The European Repository Landscape
The European Repository Landscape

Inventory Study into the Present Type and Level of OAI-Compliant Digital Repository Activities in the EU

Maurits van der Graaf and Kwame van Eijndhoven
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About the authors

Maurits van der Graaf, has conducted this inventory study as an in-house consultant for the SURFFoundation, which is a partner in the EU-funded DRIVER project. As a consultant for Pleiade Management and Consultancy (www.pleiade.nl), he has carried out multiple assignments in information services, science, education and in the cultural sector. Before working at Pleiade, he held various management positions in publishing, in library and documentation institutes, and in public education. The positions he has occupied include those of director of the Dutch Influenza Foundation, the Dutch Agency for Current Research Information and deputy director of the Netherlands Institute of Scientific Information Services.

Kwame van Eijndhoven has assisted Maurits van der Graaf with the DRIVER inventory study. During the inventory study, Kwame was also involved as project secretary in LOREnet. LOREnet is a network for learning object repositories in the Netherlands and aims to make digital learning objects accessible for the public. LOREnet is a project of SURFFoundation. Kwame currently works for Accenture and is finishing his study in communication science at the University of Amsterdam.
About the DRIVER studies

DRIVER, or the Digital Repositories Infrastructure Vision for European Research, is a joint collaboration between ten European partners which aims to create a knowledge base for European research. DRIVER is funded by the EU (FP6) and puts in place a test-bed of digital repositories across Europe, to assist with the development of a knowledge infrastructure for the European Research Area. The project builds upon existing institutional repositories and national networks, from countries including the Netherlands, Germany, France, Belgium and the UK.

DRIVER engages itself to collect only publications that are open access. This means that the end-user, when performing a search, only retrieves records that contain full text, or openly available research data. DRIVER also prepares for the future expansion and upgrade of the digital repository infrastructure across Europe and ensures the widest possible user involvement. In order to stimulate the development of state-of-the-art technology and to harmonise European practices in this respect, DRIVER has executed a set of strategic and coordinated studies on digital repositories and related topics.

The European Repository Landscape by Maurits van der Graaf (Pleiade, Netherlands) and Kwame van Eijndhoven (SURF, Netherlands) inventories the present type and level of OAI-compliant repository activities in the EU. The study shows that in 15 EU countries a sizeable part of the research universities has implemented a digital repository for research output: in seven of these countries it is estimated that more than half of the research universities have done so. Yet, the study also shows that five EU countries seem to be in a starting phase, and some countries do not appear to have any repository. Next to the issue of basic implementation of the repositories, the number of full-text publications in the existing repositories can be further improved. Van der Graaf urges universities and decision makers to accelerate current developments since free access to knowledge and research outputs are important drivers for the knowledge society.

A Driver’s Guide to Repositories, edited by Kasja Weenink, Leo Waaijers and Karen van Godtsenhoven (SURF, NL and University of Ghent, Belgium), aims to motivate and promote the further creation, development and networking of repositories. It contains comprehensive and current information on digital repository-related issues particularly relevant to repository managers, decision makers, funding agencies and infrastructure services as stakeholders. DRIVER has identified five specific, complex and long-term issues which are essential to either the establishment, development or sustainability of a digital repository; the business of digital repositories, stimuli for depositing materials into repositories, intellectual property rights, data curation, and long-term preservation. The success of a
repository is dependent on having addressed these five issues sufficiently. Good practices and lessons learned as part of this report will assist stakeholders in both the institutional repository day-to-day and long-term challenges, and can help them to avoid reinventing the wheel. The study focuses on inter- and transnational approaches which go beyond local interests.

The Investigative Study of Standards for Digital Repositories and Related Services by Muriel Foulonneau and Francis André (CNRS, France) reviews the current standards, protocols and applications in the domain of digital repositories. Special attention is being paid to the interoperability of repositories to enhance the exchange of data in repositories. The study is meant for institutional repository managers, service providers, repository software developers and generally, all players taking an active part in the creation of the digital repository infrastructure for e-research and e-learning. It aims to stimulate discussion about these topics and supports initiatives for the integration and (in some cases) development of new standards. The study also looks at the nearby future: which steps have to be taken now in order to comply with future demands?

The production of the studies is being coordinated by SURF, the collaborative organisation for higher education and research, aimed at breakthrough innovations in ICT in the Netherlands, in close association with Amsterdam University Press and the following DRIVER partners: CNRS (France), the University of Ghent (Belgium), ICM (Poland), the University of Göttingen (Germany), the University of Bielefeld (Germany), UKOLN (University of Bath, UK), and the University of Nottingham (UK).

