The European Union initiatives in the digital archive area: achieving the Information Society

by Concha Fernàndez de la Puente[*]

Abstract
Over the past few years, the European Union has fostered a number of initiatives to enhance and implement technologies related to electronic document management and exchange with a view to ensuring that all European citizens have easy access to information in the same way. These initiatives have been launched under different programmes or strategies that were implemented at European level, with the support of the Member States.

This paper reviews these initiatives and examine some of their achievements.

Introduction
We are living through a historic period of technological change, brought about by _development and application of information and communication technologies (ICTs).

This process is both different from, and faster than, anything we have seen before. It has a huge potential for wealth creation, higher standards of living and better services.

ICTs are already an integral part of our daily life, providing us with useful tools and services in our homes, at our workplaces, everywhere. The Information Society is not a society far away in the future, but a reality in daily life. It is adding a new dimension to society as we know it, a dimension of growing importance. The production of goods as well as services is becoming more and more knowledge based.

However, the speed of introduction of ICTs varies between countries, regions, sectors, industries and enterprises. The benefits, in the form of prosperity, and the costs, in the form of burden of change, are unevenly distributed between different parts of the European Union (EU) and between citizens. Understandably, people are worried and demand answers to questions about the impact of ICTs.

Their concerns can be summarised in two main questions:

- the first has to do with employment. Will these technologies not destroy more jobs than they create? Will people be able to adapt to the changes in the way we work?

- the second question has to do with democracy and equality. Will the complexity and the cost of the new technologies not widen the gaps between industrialised and less developed areas, between the young and the old, between those in the know and those who are not?

Political framework
To meet these concerns we need public policies to help us reap the benefits of technological progress, and which can ensure equitable access to the Information Society and a fair distribution of the potential for prosperity.

The European Commission suggests that public policies should, among other things:

- Improve democracy and social justice by ensuring that the potential of ICTs to provide relevant, up-to-date, information on matters of common interest and to enable citizens to participate in public decision making, are fully supported by governments, with the involvement of non-governmental organisations.

- Reduce bureaucracy and improve the quality and efficiency of public administration at national, regional and local level, and improve the overall benefits of welfare state services, such as health care and education, through efficiency improvements and through the better matching of provisions and individual needs.

In order to meet these and the other objectives, a number of political initiatives have been launched by the European Union.

As early as July 1996, the Commission adopted the Green Paper L*iving and Working in the Information Society: People First*[1] on the key social challenges raised by the transition to the Information Society. The Green Paper points out that although the adoption and widespread use of information and communication technologies offer a huge

potential for wealth creation and higher standards of living, many people are also concerned about the impact of the Information Society on their lives. The Green Paper examines how Information and Communication Technologies (ICTs) are reshaping production and work organisation and are transforming peoples lives.

In January 1999, the Commission published a *Green Paper on public sector information in the Information Society*[2]. The main message of the Green Paper was that the use of public sector information in Europe for the sake of citizens and enterprises had to be improved. On-line access to public information can decrease the gap between citizens and administrations and support the democratic process. Better exploitation possibilities of public sector information will increase the competitiveness of European firms active in the content industries. At the same time, access to high quality government information can help to improve the competitiveness of European companies in general. This green paper attracted a number of responses which have led to more focused priorities in the form of a draft Communication which is currently under discussion.

Improving citizens access to information was also a priority for the Lisbon summit that took place on 23 and 24 March 2000. During this summit, the European Commission presented the initiative launched in December 1999 entitled "eEurope: An Information Society for All"[3], which proposes ambitious targets to bring the benefits of the Information Society within reach of all Europeans. The initiative focuses on ten priority areas, from education to transport and from healthcare to the disabled.

The key objectives of the *e*Europe Initiative are:

- Bringing every citizen, home and school, every business and administration, online and into the digital age.

- Creating a digitally literate Europe, supported by an entrepreneurial culture ready to finance and develop new ideas.

- Ensuring that the whole process is socially inclusive, builds consumer trust and strengthens social cohesion.

