public and private entities has varied, ranging from small local initiatives up to examples of large-scale digitisation projects. Also the forms of the collaboration and the business models show a high degree of variety, but they can be grouped in two main categories: sponsorships (direct funding of digitisation activities by private entities) and public-private partnerships involving the provision of technical resources (digitisation equipment, infrastructure and know-how).

In Spain, Telefónica is contributing €10 million towards the digitisation of National Library objects to be included in Europeana. Also, the Spanish Biblioteca Virtual Cervantes in Alicante is based on a sponsorship scheme. Examples of quite large partnerships based on technical support are available in the United Kingdom, such as that involving the British Library and Cengage Gale for digitised historical newspapers. Other digitisation partnerships are reported for e.g. Germany (Bavarian State Library), Belgium (Ghent University) and the United Kingdom (Oxford University Library), all of them with Google. Another model of public-private collaboration concerns collaborative research where industry contributes to

the development of digitisation technologies (e.g. in the CATCH research programme in the Netherlands).

Engaging in public-private partnerships could create pitfalls (e.g. exclusive deals) and there is a need in Member States to build up a better body of experience on the benefits and risks, for both parties, and to understand what good or accepted practice is, and where the public interest might be compromised. In the United Kingdom, research is being done on the developing business models by the Strategic Content Alliance. And the Commission's High Level Expert Group on Digital Libraries has addressed the issue of public-private partnerships through a report based on a set of case studies, analysing issues such as success factors, choice of partners, business models, IPR, protection of the public domain and exclusivity issues.

4.5. Large-scale digitisation facilities

Turning the vision of a European Digital Library into reality calls for Member States to step up the rate of and capacity for digitisation and the usability of the resulting content in new services. The Commission has therefore recommended Member States to build up, on the basis of existing competence, large-scale digitisation facilities. The aim is to provide smaller archives, libraries and museums with more widely available access to advanced digitisation technologies, innovative tools and services, and expertise and knowledge. Only in this way will it be possible to enlist the critical mass of resources required and to increase the capacity for digitisation in Member States.

In quite a few Member States digitisation centres have been established in different forms already, linked to either a university (e.g. Germany), a national library (e.g. Finland, France, the Netherlands), a national archive (e.g. Sweden, France, Greece), a ministry (e.g. Italy) or a private company (e.g. Hungary). In Spain extra funding is made available for digitisation training tools for archives to promote the use of standards required by *Europeana*.

In Slovakia, the National Library is establishing, with co-funding from the EU Structural Funds, a high-capacity digitisation centre in the former military depots in Vrútky. Procurement and construction activities are currently in progress and two out of four automatic page-turning robots will be in operation by November 2008, along with high-capacity digital storage (1.5 PB).

In Sweden, under the auspices of the National Archives, a digitisation centre (MKC — Media Converting Centre) was set up for the large-scale production of digital images from national, regional and local archives as well as content holders other than the archival institutions, for example the Swedish land survey. The aim of MKC is to achieve effective utilisation of resources in Sweden and to maximise the throughput to reduce costs per unit.

In France, one of the French National Library's mass digitisation programmes allows the digitisation of about 30 000 printed documents and the conversion to text mode of another 60 000. Another of the library's mass digitisation programmes is digitising some 8 000 documents a month. By late 2010, the library's online portal, Gallica, will provide access to some 400 000 printed documents, simultaneously available in text and image mode, representing over 45 million pages. Gallica has a full-text based search engine and offers readers the possibility to create a personal space where they can save their documents and insert page markers.

Although the willingness to set up digitisation services is impressive in most Member States, it is not always clear how such facilities are expected to operate with their ‘constituency’ in practice, how they will bring about scalability, and in what ways they will actually contribute to the reduction of costs and to sustainability. Besides, the focus is currently on technologies capable of improving digitisation processes for text-based materials and support for digitisation of other types of objects is still limited.

Parallel to the actions in Member States, the Commission, through the Information Society Technologies work programme (FP7-IST) for 2007-2008, has established as a research priority the development of competence centres for digitisation and digital preservation at European level. This support should bring together the existing expertise that is being built up in several organisations across Europe and will work towards convergence of the various competences and capacity available in the Member States.

5. PROGRESS IN THE MEMBER STATES: ONLINE ACCESSIBILITY

5.1. Introduction

One of the challenges addressed by the Commission Recommendation is the online availability of digitised material. This concerns the practical accessibility through *Europeana* as well as the framework conditions for the online accessibility of in particular orphan works, out-of-print works and public domain material. Most twentieth century material is still in copyright, and without solutions to bring in-copyright works online, there is the risk of a ‘20th century black hole’ on the internet, a situation in which most material from before 1900 would be accessible but much less from more recent times.

5.2. Promoting access through *Europeana*

The Commission Recommendation urges Member States to implement measures that will stimulate cultural institutions as well as private content holders to make their collections available through *Europeana* and measures that will contribute to the implementation of common standards.

