



DEUTSCHE INITIATIVE
FÜR NETZWERKINFORMATION E.V.

Building an E-Publications Infrastructure

Working Group "Electronic Publishing"



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Motivation

The Deutsche Initiative für Netzwerkinformation DINI (German Initiative for Networked Information) Working Group "Electronic Publishing" coordinates and supports higher education and research institutions in dealing with the changes in scientific communication. The working group does this through the development of recommendations for publication repositories and the organization of trainings and conferences or workshops on the subject. The working group follows current international developments or participates in them, and analyses them with regard to the national framework.

Thus DINI activities are congruent with the Deutsche Forschungsgemeinschaft DFG (German Research Foundation) Electronic Publishing Committee's request to "...based on the so-called Country Update of the CNI-JISC-SURF conference 'Making the Strategic Case for Institutional Repositories' survey the current situation of institutional repositories in Germany, possibilities of their networking, and compare these data to the international situation. The aim is to determine what needs to be done in Germany to provide an attractive publication infrastructure to German scientists and scholars in their respective areas of research."

Status quo

Scholarly publications have always played a vital role in scholarly and scientific communication. Awareness of the limitations of the current system of scholarly communication due to toll access is spreading. The open access philosophy, i. e. the free (and in many cases this means free of charge) availability of scientific publications on the internet is increasingly gaining in importance.

Besides institutional repositories many initiatives and projects operate so-called disciplinary repositories, e. g. Math-Net, Phys-Net, the IuK-Initiative of the (German) Learned Societies, and the DFG funded virtual subject libraries. This paper however, focuses on institution related publication and document repositories.

The DFG project "Dissertation Online" that is now being continued by the "DissOnline Coordination Bureau" at the Deutsche Bibliothek (German National Library), attempted already at an early stage (1997) to describe all aspects of scientific electronic publishing and to develop solutions. This project gave a number of impulses that influenced or even led to the creation of a number of publication repositories at higher education institutions.

DINI has been active for years in the area of electronic publishing to improve its quality, and has published a number of papers and recommendations:

- Electronic Publishing in Higher Education – Recommendations [March 2002], <http://www.dini.de/documents/DINI-EPUB-2002-03-10-E-V2.pdf>
- Electronic Publishing in Higher Education: How to design OAI interfaces – Recommendations [October 2003], <http://www.dini.de/documents/OAI-Empfehlungen-Okt2003-en.pdf>
- DINI Certificate Document and Publication Repositories [November 2003], <http://www.dini.de/documents/Zertifikat-en.pdf>
- Open Access: Opening Science’s Communication Channels [June 2005, in German], http://www.dini.de/documents/oa_brosch-monitor_062005.pdf

On May 23 and 24, 2005, DINI held the symposium “Scholarly Publishing of the Future – Open Access” at the Göttingen State and University Library (http://www.dini.de/veranstaltung/workshop/goettingen_2005-05-23/). Participants discussed the following topics:

- What is Open Access, and what role do institutional repositories play?
- What does the value chain look like?
- What procedures have to be gone through?
- What examples and current usages/services exist?
- What needs to be done by the university leaderships?

The “DINI Certificate for Document and Publication Repositories” is the basis for the building of document and publication repositories in Germany (adhering to international standards) and their networking. The DINI certificate lists a number of mandatory requirements (e. g. Dublin Core metadata, persistent identifier, OAI interface). After a careful review process by selected reviewers, DINI has so far granted the certificate to sixteen repositories in Germany (see <http://www.dini.de/dini/zertifikat/zertifiziert.php>).

Currently, DINI lists more than one hundred institutional repositories in Germany (<http://www.dini.de/dini/wisspub/dokuserver.php>).

With its many activities DINI has managed to build a foundation for the creation of an infrastructure of a standardized network of equally standardized publication and document repositories to support the dissemination of a new culture of scientific and scholarly open-access publishing.

Results of the CNI-JISC-SURF conference on institutional repositories

At the CNI-JISC-SURF conference on “Making the Strategic Case for Institutional Repositories” (<http://www.surf.nl/en/bijeenkomsten/index2.php?oid=6>) on May 10 and 11, 2005 in Amsterdam, the Netherlands, DINI reported on the current situation of institutional repositories at higher education institutions in Germany. A survey had been carried out in March and April 2005 by members of the DINI Working Group “Electronic Publishing” and empirical data been collected with a questionnaire. Twelve other nations had also collected these data (Australia, Belgium, Canada, Denmark, Finland, France, Italy, Norway, Sweden, The Netherlands, the UK, and the USA). As of August 2005 a final version of all national reports is available (<http://www.surf.nl/download/country-update-2005.pdf>).

