



## Germany

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**Note:** The following is a first attempt at a national overview, necessarily incomplete, with no claim whatsoever of being comprehensive, and subject to continuous additions over time. Part of the reasons for this status are given under 1, Policy Scenario.

### Policy

#### Policy scenario for digitisation

Germany is a Federal State composed of 16 “Bundesländer” and one central government (Federal Government) for the country as a whole. According to the German constitution, for certain areas, prominently among them cultural affairs, primary responsibility lies with the 16 Bundesländer. For certain tasks, some of them related to the field of supporting science and research, there is some competence by the Federal government or the possibility of joint action by the Federal Government and the governments of the 16 Bundesländer (which may be fixed in specific agreements).

The 16 Bundesländer have instruments like the regular “Conferences” of a certain type each of their ministers (e.g., those of Culture). Some of them have at their disposal a standing administrative apparatus. The “Conferences” may agree on joint recommendations, quality requirements, planning frameworks etc. but these usually require unanimity and formally remain non-binding recommendations. Not all of the activities of the Bundesländer are subject to such discussions; usually, only matters are concerned which have an effect on the “equality of the living conditions” throughout the entire country (in the cultural field e.g., mutual acceptance of school diploma, matters of access to university study, etc.). Since four years now, there is also a “Minister of State for Culture and Federal Government Commissioner for Culture and Media” who is the addressee for cultural policy in the Federal government and who has to represent German culture in the European and international context.

The matters discussed further in this report do concern both the fields of “culture/schooling” and of “science,

research, development”, and sometimes matters within the competence of the Ministers of the Interior (e.g., archives in some cases).

#### Terms of reference and National policy profile

There is no one single national policy on digitisation of cultural heritage in Germany and, consequently, neither formal terms of reference nor a policy profile referring to a such.

There is also not known to exist an overall strategy/policy plan yet for such matters at the level of one or more of the Bundesländer.

There are, however, a number of individual plans, support frameworks, and funding schemes, usually under project frameworks, both at the level of the Federal government and at that of one or more of the 16 Bundesländer, which do support activities such as digitisation. Some of these schemes do correspond to, or have even been caused by, EU initiatives like “eEurope”, “e-learning” etc.

In September 2002, the Federal Ministry for Education and Research (Bundesministerium für Bildung und Forschung) published a strategic paper on *Link information - activate knowledge* (= *Informationen vernetzen - Wissen aktivieren*).

Within the publishing industry, there are initiatives for electronic books/journals/publication, and relevant co-operation with university libraries, and with the German National Library on legal deposit questions. Many newspapers, agencies, and picture archives use the digital data elements and exchange formats established by IPTC International Press Technical Council (<http://www.iptc.org>). There is also a project for the joint offering of a newspaper archive system: <http://www.archivderpresse.com> is a commercial

platform run by a public broadcasting station (BR), a publishing house (SZ), a database provider (GENIOS) and an Austrian News Agency, offering against payment some 30 mio. press articles of the last 10 years. No other overall plans, frameworks, or projects in the private sector (other than company-internal, sometimes multi-national information systems) are presently known as relating to the matters of this report (notwithstanding this, such building of sophisticated information systems in the private sector is a clear indicator that considerable knowledge, experience, and resources are available and are being invested in that area, too, i.a. for digitisation matters). There is, however, the possibility of nation-wide support/project schemes implemented by semi-government authorities like the "Deutsche Forschungsgemeinschaft DFG" (National Research Council), especially in the sector of supporting universities and scientific research agencies/projects. There are also funding opportunities, case by case, from such sources as regional "Lotto" funds, endowments like the "VW-Stiftung" etc.

