

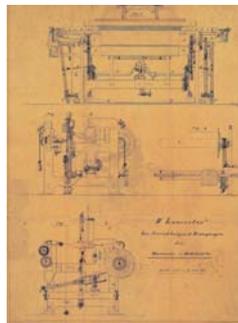
## Germany

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Württembergische Patentkommission  
 Patent design by William Lancaster of a  
 new mechanism for machine looms, 1860  
 © Landesarchiv Baden-Württemberg,  
 Staatsarchiv Ludwigsburg  
 E170a, Bü 280

## Policy scenario

### 1. General description of the political support for digitisation (and national ownership)

Germany's Federal Government Commissioner for Cultural and Media Affairs (BKM), the Federal Ministers for Education and Research (BMBF) and for Economics and Labour (BMWA) support several digitisation initiatives in a still rather heterogeneous landscape. Among them is the establishment, step by step, of a nationwide unified "Digital Library" in the area of scientific and technical information in Germany. Its goal is to enable for rapid and comprehensive access to the worldwide available scientific information.

The policy concentrates on developing the Internet-based information infrastructure and includes the improvement of the framework (e.g. standards). One of its main means is the "start-up"-support of such services.

In September 2002, the Federal Ministry for Education and Research (BMBF) published a strategic paper on "Networking information – activating knowledge" (= "Information vernetzen – Wissen aktivieren") (see [www.dl-forum.de](http://www.dl-forum.de))

and launched programs like "e-science" to support new technological approaches for distributed collaboration.

The regional activities fall mainly in the responsibility of the 16 Länder with their Ministers for culture or science. Many initiatives on this level, however, are developed by universities, libraries, archives, museums, research centres, academies, private associations, publishers etc. under their own jurisdiction.

### 2. Range of policy (geographical, institutional and ideological)

Since September 2001, EUBAM is a permanent joint Working Group of representatives from the Ministries for culture of the Länder and the Federal Government and from Archives, Libraries, Museums and Monument Protection, the German Research Foundation DFG, and other experts. Its mission is the information of these different sectors on the EU activities concerning funding of culture and digitisation of cultural heritage, as well as to function as a contact point for the related EU bodies (e.g., NRG) vis-à-vis Germany ([www.eubam.de](http://www.eubam.de)). EUBAM, which functions as a coordinating "political" body, installed in 2004 an expert group as its operational arm. This group discusses, i.a., how the MINERVA products apply to the German cultural heritage sector, organises the translation of relevant texts into German, promotes best practise in digitisation and related literature (e.g. the MINERVA Handbooks) in Germany, on behalf of EUBAM plans a German website on digitisation related issues in Germany [www.kulturerbe-digital.de](http://www.kulturerbe-digital.de), and drafts possible future working projects and funding requests.

### 3. Available instruments and the use of those: guidelines, funds, target organisations

A nation-wide semi-government authority is the German Research Foundation (DFG), which funds projects and establishes project schemes for co-ordinate action in all fields of science. The DFG supports a number of projects aiming at the establishment and improvement of scientific



information infrastructures in Germany. In its LIS division (Scientific Library Services and Information Systems) the DFG gives funds for the acquisition and web-based cataloguing of digital research literature, the implementation of innovative electronic means of communication and publishing (including the long-term availability of digital documents), the development of new software and techniques for the improvement of scientific information systems and the construction of a national digital research library providing access to historical materials  
[www.dfg.de/lis](http://www.dfg.de/lis)

The EUBAM group (see above, point 2.) will take action to establish a German Internet portal [www.kulturerbe-digital.de](http://www.kulturerbe-digital.de) (with an English and French-language counterpart) to serve as the central reference point in Germany for matters of digitisation policy and instruments, and to show many links to relevant organizations, to sources of advice, etc. This portal will also function as the mouthpiece of the EUBAM group.

#### *Monument preservation*

The monument preservation authorities of the 16 German Länder have formed a joint group in 1951, under the organizational umbrella of the "Conference of the Ministers of Culture (KMK)". The group deals with all general issues of monument protection which surpass those restricted to one individual Land alone, and has now built an Internet portal offering such general information nation-wide. It is itself linked to the homepages of the individual authorities thereby offering access to all digital monument lists which are so far digitally in existence in Germany.  
[www.denkmalpflege-forum.de](http://www.denkmalpflege-forum.de)

## Co-operation

### 1. National networks

As can be seen from the following examples, in the field of cultural digitisation in Germany, there is presently a tendency towards consolidation of larger networks, towards consideration of the long-term consequences (archiving) of digital data and also interest in new applications like net-based platforms for working procedures of creation rather than purely retrieval of information.