In some Member States, this was translated directly into the amount of funding available for institutions to digitise — be it at institutional level or through increased special programme funding from ministries. New funding is awaiting evaluation in countries such as Denmark, Ireland, Hungary and Romania or has recently been allocated in, inter alia, the Netherlands, Greece, France and Finland.

In Greece, the current national Information Society Programme is supporting 180 different digitisation projects from museums, libraries and archives with total funding of around €100 million. As from 2008 it is specifically concentrating on achieving interoperability with Europeana. Under the Greek National Digital Strategy 2008-2013 this support will be continued and the amount of content readily available for inclusion in Europeana will increase significantly.

In the UK, the Integrated Architecture Project will make a large number of digital items from thirty different institutions available to Europeana. In Germany a ‘German Digital Library’ is under development, bringing in content from institutions at the federal state level and the level of the Länder. It will be the German building

block to Europeana and involves public and private content holders. In Spain, the National Library of Spain will digitise with private sponsoring an extra 200 000 items to be included in Europeana.

In most cases, the extra funding for digitisation comes with standardisation criteria for bringing about interoperability between initiatives at national level and for guaranteeing interoperability with *Europeana*. The standardisation work performed in the past by the Minerva project that was co-funded by the Commission, and the work currently ongoing in the framework of the *Europeana* project, are quoted as the main reference for standards and criteria at national level. Most Member States are establishing national portals and — if the methods and standards used are consistent with the *Europeana* model — such portals can be important initial building blocks for *Europeana*, as they can function as an easy aggregator of a significant amount of underlying content to be delivered to *Europeana*.

In Spain, all projects funded under the Spanish National Digitisation and Public Access Plan will have to conform to the standards recommended by Europeana, so all the relevant content will become available also at the European level.

In Ireland, a number of institutions, e.g. An Chomhairle Leabharlanna and the Library Council, are examining the implications for Europeana interoperability in relation to their websites. At the same time, a national steering committee made up of key stakeholders will oversee and carry out a wide-ranging survey and emphasise the Europeana initiative by encouraging institutions to consider implications for interoperability at national and at European level.

In Bulgaria, the digitisation centre at the Institute of Mathematics and Informatics will prepare and provide common digitisation guidelines and ensure their dissemination throughout the country to improve interoperability at national level and with Europeana.

The Commission Recommendation also urges Member States to stimulate private content holders to make their content searchable and discoverable through *Europeana*. Some projects directly involving publishers and other private content holders have been reported already. These projects concern the online availability of in-copyright works. The German Book Dealers and Publishers Association developed the Libreka! project, a central access portal allowing search for and paid access to German in-copyright books. A partnership between the French National Library and the French Publishers' Association is developing a common platform and a business model that aim to bring benefits to both the private and the public sides within the context of Gallica. In Italy, an agreement between the State (ICCU — Ministry of Culture Heritage and Activities) and the publishing house Laterza guarantees the right of the Italian Digital Library to digitise and publish on the internet, free of charge, the entire classical book collection 'Scrittori d'Italia'. In Belgium, the central catalogue of the Flemish public libraries has been linked to the central database of the book trade via data exchange and using the same front-end system. Users can now consult both systems and have a 'borrow-or-buy' option.

Next to implementing the measures addressed by the Communication, Member States' departments and national funding organisations can contribute to *Europeana* by becoming associated participants in the European Digital Library Foundation. This will make it possible to support more directly the activities to link the digitised heritage from all Member States.

5.3. Improving conditions for digitisation and online accessibility

Reviews of the national intellectual property and copyright legislation considering new ways to facilitate online accessibility in a digital environment are or have been on the agenda of several Member States. Public consultations, review reports, working groups and amendments to the legislative framework are reported by most Member States. In certain cases, legislation was actually adapted. For example, the Italian law on copyright was amended in early 2008 in order to allow the non-profit free dissemination of low-resolution images and sounds on the internet for teaching and educational purposes. Other — non-legislative — policy lines point in the same direction, such as the Dutch government support for the development and implementation of the Creative Commons licence scheme in the Netherlands.

In the Czech Republic, a dedicated working group for the European Digital Library and Copyright was convened by the Copyright Department of the Ministry of Culture, to discuss key principles for orphan works, out-of-print works and rights clearance centres, to launch consultations on copyright-related problems, and to collect the opinions of the different stakeholders, including libraries, museums, archives and publishers.

5.3.1. Improving online accessibility of orphan works

Orphan works are works for which it is very difficult or even impossible to find the rightholders. It is therefore impossible to obtain a licence from these rightholders for the digitisation and online accessibility of such works. The Recommendation urged Member States to adopt mechanisms to deal with the issue. Still, at this moment, a large majority of Member States do not have any legislation or other national mechanism in place to facilitate the use of orphan works.

In a small group of Member States (Denmark, Finland, Sweden and Hungary) extended collective licensing is used as a solution to the problem of orphan works. This system is not specifically tailored to orphan works but, as its application is general, it will cover the problem of orphan works as well. The system applies automatically to all rightholders in a given field, even if unknown or untraceable.

