

Academic Libraries and their Service Portfolio in the Digital Age

The German Case

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Outline

1 Germany

2 German Academic Libraries

2.1 Fields of Cooperation

2.1.1 Collection Building, Acquisition and Access

2.1.2 Cataloging/Indexing

2.1.3 Longterm Preservation

2.1.4 Licencing

2.1.5 Open Access

2.1.6 Mass Digitization

2.1.7 Information Literacy

2.1.8 Reference

2.2 Further Challenges and Requirements

2.3 Virtual Research Environments

3 Conclusion



1 Germany (1)

Some main facts:

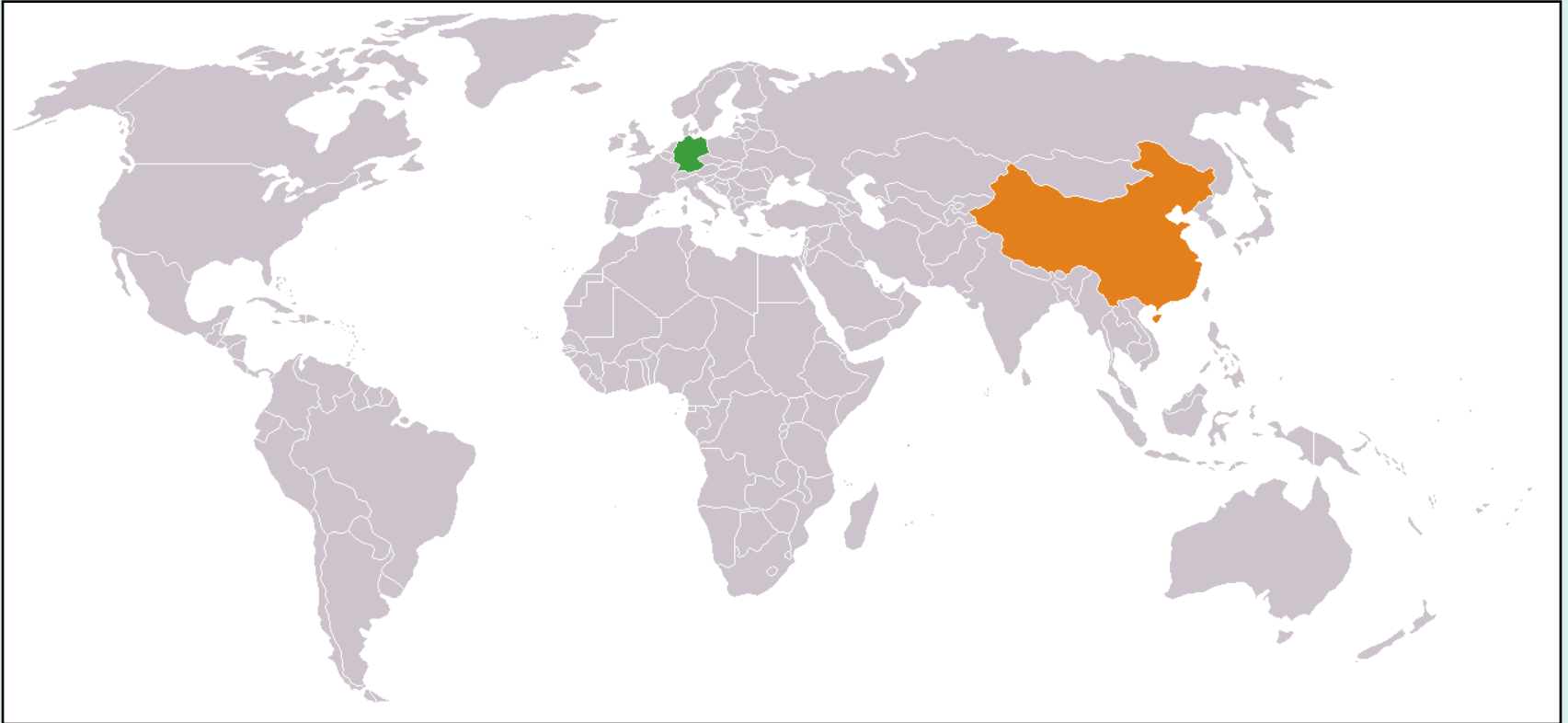
Population: 80,6 million

Area: 357 km²

GDP: 3,7 trillion \$



1 Germany (2)



2.1 Fields of Cooperation (1)

German academic libraries foster **intensive cooperation** based on a high level of **division of labor** with regard to the main library services:

- collection building, acquisition (and access)
- cataloging / indexing
- longterm preservation
- licencing
- open access
- mass digitization
- information literacy
- ...