#### *KOPAL*

The German Federal Ministry of Education and Research (BMBF) funds Die Deutsche Bibliothek (DDB), the Göttingen State and University Library (SUB), and the Gesellschaft für wissenschaftliche Datenverarbeitung (GWDG) together with IBM to develop a long-term digital archive. The aim of this project KOPAL is to create a long-term preservation archive to allow better access to digital publications and the preservation of cultural heritage, in a system designed to adhere to international and open standards. The BMBF is contributing EUR 4 million towards the project KOPAL, which will allow the partners DDB and SUB to preserve digital documents for the future. KOPAL will be based on the IBM DIAS solution (Digital Information Archiving System) which IBM has set up jointly with the Koninklijke Bibliotheek (National Library of The Netherlands). In a development project scheduled to take three years, IBM will ensure a professional adoption of the software components and will provide long-term support.  
[www.ddb.de/professionell/projekte.htm#kopal](http://www.ddb.de/professionell/projekte.htm#kopal)

### *NESTOR*

NESTOR is a three-year project for creating a German network among libraries, archives, museums and universities to enhance awareness, and joint tools, concerning all matters of the long-term accessibility of digital data. The project is funded by the Federal Ministry BMBF and has representatives from all these four sectors ([www.langzeitarchivierung.de](http://www.langzeitarchivierung.de)). In 2004, NESTOR's second year, a platform for information and communication has been established. Several studies have been commissioned and some already finalized to bring forward expertise and consciousness for long-term preservation issues in Germany.

### *Baden Württemberg: MusIS (Museum Information System)*

MusIS was initiated in 1994 as a project by the Ministry of Science, Research and Art of Baden-Württemberg, the Southwestern Land of Germany. It started in 1998 and aims at providing a technical and documentation infrastructure for the 11 State museums of this German Land. The successful realization of the project requires, i.a., the following (activities are still ongoing):

- to set up a technical infrastructure and to build up the internal network in each museum, integrating all departments (like documentation, restoration, loan dept., education service, general administration etc.)
  - to implement uniform documentation standards
  - to promote the computer-aided documentation of museum collections, the online presentation of the digitized data on cultural heritage, as well as national and international metadata and vocabulary standards in the participating museums.
- <http://titan.bsz-bw.de/cms/service/museen/kurzinfo/flyer-musis.pdf>

### *eSciDoc: a scientific information, communication and publication platform for the research area*

The German Federal Ministry of Research and Education (BMBF) is funding this project (mid-2004 to mid-2009), to enable for net-based working in science. The basic technical infrastructure will be implemented as well as tools and interfaces for the production environment, by ZIM (Max-Planck-Gesellschaft, Heinz Nixdorf Zentrum für Informationsmanagement). Central data storage will take place at FIZ Karlsruhe but decentral data collections shall be easy to integrate, too. The FIZ will also care for the long-term storage and accessibility of the data. The tools will be built on open source products and will themselves be distributed as such.

[www.dl-forum.de/deutsch/projekte/projekte.php](http://www.dl-forum.de/deutsch/projekte/projekte.php)

## **2. International co-operation**

### *RusDML - a part of a digital library of mathematics*

In mathematics, too, the most convenient access to sources is via digital networks, the more so since most libraries in Western Europe do not carry many Russian-language journals, and translations of articles often contain content or typographical errors in formulas. DML (Digital Mathematical Library) is a project by TIB Technische Informations-Bibliothek Hannover and SUB Niedersächsische Staats- und Universitätsbibliothek Göttingen from 2004-2006, funded by DFG German Research Foundation. The primary goal of the DML is to make all mathematical literature digitally available. RusDML, the Russian Digital Mathematics Library, is part of this global enterprise. The activities of the RusDML project currently lie within the digitisation of the most important Russian language mathematical journals from 1866 to the present. This information is to be made