For example, a principal scheme does exist for the retrospective digitisation of library holdings, under the DFG (Deutsche Forschungsgemeinschaft - German Research Council). (see below, No.1). A formal WG, chaired by Prof. Klaus-Dieter Lehmann, the President of the Foundation Prussian Heritage, has been established in Germany in September 2001, named "EUBAM" ("European matters concerning libraries, archives, museums"), as a single contact point for all questions:

- relating to EU (funding) programmes on digitisation, as they are relevant for libraries, archives, museums in Germany, and to spread information about these widely in Germany;

- concerning applications to/participation in EU-funded programmes by German libraries, archives, museums, to encourage and support applications from Germany;
- concerning information sought by EU bodies on digitisation programmes, achievements, and contents available in German libraries, archives and museums;
- concerning representation in relevant EU Working Groups by German libraries, archives, museums.

This co-ordination body will concentrate all administrative procedures for German participation in EU Working Bodies on cultural digitisation at one point and thus relieve all concerned from the difficulties arising from the complicated, scattered, multi-layered structure of the German political administration system as sketched above under (1). It will also aim at collecting at the national level, all information required in the context of digitisation strategies which presently is not available at any central point in Germany. <http://www.eubam.de>.

At present, an initiative is underway to develop a co-operation platform on long-term availability of digital documents ("Forum Langzeitverfügbarkeit" ; contact: Ute Schwens, [schwens@dbf.ddb.de](mailto:schwens@dbf.ddb.de)), at the moment largely driven from the library sector, but with museums and archives involved.

### Co-operation activities

#### Co-ordination of national networks

There are not too many networks or projects of nation-wide range in place presently which relate to digitisation.



- 1) Most activities, and a scheme to co-ordinate them, for digitisation do refer to library holdings, for which a funding mechanism is in place with the DFG. [http://www.dfg.de/forschungsfoerderung/wissenschaftliche\\_infrastruktur/lis/informativen\\_antragsteller/verteilte\\_digitale\\_forschungsbi\\_bliothek/retrospekt.\\_digitalisierung.html](http://www.dfg.de/forschungsfoerderung/wissenschaftliche_infrastruktur/lis/informativen_antragsteller/verteilte_digitale_forschungsbi_bliothek/retrospekt._digitalisierung.html)

- 2) A network was formed as early as 1977 for a nation-wide documentation of images of works of art (movable and immovable). This network is called the "DISKUS-Verbund" ("Digitales Informationssystem für Kunst- und Sozialgeschichte" - Digital Information system for art history and social history) with its co-ordinating agency, "Foto Marburg" at Marburg University. From the beginning, the network has collected microfiche images of the works of art in 122 German institutions (also serving for security microfilming purposes), now amounting up to 1.6 mio. Of these, 400.000 are by now digitized and 200.000 can presently be accessed through the Internet database. The description of the works of art does follow a rule book (MIDAS Handbuch; now 4<sup>th</sup> ed. 2002). <http://www.fotomr.uni-marburg.de>

- 3) From the early 1970s, a computerised serials union database (Zeitschriftendatenbank - ZDB), hosted and run by the Staatsbibliothek zu Berlin (Berlin State Library) was built to serve the entire German library community. This central database today comprises some 1 mio. title records of serials, with some 7.5 mio. holding records showing the availability of a relevant serial in German libraries. <http://www.zeitschriftendatenbank.de>

- 4) There are 6 regional library networks (of university, research and some special libraries), roughly corresponding to the geographic regions in Germany (Southwest, Bavaria, Northrhine-Westphalia, Hessen, Northern Germany, and Berlin-Brandenburg). Each runs a digital online catalogue of the holdings of the participating libraries.

A nation-wide digital library catalogue (actually a search engine) overarching these regional ones is the "Karlsruher Virtueller Katalog KVK" which brings together the regional ones plus the German libraries' serials catalogue (ZDB), the catalogue of books in print (VLB) and the German catalogue of antiquarian/second-hand books (ZVAB) as well as a number of digital library catalogues from other countries (Austria, Switzerland, France, UK, LoC, Italy, Sweden, Norway).

The total sum of records in the KVK is estimated 75 mio.