2.1.1 Fields of Cooperation: Collection Building, Acquisition and Access (1)

As example:

the system of **Virtual Subject Libraries** (Subject Portals)
(as part of the system of subject information services)

More than 40 Virtual Subject Libraries, cooperatively run by 1-2 university or state libraries and relevant special libraries:

Name	Subject	Library
Crossasia	East and Southeast Asia	State Library Berlin
ViFaPsy	Psychology	Saarbrücken University Library
ViFaPharm	Pharmacology	Braunschweig University Library

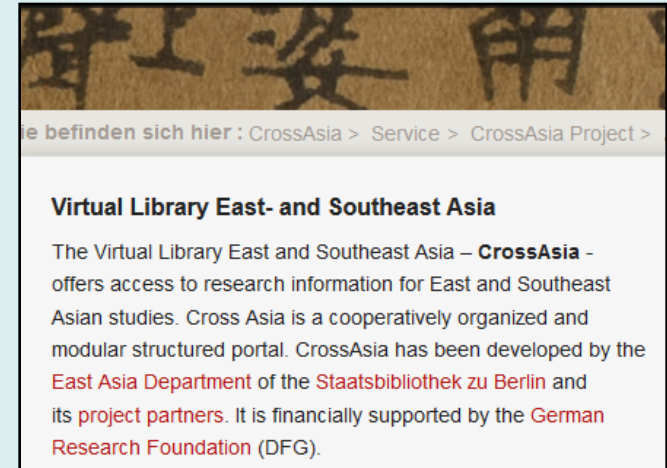
2.1.1 Fields of Cooperation: Collection Building, Acquisition and Access (2)

Virtual Subject Libraries (ideally) consist of different subject-specific modules:

- subject guide / web catalog
- meta-search over relevant library catalogs
- journal article database
- subject repository (open access)
- e-journals
- bibliographic databases
- special repository for primary data (raw data)
- conference calendar
- conference database
- expertise network
- digital reference service

2.1.1 Fields of Cooperation: Collection Building, Acquisition and Access (3)

Crossasia <http://crossasia.org> and
EconBiz <http://www.econbiz.de>
as examples for Virtual Subject Libraries



ject
– CrossAsia – is
central access point
st Asian studies. The
the distributed
s research, teaching,
onal project partners

2.1.2 Fields of Cooperation: Cataloging / Indexing (1)

Regional library networks,
backed by the

German National Library

- cooperative cataloging
- cooperative indexing
- union catalog
- interlibrary loan
- document delivery
- maintenance of the national “common authority file” for corporations, personal names, and subject headings



2.1.3 Fields of Cooperation: Longterm Preservation (1)

nestor: Network of Expertise in long-term **Storage** and availability of Digital Resources in Germany

<http://www.langzeitarchivierung.de>

Cooperation of

- libraries
- archives
- museums
- other leading experts

WELCOME TO NESTOR

Welcome to nestor, the German competence network for digital preservation. Libraries, archives, museums and leading experts work together in nestor to ensure the long-term preservation and accessibility of digital sources. nestor is a cooperation association including partners from different fields, but all connected in some way with the subject of "digital preservation".

TRAINING



In collaboration with higher education partners, nestor develops initial and further training courses in the field of digital preservation in Germany.

2.1.3 Fields of Cooperation: Longterm Preservation (2)

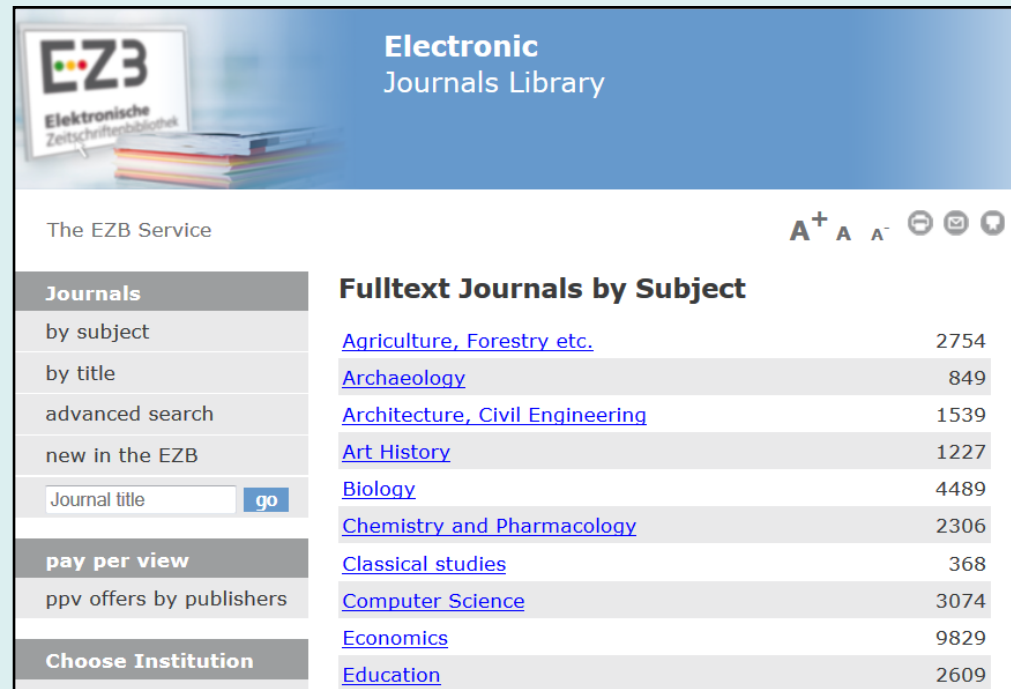
nestor – fields of operation:

- training
 - initial and further training courses in digital preservation
 - eTutorials
- standardization
 - current standards in digital preservation
- certification of trusted digital repositories/archives
 - criteria and certification process
 - nestor-seal
- cost considerations
- legal issues

