Summary of progress

This section of the report aims to summarise the common points that can be extracted from the national status reports, done by each of the Member States of the European Union and structured around 7 main lines of activity. Therefore, the section is structured following the model for the national reports, which are listed after this section. The present chapter thus focuses on the state of digitisation in Europe, and tries to describe progress so far and points to some common challenges for coordination.

1. Policies and programmes for digitisation
2. Co-operation activities
3. Benchmarking
4. Inventories and resource discovery
5. Good practice and skills
6. European added value and content framework
7. Research activities on digitisation

1. Policies and programmes for digitisation

The Lund Principles have established consensus on a joint strategy by Member States to establish a European framework to coordinate digitisation, beginning with the exchanging of experience and skills from the existing rather fragmented activity. The final goal must face and profit from the challenge and asset of the range of cultures represented across Europe, thus "enhancing harmony and cherishing diversity".
Joining the activity, Member States are increasing the national actions for coordination adopting the most suitable approach for them. Nevertheless, some common trends are emerging: drivers to digitise are mainly to increasing accessibility or to preserve fragile objects; positioning of digitisation policies and pilot programmes are seen as an element in wider information or knowledge society frameworks; funding new technologies for culture is no longer seen as a cost, but as an investment that must be durable and fruitful; the private sector is not yet involved as much as it should be.

Lund Principles: consensus building and formal endorsement by the Member States

Lund Principles are widely accepted and are becoming a reference point for initiatives in the field of digitisation. Some national programmes and some official documents explicitly refer to those principles. Officially appointed National Representatives have formally submitted the Terms of Reference, a document for endorsement of the Lund Principles and Action Plan, to their authorities, receiving full support in most Member States.

"enhancing harmony and cherishing diversity"

This philosophy leads the activity undertaken by NRG: national reports reflect different levels and forms of activity, different mapping of authority and distributed areas of responsibility where regional and local authorities are becoming actors in their own right. Some countries thus implement centralised national programmes, while others develop sectoral and institutions-centered approaches. Establishment of a European framework for coordination must clearly take in consideration this cultural and organisational diversity.

Political support for the initiative

This initiative has also been influential for 3 Council Resolutions on related issues, cf. the previous section on "Key steps 2001-2003". At the same time, strong support has been given by the Presidencies, i.e. the French, Swedish, Belgian, Spanish, and Danish, and has been offered by the future Greek and Italian Presidencies.

Coordination groups as a tool within the policy

Most countries have set up new groups or use existing ones to coordinate and foster the digitisation activities. Awareness and consensus on the need for coordinated action has grown and the advantages are becoming evident. And certainly, the 'isolated solution' approach, project-by-project or case-by-case is being integrated in a wider policy context. Lack of coordination is still evident mainly with the university and the research communities, but also in relation to professional organisations and the private sectors.

Policy initiatives undertaken by the Member States

The initiatives being undertaken in the Member States cover both the introduction of new policies for digitisation and the further development or expansion of existing policies. Practices range from bottom-up approaches, focused on institutional policies (with no over-arching national one) to regional, sectoral (i.e. library specific, archive specific etc) or national programmes and policies. A relationship with a national Information Society framework is often in place, but is at an early stage and some work needs still to be done.

positioning of digitisation policies and pilot programmes

An emerging policy dimension is the positioning of digitisation policies and pilot programmes as an element in wider information, learning or knowledge society activities.

drivers to digitise content

The requirements for digitisation policies varies depending on the aspect of digitisation under consideration, but the main objectives are: to increase accessibility of content on Internet, to offer e-services and develop the digital content industry; and to preserve fragile physical objects. Issues of ownership and rights management are often seen as a barrier.