<http://www.ubka.uni-karlsruhe.de/kvk.html>

- 5) At the same URL host, in addition, the catalogue of a 7<sup>th</sup> library network recently formed can be consulted, the so called "Virtueller Katalog Kunstgeschichte (VKK) Virtual Catalogue Art History" of 8 major German art libraries (München - Firenze - Roma - Heidelberg - Bonn - Köln - Berlin - Nürnberg) plus Kunsthhaus Zürich. It has a user interface in 4 languages (de - it - fr - en).

[http://www.ubka.uni-karlsruhe.de/vk\\_kunst.html](http://www.ubka.uni-karlsruhe.de/vk_kunst.html)

Part of this network is the Kunst- "Fachverbundkatalog" (Union catalogue / Art libraries) München - Firenze - Roma (since 1996, 445.000 references of which 190.000 are for journal articles). <http://www.kubikat.org>

6) The project, network and software “Kalliope”, already operational, are intended for the digitisation of the 1.6 mio references to autographs, held in the central catalogue in the State Library Berlin, and for the further enlargement of this reference source by the co-operation of many individual libraries, archives, museums throughout the country, each supplying the references to their holdings. “Kalliope” is one of the follow-ups to the EU-sponsored project “Malvine”. <http://kalliope.staatsbibliothek-berlin.de/>

7) “Prometheus” is a project of presently 6 German universities with another 9 ready to join, aiming at a nation-wide distributed digital image data base for the purposes of teaching and study, composed mainly of the slide libraries of the art history institutes of the universities. It is the idea that these slide images should be ready for consultation and for use in teaching at any time and anywhere in school and academia, access being eased by the possibility of keyword search relating to style, motif, artist, theme etc. of the images.  
<http://www.prometheus-bildarchiv.de>

8) To mention a project directly out of the area of scientific research, the Max-Planck-Institut for the History of Science, Berlin is realising a “digital research library in the history of mechanics” which is to combine, in one digital access presentation, historical manuscripts (such as of, e.g., Leonardo da Vinci), the related construction drawings, technical calculations by the scientist, and 3-D-models of the actual object constructed which can be fully manipulated by the online viewer to study them from all perspectives and to many scales.

This institute also runs an e-doc-server of projects.  
<http://www.mpiwg-berlin.mpg.de/Archimedebroschuere.html>  
In co-operation with the Vorderasiatisches Museum Berlin, the Max-Planck-Institut has realised an Internet presentation of cuneiform script tables, both from this museum and those scattered over other places in the world. <http://cdli.mpiwg-berlin.mpg.de/DL/VAM/VORMUSEUM.HTM>

9) From the 1970s on, a system of centralised documentation centres/networks (FIZ/FIS) has been put in place in Germany, each responsible for a certain subject field. Out of the 20 planned originally, 17 have materialized so far: medicine, chemistry, economics, math/phys/energy, technology/engineering, technical rules/standards/norms, nutrition/agriculture, social sciences, psychology, education, geosciences, patents, electronics/electrotechnology, building technology/development planning, law, labour market, environment. Some of these are structured around a designated central library of the subject field. They offer a range of (also digital) services incl. full-text documentation, the foremost service still being the provision of large digital reference databases to books, articles, research reports, etc.  
<http://www.kpdlr.de/profi/easy/bmwi/pdf/0335.pdf>

10) <http://www.bgbm.fu-berlin.de/BioCISE> is the address of the project leader (Botanischer Garten und Botanisches Museum, Berlin) of an EU-funded project on digital biodiversity information. Its aims are: to identify and publish on the Web a catalogue of European collections and collection information systems; to use the Web to make European expertise

in biodiversity informatics accessible (companies, people, institutes with experience in implementing biological collection information systems); to foment the forming of consortia for funding proposals with the aim of implementing the framework for a Biological Collection Information Service in Europe.