2.1.4 Fields of Cooperation: Licencing (1)

EZB – Electronic Journal Library <http://ezb.uni-regensburg.de>

- established in 1997
- collaborative database for the identification and use of academic e-journals
- 75.500 academic e-Journals
- 620 participating libraries and research institutions



Fulltext Journals by Subject	
Agriculture, Forestry etc.	2754
Archaeology	849
Architecture, Civil Engineering	1539
Art History	1227
Biology	4489
Chemistry and Pharmacology	2306
Classical studies	368
Computer Science	3074
Economics	9829
Education	2609

2.1.4 Fields of Cooperation: Licencing (2)

EZB – Electronic Journal Library:

- each participating institution can manage their own licensed journals and integrate their own user information.
- each library has a custom view of the database that reveals which titles are licensed by them and accessible from their network.
- a “traffic light” system enables easy oversight

<input checked="" type="checkbox"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	freely available
<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	free for the staff and the students of the University of Applied Sciences Cologne (from within the Campus Network).
<input type="checkbox"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	free for the staff and the students of the University of Applied Sciences Cologne (from within the Campus Network). The institution has no continuous subscription on the journal. Therefore, only some of the published volumes are accessible as full texts.
<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	not accessible (in many cases you can see the TOCs and abstracts).

2.1.4 Fields of Cooperation: Licencing (3)

EZB

Electronic Journals Library
Universitätsbibliothek Würzburg

The EZB Service access UB Homepage Ask the library Off-campus A⁺ A A⁻

Journals

- by subject
- by title
- advanced search
- new in the EZB

Journal title **go**

Choose Institution

Preferences

Search results

Your search terms: (Words in title = 'chinese cancer') in all journals

5 hits

[Refine search](#)

- [Ai Zheng = Chinese Journal of Cancer](#)
- [Chinese Journal of Cancer](#)
- [Chinese Journal of Cancer Research \(via CAJ\)](#)
- [Chinese Journal of Cancer Research](#)
- [Chinese Journal of Lung Cancer](#)

2.1.4 Fields of Cooperation: Licencing (4)

DBIS – Database Information System

<http://www.bibliothek.uni-regensburg.de/dbinfo>

- provides joint access to academic databases
- indicates whether a database is
 - freely accessible
 - nationally licensed
 - licensed by the individual library, or
 - offered from a publisher on a pay-per-use model
- 11.000 databases
- 290 participating libraries

2.1.4 Fields of Cooperation: Licencing (5)

DBIS – Database Information System

Datenbank-Infosystem (DBIS)

Gesamtbestand in DBIS

Suche nach Datenbanken

Schnelle Suche

Erweiterte Suche

Fachübersicht

Alphabetische Liste

Bibliotheksauswahl / Einstellungen

Über DBIS

Gefördert durch:

Ergebnisse Ihrer Suche

Sie suchten nach folgenden Kriterien:

- Suche über alle Felder: "chinese"

[Suche verändern](#)

Gewählte Datenbanken (21 Treffer)		Zugang
BIOSIS Citation Index		WWW
China Ancient Books		deutschlandweit frei
Chinese Heritage of Australian Federation		frei im Web
Chinese Research Perspectives Online		WWW
Chinese Science Citation Database		WWW
Chinese Studies Online		frei im Web

Mode of Access → **Zugang**

2.1.4 Fields of Cooperation: Licencing (6)

National licences / German Research Foundation

<http://www.nationallizenzen.de/ueber-nationallizenzen/nationallizenzen>

- funded by German Research Foundation (2004ff.)
- buys licences on a national level for unlimited use
- 134 databases, accessible for university members and German residents



2.1.5 Fields of Cooperation: Open Access (1)

DINI – German Initiative for Network Information

<http://www.dini.de>

- developed a certificate / seal for institutional or subject repositories in order to standardize them.

Criteria are:

Visibility of the service

Policy

Support of authors / publishers

Legal aspects

Information security

Indexing and interfaces

Access statistics

Long-term availability




2.1.5 Fields of Cooperation: Open Access (2)

DINI – German Initiative for Network Information

<http://www.dini.de>

- runs the directory of German open access repositories
- currently lists 185 repositories

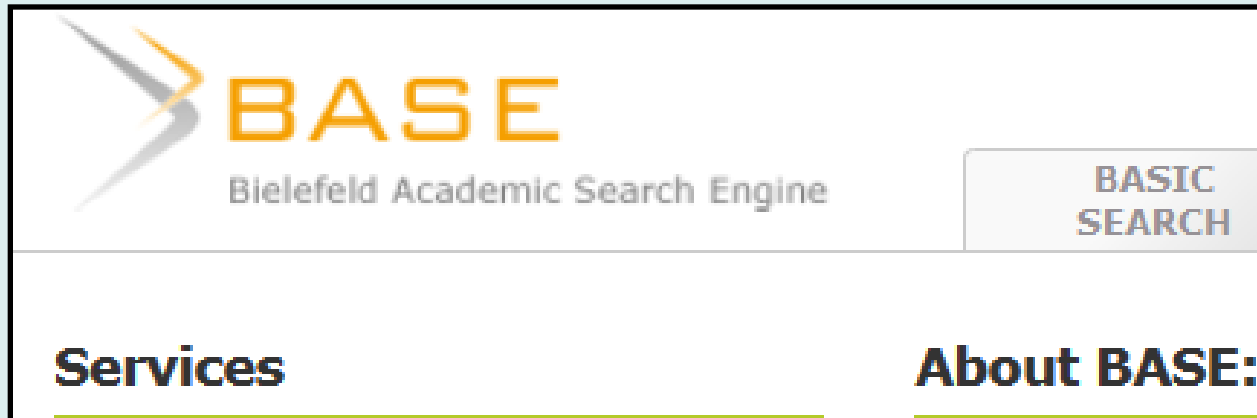
Place	Name of repository	Seal	University
Aachen	Online Publikations-Server der FH Aachen		FH Aachen
Aachen	Publikationsserver der RWTH Aachen University		RWTH Aachen University
Aalen	OPUS - Hochschulschriftenserver der Hochschule Aalen		Hochschule Aalen - Technik und Wirtschaft Beethovenstraße 1 73430 Aalen
Augsburg	Hochschulschriftenserver der Universität Augsburg		Universität Augsburg