available online, using Zentralblatt MATH as a portal. Other partners include the Technical University of Berlin (TUB), Technical Information Library (TIB) Hannover, Niedersächsische Staats- und Universitätsbibliothek Göttingen (SUB) and its GDZ (Centre for retrospective digitization), Steklov Mathematical Institute, GPNTB (State public scientific library, Moscow), and others. Particularly sophisticated demands are put here on the software, due to the mass scale of source material and due to the tasks to generate general metadata (and to import data from different sources), to preserve the hierarchical structural data of the volumes, the matching of logical (printed) and physical page numbers etc. All article titles and personal names will be offered in the original language and in translation.  
www.rusdm1.de

#### *DDC German version*

A German translation has been established of the Dewey Decimal Classification (DDC), a major tool used by the Library of Congress (USA) to describe the contents of books catalogued in the library, and distributed to libraries all over North America. This tool will be available online in future for cataloguers at the Deutsche Bibliothek Frankfurt/Main and to cataloguers of scientific libraries all over Germany. The necessary tools are presently being developed. Some of the services will be fee-based.  
www.ddc-deutsch.de

#### *ArtStor / JStor, SMB*

Following a general colloquium (in 2002) on digitisation activities in the art history field, the State Museums Berlin (SMB) have entered 2004 into a contract with the ArtStor Organisation (New York) for producing some 6.700 digital photos of (about 2.250) important objects

from the collections of classical antiquity and of ethnology. At the same time, these digital photos will be integrated into the ArtStor web offers for its purposes of making accessible digital material for teaching and learning in art history. Also, the SMB have agreed with the JStor Organisation (New York) to incorporate digital versions of the SMB's journal "Jahrbuch der Museen" into the JStor digital offer which aims at making important journals in the sciences permanently available, in their retrospective editions/volumes, for the use of the scientific community.

### **3. NRG and MINERVA results, interpretation and impact**

The results of the MINERVA Working Groups as well as the 2<sup>nd</sup> NRG report have been distributed within relevant institutions in Germany, and through a special pre-conference day on 30 August 2004 preceding the ICHIM Conference held in Berlin. The distribution of the documents heightened the awareness of the deficits and open tasks on the one hand but made available also the research results achieved as a reaction to the recommendations of the NRG. The second NRG report was distributed through the secretariats of EUBAM. The report was recognised by this group, which had been called especially in existence to tackle the relation between the EU-bodies and the institutions involved in cultural activities in Germany. It was also made known to the archives directors' conference (Archivreferentenkonferenz des Bundes und der Länder (ARK), as well as to the Working Group on Museums (UAM) and to the one on Libraries (UAB) within the Conference of Cultural Ministers (KMK), and to the bodies on Monument Protection in Germany.



Das Alte Museum, Foyer, Berlin  
Foto: Reinhard Friedrich, 1995  
© Institut für Museumskunde Berlin, Staatliche Museen zu Berlin - Preußischer Kulturbesitz

The NRG and its activities are regularly reported to the relevant official political bodies in Germany and are thus brought to attention for political strategy and decision making-processes.

## Main digitisation initiatives

### 1. National portals for culture / networked digital repositories

#### VASCODA

Vascoda is a German central online access gateway for scientific and scholarly information, launched in summer 2003. Sponsored in part by the German government, Vascoda contains the combined resources of over 35 German libraries, research centres and institutes. These are, according to the site, essentially all the main publicly-funded institutions devoted to specialised study and research. The site is interdisciplinary, allowing users to search according to the categories of Engineering and Physical Sciences, Life Sciences, Economics and Social Sciences, and Humanities and Area Studies. The Humanities and Area Studies section leads to sites with online primary and secondary sources, related to f.e. Anglo-American culture, Art, Dutch Culture, Ethnology, Social Anthropology and Folklore.  
[www.vascoda.de/](http://www.vascoda.de/)

#### BAM-Portal

It is the aim of the common Internet Portal for Libraries, Archives and Museums (BAM-Portal) to become a central reference portal for digitized cultural online-resources of libraries, archives, and museums for Germany and - together with other online-information-

systems - part of a European network for such assets. In a first phase, funded by the German Research Foundation (DFG), a technical venue was designed which allows libraries, archives and museums to make their digitized resources accessible through a special search engine. In a next step, an organisational structure has to be developed which runs the BAM-Portal under real-life conditions.