... "investments instead of costs" for funding culture & new technologies

Policy-makers at all levels are considering money spent for new technologies applied to culture not as a "cost" but as an "investment" that must be productive, improving the use of content and stimulate new e-services. A pre-requirement for any digitisation campaign is its long-term sustainability; taking-up of trials or pilots is acceptable if they are moving inside a wider framework where experience is shared and results are reused. In a few cases, Member States have developed funding strategies (e.g. lottery), in addition to the structural funds planned each year for the ordinary functions of memory institutions, in order to support specific projects on culture.

private sector involvement ... fiscal advantages

Private sector companies are occasionally invited to join digitisation campaign as sponsors of the work or as technology and skills providers, but systematic cooperation is rare. Some Member States have developed fiscal strategies to encourage cultural institutions to attract private funding and support.

national policy profiles

In the countries where they have been published, the National policy profile have been beneficial in raising initial awareness. Future work in these countries is now moving to considering how to "drill-down" to information (in addition to the baseline profile) and in keeping the information up to date. However, given the diversity of policy initiatives in place, there is still need to continue to provide generally accessible and understood baseline information at international level, as well as detailed information in national languages for national audiences. A "light profile" that can be quickly deployed and easily maintained might be a solution for some countries.

2. Cooperation activities

Awareness of the need to effectively coordinate national efforts and the potential advantages of sharing with other countries the experience and skills, has been the main reason leading to the establishment of the National Representatives Group on the basis of the Lund Principles and Action Plan. To support that, most of the countries have developed suitable coordination national networks, pilot projects, reference contact points and workgroups as a way to improve coordination. Decentralisation of authorities and weakness of cross-sectoral coordination are causing some difficulties to start up the process in some cases. At European level the Commission encourages trans-national cooperation supporting projects and networks like Minerva, which is linked directly to the NRG and the experts workgroups activity.

National Representatives Group has been set up
All Member States have appointed a representative to the National Representatives Group (NRG) set up in December 2001 to coordinate activities related to the Lund Principles. The group has produced a Terms of Reference (ToR) for its activities to be endorsed by national authorities in order to have high level commitment to foster coordination both at national and European level. The group has launched some experts workgroups for the implementation of the Lund Action Plan, and monitors their progress. NRG meetings, under the chair of the Presidency, have been held in Brussels on 11 December 2001, Alicante on 17 May 2002, and Copenhagen on 10 December 2002.

European coordinating framework is arising on the basis of the Lund Principles
The importance and advantages of a European coordinating framework is encouraging Member States to start cooperation on the basis of the Lund Principles and Action Plan acting as an aggregation factor to share efforts and resources across Europe. National policy profiles (see the former section) offer a source of information about what is on-going in Member States, sharing experience, promoting good practices and contact points. Awareness of the need to effectively coordinate national efforts is perhaps the main result of the activity so far.

National coordination networks
Most of the countries have already started to develop national coordination networks on the basis of the experts workgroups launched by NRG to support implementation of the Lund Action Plan. These networks cover inter-ministerial or inter-departmental cooperation across responsibilities for different cultural domains and activities, or create links between national and regional actors. The NRG has thus been instrumental in encouraging cooperation at national level. Different approaches and organisational structures are in place: ranging from a workgroup of three representatives to formal Committees with

representatives from all sectors. Issues remaining open are to better define competence and responsibility; to reinforce cross-sectoral cooperation; and to promote wider visibility.

National and sectoral portals
A practical manifestation of this coordination is the establishment of national and sectoral portals, either specific to the cultural sector or including culture in wider Information Society or government portals. Member States are aware that a strong coordination among existing networks and portals at all levels (national, regional, sectoral) is absolutely essential.

decentralisation towards regional and local authorities
Decentralisation of responsibility to regional authority appears to be a challenge that can be quite complex in some cases, but is also very promising as a stimulus to promote coordination at all the different levels and to preserve cultural diversity.

reference contact points and guidelines promotion as a coordination mechanism
Activities at national level also yield examples of good practice that can be adopted in other contexts. Some good examples are: setting-up of forums, help-desks, info-days and national reference workgroups on technical issues, also with the task of producing guidelines and knowledge that can be shared by all the sectors.

European Commission funded projects encourage trans-national cooperation
Many Member States consider EC funded projects as a tangible and effective tool to establish international cooperation. As a matter of priority, the exploitation of their results should be better linked to the national programmes and practices.