More information about the DRIVER project and publications can be found at www.driver-community.eu
1. Introduction

Chapter 1 summary

Research questions

What is the current state of digital repositories for research output in the European Union? What should the next steps to stimulate an infrastructure for digital repositories at a European level be? To address these key questions, an inventory study into the digital repositories for research output in the European Union was carried out as part of the EU-financed DRIVER project.

The DRIVER project aims to create a knowledge base for European research. In order to develop state-of-the-art technology and to harmonise European practices, the DRIVER project first had to investigate the present type and level of European repositories. Therefore an inventory study of the current state of digital repositories in 25 countries of the European Union has been conducted. The research for the study was started in June 2006 and completed in February 2007. The study is a follow up of an earlier SURF study carried out in 2005, which covered 10 European countries. A digital repository is in this study defined as:

1. Containing research results
2. Institutional and/or thematic, and
3. OAI-PMH compliant

This publication contains the final results of the study, which are input to the DRIVER project by indicating the status of most European repositories, and anticipating future trends in the development of European repositories, which will form the basis for future DRIVER services and technologies. What this publication shows is that the European repository landscape is constantly changing. Therefore an update of the inventory study is foreseen for 2008, as part of the DRIVER II project.
2. Methods

Chapter 2 summary

The DRIVER inventory study aimed at making a complete inventory of the current state of digital repositories in the 27 countries of the European Union. It is a follow up of an earlier SURF study carried out in 2005, which included 10 European countries. The study was started in June 2006 and completed in February 2007. By a combination of a web survey, publishing results on a wiki and telephone interviews, an attempt was made to make the inventory as complete as possible and to generate feedback amongst participants in the study. In total, 114 respondents with digital repositories participated in the web survey. This study focused on OAI-compliant repositories containing research results.

2.1 Study design

In the diagram on this page the design of the inventory study is depicted. The study consisted of three phases:

- In phase 1 the study was set up, addresses were collected, the questionnaire was developed and the initial inventory was carried out. This phase started in June 2006 and was rounded off in October 2006.
- In phase 2 the preliminary results were reported and published on a wiki dedicated to this study. All contact persons were informed by email and invited to comment on the preliminary results. In addition, the web survey was reopened in order to elicit additional responses. Next, national correspondents were selected from the respondents and approached to give a perspective on the situation of the digital repositories in their country. Most of the national correspondents were interviewed by telephone, some sent in written reports or comments. The wiki was published in October 2006. The web survey was closed on 11 December 2006. The national correspondents were approached in December 2006 and January 2007.
- In phase 3 the report was finalised. A draft final report was put on a wiki in February 2007 and an invitation by email was sent out to all participants and a national correspondent. The finalised report incorporates all additional information and comments of the national correspondents and other participants.
### Phase 1

Phase 1 consisted of the following parts:

- **Collection of addresses of digital repositories:**
  - 15 EU countries in OpenDOAR: OpenDOAR, a partner in the DRI-VER project, provided a list with the digital repositories and their contact persons from 15 European Union countries in August 2006. This list was used as a basis. In order to find additional addresses of digital repositories a number of other websites were studied (OAIster, DINI and others).

- **Other EU countries:** Ten countries of the European Union had no digital repository listed in the OpenDOAR directory in August 2006. These countries were Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Luxembourg, Malta, Poland and Slovakia. For these countries, all national libraries and all member libraries of the LIBER organisation (Ligue des Bibliotheques Européennes de Recherche) were approached by email with the request...
to send names and addresses of contact persons with knowledge about digital repositories in their country.²

- These efforts resulted in an initial total of 248 addresses of (contact persons for) potential institutional repositories throughout the European Union.

- Web survey:
  - The questionnaire: a draft questionnaire was developed on the basis of the earlier study among ten EU countries (plus the US, Canada and Norway) and in cooperation with Gerard van Westrienen and Leo Waaijers from SURF.³ The draft questionnaire was then circulated among the participants in the DRIVER project and their feedback was incorporated in the questionnaire.
  - Invitations: invitations to participate in the survey with a link to the questionnaire were sent out by email on 7 September. Reminders (only for those respondents who did not use the coded link in the original invitation) were sent out on 21 September. An additional second reminder was sent out on 2 October. The questionnaire was closed on 9 October.