The comparison shows that all countries are actively pursuing the development and installation of institutional repositories in organized ways; it is no longer an activity of a few individuals or institutions. However, encompassing national coordination efforts are not evident with the exceptions of The Netherlands (DARE) and the UK (FAIR). In the individual countries a coordinated approach is not even at the level of higher education institutions a matter of course.

In Germany the DINI certificate is a unique feature in the propagation of the service “institutional repository.” It is still too young, however, to have a greater effect among all higher education institutions, yet. The current main focus in Germany, as is also mostly the case internationally, is on heterogeneous projects of the individual institutions. On national and international levels descriptions and definitions of functionalities and scopes of institutional repositories differ. The conference in Amsterdam was a first important step towards harmonization and standardization. With the DINI certificate Germany can give important impulses for this effort.

Below, a number of subjects of the survey are described. The descriptions are structured to display the answers to the questionnaire, offer a first analysis based on the conference, and finally make corresponding recommendations. Extensive data on the subject are not available at this time, and cannot be gained without considerable effort.

1 Number of institutional repositories

Australia	<p>Theses = 27 Books = 1 Primary data = 1 Video, music etc = 0 Course material = 1 (this excludes repositories of items scanned for student course reading which are maintained by all universities) Other = 0</p>
Belgium French	<p>3 IR for electronic theses (as of 2004/1/1) 3 IR for all other types of publications in start-up phase</p>
Belgium Flemish	2
Canada	31 (?)
Denmark	6
Finland	<p>Number of IRs in your country: "We do not know for sure. Based on a survey sent to 21 universities we received 15 responses and one had an OAI compatible repository up and running. However, several universities are in the process of setting up repositories and some have IRs that are not OAI-compatible. Furthermore, I know that there are IRs among those that did not respond to the survey.</p>
France	23
Germany	103 (http://www.dini.de/dini/wisspub/dokuserver.php)
Italy	<p>Active: 11 (in 9 universities) installed: 6 (3 in universities + 3 in research centres) known projects: 17 (9 + 8)</p> <p>NOTES: There is also one large international disciplinary open archive that is based in Italy: E-LIS (Eprints in Library and Information Science: eprints.rclis.org), born in 2003, very active with more than 2,300 full-text papers. It will not be included in this country update, dealing instead only with data from the 11 active IRs.</p>

Italy (cont.)	3 out of the 11 active IRs belong to the same university, 2 are devoted to thesis, 1 to course material, 2 are based in Italy but belong to international universities, 1 only exposes metadata at present. So the total amount of Italian universities with an active research IR with presently available and a significant amount of full-text documents is: 3 (Bologna, Firenze and Trento)
Norway	7
Sweden	25
The Netherlands	16 institutional repositories. Depending of the local implementation most IRs consist of several subsets, collections, archives or communities, e. g. a special subset for one department or a separate archive for dissertations.
UK	<p>Research: 31 OAI compliant eprint IRs in Higher Education Institutions (HEIs), including one dedicated Etheses IR and one dedicated data IR, and a couple of departmental repositories (Registry at www.eprints.org)</p> <p>Learning: HEIs tend to use their VLEs as learning content stores. Further Education Institutions (age 16+ colleges) mostly use intranets/college networks (90%) or commercial VLEs (70%) as learning content stores, see: http://ferl.becta.org.uk/display.cfm?resid=7894 - although JISC is funding some pilot regional repositories in this area.</p>
US	No one has the data on the total number. We surveyed 127 of our CNI member higher education institutions as well as a group of 80 liberal arts colleges (small, 4-year undergraduate institutions) who have consortial memberships. Of the 100 doctoral universities from whom we had a response, 41 or 41% have repositories. Of the 35 liberal arts colleges who completed the survey, only 2 (6%) currently have an institutional repository. In addition, a total of 46 institutions from both groups plan to implement an institutional repository in 1-3 years.