[www.bam-portal.de](http://www.bam-portal.de)

#### Clio online

Clio-online is a central Internet subject gateway for historical scholarship in teaching and research. Sponsored since 2002 by the Deutsche Forschungsgemeinschaft (DFG), the gateway enables efficient access to the diverse range of historical online resources available to scholars and teachers within the field of history. A meta search engine brings together different partner institutions. A guide to online finding aids of archives is in preparation.

[www.clio-online.org](http://www.clio-online.org)

#### Digital Library Forum

The portal "Digital Library Forum" funded by the Federal Ministry BMBF brings together information on matters of the "Digital Library". Its focus is on the support given by the Federal Ministry BMBF, by the German Research Foundation (DFG), by individual Bundesländer, and by other funding institutions.  
[www.dl-forum.de](http://www.dl-forum.de)

### 2. Services for the users

Now that some of the already existing big library portals are consolidating, in this area, a certain emphasis on creating more tools for archives can





Rhine map from Kurpfalz, ca. 1595  
© Landesarchiv Baden-Württemberg,  
Generallandesarchiv Karlsruhe, H Rheinstrom/19

be observed as well as action undertaken to improve the use of the Internet for certain operations, e.g. those that require safe signatures etc.

#### *Virtual specialized library*

Among many other activities, the German Research Foundation (DFG) is running a programme to support the creation of a "Virtual specialized library" (Virtuelle Fachbibliothek), to be composed of many individual digital libraries. These are being built along the already existing decentralised system of specialized libraries which each aim at the utmost completeness in books and document holdings on a given special field of academic knowledge. The specialized digital libraries are to collect all digital material suitable to complement the traditional paper document stock in their fields. Interconnected within a distributed system, together they are to form "the Virtual specialized library".

[www.virtuellefachbibliotheken.de](http://www.virtuellefachbibliotheken.de);  
[www.dfg.de/forschungsfoerderung/wissenschaftliche\\_infrastruktur/lis/informationen\\_antragsteller/sondersammelgebiete.html](http://www.dfg.de/forschungsfoerderung/wissenschaftliche_infrastruktur/lis/informationen_antragsteller/sondersammelgebiete.html)

*Federal Archives (Bundesarchiv): <Daofind>*  
 <daofind> (Digitized archives in online finding aids) is a project of the German Federal Archives (Bundesarchiv) with support from the Mellon Foundation New York. In a pilot application, the linking capacities of the three international standards EAD (Encoded Archival Description) for online finding aids, EAC (Encoded Archival Context) and METS (Metadata Encoding and Transmission Standard) are tested for the presentation of German archival material online. This includes structured presentation, classification based navigation and key term search across all or a selected number of finding aids and images on different

levels of description. In a pilot application, easy-to-use tools should be developed which can be combined to form an archivist's workbench. Such "workbench" would provide functionalities for capturing the data, converting data from other systems, and for editing the respective XML-documents, so that they can be provided for joint presentation in union archival systems integrated in gateways offering single points of access.

The close combination of descriptive information and images should assure the orientation during the search and use and deliver the context needed for a full understanding of the documents.

[www.daofind.de](http://www.daofind.de)

#### *Duderstadt Municipal Archives: "Digital Recording of historical archives"*

Funded by the Volkswagen-Stiftung, this project (1996-1999) aimed at developing a computerised version of the files of a whole archive. The special database software Kleio was used. Run jointly with the Duderstadt Municipal Archive and the Max-Planck-Institute für Geschichte (MPIG), the project's main subject is the exceptional series "Official Books/Registers" (Amtsbücher, Rechnungen) in Duderstadt, which since the late 14<sup>th</sup> century has never been broken up. Such documents are normally never edited in printed form, so consultation is only possible in situ. Only in the last years, consideration has been given to the question of how to transform existing registers so that they are suitable for Internet use. This was done for the records mentioned above; the descriptions are managed in a database together with the scanned images of pages of the records. In contrast to conventional editions with their apparatus of annotations and variants, summaries and indexes, less time is required to build up