2.1.5 Fields of Cooperation: Open Access (3)

BASE – Bielefeld Academic Search Engine

<http://www.base-search.net>

- indexes repositories which use the OAI-PMH standard
- quality control: intellectually selected sources
- display of search results includes precise bibliographic data



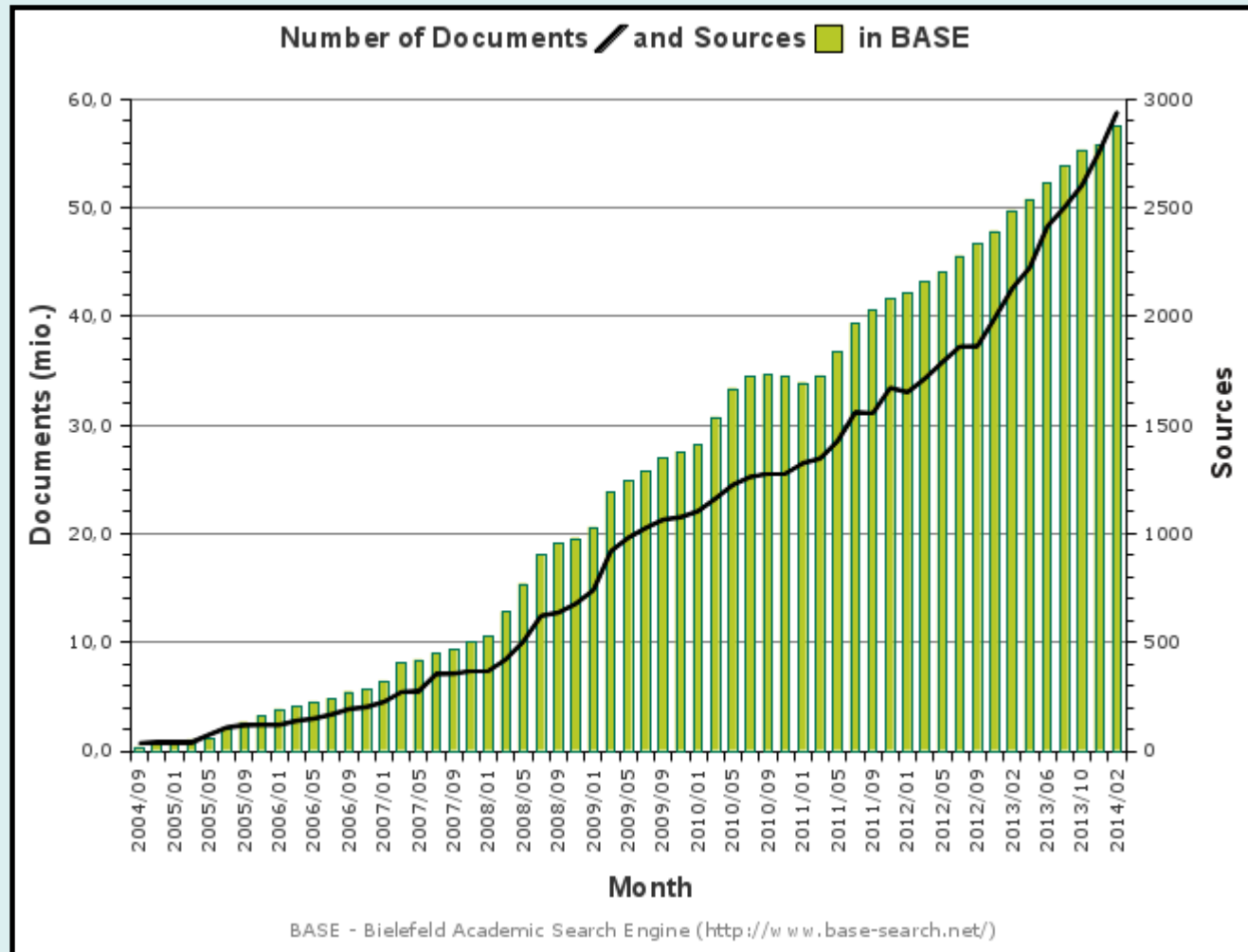
2.1.5 Fields of Cooperation: Open Access (4)