11) The “IuK Initiative” is an organisation comprising 9 German associations of science professionals (Mathematics, Physics, Education, Psychology, Applied Economics, Biology, Chemistry, Sociology, Informatics). It aims at supporting the building of digital networks for science information, the creation and use of electronic journals, and at studying all questions (e.g., of scientific publishing) which are related to such digitized information networks. The strategic importance of digitised information for the sciences, the digital library, the role of the individual scientist as the supplier of information, the decentralised keeping of information, multi-media teaching, metadata, and easy and non-costly access to information are clou issues. Under “Safety and quality of electronic expertises, dissertations, and other scientific works”, recommendations and models on fully digital handling are being given. The building of Internet subject portals (i.a. in connection with the EU sponsored project CARMEN), corresponding to the scope of each member society, is supported, as well as networking within and among special science branches. Under “Long-term archiving of distributed documents”, the relative recommendation of the “European Physical Society” is being promoted.  
<http://ins.uni-oldenburg.de/~hilf/uk/arve/eps-ltadp1.html>  
<http://www.iuk-initiative.org>

12) An initiative has been established to create a common regional Internet portal for archives, libraries, museums (BAM-Portal), starting at the regional level of one German Bundesland (Baden-Württemberg). The aim of this portal is to allow the general public to find, with just one search run, all the material on a given question or topic held in any of the participating institutions from the 3 branches. The constituents of the project are the central service bureaux for libraries (BSE) and for archives (LAD) in this Bundesland and one representative museum.  
<http://www.bam-portal.de>

13) The “Institute for German Language IDS” in Mannheim (member of some of the funding and research networks in German science organization) is the leading German research institute for word and text linguistics, funded by public bodies. It does, i.a., hold a large corpus data base COSMAS II (1.864 mio. words of German), developed i.a. within the EU project MECOLB. Some projects are undertaken in co-operation with leading private sector dictionary publishers like the “Duden Verlag” (also in Mannheim). <http://www.ids-mannheim.de/kt/corpora.shtml>

14) Also in the field of terminology and terminological data, the Fachhochschule Köln has participated in 3 projects, funded with the assistance of the EU:

- SALT (Standards-based access to multilingual lexicons and terminologies, 2001/01-2001/12) aimed at providing formalisms, tools, and conversion programmes which enable conversion from differently structured terminologies, dictionaries, and terminological exchange formats into a common data





format, i.a. to assist machine translation. The data format XLT, XML-based, is a product of this project.  
<http://www.loria.fr/projets/SALT>  
<http://www.ttt.org>

- TDC-net (European Terminology Information and Documentation Network) (funded within the MLIS programme 1998-2000) was to establish exchange specifications, service specifications, and holdings specifications for a network of (presently 10) European terminology centres both as a directory and as points for direct online access to terminologies (terms and definitions). Building up ETIS (European Terminology Information Server) is also part of the project.  
<http://www.tdcnet.net>  
<http://www.etisnet.net>
- DINT/Leather-InfoCode (Developing Innovative Network for Terminology, 1999/01-2000/07) is to provide, in the context of 7 European Standards Bodies, tools that allow to efficiently teach terminology principles and methods over the Internet, considering the quality standards series ISO 9000. The project is funded under EU-MLIS.  
<http://www.ga9000.com>

15) The German Research Council DFG is running a programme to support the creation of a "Virtual specialized library" (Virtuelle Fachbibliothek), to be composed of many individual digital libraries built along the already existing decentralised system of some 120 specialized libraries which each aim at the utmost completeness in books and document holdings on a given special field of academic knowledge. The specialized libraries are now to collect additionally all digital material in their fields.

Interconnected within a distributed system, together they are to form "the virtual specialized library".  
[http://www.dfg.de/forschungsfoerderung/wissenschaftliche\\_infrastruktur/lis/informationen\\_antragsteller/sondersammelgebiete.html](http://www.dfg.de/forschungsfoerderung/wissenschaftliche_infrastruktur/lis/informationen_antragsteller/sondersammelgebiete.html)

16) The "Projektträger Neue Medien in der Bildung + Fachinformation (PT-NMB+F)" is part of the Fraunhofer Gesellschaft (<http://www.fraunhofer.de/english/company/index.html>). It supports the Federal Ministry for Education and Research (BMBF) and the Federal Ministry of Economics and Work (BMWA). PT-NMB+F is taking care of the "digital library forum" <http://www.dl-forum.de>, which is an Internet platform, providing information on projects and programmes related to digitisation and run by the Federal Ministry of Education and Research, by the Bundesländer, by the German Research Council (DFG), by the DFN (Deutsches Forschungsnetz - German Research Network) which is the computer-based communication infrastructure for science, research and education in Germany (<http://www.dfn.de>), and by European programmes (such as FP 5 / FP 6).