Minerva network supporting implementation of the Lund Action Plan
The Minerva Thematic Network was started in March 2002 under the coordination of the Italian Ministry of Culture, funded by EC and receiving co-funding by national authorities, to carry on implementation of the Lund Action Plan. The Minerva project provides a secretariat for NRG meetings and the experts' workgroups, aiming at producing common recommendations, views and a platform for all Member States. Thus, five workgroups with Member States experts have been set up on benchmarking of digitisation policies, inventories of digitised resources, interoperability, quality of Web sites, and good practice. Minerva has started to systematically contact other EC projects in the related fields in order to understand how to create consensus and synergy around the Lund Principles and Action Plan.
See the Annex IV on Minerva Progress Report for more information about the expert workgroups activity and work plans.

3. Benchmarking

In line with the *e*Europe approach, Member States representatives have recognised the value of benchmarking as a tool for exchanging experience and learning from good practice.
A model for benchmarking of policies and programmes has been adopted and is being implemented, according to national requirements, in a number of Member States. In some cases, it is being used directly to develop funding criteria.
The first data collection is producing some concrete indications and trends on current practices for digitisation policies/projects (mainly qualitative-scored indicators) and on the digital objects collections available (mainly quantitative indicators). The analysis of the collected data by the Member States experts is the basis for the production of recommendations on how to improve national practices, learning from the good practice model. The initial outcomes are promising, and are justifying the work of the experts workgroup and suggesting of forging ahead (see *infra*, p. XVII-XIX). The next step of collecting data extends the focus of the exercise from the policy holders and programme funders to the cultural institutions themselves.

benchmarking model for policies and programmes
"An open method for benchmarking digitisation policies - objectives, methodology and indicators" has been adopted as a tool to exchange experience and learning from good practice across Europe. The model describes the main features, extracted from good practice, for digitisation policies outlining the key issues related to management and coordination, technical and budget recommendations. The approach is innovative in the cultural heritage environment. Actually, within the Lund Action Plan two related lines are present: 1b- "Adoption of benchmarking framework for policies and programmes"; 1c- "Development of indicators and collection of measures". A working group, linked to the *e*Europe benchmarking framework, has been set up with experts nominated by Member States, to evaluate the model and to create an infrastructure for data collection and sharing.

implementation and data collection towards a European framework
The benchmarking exercise implementation, started in some countries, is a cycle where some measurements must be done, so practical indicators can be associated to compare users practice and generate results. To date the expert workgroup has defined a draft implementation strategy and some initial indicators.
The first data collection was conducted following two lines: through a 'questionnaire' with qualitative and scored indicators for the action underpinning the framework through a 'productivity form' with a first set of quantitative indicators on digitised objects

and collections. A key issue is to ensure the collection of compatible and comparable data, through a common format of future data collection results.

Minerva is supporting the experts' workgroup
At European level, the Minerva workgroup on benchmarking is concentrating on future developments based on the implementations of the model to date, on defining and testing core indicators (qualitative, scored and quantitative) and on defining approaches to collecting these data.

benchmarking as an instrument for policy-makers
Benchmarking is recognised to be a key instrument for policy and for programme coordination at national level and for measuring progress, as well as for developing criteria to evaluate candidate projects for funding.

Benchmarks in digitisation policies and practices for cultural content

Background

This report presents some initial conclusions which result from a benchmarking exercise undertaken in 2002 by the National Representatives Group that was created to meet the e-Europe objective of Co-ordinating National Digitisation Policies, and was supported by the Minerva Project, funded by the IST Programme. This represents the first phase of benchmarking and provides a basis from which to develop a more extensive exercise involving all Member States during 2003.
The benchmarking exercise, comprising both qualitative and quantative benchmarking, was undertaken in participating Member States by selecting a small group of digitisation initiatives in the cultural sector. The initiatives taking part in the Qualitative benchmarking answered 24 key questions covering areas such as management, funding, technical / content issues, human resources and impact. Each question required the initiative to decide whether it met a definition of Basic, Good or Best practice. A total of 31 returns from Greece, Ireland, Italy, Netherlands and the UK were brought together in a Web-based tool, hosted by Greece (`http://www.benchmarking.gr`) for analysis. A Quantative benchmarking exercise, undertaken in parallel, collected 27 questionnaires, with responses from France, Italy, Ireland and Spain. The responses came from a range of policies, programmes and projects, usually nominated by the NRG Representative. As a result, it is likely that they are well-established initiatives that demonstrate best practice in one or more areas, and so the results are unlikely to be fully representative. The analysis below summarises some of the key findings.
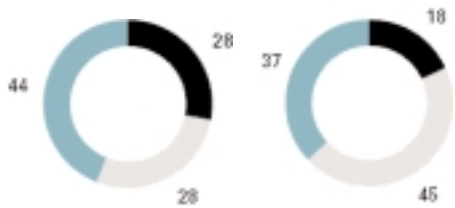
Analysis