2.3 Phase 2

Phase 2 consisted of the following parts:

Preliminary results:
- Response: in total 248 invitations were sent out. Eighteen respondents replied (by special form or by email) that there was no digital repository at their institution. Ninety-five questionnaires were filled in and 135 invitations were not answered. The total response to the initial mailing was 46%.
- The preliminary results were published in a report for the EU as a whole and in six country reports (with more than five respondents): France, Germany, Italy, the Netherlands, Sweden and the United Kingdom. The country reports were set up in order to generate a discussion via the wiki and more additional responses.

The wiki:
- A wiki was set up for this inventory study. The wiki contained a link to the reports with the preliminary results. A special page was created for each country of the European Union with the option to add comments. In addition, a link to the web survey was provided in order to solicit additional responses. All contact persons were informed by email about the wiki.
- The wiki resulted in an additional 19 completed questionnaires.
- The wiki generated approximately ten comments or remarks. A number of these remarks were sent via email: apparently, many respondents were reluctant to use a wiki for giving their comments.
<table>
<thead>
<tr>
<th>Country</th>
<th>Number of invitations sent out</th>
<th>Responses to questionnaire</th>
<th>Other responses</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>3</td>
<td>2</td>
<td></td>
<td>67%</td>
</tr>
<tr>
<td>Belgium</td>
<td>12</td>
<td>5</td>
<td>1</td>
<td>50%</td>
</tr>
<tr>
<td>Cyprus</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>175%</td>
</tr>
<tr>
<td>Denmark</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>83%</td>
</tr>
<tr>
<td>Estonia</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>50%</td>
</tr>
<tr>
<td>Finland</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>60%</td>
</tr>
<tr>
<td>France</td>
<td>20</td>
<td>7</td>
<td>8</td>
<td>75%</td>
</tr>
<tr>
<td>Germany</td>
<td>54</td>
<td>18</td>
<td>1</td>
<td>33%</td>
</tr>
<tr>
<td>Greece</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>Hungary</td>
<td>2</td>
<td>0</td>
<td></td>
<td>0%</td>
</tr>
<tr>
<td>Ireland</td>
<td>2</td>
<td>2</td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Italy</td>
<td>18</td>
<td>11</td>
<td>3</td>
<td>72%</td>
</tr>
<tr>
<td>Latvia</td>
<td>1</td>
<td>0</td>
<td></td>
<td>0%</td>
</tr>
<tr>
<td>Lithuania</td>
<td>1</td>
<td>1</td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0%</td>
</tr>
<tr>
<td>Malta</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>100%</td>
</tr>
<tr>
<td>Poland</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>67%</td>
</tr>
<tr>
<td>Portugal</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>60%</td>
</tr>
<tr>
<td>Slovakia</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td>Slovenia</td>
<td>1</td>
<td>0</td>
<td></td>
<td>0%</td>
</tr>
<tr>
<td>Spain</td>
<td>11</td>
<td>3</td>
<td>1</td>
<td>27%</td>
</tr>
<tr>
<td>Sweden</td>
<td>24</td>
<td>10</td>
<td>1</td>
<td>42%</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>13</td>
<td>12</td>
<td></td>
<td>92%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>57</td>
<td>27</td>
<td>2</td>
<td>51%</td>
</tr>
<tr>
<td>Total</td>
<td>248</td>
<td>114</td>
<td>21</td>
<td>54%</td>
</tr>
</tbody>
</table>

### 2.4 Phase 3

Final results:

- One hundred and fourteen digital repositories participated in this inventory study from 17 countries. An additional 18 respondents replied (by special form or by email) that there was no digital repository at their institute. If related to the initial mailing of 248 email addresses of contact persons of potential digital repositories, the response was 54%. From these figures it can be estimated that there are approximately 230 institutes with one or more digital repositories with research output in the European Union and about half of these participated in this survey.

- From the other countries, information was received in a later phase. Information from national correspondents from the country itself has been received from Greece, Malta and Estonia. Information about other countries was collected from various indirect sources. Attempts to get more direct information from the country itself failed until the time of
writing for a number of countries (Cyprus, Ireland, Latvia, Luxembourg, Slovakia, Bulgaria and Romania).

Other data: in order to collect additional data about research in the EU countries, Braintrack and the website of the European University Association were used to estimate the total number of universities per country.
3. Contents and related issues

Chapter 3 summary

Qualitative contents

It appears that the large majority of the participating institutes (70%) maintains one digital repository for their research output themselves. A minority (23%) maintains more than one digital repository, while 7% have outsourced the maintenance of a digital repository. Of those digital repositories, the large majority contains full text of textual materials, such as journal articles, theses, working papers, books or book chapters and proceedings. A minority also contains metadata of these textual materials without the full text. Only two repositories were identified that consisted solely of metadata-only records. In addition, a small minority contains non-textual materials, such as images, video or primary data sets.