To achieve these objectives, the Commission has proposed 10 priority areas for action with ambitious targets to be achieved through joint action by the Commission, the Member States, industry and the citizens of Europe.

These areas of action are:

- European youth into the digital age: bring Internet and multimedia tools to schools and adapt education to the digital age.

- Cheaper Internet access: increase competition to reduce prices and boost consumer choice.

- Accelerating e-commerce: speed up implementation of the legal framework and expand use of e-procurement.

- Fast Internet for researchers and students: ensure high speed access to Internet thereby facilitating co-operative learning and working.

- Smart cards for electronic access: facilitate the establishment of European-wide infrastructure to maximise uptake.

- Risk capital for high-tech SMEs: develop innovative approaches to maximise the availability of risk capital for high-tech SMEs.

- "eParticipation" for the disabled: ensure that the development of the information Society takes full account of the needs of disabled people.

- Healthcare online: maximise the use of networking and smart technologies for health monitoring, information access and healthcare.

- Intelligent transport: safer, more efficient transport through the use of digital technologies.

- Government online: ensure that citizens have easy access to government information, services and decision-making procedures on-line.

Digitisation is an essential first step to generating digital content that would underpin a fully digital Europe. It is a vital activity in preserving Europe's collective cultural heritage, providing improved access for the citizen to that heritage, to enhancing education and tourism, and to the development of *e*Content industries. The critical role that it plays was recognised in the *e*Europe 2002 Action Plan endorsed by the EU Member Sates at the Feira European Council in June 2000. Representatives and experts from the EU Member States gathered in Lund (Sweden) on the 4th of April 2001 to identify ways in which 'a co-ordination mechanism for digitisation programmes across the Member States' could be put in place to stimulate European content in global networks (Objective 3(d) of the *e*Europe Action Plan). The meeting, which was arranged by the Cultural Heritage Applications unit of the European Commission's Directorate General Information Society and hosted under the auspices of the Swedish Presidency, began by endorsing the findings of an earlier meeting of EU Experts (Luxembourg, November 2000).

The Lund Meeting agreed that digitisation provided a key mechanism to exploit Europe's unique heritage and to

support cultural diversity, education and the generation of content industries. Although the Member States were investing in enabling access to their cultural heritage there were still many obstacles to the near and longer term success of these initiatives. These hurdles included the diversity of approaches to digitisation, the risks associated with the use of inappropriate technologies and inadequate standards, the challenges posed long term preservation and access to digital objects, lack of consistency in approaches to Intellectual Property Rights (IPR), and the lack of synergy between cultural and new technology programmes.

The Lund meeting concluded that these obstacles and the objectives of the

*e*Europe Action Plan could be enabled if the Member States were to establish an ongoing forum for co-ordination, support the developing of a European view on policies and programmes, develop mechanisms to promote good practice and consistency of practice and skills development, and work in a collaborative manner to make visible and accessible the digitised cultural and scientific heritage of Europe. At the same time the participants in the meeting agreed that the European Commission could help achieve the

*e*Europe objectives by supporting co-ordination activities, enabling the creation of centres of competence, fostering the development of benchmarking standards for digitisation practices, encouraging a framework that would enable a shared vision of European content, and assisting Member States to improve access and awareness for citizens through enhancing the quality and usability of content and the development of models to enable *e*Culture enterprises.

By working together to bring these principles into action the Member States and European Commission aim to ensure that the richness of our heritage will be made visible and usable both by citizens for learning, understanding and enjoyment and by European enterprise to enable industries for the new generation.

These political initiatives are supported and endorsed by other activities such as the research programmes and other specific actions.

RTD Programmes

Support for European R&D in the area of digital document related technology has moved forward in the several phases and has been done within different programmes.

The first actions in this area date from early ESPRIT[4] initiatives and have been expanded through its successor programmes, and through the advanced networking programmes, RACE and ACTS. Many activities have also been developed under the Telematics Applications Programme[5] involving a number of different sectors - including Libraries[6], Information Engineering[7] and Administrations[8]. They reveal an emerging interest in the creation and management of new digitised content, with increasing multimedia component, and in a more commercial or economic context.