Relationship and co-ordination with other national initiatives in connection with eEurope, e-government, e-learning

"Schulen ans Netz" [Bring schools to Internet] is an initiative by the German Federal Ministry of Education and Research and the German Telekom. In the sense of "e-learning", it aims at bringing computers to all schools and at making "computer literacy" part of the general education.





<http://iworks.schulen-ans-netz.de>  
see also: <http://www.schulweb.de>

The German Federal Ministry of Education and Research is presently running a 430.000 Euro funding scheme Aktionsprogramm "Innovation und Arbeitsplätze in der Informationsgesellschaft des 21. Jahrhunderts".

"Schule des Sehens" [The art of viewing] is a set of Internet study courses introductory to art history. These are prepared by the Art History Institutes of 6 German and 1 Swiss universities and are designed for the Internet as the exclusive medium of study, both for university use and for self-study of interested persons. <http://www.schule-des-sehens.de>

Under "Bund online2005", search engines presently do direct users to the e-government Internet pages being built by the Federal Government of Germany. [www.kommforum.de](http://www.kommforum.de) is the URL for the respective site, under construction, of the German local authorities (communities). There is not yet an explicit formal co-ordination between these initiatives and those mentioned under the following paragraph.

European and international co-operation

A number of German libraries, museums, and archives have taken part, and still do so, in projects with European partners, funded by the EU in the programmes "Culture 2000", IST, and others. To identify the exact projects, extensive research is needed in a number of different databases. The Federal Archives of Germany (Bundesarchiv) are, i.a., involved in a project together with the Russian State

Archives for the digitisation of the records of the former KOMINTERN (Communist International) in Moscow. It is also involved, together with the Archivschule Marburg, in a project for the application of EAD Encoded Archival Description to finding aids, with partners and funding contribution from CLIR (Council for Library and Information Resources), USA, and the Public Records Office PRO in the UK.

"euromuse" is a project of the State Museums Prussian Heritage Berlin together with 6 partners (Louvre, FR; RMN Réunion des musées nationaux, FR; Statens Museum for Kunst, DK; Kunsthistorisches Museum, AT; National Gallery London, UK; Rijksmuseum Amsterdam, NL). It is an Internet portal offering information on exhibitions of supranational importance in arts and cultural history in Europe, together with electronic image resources, descriptions of the museums, news, electronic shops etc. It has presently ca. 100 participating museums all over Europe (<http://www.euromuse.net>).

DDB, the German National Library, is involved in a number of European projects, some of them EU-funded, i.a.:

- + CARMEN (Content Analysis, Retrieval and MetaData: Effective Networking)
- + EPICUR (Enhancement of Persistent Identifier Services - Comprehensive Method for unequivocal Resource Identification)
- + MACS (Multilingual Access by Subjects)
- + NEDLIB (Networked European Deposit Library)
- + RENARDUS (Academic Subject Gateway Service Europe)
- + TEL (The European Library)



The DDB is also a partner in the network GABRIEL (<http://portal.co.bl.uk/gabriel/>), comprising all European National Libraries and providing online access to catalogues, online exhibitions, etc.