Denmark and Hungary are in the process of adopting a mechanism to deal with orphan works that is stronger than the general extended collective licensing scheme. Germany is working on a legislative solution within the context of a broader adaptation of its copyright legislation. France has a judicial mechanism in place that can be used in relation to orphan works and is considering introducing a lighter mechanism. In a few smaller Member States, orphan works are currently not perceived as a problem deserving special attention.

In many countries the issue is being debated in dedicated working groups, sometimes as part of the broader discussions on the legal framework. The main solutions that are under consideration in the Member States are:

- Extended collective licensing;
- The grant of a non-exclusive licence by an independent body following a diligent search for the rightholders. This is the mechanism that Hungary is considering;

- A limitation or exception to copyright. In the United Kingdom, the Gowers Review of Intellectual Property recommended to the UK government that a solution for orphan works is implemented at European level through an amendment of the Directive on the harmonisation of certain aspects of copyright and related rights in the information society (EU Copyright Directive).

In Denmark, the legal issues associated with digitisation have been addressed in a proposed revision of the Danish Copyright Law. It includes a provision dealing with the general use of extended collective licensing. The provision will grant permission to parties to make agreements in an area to be specified by the parties but with consequences for all rightholders in that area. The provisions include an opt-out clause for rightholders who do not wish to be included in the extended collective licence. Moreover, the conclusion of agreements in this area by collecting societies is subject to approval by the Ministry of Culture. The proposal will broaden the use of extended collective licensing from more specific areas to all areas where rightholders wish to use this practice. The proposed scheme will enable new parties to make use of extended collective licensing. The new legislation will contribute to solving the issue with orphan works and out-of-print works insofar as a collecting society is appointed to represent the rightholders. The law is to come into force in 2008.

A relevant question raised in the 2006 Council Conclusions on the digitisation and online accessibility of cultural material and digital preservation has to do with the cross-border aspects of the solutions. This concerns in particular the mutual recognition across Member States of orphan status, as well as the possibility to make the orphan material available over the internet. Addressing these issues is also essential for the accessibility of orphan material, digitised by national institutions, at European level through *Europeana*.

On a practical level, the legislative mechanisms can be accompanied by registries, shared at European level, of declared orphan works. Structured databases or lists of orphan and public domain works do not currently exist in Europe. EC-funded projects such as MILE and ARROW are quoted by Member States as actions that will help to fill the current gap.

MILE deals with metadata for digital images, and it is co-funded by the Commission's eContentplus programme. It aims, among other things, to set up an 'Orphan Works Database' which should act as a repository for all orphan works and invite users to offer information about those works. And a proposal recently selected for co-funding under eContentplus is ARROW — Accessible Registries of Rights Information and Orphan Works towards the European Digital Library. European national libraries, publishers and collecting societies, also representing writers, will address the issue of rights information management to underpin the Commission's Digital Libraries initiative. The project is expected to deliver an infrastructure for the management of any type of rights information, to overcome the challenges of orphan works, out-of-print books, clearance of protected material and interoperability between public and private collections, and to facilitate the actual implementation of innovative business models for both digital libraries and private econtent providers.

5.3.2. Improving online accessibility of out-of-print works

Out-of-print works, where the rights holder is known but where the work is no longer commercially available, give rise to a different set of problems. According to the reports received, in most Member States there are no specific mechanisms to facilitate digitisation of and access to out-of-print and out-of-distribution works. Working groups and consultation processes have been activated, normally in connection with orphan works, but with a few exceptions practical measures or policy directions have not yet emerged.

In the Netherlands, the National Library Forum (FOBID) and the Dutch Foundation for Copyright Interests recently signed a letter of intent for an arrangement that will facilitate the mass-digitisation of collections by libraries. This will have to be further concretised in agreements for specific digitisation projects. Such agreements would contain information about which works are eligible for digitisation, the procedure for making these works available digitally, and the fee possibly owed to the rightholders. The Dutch Foundation for Copyright Interests and 'VOICE', the branch association for collecting societies, will support cultural organisations in making the necessary arrangements with Dutch copyright holders.

The Commission Recommendation and the model licence proposed by the High Level Expert Group on Digital Libraries are quoted by several Member States as the elements that started a national reflection on possible policy initiatives on out-of-print works. Some Member States, e.g. Italy, Slovakia and the UK, took an active role in promoting the model licence, others have used specific contractual arrangements to facilitate access to out-of-print works (e.g. Italy). Smaller countries note that their market size could make adoption of the model licence relatively complicated and alternatives should be explored (e.g. Luxembourg).

Some Member States (Austria and Slovenia) indicate that in their legal system the notion of out-of-print work is already present and legally defined.