a computer-based research system. This organisation of image-files cannot yet be called a full archival register. But it enables users to work with the images in the same way as they would read originals. To improve access to the information which the images of the treasury register pages contain, details from every page and their columns are integrated in a database. Additions to the database can be made at any time. The digitisation programme is connected with a project that started in 1990, making a digital register of every household, its members and the buildings since the beginning of the sources ("Häuserbuchprojekt"), presently covering all tax payers in Duderstadt between 1395 and 1650. The digitisation of archive records in general has a high and costly requirement of technical equipment.  
[www.archive.geschichte.mpg.de/duderstadt/projekt-e.htm](http://www.archive.geschichte.mpg.de/duderstadt/projekt-e.htm)  
[www.archive.geschichte.mpg.de/duderstadt/dud.htm](http://www.archive.geschichte.mpg.de/duderstadt/dud.htm)

#### *Sachsenspiegel online*

A joint 4-year project (which ended 2004) within the Multimedia-Initiative of the German Land Lower-Saxony with the aim of developing specific tools for the digitisation of high-quality art objects like book miniatures etc. which pose specific requirements of reproduction on the Internet true to the original. The "Sachsenspiegel" is a rare, highly developed, beautifully coloured law book of the 13<sup>th</sup> and 14<sup>th</sup> century. The text is presented also in transcribed form and a rich access to the images is possible through a multitude of iconographic keywords. The software METEOR ("Multimedia Tool für Elektronische Online-Redaktion") is a system also allowing presentation, an Internet-based author system envisaged for use also with other projects.

Its components are MediaAuthor (for administering high-resolution digital images) and PageBrowser (for web presentation).

[www.sachsenspiegel-online.de/cms/](http://www.sachsenspiegel-online.de/cms/)

#### *Die digitale Handschriftenbibliothek Köln (Digital manuscript library Cologne): Codices Electronici Ecclesiae Coloniensis (CEEC)*

A project (2001-present), supported by the German Research Foundation (DFG), and intended to build the prototype of a digital manuscript library. The project is based at the diocesan and cathedral library Cologne which has large holdings in this field. It is carried out in cooperation with the Dept. of Cultural Informatics at the University of Cologne which has developed a specific software for this purpose, presently managing the largest collection of digital manuscripts and prints in Germany.

[www.dombibliothek-koeln.de/ceec/einleitung.html](http://www.dombibliothek-koeln.de/ceec/einleitung.html)

#### *ArchiSafe*

The German Federal Agency "Physikalisch-technische Bundesanstalt" (Braunschweig) plans from 2005 on, step-by-step, a system called MELODI ("Metrological service online – Application procedure for examination, authorization, certificates, test results") for appliances (equipment), laboratories, and procedures – i.e., all official documents created, needed and maintained in this process. For these documents, there is a need for long-term archiving (according to relevant law) of up to 30 years. The project (end-2004 to end-2005) builds on ArchiSig ([www.archisig.de/](http://www.archisig.de/)) and aims at defining a cost-effective, scalable system and to test it in a pilot phase.

<https://www.ptb.de/s/archisafe/index>

*Growing number of online finding aids, LEO*

The German archival community is presently developing online accessibility for their finding aids (in Baden-Württemberg alone, it is more than 1.500), for more and more individual archives.

Another tool in development is the web-presence for "Landeskunde" (Regional history and culture), i.e. a websites that give descriptions of the history and culture of individual German Länder, and that give link access to relative sources (e.g., regional bibliographies, textbooks, etc.). One example is: <http://titan.bsz-bw.de/cms/entwicklung/leo/>. Those systems will ultimately more and more also include authority files, e.g. on regional geographic and personal names, on historical geographical names, etc.

*Bundesarchiv*

The Bundesarchiv has developed, in the specific archival software MidosaXML, online finding aids for 130 holdings, with 125.000 descriptive units, as well as a holdings guide on 1.000 archival fonds and library collections. In the software Basys Fox, 200 online finding aids have been developed, generated from a database. The MidosaXML finding aids can be searched together with the holdings guide, or in a separate selection with the search engine MidosaSEARCH.