<http://www.CLI-Online.de> is an Internet portal for the historical sciences, under construction. SUB Göttingen (State and University Library Göttingen), with one of the German libraries' competence centres for digitisation, is involved in a number of European digital projects, among them:

- EULER-TAKE-UP European Libraries and Electronic Resources in Mathematical Sciences - Take-Up Action (2001/2002): Workflow and other measures to establish, from the existing prototype, a high-class European virtual library of pure mathematics. [www.sub.uni-goettingen.de/projekte/euler.html](http://www.sub.uni-goettingen.de/projekte/euler.html) as well as in German-American co-operation:
- NSF/DFG Cornell-Michigan: A project (2001-2003) to establish distributed data bases of important historical mathematical monographs, funded by the National Science foundation (USA) and the Deutsche Forschungsgemeinschaft (DFG). <http://www.sub.uni-goettingen.de/projekte/cornellmichigan.html>
- Open Archives: Distributed Services for Physicists and Graduate Students (OAD): sponsored by the NSF and the DFG (Universität Oldenburg and Computer Centre Humboldt Universität zu Berlin being among the partners), this project aims at digital availability of materials to graduate students and to physicists. <http://physnnet.uni-oldenburg.de/projects/OAD>

Within the "Alps network" consisting of the Italian,

Austrian, Swiss, and German regions in the Alps area, a subnetwork "Archives in the arge alp" is a directory of the 36 archives in this region and of their holdings. <http://www.lad-bw.de/argealp/home.php>

Benchmarking

Under the EUBAM Working Group (see above), a database is envisaged to contain information on individual projects, which would enable for benchmarking to be done in the future. Dr. Roswitha Poll, Director, University Library Münster, is a leading specialist in Germany on matters of performance indicators, performance standards, benchmarking etc., taking part in several German and international (ISO) groups involved in this subject. The Deutsche Forschungsgemeinschaft (DFG) (see above) will install a Working Group on benchmarking and best practices for a future evaluation of the numerous past and present projects it has funded in the area of digitisation.

Inventories and resource discovery

Available inventories

For information items in reference databases, of course the German National Bibliography (DNB) is one of the largest inventories in Germany (<http://www.ddb.de/produkte.dnb.htm> or [dbf-opac.ddb.de/-4k](http://www.ddb.de/-4k)). A number of projects listed above under Co-operation activities also are actually inventories. An overall inventory of the state archives (state archives, not archives of local communities, nor private archives)



in Germany, through their top organizations in each Bundesland, is to be found under <http://www.uni-marburg.de/archivschule/deuarch1.html>. A few museums in Germany already have reference databases to their objects online (some are full object databases, e.g. incl. images of the objects). Examples:

- Deutsches Historisches Museum DHM <http://www.dhm.de/datenbank/bildarchiv.html>
- Haus der Geschichte der Bundesrepublik Deutschland (HdG) <http://sint.hdg.de/ims/search/ims.search?xsl=/html2/suche.xsl&release=0> or
- Spielzeugmuseum Nürnberg, the toy museum in Nürnberg [http://www.museen.nuernberg.de/spielzeug/index\\_spielzeug.html](http://www.museen.nuernberg.de/spielzeug/index_spielzeug.html), which have a virtual depot.

<http://www.webmuseen.de> is an Internet portal and resource list for Germany, by a private provider, aiming to be comprehensive in listing as many as possible current exhibitions and museums in Germany. Another service is intended by the “Virtual Library Museen” (<http://www.vl-museen.de>). It does provide museum related information in Germany and German-language countries - including online resources. A portal for culture in general in Germany is presently under construction, namely “Kulturportal Deutschland”: <http://www.kulturportal.de>. For all of the 16 German Bundesländer, there is an Internet portal to the archives of the region:

- <http://www.archiverp.de> and <http://www.archiverlp.de> and

- <http://www.archivest.de>
- <http://www.archiv.nrw.de>
- <http://www.thueringen.de/archivberatungsstelle>
- <http://archiv.schleswig-holstein.de/index.html>
- a.s.o.

Several archives and regional archival bodies do have an online offer of collection guides or finding aids (<http://www.midosade.de>).