The USA and Germany show the highest numbers of institutional repositories with a suspected large number of unknown systems extant (USA, Canada, Finland, and also Germany). In Germany the average number of published documents per repository is in the hundreds which is also the international average. The Netherlands shows a distinctly higher number (ca. 3,500 documents per repository). The scope of publication types published on institutional repositories is still small. Looking at electronic theses, Germany has reached a high degree of coverage, ranging from 75% in library and information sciences to 2% in law. Going by absolute numbers, most electronic theses are published in the areas biology, chemistry, medical sciences, physics, engineering, and computer sciences with coverage ranging from 30% to 50%. A long-term effect of the aforementioned DissOnline project is evident.

Recommendation: Further promote networking and standardization of institutional repositories

Local repositories and federated services should be able to communicate via standardized interfaces. Creating cumulative data-provision services (regionally by e.g. consortia, or subject oriented by e.g. virtual subject-libraries) is advised to keep the number of sources of these services on a manageable level. Future projects in Germany should be evaluated especially with regard to the adherence to technical quality standards, and to an approach that is coordinated with other activities.

Institutional repositories are important for the local indicator-based allocation of budgets. It is important for scientists, scholars, and the general public to have a standardized and unified view at the scientific publication performance. The following topics will add further details to this basic recommendation.

2 Coverage of published literature per discipline in the institutional repositories

Australia	<ul style="list-style-type: none"> • HSS: Humanities and Social Sciences: 49 % • LS: Life Sciences: 19 % • NS: Natural Sciences: 17 % • Engineering: 9 % • Performing Arts: 3 % • Other: 3 %
Belgium French	

Belgium Flemish	<ul style="list-style-type: none"> • HSS: Humanities and Social Sciences: 33 % (economics!) • LS: Life Sciences: 39 % • NS: Natural Sciences: 16 % • Engineering: 11 % • Performing Arts: ... % • Other: ... %
Canada	
Denmark	
Finland	
France	
Germany	<ul style="list-style-type: none"> • HSS: Humanities and Social Sciences: <5 % • LS: Life Sciences: 5-10 % • NS: Natural Sciences: up to 20 % • Engineering: 10-20 % • Performing Arts: <5 % • Other: Computer science up to 25 %
Italy	<ul style="list-style-type: none"> • HSS: Humanities and Social Sciences: 55 % • LS: Life Sciences: 10 % • NS: Natural Sciences: 20 % • Engineering: 15 % • Performing Arts: 0 % • Other: 0 %
Norway	
Sweden	<ul style="list-style-type: none"> • HSS: Humanities and Social Sciences: 30 % • LS: Life Sciences: 20 % • NS: Natural Sciences: 30 % • Engineering: 20 % • Performing Arts: ... % • Other: ... %

The Netherlands	<ul style="list-style-type: none"> • HSS: Humanities and Social Sciences: 20 % • LS: Life Sciences: 20 % • Engineering: 20 % • Performing Arts: 1 % • Other: 19 %
UK	<ul style="list-style-type: none"> • HSS: Humanities and Social Sciences: 16 % • LS: Life Sciences: 12 % • NS: Natural Sciences: 25 % • Engineering (Incl. Comp Sci): 41 % • Performing Arts: ... % • Other: 6 %
US	

The overall absolute numbers of publications are small. STM areas reach the greatest coverage when considering scientific publications without dissertations. Social sciences and the humanities only play minor roles.

Recommendation: Promote open access and institutional repositories more actively among scientists and scholars

Support or create and organize reviewer groups (formed per subject) to involve the respective subject communities (e.g. the Learned Societies) more strongly in the relevant publication processes.

Develop or improve authoring tools to support scientists and scholars in the media-neutral creation of scientific digital publications.

Develop and expand standards for the open access legal framework (e.g. Creative Commons license (<http://creativecommons.org>)). Support and give advice to scholars when signing contracts with publishers to warrant free availability of pre-prints or postprints (e.g. through a German contribution to SHERPA (<http://www.sherpa.ac.uk/rome.php>) and its follow-up project).

The creation of a German “Cream of Science” project is advised to implant the “open access idea” more strongly among scholars and scientists (<http://www.creamofscience.org>).

Recommendation: Support the creation of open access journals

The different forms of open access information-objects (e.g. peer reviewed pre-prints and postprints) are not yet as generally supported in Germany as is the case in a number of other countries.