Quantitative contents

Based on figures given by 104 repositories, it appears that average digital repositories contained nearly 9,000 records (8,984, as assessed in the second half of 2006). The large majority of these records (90%) relates to textual research materials: these records can be split in metadata-only records (61%) and full text records (29%).

Five per cent of the records relate to non-textual materials such as images, video, music and primary data sets. The 5% of ‘other materials’ relate to learning materials, student papers, etc.

Type of textual materials

What type of textual research materials is deposited? More than half of the textual materials relate to journal articles (53%), a smaller share are for books or book chapters (18%). Theses, proceedings and working papers – often labelled as “grey literature” – have a share of 30%.

Access forms offered by the repositories

What forms of access for full text records are offered by the repositories? Is Open Access the only form of access, or are other variants also offered? The most important other variants are Open Access with embargo for a certain time period, campus access or not publicly acces-
sible at all (archival purposes only). It appears that most repositories (95%) offer Open Access accessibility. Open Access with an embargo period for full-text records is only offered by 18% of the repositories. About a quarter of the repositories (26%) offer campus access or contain records with no access (14%). Other forms of access are offered by 8% of the repositories, such as available for a fee, after an email request or restricted to members of a project team.

Disciplines

In the next question the respondents were asked to give an estimate about the percentage of materials covering the various disciplines. It appears that on average 30% of the materials in the participating digital repositories are related to disciplines in humanities and social sciences, 25% to natural sciences, 20% to engineering, 13% to life sciences and 12% to other disciplines.

Version of journal articles deposited

Which version of the journal article is deposited (and accepted by the repository)? It appears that 61% of the digital repositories contain the published version of the journal articles, 60% the post-print version and 47% the preprint version. The respondents were also asked to give a more quantitative indication: it appears that in 52% of the digital repositories the published form of the journal article is mostly present, in 30% the post-print form is dominant and in 18% the preprint version. In conclusion: although most digital repositories cover all three possible versions of the journal articles, in quantitative terms the published version and the post-print version are dominant.

Coverage of the digital repositories

What percentage of the academics delivers material to the digital repository? Which percentage of research output of the institute from 2005 is deposited in the repository? More than half of the respondents gave estimated percentages, leading to the following averages: the estimated percentage of academics delivering material to the digital repositories is on average 38%. The estimated percentage of research output of 2005 deposited in the digital repositories is on average 37%.

Work processes

How is the material deposited in a digital repository? It appears that a procedure of self-depositing by the academics, with quality control by specialised staff members, is most common (28%), closely followed by a procedure of delivery by the academics, and depositing by the specia-
listed staff members (26%). Only 7% of the repositories followed a procedure, whereby the materials were collected by staff members independent of the academics. However, 28% of the digital repositories of the participating institutes followed a combination of the above-mentioned procedures.

3.1 One or more digital repositories per institute

Figure 1

Does your institute presently maintain a digital repository for research output of your researchers? This question was answered as follows (see also figure 1):

– 70% of the participating institutes maintain one digital repository for their research output themselves;
– 23% of the participating institutes maintain more than one digital repository for their research output themselves;
– 7% of the participating institutes have outsourced the maintenance of a digital repository.

Several of the institutes that maintain more than one repository indicated in their comments that these multiple repositories are dedicated to specific types of material, such as theses, articles and publications, working papers or images.
3.2 Types of materials in the digital repository (qualitative assessment)