There have been a number of fundamental shifts in the focus of R&D funding in this area of document technology through the successive Framework Programmes, namely:

- from highly technical, industry-targeted developments to the emerging focus on service and on access;
- the emergence of more complex distributed models, linking different types of information objects in order to deliver new types of service;
- emerging models for networked access.

In summary, the trend has moved from the development of basic technologies and tools, which found test-application in document management centres, through to a greater emphasis on downstream applications and on more service and market oriented developments.

One of the actions that has had a greater impact in the area of document management technology was the Telematics for Libraries programme[9] that run from 1990 to 1998 and funded over 100 projects and support actions. The work carried out by this programme developed interfaces, systems and services for new digital collections. During the programme, networks of library actors worked together and with publishers and ICT industry players in value chains for service provision.

The main technological clusters of the Libraries programme built on developing interoperable access to distributed services and collections. The services include document access and delivery both of electronic documents and via interlibrary loan; large-scale interoperable catalogues, accessible across borders; directory services; integrating access to archive, library and museum resources. They are built mainly around implementation of the Z39.50 protocol and more recently on XML encoding for documents and data. Overall the projects provide experience in: handling multilingual access; metadata requirements from different sources and for different types of material; managing the distributed environment.

There was also an important cluster of projects based on developing image collections (e.g. fine arts, early printed books) which tested both the technologies for digitising library materials and the systems for digital image storage, management and access. Linked to this cluster we find groups of projects which concentrate mainly on: the creation of local document stores either from bought-in or

locally created materials; testing the technologies for storage and access, including issues relating to long-term provision; and developing managed digital collections and services, including access to copyrighted materials.

The European Commission's Fifth Framework Programme[10] (FP5) takes EU research into the new millennium. It recognises the importance of content and of citizens' access to knowledge and culture. The challenges are to make content accessible in mixed and multiple media formats and in real and virtual forms, to maintain and preserve information resources, and to strengthen alliances for content creation and learning provision.

The Information Society Technologies (IST)[11] programme is the largest of the FP5 thematic programmes. The main focus of IST is on enhancing the user-friendliness of the information society: improving the accessibility, relevance and quality of public-services especially for the disabled and elderly; empowering citizens as employees, entrepreneurs and customers; facilitating creativity and access to learning; helping to develop a multi-lingual and multi-cultural information society; ensuring universally available access and the intuitiveness of next-generation interfaces; and encouraging design for all.

The IST Programme brings together and extends the ACTS, Esprit and Telematics Applications programmes to provide a single and integrated programme that reflects the convergence of information processing, communications and media technologies.

Digital heritage and cultural content[12] is one of the five main areas under Multimedia Content and Tools - Key Action 3 of the IST programme. Work is aimed at expanding the contribution of libraries, museums and archives to the emerging culture economy, including economic, scientific and technological development. In this area, there are three research priorities:

- Ensuring integrated access to collections and materials held in libraries, museums and archives.
- Improving the operational efficiency of large-scale content holdings by means of powerful interfacing and management techniques
- Preserving and accessing multimedia content of various types, including electronic materials and surrogates of physical objects

The key participants in the cultural heritage projects are Europe's memory institutions, both public and private, with a particular focus on new alliances with technical and content-related partners.

Work is building on achievements under the Fourth Framework Programme addressing libraries, archives, museums and related institutions and attempts to encourage convergence in technical approaches and applications for the various cultural institutions and networked services.

The projects and support measures[13] resulted from the six calls for proposals launched by the digital heritage area from 1999 to 2001 concentrate on the development of technologies that support the next generation digital library applications, on strategies for the long term development and maintenance of repositories and archives of valuable digital objects, on exploring and experimenting with novel ways of creating, manipulating, managing and presenting new classes of intelligent, dynamically adaptive and self-aware digital cultural objects, either held by memory institutions or directly involving digitally born objects or art forms, and on creating a living record of the information society.