Analysis

### Qualitative Benchmarking

Project Planning

There is a clearly defined project plan
Over 70% of initiatives rely upon a constantly updated project plan, demonstrating that strong project management procedures are in place. Good management reduces risk, and leads to the delivery of high quality results.

Sustainability

The funding includes provision for sustainability
Only 18% of initiatives are currently sustainable, either through funding from existing budgets, or commercial exploitation.
This issue was identified in the Lund Principles as a major area of concern.
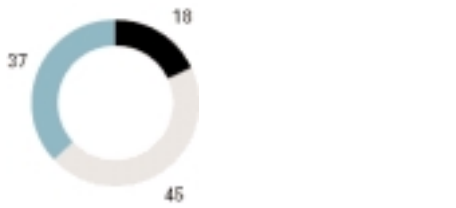
Cost estimates

The cost estimates for digitisation are based on independent advice
Half of the initiatives appear not to base their cost estimates on either small-scale pilots of large-scale production benchmarking studies. This will inevitably result in high-risk projects that have major cost over-runs.

Technical standards

Technical and content standards or guidelines have been used to ensure interoperability
Over half of all initiatives have mandated technical standards and guidelines. This demonstrates that there is a real potential to agree the foundations for the creation of interoperable services.
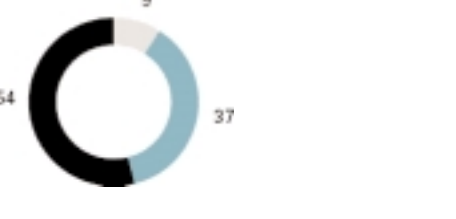
Physical Preservation

Provision is made for the physical preservation of materials being digitised
The digitisation process results in the handling of fragile materials. Less than half of the initiatives provide support to ensure that materials are placed in the best possible conditions for long-term storage. This must be taken into account in the development of new funding programmes.
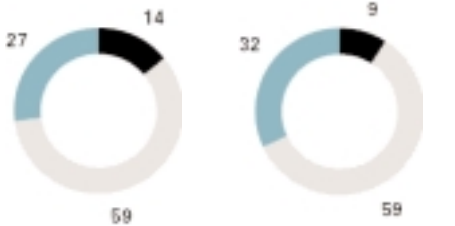
Digital Preservation

Digital Preservation is ensured
Only 9% of initiatives have integrated digital preservation, often where the academic sector is providing a nascent digital preservation service. This indicates the scale of the problem, and the urgent need for research to enable the creation of digital preservation services.

Workforce development

Clear provision is made for workforce development
94% of initiatives have no defined outputs or outcomes for workforce development. This is a major issue for short-term project-funded initiatives, which contrast with the longer-term need to create a skilled and flexible workforce.

● basic
● good
● best
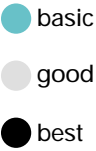
In addition to the issues identified at a European level, it is possible to begin to identify the strengths and weaknesses that are apparent in the benchmarking exercise within each Member State. On the small number of benchmarks submitted, it is not statistically valid to analyse those in detail, but some general trends can be identified.