[www.bundesarchiv.de/bestaende/FindbuchServer](http://www.bundesarchiv.de/bestaende/FindbuchServer)

*Online digital image database of the Archival Directorate of Rhineland-Palatinate*

The Archival Directorate of the German Land Rhineland-Palatinate has, in the recent years, digitized the photo holdings (complete) and the holdings of posters and maps (for the main part), using the institution's own manpower. These are being

presented, in reduced image resolution, together with the relevant cataloguing data in the archive's online database, for online retrieval by a worldwide user population. An online shop facility for ordering and payment will follow shortly. Thus, in future not only selected finding aids but the entire database (except material under legal restrictions) of this archival authority will be at the disposition of the users.

Another of the archive's projects, in cooperation with the University of Cologne's Dept. of Cultural Informatics, is a project for the digitisation of "Working films" which have resulted from the earlier German Civil Protection programmes of safety filming of important cultural holdings. The digital material thereby produced will, in a next step, also be linked to the already existing catalogue data in the online database and will thereby be ready for online use.

[www.landeshauptarchiv.de/](http://www.landeshauptarchiv.de/)

*DigiZeit (SUB Göttingen): electronic access to core scientific journals*

In 1999, 9 major German libraries, each running special collection areas (Sondersammelgebiets-Bibliotheken) started an undertaking which since 2002 continues under the umbrella of an organisation of its own. A number of presently about 50 German-language core journals in several scientific disciplines (English studies, German studies, law, sociology, mathematics, sciences, etc.) from German publishing houses is being held as electronic journals. These are offered to science institutions (universities, academies, ...), for a fee-based subscription as a service for their users. This is considered a convenient work tool for people working in the sciences and a possibility to enhance international visibility of German-language science publications. The project

is supported by the German Research Foundation (DFG), the Association of German publishers (Börsenverein), the Association of copyright holders (VG Wort), and others. It runs 2002-2006.

[www.digizeitschriften.de](http://www.digizeitschriften.de)

#### *Geheimes Staatsarchiv Preußischer Kulturbesitz - GStA PK online holdings overview*

The general overview over the holdings, personal papers, collections (ca. 35 km of archival documents) of the GStA PK is offered online since 2002.

The website also offers general information in English and Polish. The metadata of the maps and plans (ca. 180.000 individual items) can thus be retrieved in different ways: by provenance, full-text retrieval, free navigation.

The Prussian archival heritage, specifically of the central administrative bodies and of certain Provinces until 1933 or 1945, resp. (supplemented by personal papers of persons having a relation Brandenburg-Prussia), thus spans in international context from Kleve to Kaliningrad (Königsberg), from Neufchâtel to Olsztyn (Allenstein), from Tauragė (Tauroggen) to Ansbach and Bayreuth, and includes interior and exterior politics issues. In the near future, overviews over the holdings of the superior Prussian body "Generaldirektorium" (18<sup>th</sup> century), the Kingdom of Westphalia (1807-1814) and the archival heritage of the Prussian Ministries (1808/15 to 1933/45) will be available online.

[www.gsta.spk-berlin.de](http://www.gsta.spk-berlin.de)

### **3. Emerging initiatives**

Emerging issues can on the one hand be deduced from the upcoming issues in the discussions taking

place currently in the cultural sector in Germany. On the other hand, they result from the new technological phenomena encountered while technology takes its rapid path of progress.

#### *Open Access Initiative*

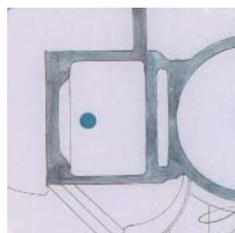
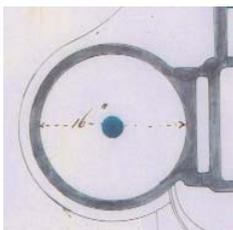
The Max Planck Society fosters the idea of "open access" in formulating the Berlin declaration, which has been signed by numerous high ranking representatives of science, culture and politics – domestic and European. The Berlin declaration is aiming at stimulating discussion within the scientific community on how to proceed, as rapidly as possible, to the universally accepted goal of providing open access to the primary scientific literature and to agree on significant, concrete steps that can be taken by the organizations which foster and support scientific research, by the scientists which generate the research results, the publishers which facilitate the peer-review and distribution of results of the research, and the scientists, librarians and others who depend on access to this knowledge so as to promote the rapid and efficient transition to open access publishing.