Austrian Copyright Law (Urheberrechtsgesetz) contains an exclusion concerning the right of reproduction of works out of print and works that are published ('veröffentlicht') but not distributed in sufficient number ('erschienen'), which allows public institutions to reproduce these works, if they do so without commercial intent. This enables these works to be digitised, but does not allow online distribution of the digital copies; it allows on-site access only.

The Slovenian Law on Copyright and Similar Rights defines out-of-print works (less than five per cent or less than a hundred copies) and allows public institutions to reproduce such works only for their own needs and not for public use. Furthermore, the Legal Deposit Act allows the depositary organisation, where the publication has not been available on the market for at least two years and in case of loss or damage, to reproduce one mandatory copy of the publication that is stored by some other depositary organisation for the purpose of preservation and availability for use on-site only.

The related copyright exception is limited to reproduction (digitisation) and on-site access in the cultural institutions' premises. In order to facilitate online access to out-of-print works through *Europeana*, further work is needed with stakeholders and possibly at legislative level.

5.3.3. *Improving online accessibility of public domain works*

Member States seem to have taken hardly any action to identify and eliminate barriers to the online accessibility of works in the public domain held by public institutions. Most Member States do not address the issue in their reports. Some (e.g. Finland) indicate that they did look into the matter and did not find any problem. A few Member States report that there are provisions in the national legislation that limit the online accessibility of public domain works (e.g. Portugal, Sweden, Greece):

- Legislation on public access to documents held by public bodies: the general principle of free access to information may be limited on grounds such as personal data protection (privacy) or State security. Such provisions, concerning both on-site and online access, may restrict access to material that, from an intellectual property rights point of view, is in the public domain. This affects in particular archives;
- Legal provisions in the area of copyright giving the State certain exclusive rights in relation to public domain material;
- Legal provisions concerning the protection of the cultural heritage, providing that reproduction and dissemination of cultural heritage belonging to or held by the State is subject to a licence and to the payment of a fee, even if it is in the public domain.

In particular the last two types of barriers can create unnecessary problems for making the public domain material accessible through *Europeana*. No actions are reported to address this type of barriers.

6. PROGRESS IN THE MEMBER STATES: DIGITAL PRESERVATION

6.1. Introduction

Ensuring preservation of information into the future brings with it significant challenges. Most organisations lack the policies and procedures to prevent digital information from becoming inaccessible in the course of time. Electronic resources, regardless of whether they are created initially through digitisation or are born digital, are threatened by deterioration of the medium carrying them or obsolescence of the technology on which they depend. There is growing recognition in all Member States of the potential societal and financial costs of losing data and of the financial, organisational and legal challenges to be faced given the wide range of issues and stakeholders involved, at national and international level. The Commission Recommendation drew Member States' attention to measures to lower the risk of information loss and wastage of resources.

6.2. National strategies and plans for digital preservation

Many Member States already began preparing national digital preservation policies some years ago through special committees or working groups involving the main memory institutions.

In Finland, the Ministry of Education set up a working group to draw up a plan for organising long-term preservation, with emphasis on the legal preservation

obligations of central government bodies (the National Archives Service, the National Library of Finland, the National Board of Antiquities, and the National Audiovisual Archive), and to look into the benefits of shared technical infrastructure.

In Italy, various projects and networks are in place, aimed at Italian libraries and archives, to tackle collaboratively issues such as the creation of scalable infrastructures for long-term preservation, the development of emulation strategies, the conduct of research, awareness raising, and the framing of local and national preservation policies.

However, most countries still lack more precise plans or strategies for tackling the most urgent issues and describing in detail the various roles and responsibilities and the resources needed. Many reports mention the lack of scalable technologies and methods as well as lack of experience. Therefore, in few Member States do strategies for digital preservation actually translate into changes and improvements at infrastructural and organisational levels.

In Poland, a special committee is dedicated to shaping a national strategy for the digital preservation of Polish cultural heritage. The strategy will consist of a framework for developing cooperation between all institutions responsible for cultural heritage and a number of main recommendations. Problems mentioned are that technical methods for the long-term preservation of digital resources in Poland are still far from functional or from being applied for mass usage, and that most Polish memory institutions have no experience in testing the sustainability of large digital repositories facing software and hardware obsolescence. This also impacts on the repository function in Poland. Only when trustworthy and lasting organisational and technical procedures are established will repositories in Poland be able to rely on digital copies.

Real progress is being made only in those countries that have one or more organisations with a long record in the area of digital preservation and in collaborating intensively with counterparts at national and European level. This is the case, for example, in the UK, where the Digital Preservation Coalition (DPC), in which, inter alia, the British Library and other libraries, the JISC and research organisations are participating, has already been active for several years in building expertise among its members and providing a common national forum for the development and coordination of digital preservation strategies in the UK. In the Netherlands, a National Coalition for Digital Preservation was established in 2007, at the initiative of the National Library, and with support from the Ministry of Education, Culture and Science. Its ambitious aim is to ensure that within five years a national organisational and technical infrastructure is in place, to secure the long-term accessibility of scientific, commercial, governmental and cultural data. In Germany, the NESTOR competence network has similar objectives, with a focus on training and the sharing of expertise and information. In Sweden, the National Archives, the National Library, and the National Archive of Recorded Sound and Moving Images have together embarked on far-reaching cooperation through the Centre for Long Term Digital Preservation and Access (LDB-Centre) based at Luleå University of Technology.