One example in Germany for a widely accepted open access journal is German Medical Science (<http://www.egms.de/en>), the electronically published Journal der Arbeitsgemeinschaft der Wissenschaftlichen Fachgesellschaften AWMF (Journal of the Association of the Scientific Medical Societies in Germany).

GAPworks, a workflow tool developed in the German Academic Publishers (GAP) project, offers a good basis to support the quality assurance of open access journals technically (<http://www.gap-portal.de> and <http://gapworks.berlios.de> for the open source version).

In cooperation with the special-subject-collection libraries it is necessary to explicitly encourage other disciplines to establish similar services for their respective scientific communities.

3 Software used for institutional repositories

Australia	<ul style="list-style-type: none"> • GNU EPrints = 7 • DSpace = 3 • CDSWare • ARNO • Fedora = 3 • DiVA • i-TOR • HarvestRoad Hive = 1 • Virginia Tech(modified for theses) = 27 • DigitTool (Ex Libris) = 1
Belgium French	<ul style="list-style-type: none"> • Other, namely:Electronic theses: ETD software (all 3 academies) • Other types of documents (startup/test): DSpace (2) , Fedora (1)
Belgium Flemish	<ul style="list-style-type: none"> • GNU EPrints • DSpace: 2 • CDSWare • ARNO • Fedora • DiVA • i-TOR • Other, namely: ...

Canada	<ul style="list-style-type: none"> • DSpace
Denmark	<ul style="list-style-type: none"> • GNU EPrints • DSpace 2 • CDSWare • ARNO • Fedora • DiVA 1 • i-TOR • Other, namely: Own development: 3 (will be replaced by Fedora or DSpace)
Finland	<ul style="list-style-type: none"> • GNU EPrints • DSpace • CDSWare • ARNO • Fedora • DiVA • i-TOR • Other, namely: <p>To the best of my knowledge the systems that are operational today are home grown solutions like TRIP-databases that have been or are being made OAI-compatible. Those that start from scratch are testing dSpace,</p>
France	<ul style="list-style-type: none"> • GNU Eprints 11 • Dspace 2 • CDSWare • ARNO • Fedora • DiVA • i-TOR • Other, namely: own developments in which 3...HAL (Hyper Articles on Line) developed by CCSD (ccsd.cnrs.fr)

Germany	<ul style="list-style-type: none"> • GNU Eprints: 2 (LMU Munich, Institute of Transport Research, Berlin) • Dspace: 2 (Institute for Political Science, University of Duisburg-Essen (Experimental), University of Dortmund (from May)) • CDSWare • ARNO • Fedora • DiVA • i-TOR • OPUS: 44 • MyCore: 5 • Other: 54 (mostly locally developed sw packages)
Italy	<ul style="list-style-type: none"> • 7 GNU EPrints (but one going to migrate to CDSware) • 3 DSpace • 1 CDSWare • 0 ARNO • 0 Fedora • 0 DiVA • 0 i-TOR • 0 Other, namely: <p>NOTES: the oldest installations use EPrints, but also the 6 installed but- not-active-yet IRs (2 old installations, 4 new). As for the known projects, there seems to be slightly more interest for DSpace due to potential modularity, while EPrints is still very popular for its bilingual environment and metadata management.</p>
Norway	<ul style="list-style-type: none"> • GNU EPrints • DSpace 1 (Bergen) • CDSWare • ARNO • Fedora • DiVA 1 (Trondheim) • i-TOR • Other, namely: BIBSYS (colleges) Virginia Tech (Tromsø) and own system (Oslo)

Sweden	<ul style="list-style-type: none"> • GNU EPrints 3 • DSpace • CDSWare • ARNO • Fedora • DiVA 10 • i-TOR • Other, namely: 12 (home grown).....
The Netherlands	<ul style="list-style-type: none"> • GNU EPrints • DSpace: 6 • CDSWare • ARNO: 6 (EUR has both DSpace and ARNO) • Fedora • DiVA • i-TOR: 2 • Other, namely: 3 proprietary systems (in Delft, Eindhoven and Wageningen)
UK	<ul style="list-style-type: none"> • GNU Eprints 24 • Dspace 6 • CDSWare 0 • ARNO 0 • Fedora 0 • DiVA 0 • i-TOR 0 • Other, namely: 2 – locally developed software.