BASE – Bielefeld Academic Search Engine

Through BASE you can search:			
Number of documents:		60,815,526	
Number of content sources:		2,943	
Last update:		11.04.2014	
Chinese Academy of Sciences: Knowledge Repository of CAS / 中国科学院 合肥物质科学研究院		3,010	cn
Institute for the History of Natural Science, Chinese Academy of Sciences: IHNS OpenIR / 中国科学院自然科学史研究所 机构知识库		5,913	cn
Peking University Institutional Repository (PKU IR) / 北京大学机构知识库		20,428	cn
Xiamen University Institutional Repository		72,164	cn
seeKSpace: Environmental and Ecological Science Data Center for West China		44,712	cn

2.1.5 Fields of Cooperation: Open Access (5)

BASE



2.1.6 Fields of Cooperation: Mass Digitization (1)

ZVDD – Central Index of Digitized Prints

<http://www.zvdd.de>

- central access point to printed works from the 15th century up to today, digitized in Germany
- registers and indexes digital collections digitized by academic libraries (OAI-PMH)
- provides search for any other part of the bibliographic description, as well as titles of articles, headlines of chapters and table of contents
- all prints that come with a preview image can be consulted free of charge
- currently lists 1,1 million items

2.1.6 Fields of Cooperation: Mass Digitization (2)

zvdd ZENTRALES VERZEICHNIS DIGITALISIERTE DRUCKE

Start Advanced Search Collections vd18

zvdd » Start

Simple Search

 Suche in Titel- und Strukturdaten

[zur Detaillierte Suche](#)

Welcome

Zvdd is the central access point to printed works from the 15th century up to today, digitized in Germany.

It enables you to search not only for titles and authors, but any other part of the bibliographic description, like printers, printing places and publication years, as well as titles of articles, headlines of chapters and table of contents.

[All prints that come with a preview image can be consulted](#) online through the [DFG-Viewer](#), a tool that allows also navigating the book's content.

Register your collection

We are happy to include your collection in the zvdd portal. All that's necessary is an OAI PMH 2.0 compatible interface, which must provide your data in METS/MODS. [See here for further information.](#)

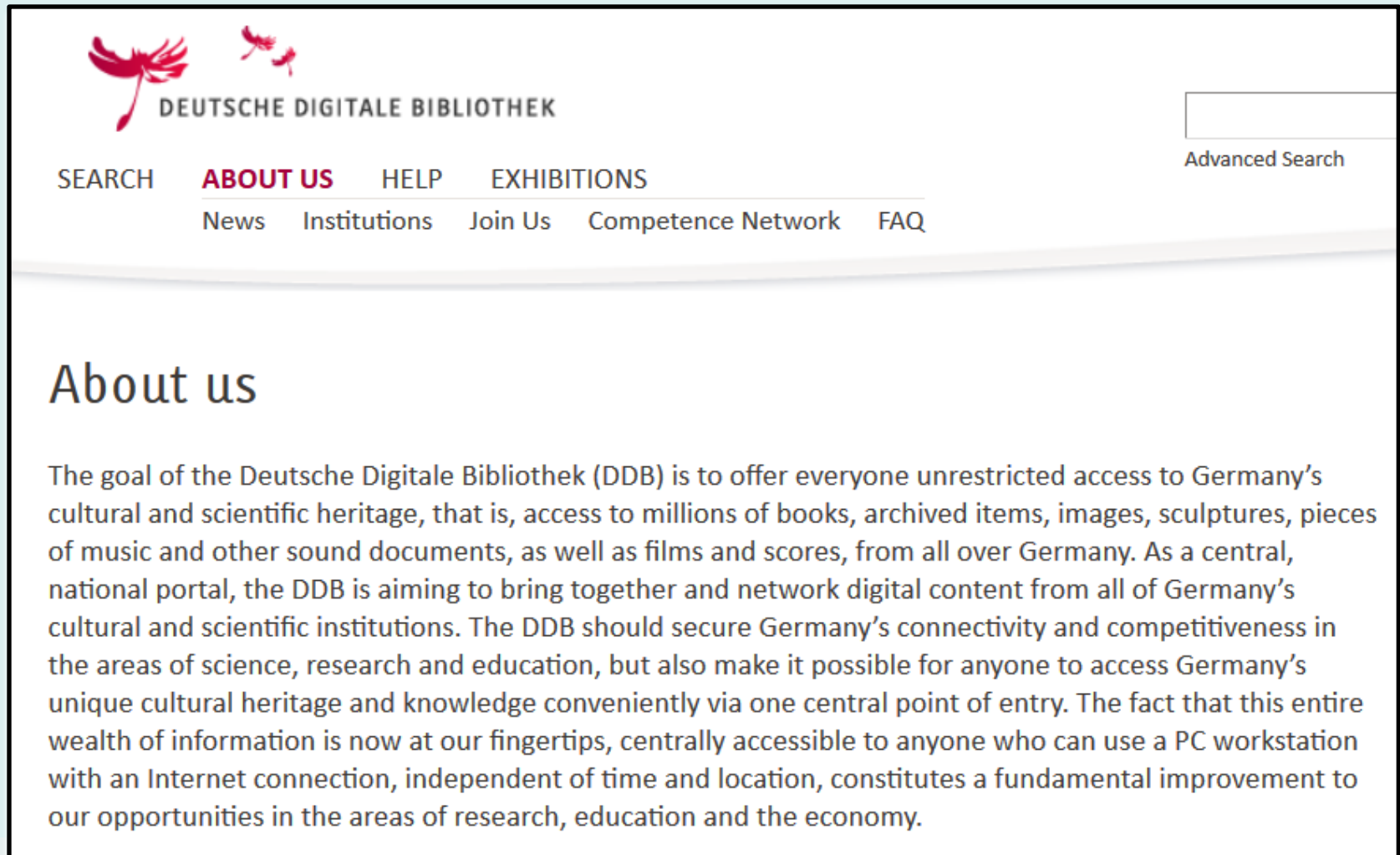
2.1.6 Fields of Cooperation: Mass Digitization (3)