	Greece	Ireland	Italy	UK
Strengths	project planning	sustainability	cost estimates	management mechanisms
	technical standards	workforce skills audit	co-operation	sustainability
	innovation	job opportunities	learning resource	cost estimates
Weaknesses	sustainability	private sector involvement	project planning	multi-linguality
	digital preservation	IPR	user needs	physical preservation

Quantitative Benchmarking

The Quantative benchmarking exercise identified the type of collection that was being digitised, some key aspects of the technical approaches being undertaken, and sought information about the amount of material being digitised. The main issues identified were:

• a relatively small proportion of collections catalogues were digitised, and many were not yet available on the Internet
• catalogue metadata was generally created in formats relating to the curatorial context of the collection (whether a museum, archive or library) but there was a widespread understanding of the value of Dublin Core for resource discovery across subject domains
• high quality images were generally only available on site, except in the case of a few pilot demonstration projects involving watermarked images
• high quality digital objects are used for
  – preservation of both the physical and digital object
  – study and research
  – re-use in producing other resources, such as CD-ROM publication and print publication
• loss of control of IPR was the major reason inhibiting publication of high quality digital resources
• the business model for re-use of materials from the public sector needs further investigation.

Conclusions and next steps

These initial results clearly demonstrate the value of benchmarking and key areas of strength and critical areas of weakness can be identified in a European framework. Critical success factors can be identified and used to provide advice, guidance and training where it is needed.
The first phase of benchmarking has been extremely valuable, and many lessons have been learnt that will be used to inform the next stage. During 2003 a more comprehensive exercise will allow more detailed, meaningful and statistically significant results to be produced to inform policy development, programme management and project implementation across Europe. Each Member State will be asked to report on the results of benchmarking, and the NRG will produce a report that will provide a European overview, identifying areas where policy needs to be developed and research that needs to be undertaken.

David Dawson
Resource: The Council for Museums, Archives and Libraries, United Kingdom
david.dawson@resource.gov.uk

4. Inventories and resource discovery

The objective of a common European platform is promising and stimulating a lot of new services to be offered to the citizen, but the "interoperability challenges" are extremely ambitious both regarding technologies and content management.
There is not a single approach to the issue and different solutions covering some areas of content are in place, but available inventories of digital resources should be made more visible.
Some emerging technologies and metadata standards such as the Open Archives Initiative and Collection Level Description are paving the route, together with some de-facto standards, towards cross-searching and cross-indexing services, although IPR and multilinguality are often seen as barriers.
The strategic challenges cover maintaining the tools, overcoming the fragmentation of coverage, developing coordination with other activities, and building up services for distributed access and delivery.

Focus on "interoperability"
for a common European platform
Focus on interoperability brings out issues as technologies, distributed services, data-formats and thesaurus development. Even if different approaches and priorities are in place, there is consensus on the need for a minimum common platform suitable for all European citizens.

cultural portals & culture-nets
National cultural portals, culture-nets, or listings of projects exist in at least 10 Member States offering information and fora to enable accessibility for users to culture initiatives and developing services, but not all of them provide comprehensive or even systematic overviews at a national level.

collection descriptions
Standards for collection descriptions (which would be a major component in supporting interoperability) are beginning to be investigated, including OAI (Open Archives Initiative), CLD (Collections Level Description) and EAD (Encoded Archival Description). Making these interoperable in a cross-domain environment and at European level remains a major challenge. Work is needed to promote XML-based metadata standards to support this interoperability, as a precursor to developing semantic interoperability and new access services. An emergent issue is the possibility to offer cross-searching and cross-indexing services.

de-facto standards and national workgroups
on metadata
Even if only in some cases technical standards or guidelines are promoted, the impression is that some de-facto standards on metadata and searching protocols are widely accepted.

In some countries national workgroups on metadata, data-format, indexing, searching protocols and XML have been established.

digital right management
Lack of clarity and references on IPR and digital rights management, in particular for audio and video material, is currently in some cases inhibiting development of wide ranges of applications and services.

multilinguality
Multilinguality is a very complex issue and different approaches and strategies have been proposed for the development of applications and services. The interest in making content accessible to other language speakers is increasing fast and a practical solution to be developed are the thesaurus translated in different languages.