US	<p>Those marked with an X are in current use by one or more of the institutions surveyed. More details are in the attachment.</p> <ul style="list-style-type: none"> • GNU EPrints X • DSpace X • CDSWare • ARNO • Fedora X • DiVA • i-TOR • Other, namely: • BePress X • Virginia Tech ETD software X • DigiTool X • Dpubs X • ContentManager X • Documentum X • Content DM X • Luna X • Digital Commons X • Sunsite X
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Recommendation: Utilize the DINI certificate to expand and promote technical standardization of institutional repositories

Besides the ongoing certification activities, installation of qualified institutional repositories must be supported to reach as much coverage as possible among German higher education institutions. This is especially necessary at institutions that so far offer no such service at all. DINI can give advice and help where necessary and requested.

Concepts should be promoted that aim at operators of large institutional repositories or at consortia to provide hosting services to small institutions, which will then operate “their” repositories individually from remote. In this modus operandi, not every higher education institution must invest in the installation and maintenance of a standardized institutional repository, but may provide digital documents under their own label, and concentrate on support for the authors to convince them of the merits and advantages of open access publishing.

Institutional repositories in Germany not yet DINI certificated (ca. 100) must be supported to reach and maintain the required standards.

It is advisable that technical development consider at least prototypically the integration of long term archiving components for institutional repositories. This should be done in concurrence with developments in KOPAL and nestor, i.e. interested higher education institutions and their departments should be enabled to use available software packages and tools.

Future projects in Germany should be evaluated on their concurrence with technical quality standards, and on their cooperation efforts.

4 Strategic embedding of institutional repositories on high institutional level

Australia	Yes, Growing number of universities have, or intend to, mandate the deposit of theses in an institutional repository. The Queensland University of Technology has policy requiring the submission of works published by academic staff in the institutional repository. www.qut.edu.au/admin/mopp/F/F_01_03.html
Belgium French	
Belgium Flemish	YES, Ghent University . Reminders from the rector and the research department to enter publications in the academic bibliography and if possible also the full text in the Institutional repository ; organization (by the library) of conferences and lectures on OAI , very well attended by the research and university top.
Canada	
Denmark	No
Finland	No
France	
Germany	Yes, Hamburg http://www.eprints.org/signup/fullinfo.php?inst=GERMANY%3A%20University%20of%20Hamburg
Italy	No
Norway	No

Sweden	Yes, I know of at least 3 universities where e-publishing of dissertations is mandatory, University of Lund is implementing recommendations (self-archiving etc.)
The Netherlands	Yes, Amsterdam University and the Academy of Sciences have included a policy statement in their information plans. Also the Academy of Science and SURF have signed the Berlin Declaration. It is expected that more institutions will do the same in the very near future.
UK	Yes, Registry of open access policies: Yes; see http://www.eprints.org/signup/sign.php Includes only Southampton (central and ECS) from the UK
US	Yes. This is an area of very active development, although as far as we know it is confined to work on institutional policy documents that promote the use of institutional and/or disciplinary repositories (as opposed to institutional mission statement changes); often these policy statements address scholarly communication broadly and are not limited to questions related to institutional repositories. Among the major policy statements that have been issued recently, see as good examples the University of California, Berkeley Academic Senate statement; the University of Kansas University Council statement; the University of Connecticut Faculty Senate Statement; The University of California, Irvine Academic Senate Assembly, Council on Computing Research, and Library Resources and UCI Libraries statement; the Columbia University Committee on Libraries and Academic Computing; the University of Wisconsin-Madison Faculty Senate statement; and the Stanford University Faculty Senate statement.

It is clear that Germany has no lack of national recommendations or strategic papers, but of the strategic anchoring of open access at higher-education-institution level. Exceptions are the Hamburg University and the Bielefeld University (published after the Amsterdam conference) resolutions.

Recommendation: Support universities in implementation and application of open access policy

DINI will make recommendations for exemplary open-access policies at higher education institutions building on the results of the Berlin Declaration and the follow-up conferences, and taking into account e.g. suggestions as made by Hamburg university. In the long run, it will only be possible through supporting the universities' leaderships to create the necessary sensitivity and acceptance of open-access publications among scholars and scientists.