DDB – German Digital Library

<https://www.deutsche-digitale-bibliothek.de>

- offers unrestricted access to Germany's cultural and scientific heritage
- central national portal, aims to network digital content from all of Germany's cultural and scientific institutions
- cooperation of libraries, archives, museums
- books, archived items, images, sculptures, pieces of music and other sound documents, as well as films and scores
- content is not held by DDB, but by participating institutions
- German contribution to Europeana, the European cultural memory: www.europeana.eu

2.1.6 Fields of Cooperation: Mass Digitization (4)



DEUTSCHE DIGITALE BIBLIOTHEK

SEARCH **ABOUT US** HELP EXHIBITIONS

News Institutions Join Us Competence Network FAQ

Advanced Search

About us

The goal of the Deutsche Digitale Bibliothek (DDB) is to offer everyone unrestricted access to Germany's cultural and scientific heritage, that is, access to millions of books, archived items, images, sculptures, pieces of music and other sound documents, as well as films and scores, from all over Germany. As a central, national portal, the DDB is aiming to bring together and network digital content from all of Germany's cultural and scientific institutions. The DDB should secure Germany's connectivity and competitiveness in the areas of science, research and education, but also make it possible for anyone to access Germany's unique cultural heritage and knowledge conveniently via one central point of entry. The fact that this entire wealth of information is now at our fingertips, centrally accessible to anyone who can use a PC workstation with an Internet connection, independent of time and location, constitutes a fundamental improvement to our opportunities in the areas of research, education and the economy.

2.1.6 Fields of Cooperation: Mass Digitization (5)

The screenshot shows the website of the Deutsche Digitale Bibliothek. At the top left is the logo with the text "DEUTSCHE DIGITALE BIBLIOTHEK". To the right are links for "Login" and "English". A search bar contains the text "karl marx" and has a magnifying glass icon. Below the search bar is the text "Advanced Search". A navigation menu includes "SEARCH", "ABOUT US", "HELP", and "EXHIBITIONS". Below the menu is a "Link to this page" button. The main content area features the heading "Karl Marx" in red, followed by the text "Philosoph, Politiker", "Born: May 5, 1818, [Trier](#)", and "Died: March 14, 1883, [London](#)". Below this is an "Objects: ?" section with a carousel of five items: a portrait of Karl Marx, a landscape of Elbedorf Steutz, a handwritten letter titled "Korrespondenz von Karl Marx an Georg...", a photograph of a house titled "Wohnhaus des Karl Marx", and a group of people at a beach titled "Ferienbetreuung Strandbad Kornhaus". To the right of the carousel is a large portrait of Karl Marx. At the bottom left of the carousel area is a link "All Pictures (24)".

2.1.7 Fields of Cooperation: Information Literacy (1)

LOTSE – Library Online Tour and Self Paced Education

<http://lotse.sub.uni-hamburg.de>

- cooperative network for information literacy
- provides training material (including online-Tutorials and videos) with regard to
 - search engines
 - deep web
 - database search and other information resources
 - citation principles
 - plagiarism
 - ...

2.1.7 Fields of Cooperation: Information Literacy (2)

Lotse

LOTSE

Home

Wegweiser zur Literatursuche und zum wissenschaftlichen Arbeiten

1. Angebote Ihres Fachs auswählen

- Fachübergreifend
- Belgien Luxemburg
- Buchwissenschaft
- Chemie
- Ethnologie / Volkskunde
- Filmwissenschaft / Theaterwissenschaft
- Geographie
- Geschichte
- Hispanistik
- Ingenieurwissenschaften
- Italianistik
- Kommunikationswissenschaft /

2. Angebote Ihrer Bibliothek auswählen

- ortsunabhängig
- Berlin, UB der HU
- Hamburg, HSU
- Hamburg, SUB
- Kiel, ZBW
- Münster, ULB
- Wien, WU
- Zürich/Winterthur/Wädenswil, ZHAW

Suche in Lotse

Suchen

Videos und Quiz

- "Plagiate - (k)ein Problem?" ... mehr
- Quiz im Lotse-Moodle

Materialien & Tipps

- Videoskripte, Software und mehr

2.1.7 Fields of Cooperation: Information Literacy (3)

Lotse



The diagram illustrates the Internet as an ocean. A yellow fishing boat is on the surface, labeled 'SURFACE WEB'. A large net is being pulled down into the deeper blue water, labeled 'DEEP WEB'. The net is filled with various colored fish (orange, yellow, green, blue), representing content that is not indexed by search engines. A small icon of a head with an exclamation mark is positioned above the text box on the right.

Zum DeepWeb gehörende und damit nicht indexierbare Inhalte sind ...