The projects selected after these calls (some 50 RTD projects and 20 support actions) address in particular collaborative e-print archive environments, heterogeneous multimedia digital libraries and cultural service infrastructures for trading cultural assets based upon different architectures and business models. Through a co-operation agreement with the US National Science Foundation (NSF) on Digital Library research some of the selected projects will also have formal relationships with US partners[14].

With a view to obtaining comments and suggestions on the possibility of developing new topics for R&D in the area of cultural heritage applications, some brainstorming meetings have been organised. One of the meetings discussed the topic "Creating a living on-line record of Europe's cultural diversity"[15] (Luxembourg, 14 March 2000) and brought together experts from across Europe with experience in the provision of new services in and around the library, museum and archive institutions, particularly at local or regional level. The meeting concluded with the ideas that in building a strategic approach likely to have lasting impact, particular reference would have to be made to:

- the need to base an expanding record of Europe's information society on the valuable building blocks which were now beginning to emerge;
- concentrating on a grass-roots approach starting with the needs of local communities and their citizens which had not been sufficiently appreciated elsewhere in the programme;
- the importance of scalability which could emerge from local initiatives designed in the interests of replicability, e.g. scalable digital archival technologies;
- the pressing need to ensure the involvement of citizens of all walks of life in order to overcome the

dangers of social exclusion which often seemed to result from the introduction of new IT services;

• the difficulty in assessing user needs in an area which was just beginning to emerge as a topic for action;

• the opportunities at local level for drawing on the assets of all the various cultural institutions in creating a better appreciation of local heritage and identity and in encouraging the involvement of a wide cross-section of citizens whether for purposes of leisure, education or personal expression.

In general, what is emerging as a focus for the future is to help create a European cultural information landscape by encouraging cultural memory organisations to participate in R&D actions providing innovative prototype networked services for both professional users and citizens. This future information landscape should be easy to identify, easy to access, and easy to navigate and should be extended to also encompass Europe's scientific and industrial heritage.

Equally tomorrow's cultural content will be produced by generating new forms of digital media. What this cultural content will be, and how it will be created, managed, distributed and preserved remains uncertain and a fertile ground for future research and experimentation.

Some of the EC archive projects:

AMICITIA Asset Management Integration of Cultural heritage In The Interexchange between Archivesstephan.schneider@tecmath.com

BRAVA Broadcast Restoration of Archives through Video Analysishttp://www.ina.fr/Recherche/Brava/index.en.html

COLLATECollaboratory for Annotation, Indexing and Retrieval of Digitized Historical Archive Material http://dbs.cordis.lu/fep-cgi/srchidadb?ACTION=D&CALLER=PROJ_IST&QM_EP_RCN_A=53037

COVAX Contemporary Culture Virtual Archive in XML http://www.covax.org/

CYCLADES An Open Collaborative Virtual Archive Environment http://galileo.iei.pi.cnr.it/cyclades/

DHM Digital Historical Maps www.dhm.lm.se

ECHO European Chronicles On-Linehttp://pc-erato2.iei.pi.cnr.it/echo/

EUAN The European Archive Networkhttp://158.169.50.95:10080/info2000/en/factsheets/euan.html

EVA European Visual Archivehttp://192.87.107.12/eva/search.asp

LAURIN Libraries and Archives Collecting Newspaper Clippings Unified for Their Integration into Networkshttp://laurin.uibk.ac.at/

LEAF Linking and Exploring Authority Filesjutta.weber@sbb.spk-berlin.de

MALVINE Manuscripts and Letters via Networks in Europehttp://www.malvine.org/

NEDLIB Networked European Deposit Libraryhttp://www.kb.nl/coop/nedlib/

PRESTO Preservation Technology for European Broadcast Archiveshttp://presto.joanneum.ac.at/index.html

IDA Programme

Apart from the research programmes, the Commission has launched some other initiatives in the area of electronic record management. One of them is IDA[16], the European Union Programme for the Interchange of Data between Administrations that was adopted in November 1995. Its specialists offer advice and access to the results of existing telematics projects, to help the public administrations build information links with their counterparts across Europe.