Digital preservation costs remain a critical and little known issue. A Commission study on the socio-economic impact of digital preservation was therefore launched in January 2008 and should lead to better knowledge of the costs of failing to preserve,

the issues if data cannot be recovered, as well as the potential value of new services based on preserved digital content.

6.3. Exchange of information with other Member States on digital preservation

An effective platform for the exchange of information and good practice in digital preservation was found in the Member States' Expert Group on Digitisation and Digital Preservation on two different occasions. On these occasions presentations and discussions were held on progress in digital preservation at national level, with special reference to legal and organisational arrangements as well as web harvesting.

European projects co-funded from the Research Framework Programme are the other platforms often mentioned by Member States for exchanging information and experience at European level. For example, the ERPANET project organised between 2003 and 2004 more than twenty workshops bringing together several hundred experts and practitioners in digital preservation coming from museums, libraries and archives, the ICT and software industry, research institutions and government bodies all across Europe. Building on the earlier successful work of ERPANET, the DPE (Digital Preservation Europe) project co-funded under FP7 is playing an important role in terms of outreach in order to attract people from various disciplines to digital curation and preservation. DPE facilitates pooling of the complementary expertise that exists across the academic research, cultural, public administration and industry sectors in Europe and fosters collaboration and synergies between many existing national and international initiatives throughout the European Research Area. DPE addresses the need to improve coordination, cooperation and consistency in digital preservation activities.

In some Member States digital preservation is being integrated into new relevant education and training curricula, for example the new Master's degree course in conservation of new media and digital information at the State Academy of Fine Arts in Stuttgart, Germany. The Commission recognises the need for more consistency in education on digital preservation and the importance of spreading competence, training and awareness at European level, and will bring together various stakeholders to explore the possibilities for developing a common European curriculum for digital curators.

The need for collaboration is also reflected in the creation of the Alliance for Permanent Access, a group formed at the initiative of the National Library of the Netherlands and consisting of national and pan-European research organisations, data centres, archives, libraries and publishers. The Alliance promotes new collaborative and coordinated actions at European level contributing to a sustainable virtual infrastructure for permanent access to scientific information in Europe.

6.4. Multiple copying and migration of digital material for preservation purposes

Copying for the purpose of preservation of digital material is not perceived as a major legal obstacle by most Member States. Some reports mention considering a more explicit reference to digital material in the national copyright law. At the same time, some related policies, e.g. with regard to electronic deposit, are still quite varied in most Member States and largely depend on individual voluntary licensing agreements with publishers, which raises ad hoc issues for copying for preservation purposes. Another issue mentioned is DRM clearance. DRM deployed by publishers is mainly for controlling copying for access purposes, but this can also limit a library's copying activities with a view to preservation.

In the UK, a report by Andrew Gowers published findings on the UK's intellectual property regime in December 2006. It included provisions to enable materials to be copied for preservation purposes. A formal consultation on these and other copyright exceptions is currently under way and is expected to lead to legislation being introduced at the end of 2008.

6.5. Legal deposit of born-digital material

Until recently, voluntary agreements for the acquisition and deposit of electronic information were the only instrument in most Member States, either complementing the legal provisions or as the only practice (as is the case in the Netherlands). However, in more and more Member States the legal deposit legislation is being revised to include electronic deposit obligations (e.g. Spain, Portugal, Austria) or has already been amended in recent years to cover also digital material (e.g. Finland, Germany, France, Estonia). Member States that joined the European Union in 2004 have been particularly swift in preparing deposit legislation or adapting it to the digital environment.

Although, in most countries, implementation usually preceded regulation to test the specific issues of acquisition, storage, preservation and access, most Member States have reported only in vague terms on actual progress in implementing their new deposit legislation. As for the question what is being done to prevent divergence of depositing arrangements with other Member States, an issue mentioned in many reports is the variation in types of electronic publications covered. For example, the National Library of France also collects games, expert systems and databases. In Finland the mandate applies only to material on CDs and DVDs excluding computer programs. In some Member States the provisions refer to text-based information products rather than entertainment. There is a need for stronger cooperation between the depositing organisations to develop shared approaches, requirements and related certification criteria as to the acquisition, registration and storage of and access to the materials. A good example at national level is the case of Sweden, where the National Archives, the National Library and the National Archive of Recorded Sound and Moving Images are developing a joint repository management system.