- passwortgeschützte Inhalte
- Inhalte innerhalb von Katalogen oder Fachdatenbanken
- zu aktuelle Webseiten
- dynamisch generierte Inhalte, z.B. Suchanfragen
- etc.

2.1.8 Fields of Cooperation: Reference (1)

There is still an important area **missing** in the field of cooperation among German libraries:

Reference and Information Services

Although there are some local and smaller regional reference networks

- cooperation with regard to reference is not yet really developed and considered as an essential field of cooperation.
- while countries like Denmark, the UK or the US already possess vivid reference networks, e.g.:

Bibliotheksvagten: <http://www.biblioteksvagten.dk>

QuestionPoint: <http://www.questionpoint.org>

2.2 Further Challenges and Requirements (1)

We are facing:

- not only a media revolution which is still underway, but
- an ongoing **revolution of information culture** as well

Some of the most important changes:

- 1 Search Behavior**
- 2 Information Consumption**
- 3 Learning Behavior**
- 4 Research Behavior**
- 5 New Distribution channels**

2.2 Further Challenges and Requirements (2)

1 Search behavior

- search engine (Google, Baidu etc.) influence: Type in one keyword and expect the whole range of information needed
- convenience as general expectation

Libraries tasks:

- ⇒ **intensify services for the development of information literacy**
- ⇒ **provide proactive information services**
- ⇒ **simplify the usability of library catalogs, discovery systems and other search devices for academic research**

2.2 Further Challenges and Requirements (3)

2 Information consumption

- massive growth of information consumed, but
- decrease of in-depth analysis and time spent to understand and evaluate the information retrieved

Libraries tasks:

- ⇒ **intensify services for the development of information literacy**
- ⇒ **provide personalized services (reduction of complexity)**
- ⇒ **enhance reference services (local, regional and national) to collaborative reference services (24/7)**
- ⇒ **provide information consultancy (embedded librarian, personal librarian)**

2.2 Further Challenges and Requirements (4)

3 Learning behavior of students

- collaboration, working groups (social networks)
- e-preference

Libraries tasks:

- ⇒ **enhance the teaching library to a convenient physical as well as electronic learning environment**
- ⇒ **emerge the library as a place of collaboration**
- ⇒ **consider the library as learning space**
- ⇒ **provide virtual text books and electronic reserve lists (virtual learning environment)**

2.2 Further Challenges and Requirements (5)

4 Research behavior of scholars

- collaboration, working groups
- e-preference
- growing importance of raw data (primary data)
- growing need of information consultancy during the whole research process

Libraries tasks:

- ⇒ **develop and maintain virtual research environments (VRE)**
- ⇒ **develop and maintain methods and tools for storage, indexing of and access to raw data (primary data)**
- ⇒ **put into practice the concept of the embedded librarian**

2.2 Further Challenges and Requirements (6)

5 Changing distribution channels

- networked and “informal” communication (discussion lists, blogs, social networks, collaborative working spaces, wikis...)
- open access
- repositories

Libraries tasks:

- ⇒ **act as a publishing house**
- ⇒ **maintain institutional and subject repositories**
- ⇒ **provide assistance in online and open access publishing (stylesheets, digital rights management, copyright consultancy)**

2.3 Virtual Research Environments (1)

VRE:

- a **social** as well as a **technical** achievement
- **community building** facilitated by computational devices
- supports **all stages of research** from
 - data collection and
 - data analysis to
 - scholarly publication

Context (sometimes synonym):

- e-infrastructure (e-Science: UK, Germany)
- cyberinfrastructure (USA)
- collaboratory

2.3 Virtual Research Environments (2)

A **VRE** is a web-based environment for

- **access to data**, tools, applications and resources
- **collaboration** with other researchers
 - over distance
 - from different disciplines
 - on an international level
- **preserving** or taking care of data and other outputs

cf. Carusi, Annamaria, Reimer, Torsten: Virtual Research Environment Collaborative Landscape Study. 2010

<http://www.jisc.ac.uk/publications/reports/2010/vrelandscapestudy.aspx>

2.3 Virtual Research Environments (3)

Basic elements:

- **informations objects**
 - raw data, primary data
 - non-textual data (images, audiofiles, numeric files, simulations...)
 - publications (repositories)
- **tools** and **software** needed to manage the research like
 - simulation software
 - data-mining tools
 - visualization tools
 - ...

2.3 Virtual Research Environments (4)

Basic elements (cont.):

- **hardware** and systems software
 - **large capacity computers** (GRID computing)
 - collaboration technologies
- **authentication**
- **rights management**
- **project planning**

As an example:

TextGrid: Virtual Research Environment for the Humanities

<https://www.textgrid.de/en>

2.3 Virtual Research Environments (5)



TextGrid
Virtual Research Environment
for the Humanities

Home About TextGrid Registration/Download Community


TextGrid: Digital editing – research – archiving



Laboratory

Open source tools and services support humanistic scholars during the whole process of research, especially in the entire work flow of producing digital editions.


[Download](#)



Repository

The long-term archive allows safe storing, publishing and researching of versatile digital material – e.g. XML/TEI formatted text, images and databases.

[Visit](#)



Documentation

The online help, mailing lists, a bug tracker and the source code enable users and developers to quickly start working with TextGrid.