Unambiguous signals from funding organizations (such as the DFG) are required to encourage (or support financially) scholars to assign their copyrights not only in the traditional value chain (e.g. to commercial publishers), but in a way that grants their respective institutional repositories a singular copyright.

5 Harvesting and other services building on institutional repositories

Australia	<p>Most rely on harvesting of metadata via OAI-PMH into harvesters such as OAIster, Google and Google Scholar</p> <p>University of Queensland harvest from internal repositories to populate 'UQ Research Finder'</p> <p>Theses metadata harvested from institutional repositories by an OAI-PMH harvested at University of NSW</p> <p>National Library has developed harvester for the ARROW project – currently operative for eprint.org repositories but will extend to Fedora and other repositories</p>
Belgium French	<p>Most universities in Belgium are working on a national project 'Unicat'. The purpose is to build a union catalogue in Belgium, using protocols like OAI and SRW/SRU. The union catalogue will harvest information from different types of libraries: academic, public, musea,...</p> <p>The software and experience gained in this project will be used to setup disciplinary based repositories, harvesting/indexing metadata from the IRs in Belgium.</p>
Belgium Flemish	No
Canada	
Denmark	The one DIVA implementation is harvested as part of DIVA

Finland	Not on a national or consortia level. There are some experiments going on but they are, well experimental.
France	Not on a national level.
Germany	<ul style="list-style-type: none"> • OASE: http://www.ubka.uni-karlsruhe.de/kvk/kvkv/kvkv_en.html • OPUS: http://elib.uni-stuttgart.de/opus/gemeinsame_suche.php • MetaGer: http://metager.de/index-hss.html • BASE: http://digital.ub.uni-bielefeld.de/index.php?l=en • OAI Search: http://edoc.hu-berlin.de/e_suche/oai.php • MEIND: http://www.meind.de/ (using CDSware) • DINI Service Provider
Italy	PLEIADI (http://www.openarchives.it/pleiadi , portal for Italian scholarly e-literature in open archives and institutional repositories) originated from the collaboration between two major Italian university consortia, CASPUR and CILEA. PLEIADI is a national platform that offers centralized access to the scholarly literature archived in Italian repositories via OAI-PMH. It also hosts news, discussions and a large list of links to OA resources. An alerting service to new items in all Italian IRs is being built.
Norway	Yes NORA
Sweden	The SVEP-project (a collaborative project betw. many univ. libr. and the Royal library) - http://www.svep-projekt.se/english/
The Netherlands	DAREnet (see www.darenet.nl) is the national harvester for DARE. The metadata is harvested from all DARE partners via OAI-PMH. The Surfnet Search Engine (based on FAST technology) is used for search and retrieval in DAREnet. When a user retrieves the metadata, the DAREnet site retrieves the latest version of the metadata to show to the user. When the user wants to open the object file, control is handed over to the local IR system for local retrieval of the object file. Cream of Science is being harvested in the same way.

UK	<p>There is work going on developing services / tools to enable IRs to help institutions in their Research Assessment Exercise (RAE) submission. Tools are being developed for Dspace (at Edinburgh) and Eprints (at Southampton) to ensure IRs can output in the correct format.</p> <p>The ePrints.org software has been used as a platform for open access e-journals such as JeLit: http://www.jelit.org</p>
US	<p>Most repositories support OAI-PMH. Experiments with repository/SRB and data grid interoperability.</p>

A number of services based on institutional repositories are offered in Germany (similar to those in Australia, France, the UK, and the Netherlands). All of these services are either pilots or in a project state and have large areas of overlap in their functions. They are all interdisciplinary and more or less international, but their advantages over commercial services like Google Scholar or Scirus are minimal.

Recommendation: Tighter networking among German institutional repositories

It is recommended to establish nation wide search facilities for electronic primary (e.g. preprints) and secondary publications (postprints) as meta services.

It is important to integrate local repositories and meta services. While local repositories are important for the institutions and (where applicable) necessary for budget allocations, it is important for scientists and scholars to have access to meta services and/or subject-centered services based on data from local repositories, e.g. listings of new publications. Libraries holding special subject collections, or consortia should be responsible for the organization of these services.

It is recommended to expand, resp. develop new services that enhance the services offered through the institutional repositories (e.g. Proprint, a printing service).