5. Good practice and skills

Expertise and skills on digitisation are widely available across Europe: these assets and results should be made more visible and promoted
in a systematic way. A key issue is the failure to feedback the experience and expertise developed within projects.
Member States promote, in some cases, guidelines (both technical and organisational) and some pilot projects are used to produce specific recommendations.
Selection of "good practices" may be very complex and difficult, and most of the Member States do not have an agreed set of criteria, so benchmarking is a tool that can be used to select them.
As a starting point, Member States through their National Representatives have started analysing first examples of "good practice": the exercise should lead to produce some 'good-sense' recommendations and guidelines suitable for different environments/contexts extracting only the 'best features' from good practice examples.
The identification of specialised centres needs to be undertaken both at national level and in cooperation across Europe: the current trend is more to recommend "advisory centres" than nominate official "competence centres".
Training initiatives specifically on ICT for culture heritage institutions to improve awareness and skills of personnel are ongoing, but they should be seriously increased involving more systematically the University and the research community.

good practice selection criteria
Selection criteria for good practice are missing or are only partial. Areas, objectives, target users, and indicators must be defined and agreed to on beforehand. Nevertheless, some very preliminary attempts to select some good practice examples are in place starting from the analysis of the on-going projects and main experiences. Two countries offer a central list of "good practice projects", others have "structural examples" or "pilot projects".
A strong indicator of excellence is cross-referencing between countries and mechanisms supporting this should be developed.
The adoption of good practice needs to be built on multiple partnerships between cultural authorities, universities, research institutes, and industry.

'good-sense' recommendations and guidelines
is the final aim of the exercise
The impression is that the analysis of some good practice examples should lead to produce some 'good-sense' recommendations and guidelines suitable for different environments/contexts extracting only the 'best features' from good practice examples. The final aim of the exercise is not the scoring of the projects per se but the promotion of some recommendations and guidelines.

Alicante workshop first nominations by NRG
At the Alicante 'Workshop on digitisation good practice', with the support of the Spanish Presidency and Minerva, 42 examples have been collected by National Representatives in May 2002 by National Representatives. A dossier analysing results is under production to exchange experience and skills.

promotion of guidelines both technical
and organisational
Guidelines, both technical and organisational, are available and promoted in some cases, and some pilot projects are expected to produce additional ones. So far, the guidelines produced by international bodies are quite well accepted as reference points.

benchmarking as a tool to select good practice
Benchmarking supports self-evaluation in the identification and the development of good practice.

... competence centres or advisory centres?
Only one country has officially nominated two competence centres on digitisation. Advisory centres and associated practical competence in different areas of digitisation exist in a number of Member States and these are often producers of guidelines. However, such sources of expertise are highly specialised but fragmented, and in most cases the result of bottom-up, hands on experience gained by the institutions themselves and specific to particular sectors (libraries) or source material types (published text, film, sound, photographs etc.). A next step might be to prepare a list as comprehensive as possible of competence centres in Europe and networking them.

training initiatives in the field
of new technologies & culture
Some relevant training initiatives related to digitisation of cultural and scientific content are on-going within Member States, even if they were expected to grow more rapidly.

6. European added value and content framework

The intrinsic added value in a European cultural content framework are not yet completely clear, but two issues are mature: quality for Web sites and preservation of digital memory.
The Brussels Quality Framework proposes some criteria for quality and accessibility of cultural Web sites, recognised as a critical and timely issue attracting a global consensus and paving the route to make the future information society accessible to all, and trying to create an area of trust for the users in the culture heritage on Internet. Among other initiatives, the "World wide Web Accessibility Initiative" for people with special needs has produced some reference guidelines agreed by all in principle, but still waiting for actual implementation. European Commission supports these guidelines, through objectives within the eEurope work programme and with a specific Communication.
Preservation for future generations of digitised and of "born-digital" contents is receiving special attention by actors at all levels. Digital preservation and sustainability concerns not only preservation of digital objects from a technical viewpoint, but also management, selection criteria, workflow, political framework and business models. Specific political initiatives and research programmes are needed.
The Council of the Union has produced a resolution on preservation of digital memory, and its follow-up will involve Member States and the Commission jointly.

Brussels Quality Framework
The Brussels Quality Framework has proposed some criteria for quality and accessibility of cultural Web sites, presented in outline at the NRG meeting in December 2001, and revised and agreed to May 2002. There is agreement by Member States on the need to raise awareness to achieve initial consensus. The final objective is to provide an area of trust for the users in the culture heritage on Internet. The Minerva Quality Workgroup leads the implementation and use of the framework. Currently, the work group is preparing a strategy to start a data collection in order to develop the best way to implement the model across Europe.