[Visit](#)

2.3 Virtual Research Environments (6)

TextGrid

TextGrid is a joint project of [ten partners](#), funded by the German Federal Ministry of Education and Research (BMBF) for the period from June 2012 to May 2015 (reference number: 01UG1203A).

Answering an increasing demand for digital and collective research features in the humanities, TextGrid has, since its start in 2006, established the infrastructure for a respective virtual research environment. In continuous exchange with the scientific community, TextGrid has developed a variety of tools and services available for free download in a stable version. Together with the TextGrid Repository, the Virtual Research environment TextGrid offers humanist researcher in the humanities sustainable editing, storing and publishing of their data in a thoroughly tested and safe environment.

Target groups

- **humanities scholars** using TextGrid for their research projects
- **developers** adapting TextGrid tools and services for specific scholarly needs
- **academic institutions** (e.g. archives, libraries) storing data in TextGrid or linking data to own data bases

The vision of a **digital ecosystem** is based on the open source idea, allowing for free exchange of tools and data, whereby adaptation concerning discipline-specific needs is made possible.

Researchers from a wide range of humanistic disciplines such as philology, linguistics, musicology, art history, classical philology and musicology are actively working with TextGrid have joined the TextGrid consortium in the second phase of the project.

2.3 Virtual Research Environments (7)

The **role of libraries**:

- participate in the **development** of VREs along with IT specialists, researchers, academic institutions
- curate and **maintain raw data** and information
 - structuring (indexing)
 - ⇒ common taxonomies, data standards, metadata
 - administration
 - ⇒ networked open access repositories for raw data and full text publications (interoperability)
 - longterm preservation
 - ⇒ cooperative longterm storage using persistent identifiers

2.3 Virtual Research Environments (8)

The **role of libraries** (cont.):

- **interconnect publications** / texts / research findings to relevant
 - raw data
 - information objects in different formats like simulations, three-dimensional models, pictures, films
 - guarantee **longterm preservation**
 - cooperative longterm storage using persistent identifiers
 - **interconnect** and link VRE to **external VREs**
 - guarantee professional maintenance and **sustainability** of the whole VRE as research infrastructure
- ⇒ VREs are supposed to become vital elements of the research infrastructure in general

3 Conclusion (1)

Challenges and tasks with regard to library cooperation:

- system of **subject information services** and virtual subject libraries
- cooperative **licencing** strategies
- system of **open access repositories** based on interoperability
- national strategy of **mass digitization**
- cooperative and standardized **longterm preservation**
- cooperative efforts for the improvement of **information literacy**

3 Conclusion (2)

Challenges and tasks with regard to single libraries:

- **proactive** services (push services)
- **personalized** services
- enhanced **reference** services
- information **consultancy** (personal and embedded librarian)
- library as physical learning space and as **virtual learning environment**
- library as part of research infrastructure (**virtual research environment**)
- library as **publishing house** (open access, repositories)

We are still at the beginning of an exciting age!

Libraries have to and will cope with new challenges and surprising inventions



Thank you very much for your attention

Contact:

hermann.roesch@fh-koeln.de



Literature:

Carusi, Annamaria, Reimer, Torsten: Virtual Research Environment Collaborative Landscape Study. 2010

<http://www.jisc.ac.uk/publications/reports/2010/vrelandscapestudy.aspx>

Libraries and the Information Society in Germany. Engelbert Plassmann, Hermann Rösch, Jürgen Seefeld, Konrad Umlauf. Wiesbaden: Harrassowitz 2014.
(will appear in June)



Internet Resources

BASE – Bielefeld Academic Search Engine (Open Access)

<http://www.base-search.net>

Biblioteksvagten (Reference)

<http://www.biblioteksvagten.dk/>

Crossasia (Virtual Subject Library: East and Southeast Asia)

<http://crossasia.org>

DBIS – Database Information System (Licencing)

<http://www.bibliothek.uni-regensburg.de/dbinfo>

DDB – German Digital Library (Mass Digitization)

<https://www.deutsche-digitale-bibliothek.de>

DINI – German Initiative for Network Information (Open Access)

<http://www.dini.de>

EconBiz (Virtual Subject Library: Economics)

<http://www.econbiz.de>

Europeana (Mass Digitization)

<http://www.europeana.eu>

EZB (Electronic Journal Library) (Licencing, Open Access)

<http://ezb.uni-regensburg.de>

Internet Ressources

informationskompetenz.de (Information Literacy)

<http://www.informationskompetenz.de>

LOTSE – Library Online Tour and Self Paced Education (Information Literacy)

<http://lotse.sub.uni-hamburg.de>

mdz – Munich Digitization Centre (Mass Digitization)

<http://www.digitale-sammlungen.de>

National Licences (Licencing)

<http://www.nationallizenzen.de/ueber-nationallizenzen/nationallizenzen>

Nestor (longterm preservation)

<http://www.langzeitarchivierung.de>

Priority Initiative Digital Information (Licencing)

<http://www.nationallizenzen.de/ueber-nationallizenzen/allianz-lizenzen-2011-ff>

QuestionPoint (Referenc)

<http://www.questionpoint.org>

TextGrid: Virtual Research Environment for the Humanities

<https://www.textgrid.de/en>

ZVDD – Central Index of Digitized Prints (Mass Digitization)

<http://www.zvdd.de>