6.6. Legal provisions for web harvesting

The collection of particular portions of the web and their preservation in an archive for future researchers, historians and the general public is taking place in most Member States. Only in about half of them is this on the basis of a legislative arrangement. Such arrangements have given an official mandate for web harvesting to specific institutions, such as national libraries or national archives. In all other cases, where no law legitimising web harvesting exists, the practice is blurred and fragmented as consent from the rights owner needs to be found on a case-by-case basis or access provided to these materials has to be restricted.

In the situation where provisions for mandatory web harvesting exist these are often directly integrated in the provisions for legal deposit of born-digital material. The organisation responsible is normally the national library. No difficulties are mentioned with implementation once a legal mandate is in place, e.g. for dealing with the distribution and unpredictable temporality of online content, the rapidly evolving publishing and encoding technologies, the authenticity of the material, or the vast number of actors contributing to the web. Selection criteria used are often the country's top-level domain (e.g. .fi) or the origination of a publisher/creator/author. Although language could be considered it is hardly mentioned. Thematic selection also takes place, e.g. based on elections, government and university websites, newspapers. Access policies with regard to electronic deposit and web

harvested material vary between Member States but are generally restrictive, for reasons of copyright or privacy.

In Sweden, owing to restrictions in the Swedish law on personal integrity, the National Library, which started a web harvesting initiative already in the 1990s and has collected over 300 million files from Swedish websites, is only able to provide public access to the material within the premises of the National Library.

7. WORK WITH STAKEHOLDERS

7.1. High Level Expert Group on Digital Libraries

7.1.1. Introduction

In February 2006, the Commission set up a High Level Expert Group on Digital Libraries, bringing together cultural institutions, publishers, technology firms and academics. The group, chaired by Commissioner Reding, has been working for over two years to advise the Commission on how to best address the organisational, legal and technical challenges at European level, as well as to contribute to a shared strategic vision for digital libraries in Europe. Adopting a pragmatic method of work, the group has been able to build bridges between the different stakeholders, and to facilitate the identification of solutions to specific problems. Three priority work areas have been identified: public-private partnerships, scientific information and copyright issues.

7.1.2. Copyright

At its third meeting on 18 April 2007, the High Level Expert Group approved a report produced by the copyright subgroup on three copyright-related issues: orphan works, out-of-print works and digital preservation. The report proposes a series of concrete measures, essentially of a non-legislative nature, to be implemented on a voluntary basis by or with the direct involvement of the stakeholders (publishers, libraries, collecting societies, etc.) and by Member States. These measures constitute an important step forward for facilitating the digitisation, online accessibility and digital preservation of cultural material and for enabling Member States to comply with the provisions of the Commission Recommendation.

In the area of digital preservation, the High Level Expert Group recommends that public libraries, educational establishments, museums and archives should be allowed to make multiple (an open-ended number of) copies where necessary to ensure preservation of the work. Moreover, the report indicates that copies of born-digital works to be deposited in national deposit libraries under mandatory (legal) deposit schemes should have any embedded protection device disabled.

The report advises on how Member States and stakeholders should put in place mechanisms to deal with orphan works, in particular through a set of commonly agreed core principles, which allow interoperable solutions and mutually recognised mechanisms on orphan works. The proposed solutions include:

- Guidance on sector-specific diligent search (or due diligence guidelines): what steps are considered as sufficient for fulfilling this prerequisite, such as consulting databases, organisations representing rightholders, etc.;

- Provisions for withdrawal should the rightholder reappear;
- Inclusion of commercial users but with special treatment for cultural, non-profit establishments;
- Remuneration requirement (general or conditional on the rightholder's reappearance);
- Dedicated databases of orphan works;
- Improved copyright metadata tagging to be included in digital/digitised material.

The Commission has taken an active role in disseminating the results of the High Level Group through existing organisations and networks, such as the Member States' Expert Group on Digitisation and Digital Preservation and through a stakeholders meeting held on 14 September 2007, attended by representatives of authors and publishers from the different media sectors, libraries and other cultural institutions.

As follow-up action in the area of orphan works, four sector-specific stakeholder groups (text/books, audiovisual, music and visual/photography) have met on a regular basis to develop due diligence guidelines for each of these sectors. These guidelines embody a common understanding of what measures have to be taken before a work can be considered to be orphan. On 4 June 2008 stakeholders' organisations representing the different sectors signed a Memorandum of Understanding, thus endorsing the due diligence guidelines.

The copyright report also addresses the issue of how to ensure better access to out-of-print works. An out-of-print work is defined as 'a work that is not commercially available, as declared by the appropriate rightholders'. The High Level Expert Group agreed a model licence for out-of-print works, to be adapted at national level, including a Community-wide licensing feature, to facilitate the lawful digitisation of out-of-print works by libraries and archives and their subsequent accessibility on-site or through secure networks to authorised users. The model licence was subsequently extended to include internet online accessibility.

At its fifth meeting on 4 June 2008, the High Level Expert Group adopted a final report on copyright related issues. The report consolidates the work done in this area, including the issues of orphan works, out-of-print works, and digital preservation (in particular multiple copying for preservation purposes and web-harvesting).