Table 1

<table>
<thead>
<tr>
<th>A2. What type of materials is presently in the digital repository of your institute?</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles (full text and metadata)</td>
<td>97</td>
<td>85.1</td>
</tr>
<tr>
<td>Theses (full text and metadata)</td>
<td>85</td>
<td>74.6</td>
</tr>
<tr>
<td>Working papers (full text and metadata)</td>
<td>75</td>
<td>65.8</td>
</tr>
<tr>
<td>Books/book chapters (full text and metadata)</td>
<td>71</td>
<td>62.3</td>
</tr>
<tr>
<td>Proceedings (full text and metadata)</td>
<td>71</td>
<td>62.3</td>
</tr>
<tr>
<td>Articles (metadata only)</td>
<td>46</td>
<td>40.4</td>
</tr>
<tr>
<td>Books/book chapters (metadata only)</td>
<td>38</td>
<td>33.3</td>
</tr>
<tr>
<td>Theses (metadata only)</td>
<td>34</td>
<td>29.8</td>
</tr>
<tr>
<td>Proceedings (metadata only)</td>
<td>26</td>
<td>22.8</td>
</tr>
<tr>
<td>Working papers (metadata only)</td>
<td>25</td>
<td>21.9</td>
</tr>
<tr>
<td>Images</td>
<td>17</td>
<td>14.9</td>
</tr>
<tr>
<td>Video</td>
<td>14</td>
<td>12.3</td>
</tr>
<tr>
<td>Primary data sets</td>
<td>9</td>
<td>7.9</td>
</tr>
<tr>
<td>Music</td>
<td>6</td>
<td>5.3</td>
</tr>
<tr>
<td>Other</td>
<td>29</td>
<td>25.4</td>
</tr>
</tbody>
</table>

114 responses

What types of materials are presently covered by your institute’s digital repository? This question was answered as follows (see also table 1):

- The majority of the digital repositories of the participating institutes contains the full text of textual materials:
  - 85% contain journal articles
  - 75% contain theses
  - 66% contain working papers
  - 62% contain books or book chapters
  - 62% contain proceedings
- 40% of the digital repositories of the participating institutes contain metadata of textual materials without the full text:
  - 40% contain metadata of articles (without the full text of those articles)
  - 33% contain metadata of books and book chapters (without the full text of those books or book chapters)
  - 30% contain metadata of theses (without the full text of those theses)
  - 23% contain metadata of proceedings (without the full text of those proceedings)
  - 22% contain metadata of working papers (without the full text of those working papers)
Only a small minority of the digital repositories of the participating institutions contains non-textual materials:
- 15% contain images
- 12% contain video
- 8% contain primary data sets
- 5% contain music
- 25% of the respondents indicate that there are also other materials in their repositories: from their comments it appears this relates mostly to learning materials and/or student papers.

In a separate analysis it was determined that only two of the 114 repositories contained metadata-only records. Thus, nearly all repositories with metadata-only records contain also full-text records.

3.3 Contents of the digital repository (quantitative assessment)

A number of open questions were asked to determine the total amount of each type of material, as well as the amount of material that was deposited in the year 2005 alone. The purpose of these questions was to assess the total number of the various items within digital repositories in the European Union as well as to create a “snapshot” of the number of items present in the repositories from 2005. In the tables on the next pages the figures are given for both the total numbers and the 2005 snapshot. In addition, the average total numbers and the 2005 snapshot numbers for each item are presented in the next table.¹

The following conclusions can be drawn:
- On average a digital repository contained in total 8,984 items (as assessed in the second half of 2006).
- On average a digital repository contained 1,741 items from 2005 (see table 3).
- The digital repositories mainly contain textual materials (see figure 2):
  - Overall 90% of the records in the participating repositories relate to textual materials: these can be split in metadata-only records (61%) and full-text records (29%). Of the other records 5% relate to non-textual materials and 5% are listed under the category other materials (mainly student papers and learning materials, thus mostly textual materials as well).
  - From the 2005 data 87% of the records relate to textual materials. Of the 2005 data, 7% is non-textual materials and 6% is ‘other materials’.
  - The textual records consist of records with metadata only, and records with metadata and full text. The larger part of the records consists of metadata only. In the overall figures, 68% of the textual records contain metadata only, 32% contain full text. In the 2005 data, 65% of the textual records contain metadata only and 35% contain full text.

¹ Contents and related issues 25
The results for the textual materials are presented in figure 3. The results are:
- 53% articles overall (39% in 2005 data)
- 18% books and book chapters (30% in the 2005 data)
- 15% theses (16% in the 2005 data)
- 10% proceedings (11% in the 2005 data)
- 5% working papers (5% in the 2005 data)

The total number of records in the participating digital repositories is 952,336 (as measured in the second half of 2006). The total number of records in the participating digital repositories from 2005 is 184,521 (see table 2).
Table 2