IDA is a facilitator not a regulator. It offers advice and information to public administrations in a number of areas:

• Implementing an initial set of trans-European telematics networks in a variety of sectors.

• Facilitating the establishment of a common European telematics service for administrations.

• Advancing the development of a legal framework and guidelines for the exchange of electronic data.

• Documenting successful project results that can be transferred for use in other administrations.

• Offering guidelines for migration from paper-based to electronic administrative procedures.

As a result of a constructive consensus building under the Austrian and German EU presidencies, the Council and European Parliament adopted on 12 July 1999 the second phase of the IDA programme[17], with the objective of improving interoperability of networks and developing trans-European telematics services in priority areas.

Lately, IDA has produced a Model Requirements for the Management of Electronic Records (MoReq Specification), which focuses on the functional requirements for the

management of electronic records.

IDA organised a symposium on open source software (OSS) in Brussels on 22 February 2001 to meet the growing interest in the use of OSS in EU public administrations. This event brought together representatives of the European Commission, national and local governments, and the information technology (IT) industry and provided a platform where Europe's administrations could share their experiences. In addition, it permitted dialogue with the private sector on the benefits and pitfalls of OSS in the public sector.

The Interchange of Data between administration is high on the priority list of the Commission. The IDA programme facilitates the exchange of information between Member States at trans-European level, with administrations, citizens and enterprises as beneficiaries. In this sense, IDA will support *e*Europe's Government Online priority area with a series of actions at European level such as portals to European level information and benchmarking and spread of best practice.

DLM Forum

The other important initiative is the DLM-Forum[18], that was created as *"a multidisciplinary forum … in the framework of the Community on the problems of the management, storage, conservation and retrieval of machine-readable data, inviting public administrations and national archives services, as well as representatives of industry and of research, to take part in the forum"*[19]. The European Commission established the Forum acting on the conclusions of a report entitled *Archives in the European Union*[20], compiled by a group of high level European experts and currently under revision. The archives were the starting point and the driving force behind this European DLM-initiative, which from the very first moment brought together people from different disciplines involved in electronic information handling.

While the main goals of the first DLM-Forum that took place in 1996 were to find out what was going on in Europe and the rest of the world in terms of electronic document and records management and to seek wider co-operation in this area between the member states of the European Union (EU) and the European Commission, the second DLM-Forum held in 1999[21] was clearly targeted at the ICT industry.

The second DLM-Forum issued the following conclusions on three main areas:

1. development of a reference model for managing electronic documents and records in public administration; special DLM-message to ICT-industry;

2. realisation of a modular European training programme for administrators and archivists on electronic documents and records management (E-TERM); improvement of skills and recruitment facilities in Europe;

3. implementation of a reinforced DLM Action Plan, 1999-2004: access for the European citizen and funding priority activities.

One of the important result of the DLM-Forum '99 was the elaboration of a "DLM-message" to the ICT-industry[22] to promote best practices in public administration and provide easily applicable and cost-effective records management and digital archival solutions[23].

> Later, the European Commission together with the Member States updated and forwarded this DLM-message to the ICT industry in which industry across Europe was encouraged to exploit the field of electronic documents, records management and digital archiving as a new and viable market. The following challenges for the industry were identified:

- A quicker and more thoughtful reaction to constant user demands and new groups of users is required.

- Solutions must be developed which on the one hand are capable of adapting to changing IT evolution but on the other hand can guarantee long-term accessibility and intelligent retrieval of knowledge stored in document management and archive systems.

- Providers must clearly declare their support for standards and interoperability to ensure general use and distribution of information.

- Products must become more economical and simpler to use, integrate and operate.