As far as it comes to inventories of projects of digitisation of full texts or images, no comprehensive such inventory seems to be available for Germany. Checking the lists of the Deutsche Forschungsgemeinschaft (see 1b above) and the Digitisation Centres (Bavarian State Library München BSB and State and University Library SUB Göttingen) will yield a first rough overview, however. <http://gdz.sub.uni-goettingen.de/en/vdf-e> <http://www.bsb-muenchen.de/mdz/>

Metadata and interoperability for resource inventories

German libraries have a common exchange format (differing from the MARC format for bibliographic use) in use since some 20 years: Maschinelles Austauschformat für Bibliotheken MAB: <http://www.ddb.de/professionell/mab.htm>. Presently, a project is ventilated to develop a new platform, using MARC. Central electronic authority files for cataloguing use by German libraries are in existence, namely:



- Gemeinsame Körperschaftsdatei GKD (Union file of corporate headings)
- Personennamendatei PND (Union file of persons' names)
- Schlagwortnormdatei SWD (Union file of subject headings)

which are administered by the National Library DDB and the Prussian State Library SBB, respectively. For German archives, there is the offer of the free software MIDOSA for the production of online archival finding aids and collection guides (<http://www.midosade.de>), prepared i.a. by the Archivschule Marburg and the Bundesarchiv. A German-American Working Group in 2000/2001 has studied the possibilities of online access to finding aids, sponsored by the DFG and CLIR (Council on Library and Information Resources, USA), the German partner being the Archivschule Marburg.

The use (and possible expansion) of the Dublin Core Metadata is intensively being studied and promoted in the library world. (Contact: Die Deutsche Bibliothek.) A metadata format, “Digital library meta”, based on Dublin Core and the use of XML, has also emerged (<http://www.dlmeta.de>). DLmeta is also partially used in the archive world, as is the Encoded Archival Description EAD (<http://www.loc.gov/ead/-4k>).

No generally used archival, or archival exchange, format exists in Germany. This is also true for museums, where no applications of EAD or DLmeta are known but a few uses of DC, and a certain move towards XML can be witnessed. In the museum world in general, the CIMI (Computer interchange of museum information) formats and data structures do play a role (<http://www.cimi.org>).

The “Wissenschaftsrat” [Council of the Sciences] in Germany has passed, on 13 July 2001, a *Recommendation on Metadata and the OAI*, stating i.a.: “There is a need to further develop international standards for metadata readable by search engines. They should either be supplied already by the document providers as integrated in the documents, or be additionally delivered (images, audio, video) and be openly accessible via the Metadata Harvesting Protocol of the OAI, in order to enable retrieval and processing of scientifically relevant digital information. Dublin Core, already wide-spread, should be considered as a minimum standard for accessing digital objects and should be generally adopted by authors and publishers.” (Original text in German)

Good practice and skills

Examples and guidelines

[http://www.sub.uni-goettingen.de/ebene\\_2/vdf/endfas1.htm](http://www.sub.uni-goettingen.de/ebene_2/vdf/endfas1.htm) Under this address are to be found the report and the technical recommendations of the study group in 1996 in preparation of the DFG funding scheme for “Retrodigitisation of library holdings”.

<http://www.dfg.de/forschungsfoerderung/formulare/programme/Bibliotheksforderung.html> This is the Web address for the formal fact sheets/instructions no. 1.51 - 1.55 (including recommendations on international co-operation) given by the “Deutsche Forschungsgemeinschaft DFG/German Research Council” for the (retrospective) digitisation of library holdings.

A Study Group on behalf of the “Deutsche Forschungsgemeinschaft DFG” has prepared a principal report in 1996 on the question of “Digitisation or microfilming?” It was also to give recommendations on the digitisation of film, to comment on the compatibility of film with digital media, and on the direct digitisation from the original object.

<http://www.lad-bw.de/index.php>

Under the same direction, a conception for a research project under DFG has subsequently been prepared – and the project been carried out in 1998/1999 –, which was to study the question whether digitisation is a safe long-term preservation means, or rather an attractive means for presentation and use? Different types of traditional (paper) objects were chosen and were:

- microfilmed,
- directly digitised,
- digitised from microfilm,

to compare the results and the usability of the output products. <http://www.lad-bw.de/index.php>

Also as an offspring of the above project, a detailed **workflow** has been prepared for the archival field - with a potential of broader application or adaptation.