<table>
<thead>
<tr>
<th>Totals per digital repository</th>
<th>Overall</th>
<th>2005 snapshot</th>
</tr>
</thead>
<tbody>
<tr>
<td>total EU</td>
<td></td>
<td>(excluding two deviant repositories – see text)</td>
</tr>
<tr>
<td>Number of respondents</td>
<td>104</td>
<td>104</td>
</tr>
<tr>
<td>Articles full text and metadata</td>
<td>142,688</td>
<td>20,857</td>
</tr>
<tr>
<td>Articles metadata only</td>
<td>308,715</td>
<td>41,277</td>
</tr>
<tr>
<td>Books full text and metadata</td>
<td>18,050</td>
<td>5,336</td>
</tr>
<tr>
<td>Books metadata only</td>
<td>137,957</td>
<td>42,565</td>
</tr>
<tr>
<td>Theses full text and metadata</td>
<td>60,882</td>
<td>16,600</td>
</tr>
<tr>
<td>Theses metadata only</td>
<td>64,680</td>
<td>9,675</td>
</tr>
<tr>
<td>Proceedings full text and metadata</td>
<td>21,097</td>
<td>6,875</td>
</tr>
<tr>
<td>Proceedings metadata only</td>
<td>61,172</td>
<td>10,401</td>
</tr>
<tr>
<td>Working papers full text and metadata</td>
<td>26,089</td>
<td>5,770</td>
</tr>
<tr>
<td>Working papers metadata only</td>
<td>16,707</td>
<td>1,846</td>
</tr>
<tr>
<td>Primary data sets</td>
<td>475</td>
<td>318</td>
</tr>
<tr>
<td>Images</td>
<td>45,662</td>
<td>12,407</td>
</tr>
<tr>
<td>Video</td>
<td>819</td>
<td>114</td>
</tr>
<tr>
<td>Music</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>47,328</td>
<td>10,476</td>
</tr>
<tr>
<td>Grand totals</td>
<td>952,336</td>
<td>184,521</td>
</tr>
</tbody>
</table>

Table 3

<table>
<thead>
<tr>
<th>Average per DR</th>
<th>Overall</th>
<th>2005 snapshot</th>
</tr>
</thead>
<tbody>
<tr>
<td>total EU</td>
<td></td>
<td>(excluding two deviant repositories – see text)</td>
</tr>
<tr>
<td>Number of respondents</td>
<td>104</td>
<td>104</td>
</tr>
<tr>
<td>Articles full text and metadata</td>
<td>1,346</td>
<td>197</td>
</tr>
<tr>
<td>Articles metadata only</td>
<td>2,912</td>
<td>389</td>
</tr>
<tr>
<td>Books full text and metadata</td>
<td>170</td>
<td>50</td>
</tr>
<tr>
<td>Books metadata only</td>
<td>1,301</td>
<td>402</td>
</tr>
<tr>
<td>Theses full text and metadata</td>
<td>574</td>
<td>157</td>
</tr>
<tr>
<td>Theses metadata only</td>
<td>610</td>
<td>91</td>
</tr>
<tr>
<td>Proceedings full text and metadata</td>
<td>199</td>
<td>65</td>
</tr>
<tr>
<td>Proceedings metadata only</td>
<td>577</td>
<td>98</td>
</tr>
<tr>
<td>Working papers full text and metadata</td>
<td>246</td>
<td>54</td>
</tr>
<tr>
<td>Working papers metadata only</td>
<td>158</td>
<td>17</td>
</tr>
<tr>
<td>Primary data sets</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Images</td>
<td>431</td>
<td>117</td>
</tr>
<tr>
<td>Video</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Music</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>446</td>
<td>99</td>
</tr>
<tr>
<td>Grand total</td>
<td>8,984</td>
<td>1,741</td>
</tr>
</tbody>
</table>
3.4 Version of journal articles deposited in the digital repositories

**Figure 4**

Which version of the full-text journal article is deposited in the digital repository of the participating institutes (see figure 4)? A question about this (with more than one answer possible) was answered as follows:

- Approximately 61% of the digital repositories contain the published version of the journal articles.
- Approximately 60% of the digital repositories contain the post-print version of the journal articles.
- Approximately 47% of the digital repositories contain the preprint version of the journal article.

**Figure 5**

Which form of the journal article is mostly present (see figure 5)? The answers are as follows:

- 52% of the digital repositories contain mostly the published form of the journal article.
- Approximately 30% of the digital repositories contain mostly the post-print form of the journal article.
- Approximately 18% of the digital repositories contain mostly the pre-print version of the journal article.

The results from these two questions lead to the following conclusion: although most digital repositories cover the three possible versions of journal articles (preprint, post-print or published version), in quantitative terms the published version and the post-print version are dominant.