At the same time, the following challenges for the European Commission were identified:

- defining the concrete demands on electronic archiving and document management systems,

- establishing documents generated by data processing systems with digital signatures as equal to paper documents with original signatures,

- uniform regulations on signatures which also take developments in the US software industry into account,

- uniform regulations on the legal recognition of electronically archived documents,

- harmonisation of the various European Commission

initiatives which directly or indirectly concern document management or electronic archiving.

Long discussions emerged within the ICT industry with regard to the DLM-Message. Its leaders recognised that the public sector is one of the largest and most important vertical market for document related technologies and that today many proven and practical solutions are already in place in European administrations with the effective management of a vast amount of information. The problem is that many of these solutions have been developed individually and there are no standard software packages available for the specific needs of government and administration authorities. Further, the benefits of such proven applications now need to be disseminated to a broader user base within the EU as there are many similar requirements and applications in each of the member states. The industry agreed that solutions must be developed that are, on the one hand capable of adapting to rapid IT technological advancements, and on the other can guarantee short- and long-term accessibility and intelligent retrieval of knowledge stored in document management and archival systems. This is recognised by the ICT industry as a critical factor in preserving the "Memory of the Information Society" within the EU.

The ICT industry also agreed that solutions also need to be cost effective and easy to implement using standard, compatible and widely accepted software and hardware platforms and must address security and privacy issues.

The ICT industry accepted the challenge given to it by the DLM Forum and has declared that is prepared and willing to support the efforts of the European Union for the preservation and public access to archives and records in a variety of practical ways.

The DLM Monitoring Committee and its special Working Parties are currently planing the 3rd DLM-ICT Forum 2002 to take place during the forthcoming Spanish EU Presidency (1st half of 2002). This will provide an interdisciplinary European platform for the DLM group and the ICT industry to jointly present best practices and concrete solutions and to promote, with the support of the European Commission's DG Information Society, the European Network on Electronic Archives.

Other actions

The INFO2000 programme (1996-1999) aimed at stimulating the emerging multimedia content industry to recognise and exploit new business opportunities. The central theme was the development of a European information content industry capable of competing on a global scale, and able to satisfy the needs of Europe's enterprises and citizens for information content, leading, on the one hand, to economic growth, competitiveness and employment, and, on the other hand, to individual, professional, social, and cultural development.

The European Commission launched several preparatory actions for a joint multi-annual follow-on activity to the INFO2000 programme and to the MLIS programme (Multilingual Information Society). As a result, *e*Content, a "Multiannual Community programme to stimulate the development and use of European digital content on the global networks and to promote the linguistic diversity in the Information Society", was adopted by the Council on 22 December 2000 for a period covering 2001 to 2005. The programme is aimed at supporting the production, dissemination and use of European digital content and to promote linguistic diversity on the global networks and it is based on three main strands of action where EU added value can be maximised:

1. Improving access to and expanding use of public sector information.

2. Enhancing content production in a multilingual and multicultural environment.

3. Increasing dynamism of the digital content market.

In particular, the *e*Content programme, as part of the *e*Europe Action Plan, contributes to its third objective: "to stimulate the use of internet".

As for the digital archives area, the most relevant action line addressed by the programme is "Improving access to and expanding use of public sector information". To tackle these issues, *e*Content will stimulate different types of activities, such as experiments in concrete projects showcasing the use of public sector information (PSI) to make added-value services and products and the establishment of European digital data collections.

At the same time, the activities addressing the policy dimension that have led under the INFO2000 programme to the publication of the Green Paper on Public Sector Information in the Information Society will be pursued.

The other interesting programme is TEN-Telecom[26] (Trans-European Telecommunications Networks) which is part of the TEN (Trans-European Networks) Community action, to support the trans-European deployment of e-society applications and services based on global telecommunications networks in areas of high socio-economic value.

Down-stream of the research results, TEN-Telecom helps project consortia to bridge the gap between technical mature developments and global market operation. It encourages essentially the validation phase for market feasibility of new telecommunications-based applications and generics services, and their early investment phase.

The sectors of common interest identified in the TEN-Telecom work programme include access to Europe's cultural heritage, applications for SMEs and city and regional information.