[http://echo.mpiwg-berlin.mpg.de/echo\\_web/ECH0/home/documents/declaration](http://echo.mpiwg-berlin.mpg.de/echo_web/ECH0/home/documents/declaration)

Issues discussed a lot in Germany presently are the following:

#### *Long-term preservation of born digitals as well as digitised information*

There is a growing awareness of the importance of long-term preservation of digital material in Germany now, as the first experiences are being made with changing hardware systems and the need to migrate data more and more. This is particularly



true in the universities and in the library sector, both concerned with scientific publications in digital format as well as the related reference tools which need to be conserved for a very long future. In those areas where first-time digitisation of material does not have an equally long-established tradition, awareness is not yet always as high as it should be. Recent projects ([www.langzeitarchivierung.de](http://www.langzeitarchivierung.de)), however, aim at compensating for this shortcoming.

#### Access

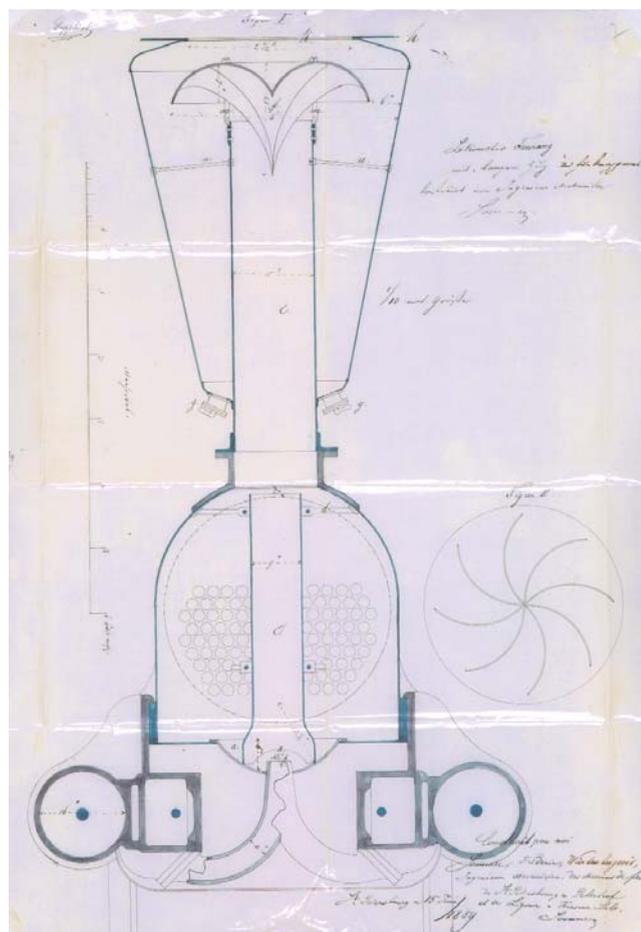
Both the increasing number of materials and the growing complexity of the documents stored digitally pose a strict requirement for precise and quick access. This requirement also develops in view of the growing amount of use of electronic documents. The incorporation of metadata during the process of creation or storage is, therefore, an important issue in the networks being built, e.g. for electronic dissertations. In Germany, there is an increasing number of portals in development. They are planned as central access points to specific topics and themes. The information comes from very different sources. So, the awareness for more technical standards and a more controlled vocabulary is about to develop. Nevertheless, a lot of those initiatives try to solve these problems individually and thus there is a risk of duplicating the work. This calls for intensified effort to propagate standards and to share developments.

#### Networks

Concurrent with the formation of portals, there is also a number of networks emerging. Here is a need to develop a kind of central directory with information on the aims and contents of the individual networks in order to co-operate and share results.

#### Need for funding of digitisation

A lot of the German cultural institutions accept the idea to open their resources for a wider public, but all of them, and the more so the small institutions, are lacking the money to digitise their holdings or at least the information on their holdings. So, what is needed is a funding scheme for digitisation which includes also small and medium sized museums, libraries and archives.



Württembergische Patentkommission.  
 Patent design by the engineer and mechanic Friedrich Sommer  
 in Petersburg for a new construction of locomotive funnels, 1859  
 © Landesarchiv Baden-Württemberg,  
 Staatsarchiv Ludwigsburg, E170a, Bü 254