3.5 Access forms offered by the repositories

![A6-1. Access forms offered: How are the full-text materials available? (n=114)](image)

Figure 6

What forms of access for full text records are offered by the repositories (see figure 6)? Is Open Access the only form of access, or are other variants also offered? The most important other variants are Open Access with embargo for a certain time period, campus access or not publicly accessible at all (archival purposes only). The results are presented in the bar diagram. Clearly, most repositories (95%) offer Open Access accessibility. Open Access with an embargo period for full-text records is only offered by 18% of the repositories. About one quarter of the repositories (26%) offers campus access or contain records with no access (14%). Other forms of access are offered by 8% of the repositories, such as available for a fee, after an email request or restricted to members of a project team.
Table 4

<table>
<thead>
<tr>
<th>Average percentage accessibility</th>
<th>OA public</th>
<th>OA embargo</th>
<th>Campus access</th>
<th>No access</th>
<th>Other</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total EU</td>
<td>88</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>106</td>
</tr>
<tr>
<td>Austria</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Belgium</td>
<td>97</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>18</td>
<td>0</td>
<td>78</td>
<td>5</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Denmark</td>
<td>78</td>
<td>5</td>
<td>5</td>
<td>13</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Estonia</td>
<td>90</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Finland</td>
<td>88</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>France</td>
<td>98</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Germany</td>
<td>91</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Ireland</td>
<td>95</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Italy</td>
<td>89</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Lithuania</td>
<td>40</td>
<td>25</td>
<td>35</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Portugal</td>
<td>90</td>
<td>3</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>Spain</td>
<td>95</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Sweden</td>
<td>99</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>81</td>
<td>2</td>
<td>8</td>
<td>2</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>91</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>27</td>
</tr>
</tbody>
</table>

In the next question the respondents were asked to give an estimate of the percentage of each access form of the full-text materials in their digital repository. The results are depicted in table 4. This leads to the following conclusions:

- On average, 88% of the full-text records in the participating digital repositories are publicly available via Open Access.
- On average 1% of the full-text records in the participating digital repositories are available via Open Access after an embargo period.
- On average 6% of the full-text records in the participating digital repositories are available for the campus of the institute only.
- On average 2% of the full-text records in the participating digital repositories are not available, but archived only.
- In addition, 3% of the full-text records in the participating digital repositories are available in another way (see above).
- With regard to variations between the participating countries, a large majority of the material is publicly available via Open Access in all countries except in the Czech Republic (where the emphasis lies on campus access) and in Lithuania. In addition, in this data set, the percentage of material without access appears to be higher in Denmark.
3.6 Representation of disciplines

Table 5

<table>
<thead>
<tr>
<th></th>
<th>Humanities and social sciences</th>
<th>Life sciences</th>
<th>Natural sciences</th>
<th>Engineering</th>
<th>Other</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total EU</td>
<td>30</td>
<td>13</td>
<td>25</td>
<td>20</td>
<td>12</td>
<td>94</td>
</tr>
<tr>
<td>Austria</td>
<td>95</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Belgium</td>
<td>12</td>
<td>12</td>
<td>32</td>
<td>12</td>
<td>33</td>
<td>4</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>33</td>
<td>6</td>
<td>24</td>
<td>31</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Denmark</td>
<td>54</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>Estonia</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>93</td>
<td>1</td>
</tr>
<tr>
<td>Finland</td>
<td>11</td>
<td>29</td>
<td>25</td>
<td>32</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>France</td>
<td>37</td>
<td>7</td>
<td>8</td>
<td>38</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Germany</td>
<td>27</td>
<td>18</td>
<td>39</td>
<td>14</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Ireland</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Italy</td>
<td>46</td>
<td>6</td>
<td>38</td>
<td>2</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Lithuania</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>20</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Portugal</td>
<td>20</td>
<td>15</td>
<td>20</td>
<td>40</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>Spain</td>
<td>48</td>
<td>17</td>
<td>16</td>
<td>18</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Sweden</td>
<td>29</td>
<td>24</td>
<td>15</td>
<td>32</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>30</td>
<td>17</td>
<td>24</td>
<td>11</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>20</td>
<td>8</td>
<td>25</td>
<td>28</td>
<td>19</td>
<td>23</td>
</tr>
</tbody>
</table>