7.1.3. Public-private partnerships

Public-private partnerships in the digital libraries domain are particularly interesting as a means of funding digitisation, given the large financial burden often involved. For this reason, the Commission Recommendation and Council Conclusions encourage the development of public-private partnerships.

At its fifth meeting on 4 June 2008, the High Level Expert Group adopted a report identifying opportunities, key success factors and guidelines for the use of public-private partnerships in the digital libraries domain, in particular for digitisation, with the aim of providing benefits to all parties involved: cultural institutions, private partners and citizens.

The report is based on a number of case studies involving different types of cultural institutions (libraries, archives, audiovisual archives, and museums) and private actors. It addresses key issues such as: exclusivity clauses; transparency of agreements; avoidance of copyright restrictions for digitised public domain content.

Public access

- The partnership should maximise public access and take into account long-term preservation and sustainability issues;
- Public domain content in the analogue world should remain in the public domain in the digital environment. If restrictions to user access and use are necessary in order to make the content available at all, these restrictions should only apply for a limited time period;
- The partnership should operate within the framework of applicable intellectual property laws.

Transparency and non-exclusivity

- The partnership should be transparent and accountable. It should be managed through a formal governance structure and based on a memorandum of understanding or contract that is accessible for the public;
- The partnership should not establish exclusive agreements. Exceptionally, where exclusive agreements are necessary to provide a service in the public interest, such arrangements should be time-limited, regularly reviewed and transparent.

Mutual benefits

- Partners should clearly state their strategic objectives and the benefits for the citizen to be achieved through the project;
- Partners should take into account and respect the different interests that may be at the basis of the partnership;
- The partnership should fully utilise the experience and expertise of the partners, and combine complementary skills and resources.

7.1.4. *Scientific information*

The High Level Expert Group was active also in the area of scientific information, providing a discussion and cooperation forum between scientific publishers and the scientific community. The Commission took an official position in the debate on scientific information through the Communication on scientific information in the digital age: access, dissemination and preservation (adopted on 14 February 2007), setting the objective of improving current and future access to scientific information. On 23 November 2007, the Council adopted Conclusions on scientific information in the digital age, welcoming the Commission's initiative and inviting Member States to work together on the accessibility and preservation of scientific information.

Through the High Level Expert Group, basic consensus has been built among stakeholders on: agreed principles on access; preservation of scientific information and research data; and future paradigms for scientific information. The most controversial issue remains the request for open access formulated by the research community and strongly rejected by publishers. The two parties have nevertheless agreed to conduct a large-scale experiment on the impact of the publication of scientific articles in open repositories (the PEER project that will be co-funded under the *eContentplus* programme).

7.2. Work with stakeholders on film archives

Within the context of the Parliament and Council Recommendation of 16 November 2005 on film heritage and the competitiveness of related industrial activities, the Commission is acting as a facilitator for a framework agreement between film archives and rightholders. This agreement would regulate the use of deposited films in archives, including access through the internet for researchers.

7.3. Interoperability Working Group

The Commission envisaged that the interoperability issues for *Europeana*, especially given the short timescale for the launch of a first prototype at end-2008, needed support at a relatively early stage and with a lot of drive. The Commission therefore organised in early 2007 a series of three technical meetings with experts representing all four domains (museums, libraries, archives, audiovisual sector) to discuss issues of interoperability and multilingualism in the context of *Europeana*. The aim of these meetings was to adopt a number of fundamental principles for *Europeana* (distributed, heterogeneous resources, access at item level, all domains) and to establish an initial framework on which existing initiatives at national and European level could easily align, as well as to make recommendations for a longer-term strategy to give some stable perspectives to decision makers, cultural institutions and service providers so that they could anticipate and undertake investments or new developments. The principles and recommendations were adopted by *Europeana* in 2007.

8. TECHNICAL ISSUES

8.1. Leveraging research and deployment of digital libraries

Progress on technical issues is a prerequisite for the development of digital libraries in general and improvement of the services of *Europeana* in particular.

In general, for creating Europe's future digital libraries, research is needed, among other things to create new and improved mass digitisation techniques and technologies, covering various types of objects, and to improve on OCR technologies to be able to tackle the various fonts, multiple languages and variety in paper material and document layout. Also, the creation of better and more cost-effective preservation processes, through improved automation, is important to ensure that future generations can continue to access the digital material. More specifically for *Europeana*, deployment of new technologies and tools is needed to find the most efficient ways to encompass the many metadata formats and be able to display text, pictures, video, sound and 3D objects effectively. *Europeana* will need a model that can deal with different technical architectures, can encompass harvesting and crawling, can deal with various protocols and standards, and is able to handle full text and metadata. Some research and deployment actions are unique to the cultural sector — such as searching across the different organisational domains — or unique to Europe, e.g. cultural and linguistic barriers. Improvements, therefore, also need to be made in multilingual search and retrieval and the use of semantics to create more structured and cross-domain searching. At Community level, the Research and *eContentplus* programmes are supporting actions that will have to tackle this wide range of issues.