Council Resolution (2002/C 32/01) of 21 January 2002 on "Culture and the knowledge society"
The inclusion of quality issues in the Council Resolution (2002/C 32/01) on "Culture and the knowledge society" of 21 January 2002 reinforced the attention of users and authorities on that issue.

Rome 2002: a workshop on quality for cultural Web sites
The Minerva workgroup held a "International workshop on quality in cultural Web sites" at Bibliocom in Rome on 17 October 2002. Participation and consensus was wide and promising.

Web sites accessibility for disabled people is agreed to by all but still waiting for actual implementation
The W3C-WAI guidelines are promoted explicitly, often in the context of e-government, by a growing number of Member States, though they are often not yet properly implemented in the cultural sector.
In addition to this, it is also recognised that a quality framework with associated criteria that are specific to the cultural domain needs to be adopted rapidly. EC has produced a Communication on "Accessibility of Public Web Sites" COM(2001) 529, Brussels 25.09.2001, promoting the WAI guidelines.
In the European Commission, the Cultural Heritage Applications Unit of DG Information Society, has tested W3C-WAI guidelines on their pages producing a paper with recommendations promoting the self-assessment process. The paper is available on Internet (`http://www.cordis.lu/ist/ka3/digicult/eeurope-overview.htm`).

long-term sustainability for digital content
Sustainability is most actively addressed through the recognition of the importance of and need to address long term preservation, both for digitised contents and for "born-digital" material, through the development of research actions in European and national programmes. Longer term and sustainable development of a more integrated European content framework, however, also needs to develop focus on the following issues: multilingualism and cultural diversity; accessibility, exploitation and delivery of digitised cultural content, including its integration into other information/knowledge society based services for citizens.

Council Resolution (2002/C 162/02) of 25 June 2002 on "Preserving tomorrow's memory — preserving digital content for future generations"
The Council Resolution on Preserving Tomorrow's Memory, produced during the Spanish Presidency, recognised the importance of our cultural and scientific heritage and the central role played by archives, libraries and museums in particular in safeguarding future access to the digital cultural and scientific content of today. The Resolution recognised that future accessibility of such content is at risk and set out a number of measures for the Commission and Member State to investigate. These measures focused on five main areas:

- encouraging the development of appropriate policies for digital preservation, supported by collaborative networks to share experiences and approaches and to ensure that digital preservation is assured at the various different and appropriate levels of responsibility;
- creating awareness and a body of experience on good practice and supporting the adoption of appropriate standards;
- investigating the implications for investment and costs, including through public/private partnerships;
- identifying and developing the appropriate skills in the workforce developing an agenda for research and development focusing on technology trials and experimental large scale applications.

Copenhagen workshop on preservation
A workshop on preservation of digital memory was held on December 12, 2002 in Copenhagen under the Danish Presidency. The focus is on the present context for digital preservation in Europe, presenting relevant initiatives in the field on EU and at national level.

7. Research activities on digitisation

Even if relevant efforts have been sustained by Member States to improve both quality and costs/benefits of digitisation as a strategic issue towards the future information society, links with research initiatives need to be pursued further, to support partnerships between technology and industry and the institutions, and to structure the European digitised content space. In the framework of the FP6, the European Commission is promoting a European Research Area (ERA) also federating national programmes.
Current priority topics for research are interoperability, semantic Web and long-term preservation. In particular, preservation of digital memory is recognised as one of the most urgent, serious and challenging issues for future technology research.

national research themes on digitisation
Digitisation activity is not a per-se research issue but is part of a wider context related to the information society and the effective use of the digital content by cultural institutions. Some of the main themes for current research are: high quality and automation of the digitisation process; metadata for collection description; indexing and searching; interoperability; semantic Web and XML; 3D and augmented reality; security and digital rights management; and long-term preservation.

... "a production line for the digitisation of culture heritage"
The most interesting trend emerging is to develop know-how and tools to facilitate digitisation, access and preservation of culture heritage, on a large scale and in a sustainable way, including also a suitable business model.

research community and memory institutions
The cooperation between culture heritage actors and the university and the research community is still weak. There is a need to plan work programmes and technology transfer initiatives that will also include private sector companies in the technology sector.