Conclusions

The European social model is built both on competition between enterprises and solidarity between citizens and Member States. The European Information Society must draw strongly from this economic, social and cultural strength, linking technological, economic and social aspects together in the creation of new opportunities for all its citizens.

The European Union fully recognises the importance of ensuring that citizens have access to information resources, particularly in the context of the information society. In the library sphere, this priority was endorsed by the European Parliament in October 1998 when it adopted a report from the Culture Committee on the Role of Libraries in the Modern World[27]. Since that time, the Commission adopted a Green Paper on Public Sector Information. Moreover, the *e*Europe initiative stresses the need for making government more open and more citizen-friendly by introducing support for on-line government. In the specific area of cultural heritage applications, a number of projects have contributed in their own way to these goals. And we hope to enhance citizens' participation more directly by the action line on Heritage for All.

The European-wide and interdisciplinary co-operation in the field of electronic document and records management, firmly supported by the DLM Forum, is to be fostered and enhanced. The important requirement for standardisation concerning the short-term and long-term preservation and accessibility of electronic information can only be met by using the expertise of all related professional groups, including industry.

The Information Society represents the most fundamental change in our time, with enormous opportunities for society as a whole, but with risks for individuals and regions. The way we develop it must reflect the ideas and values which have shaped the European Union. These ideas and values should be transparent and coherent with social justice in order to win the support of citizens. To this end, all interested parties should reflect on the possibility of formulating a set of common Community principles for the development of the European Information Society.

Footnotes

[1] http://europa.eu.int/comm/employment_social/soc-dial/info_soc/green/green_en.pdf

[2] http://www.europa.eu.int/ISPO/docs/policy/docs/COM(98)585/index.html

[3] http://www.europa.eu.int/comm/information_society/eeurope/index_en.htm

[4] http://www.cordis.lu/esprit/home.html

[5] http://158.169.50.95:10080/telematics/

[6] http://www.cordis.lu/libraries/

[7] http://158.169.50.95:10080/ie/

[8] http://158.169.50.95:10080/telematics/admin/administrations.html

[9] http://www.cordis.lu/libraries/

[10] http://www.cordis.lu/fp5/home.html

[11] http://www.cordis.lu/ist/

[12] http://www.cordis.lu/ist/ka3/digicult/home.html

[13] http://www.cordis.lu/ist/ka3/digicult/en/projects.html

[14] ftp://ftp.cordis.lu/pub/ist/docs/digicult/eu-nsf-call.pdf

[15] http://www.cordis.lu/ist/ka3/digicult/en/living-record.html

[16] http://europa.eu.int/ISPO/ida/

[17] http://www.europa.eu.int/ISPO/ida/ida2/guidelines/en.pdf

[18] http://europa.eu.int/ISPO/dlm/

[19] htpp://europa.eu.int/eur-lex/en/lif/dat/1994/en_394Y0823_03.html

[20] Archives in the European Union: report of the Group of Experts on the Coordination of Archives. Luxembourg: Office for Official Publications of the European Communities, 1994. ISBN 92-826-8233-1.

[21] http://www.europa.eu.int/ISPO/dlm/dlm99/index.htm

[22] http://www.europa.eu.int/ISPO/dlm/dlm99/index.htm

[23] http://www.dlmforum.eu.org

[24] http://158.169.50.95:10080/info2000/infohome.html

[25] http://www.cordis.lu/econtent/

[26] http://www.ten-telecom.org

[27] http://www.cordis.lu/libraries/en/reportrole.html

* Paper presented at the IASSIST/IFDO conference 2001 in Amsterdam. Concha Fernàndez de la Puente, European Commission, DG Information Society, Cultural Heritage Applications. Rue Alcide de Gasperi, L-2920 Luxembourg. Tel: +352-4301.34071 Fax: +352-4301.33530. Email: concha.fpuente@cec.eu.int http://www.cordis.lu/ist/ka3/digicult/home.html