- Development of software to record and analyze citation frequency of digital scientific publications, and to automatically generate this information as meta-data elements.
- Development of software to record and analyze usage frequency of digital scientific publications, and to automatically generate this information as meta-data elements.

While this network could be started with DINI certificated institutional repositories, a high degree of coverage among non certificated repositories should be aimed for, as well.

6 Subject oriented harvesting, search and other services based on institutional repositories

Providers of harvesting, search and other services are not collecting open-access publications extensively or exhaustively. From the DINI list of institutional repositories (<http://www.dini.de/dini/wisspub/dokuserver.php>) five were selected (HSS Dresden, HU Berlin, OPUS Stuttgart, UB Frankfurt, Staats- und UB Hamburg (only dissertations)), and of each five documents (research papers, conference presentations, preprints) were picked to be searched using vascoda. Not among the selected documents were final exams and lectures. The selected documents were scientific publications of high quality, some of them grey literature. Of the 25 publications vascoda only found six as freely available.

Two research reports that were open access, vascoda listed as not free of charge, another was listed only in an old version (of Oct. 04), although on the respective institutional repository a newer version existed (of Feb. 05). Yet another research report was listed in vascoda not only on the original institutional repository, but on two additional repositories, as well. Three potentially different versions exist, if and how they differ was not clear. Fifteen publications were not listed in vascoda at all, five of which were dissertations from Hamburg.

Recommendation: Improve (national/international) networking of German institutional repositories including subject specific access options

The virtual subject-libraries and other subject oriented service providers should be supported directly in their efforts to establish a subject-navigation structure for thematic searches. This should be done in close cooperation with the special subject collections and the vascoda activities, and should be in accordance with the DINI recommendations on subject-set creation following DDC classification via the OAI interface.

National subject oriented service providers should be supported to create or maintain international subject sets (e.g. RePEc, ArXiv or virtual subject libraries).

Summary of Recommendations

Institutional repositories are the basis for establishing an e-publishing infrastructure. Locally they serve as a university bibliography or play a role in budget allocation. For research and teaching, however, they are relevant only in their networked whole, be that subject based or driven by the wish to cover all institutional repositories. Therefore, it is an urgent requirement to implement institutional repositories according to standards to integrate them into subject based or global meta-level services (e.g. subject portals and databases, usage and impact services, or search and harvesting services). These services, too, must be improved continuously and according to standards. The interaction between subject based and global services must be taken into account more strongly than is the case.

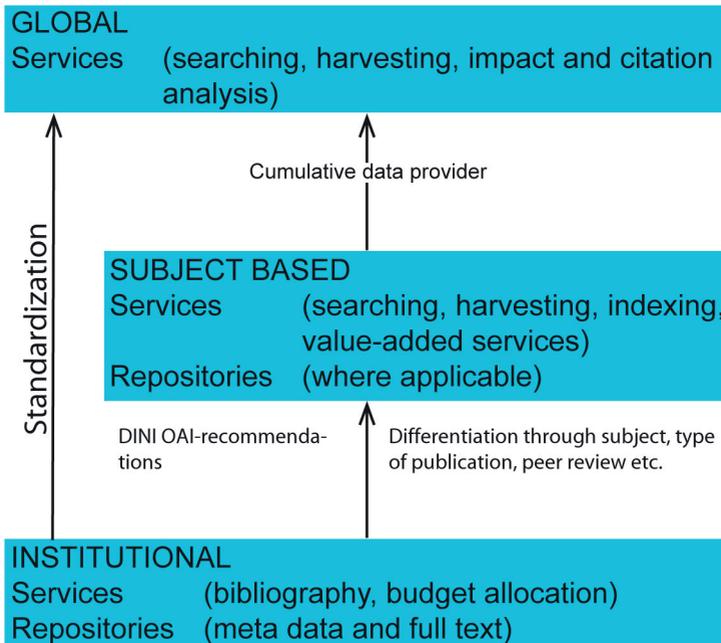


Fig. 1 Functional layer-model of institutional repositories and services based on them

To ensure input into the institutional repositories scientists and scholars must be informed more actively about the possibilities to make their publications open access, and must be accompanied when going through the motions to do so. This is the case for self archiving preprints and postprints of publications as well as for publishing in open access media.

Imprint

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