8.1.1. *Digital libraries under eContentplus*

The *eContentplus* programme is part of the European Commission's measures to facilitate the creation, dissemination, use and exploitation of digital content in areas of public interest in Europe. The four-year programme (2005-2008) supports actions to tackle organisational barriers and promote the take-up of leading-edge technical solutions to improve accessibility and usability of digital material in a multilingual environment. Within *eContentplus*, about €60 million is allocated to reinforce networking between museums, archives and libraries — particularly for interoperability issues, to enhance the quality of content with well-defined metadata and to tackle organisational and technological barriers.

Among the projects co-funded under *eContentplus* is EDLnet, a core project to *Europeana* that is bringing together museums, libraries and archives from 25 Member States to work on an operational framework for interoperability between museums, archives and libraries. Other projects aim to bring into *Europeana* collections from various cultural domains, for example VideoActive (television archives, radio archives), European Film Gateway (film archives), Internet Gateway for the Archives (national archives), EDLocal (local and regional museums and other cultural organisations).

From 2009 the *eContentplus* programme's follow-up programme is going to be part of the ICT Policy Support Programme under the Competitiveness and Innovation Programme (CIP ICT-PSP).

8.1.2. *Digital libraries and digital preservation research under the Framework Programme*

Under the Framework Programme for Research and Development, the Commission co-funds research on digital libraries and digital preservation. This has been an area of incremental development, from building specific digital libraries towards work on infrastructures and architectures supporting greater interoperability of resources and services across distributed digital collections.

The research priorities set for the current 7th Framework Programme (FP7) will especially need to speed up implementation of the i2010 — Digital Libraries agenda. The focus is therefore on the establishment of massive, larger-scale, automated digitisation of various types of objects, as well as on the creation of more cost-effective approaches and on new technologies to search and automatically index content. The challenge is to tackle the issues deriving from the heterogeneity of formats, objects and underlying computing platforms to create seamless virtual objects, as well as to build organisational infrastructures for digital preservation such as global and scalable object registries and reliable services guaranteeing the trustworthiness of the preserved data.

There are also organisational challenges, for the archive, library and museum domain, in ensuring the availability of digitisation competences and, if necessary, of capacity — not only in large organisations but also in smaller ones. This was behind the identification in the research agenda for 2007-2008 of the need to establish competence centres at European level that will support digitisation and digital preservation. The purpose is to leverage the effect of and on national actions, to improve technological capacity and solutions, to use complementarity to extend competence, and to develop skills and services at European level. As a result of the first call for proposals, the Commission is providing co-funding of €11.5m in the IMPACT project, focused on digitisation of printed materials, with the aim of

improving the technologies for optical character recognition, for structuring documents and for working with different languages.

Other projects previously funded under the Framework Programme included the DELOS Network of Excellence for integrating digital libraries research in Europe, as well as projects targeting archives and, in particular, audiovisual resources. These developed, for example, methods and tools for semi-automatic indexing and semantic annotation of non-textual objects such as music, speech and images. The PRESTOSPACE project worked on enabling automated preservation of and access to Europe's diverse audiovisual collections.

Currently, the MultiMATCH project is focusing on multilingual information retrieval for cultural objects of different media formats, and designing a system to support diverse user groups. For digital preservation, the Commission is funding the PLANETS project (where national libraries, archives and industrial partners join together in developing tools to integrate preservation into their workflows), CASPAR (covering the preservation of high-volume scientific data and multimedia art), as well as a coordinating action called Digital Preservation Europe that has the explicit goals of raising awareness, developing strategies and mobilising all stakeholders, including a wider research community, around the topic of digital preservation. Also within the Capacities Programme attention is given to the issue of digital preservation, for example in the context of the work done on digital repositories and their sustainability.

Within the 7th Framework Programme - and in particular the Cooperation programme theme 6, Environment - the Commission also addresses important aspects related to physical cultural heritage. These actions are complementary to those on digital cultural heritage and in many cases involve the same actors. Also in relation to physical cultural heritage it is essential to use consistent and harmonised descriptions of cultural assets to improve the compatibility and interoperability of databases for the benefit of scientists, conservators, restorers, architects, owners and managers of these assets.

8.1.3. *Future support*

Continued support for research and deployment actions in digital libraries and digital preservation should guarantee the harnessing and strengthening of the synergies between digitisation, online accessibility and long-term availability of Europe's cultural memory. Through its funding programmes, the Commission will continue to support projects that enhance the digitisation, online accessibility and digital preservation of cultural content and contribute to the development of *Europeana*. Under FP7, within the ICT work programme for 2009-2010, digital libraries and digital preservation will be a specific objective with an estimated budget of €69 million. And within the *eContentplus* programme, about €25 million has already been earmarked for digital libraries for 2008 whereas for 2009 and 2010 this support is expected to be continued within the Competitiveness and Innovation Programme.