<http://www.lad-bw.de/workflow/index.htm>

Competence centres

Two German digitization centres in the library field have been explicitly designated as “Competence Centres”:

- Münchner Digitalisierungszentrum (at Bayerische Staatsbibliothek BSB München) (<http://www.bsb-muenchen.de/mdz/>)

- Göttinger Digitalisierungszentrum (at Niedersächsische Staats- und Universitätsbibliothek Göttingen) <http://gdz.sub.uni-goettingen.de>

The “Archivschule Marburg” is a contact point for digitisation matters for archives, as well as the regional archival bodies LAD Stuttgart, Generaldirektion der Bayer. Staatlichen Archive München, and Nordrhein-Westfälisches Hauptstaatsarchiv Münster. The “Institut für Museumskunde” (Berlin) and the regional Museum Counseling Institutes München, Brauweiler (near Köln), Stuttgart are offering advice to museums on digitisation questions.

A few large museums have own specialised staff for this matter. A recent publication by the professional association “Rundbrief Fotografie” is: Pfenninger, Kathryn, *Bildarchiv digital* [Digital image archive], Stuttgart: Rundbrief Fotografie, 2001, 81 p. (<http://www.foto.uni-bas.ch/~rundbrief>).

Main digitisation training initiatives for cultural heritage institutions

Such training initiatives mainly originate from the same bodies as mentioned above.

In particular, the German Archival School (Archivschule Marburg) is offering courses, at regular intervals, on digitisation for archives.

Training is also offered in the library sector, and by the Institute for Museum Studies for museum staff. In addition, training courses (both crash courses and longer-term regular education) are offered by various Universities and Universities of Applied sciences (FHs) in the respective departments of IT, media design, art history, etc.

## European added value and contact framework

Quality and accessibility for Websites

European added value from the projects, groups, and documents in Germany concerning digitisation is foremost to be expected from the exchange of experience/roundtables with experts from other countries which would enhance the understanding, potential problems, and strategies regarding digitisation. In terms of mere facts, a recent statistical inquiry in Germany shows that out of ca. 6.200 museums (incl. their branch locations), 1.537 have an own Website (with 379 in more languages than German alone).

For archives, the exact figure is not known.

In addition to this statistical figure, a research project realised by the Free University Berlin and the Institut für Museumskunde 1998-2000, on “Virtual visitors - Technological outreach of museums” has undertaken a comparative study on CDROM and Internet as media for museums to present themselves to a general public. A number of small Working Groups, in different institutions and professional associations, is studying the quality (criteria) for Websites. One of the groups is a WG of the Documentation Committee of the German Museum Association (<http://www.museumbund.de/fachgruppen>).

Long-term sustainability

Same comment as under previous paragraph. At present, an initiative is underway to create a German forum for the cultural sector on these questions: “Forum Langzeitverfügbarkeit” (contact: Ute Schwens, [schwens@dbf-ddb.de](mailto:schwens@dbf-ddb.de)), at the moment largely driven from the library sector, but with museums and archives involved.

## Research activities on digitisation

Research activities on digitisation are going on with, or are funded by, the institutions mentioned in the other parts of this status report:

- Deutsche Forschungsgemeinschaft DFG - German Research Council
- Bundesministerium für Bildung und Forschung - German Ministry for Education and Science
- In the framework of the designated competence centres for digitisation, such as those in München and Göttingen for libraries, and the “Landesarchivdirektion Baden-Württemberg” in the field of archives
- At Universities and Universities of Applied Sciences
- At the German Science and Research Institution “Fraunhofer Gesellschaft FhG”

Several research projects are concerned with digitisation of cultural material in the first place. Main research topics are/should be to:

- raise context awareness for the presentation of archival material and museum objects
- develop tools for indexing and searching (BAM-project, Kalliope-project)
- provide more evaluation what the different target groups need
- develop distributed search engines and interoperability, with an emphasis on digital collections
- foster and support long-term preservation in any way possible.