In the next question the respondents were asked to give an estimate about the percentage of materials covering the various disciplines. The results are presented in table 5. This leads to the following conclusions:
- 30% of the materials in the participating digital repositories are related to disciplines in humanities and social sciences.
- 25% of the materials in the participating digital repositories are related to disciplines in natural sciences.
- 20% of the materials in the participating digital repositories are related to disciplines in engineering.
- 13% of the materials in the participating digital repositories are related to disciplines in life sciences.
- 12% of the materials in the participating digital repositories are related to other disciplines.
- A number of differences between the various countries can be noted:
  - The digital repositories from Austria and Denmark, and to a lesser extent, the digital repositories from Spain and Italy contain relatively more materials related to humanities and social sciences.
– The digital repositories in Ireland (n=1 in this survey) and in Germany and in Italy contain relatively more materials related to natural sciences.
– The digital repositories in France and Portugal contain relatively more materials related to engineering.
– The digital repositories in Finland, Denmark and Sweden contain relatively more materials related to life sciences.

3.7 Coverage of the digital repositories in terms of percentage of academics delivering material and in terms of percentage of research output of the institute

In the next two open questions the respondents were asked to give estimates about (1) the percentage of the academics delivering material to the digital repository and (2) the percentage of research output from their institute in the last year (2005) deposited in the digital repository. The results are as follows:
– 67 respondents gave an estimate on the percentage of the academics of their institute delivering material to their digital repository. On average, the estimated percentage of academics delivering material to the digital repositories is 38%.
– 67 respondents gave an estimate on the percentage of the research output of 2005 of their institute deposited in their digital repository. On average, the estimated percentage of research output of 2005 deposited in the digital repositories is 37%.
– Many respondents declined to answer this question because they thought it was difficult or impossible to estimate. Because of the limited number of respondents, a breakdown per country could not be given.

3.8 Work processes of depositing materials

Table 6

<table>
<thead>
<tr>
<th>A9. Which statement best describes the work processes of depositing of materials in the repository?</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-depositing by academics, quality control by specialised staff members</td>
<td>32</td>
<td>28.1</td>
</tr>
<tr>
<td>Delivery by academics, depositing by specialised staff members</td>
<td>30</td>
<td>26.3</td>
</tr>
<tr>
<td>Collected by staff members independent of the academics</td>
<td>8</td>
<td>7.0</td>
</tr>
<tr>
<td>A combination of those</td>
<td>32</td>
<td>28.1</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>10.5</td>
</tr>
</tbody>
</table>

114 answers 100.0
How is the material deposited in the digital repository? A multiple choice question about the work processes of depositing the materials in the repository was answered as follows (see also table 6):

- 28% of the digital repositories of the participating institutes followed a procedure of self-depositing by the academics, with quality control by specialised staff members.
- 26% of the digital repositories of the participating institutes followed a procedure of delivery by the academics and depositing by the specialised staff members.
- 7% of the digital repositories of the participating institutes followed a procedure whereby the materials were collected by staff members independent of the academics.
- 28% of the digital repositories of the participating institutes followed a combination of the above-mentioned procedures.
- 11% of the digital repositories of the participating institutes indicated that they followed a different procedure. In their comments, however, these respondents described variations on the three work procedures described in the answer categories: for example, self-depositing by academics without quality control by the library and various combinations of the three procedures.

The respondents were also asked in an open question to describe briefly the work procedures. Eighty-three respondents provided a description of their work procedures. In the list below, a number of interesting descriptions are presented. From these descriptions, the following observations can be made:

- From a number of descriptions, it appears that self-depositing by academics is seen as the ideal situation.
- A number of respondents emphasise connections with other university systems such as the student administration system, the annual report system and the university information system.

Selected comments with regard to the work processes of depositing of materials in the repository

Examples of self-depositing followed by quality control

We want academics to self-deposit rather than taking the work out of their hands, that way they feel more involved and in control. By coupling the obligatory academic bibliography interface with the institutional archive, we try to make it as easy and simple as possible for academics to self-archive their works. We are currently developing a new version of the interface, which should reduce the workload of self-archiving even more. Young academics self-deposit, those older have it done by their secretaries.

For the theses repository:
- Student data are imported from the school administration system. Users, author records and empty thesis records are automatically created.
Students have to provide the thesis title on certain dates (directly in the repository).
- Students upload the full text to the repository.
- Uniform thesis covers are printed based on data from the repository and delivered to students.
- Theses of graduated students are published (i.e. made Open Access in the repository), others are deleted.
- Theses metadata are imported in the library catalogue. For the research repository there is no procedure yet.

Scientist fills in online form with metadata, uploads the full-text PDF file in a non-public part of the data server and prints out a publishing contract.
Staff check and correct/complete PDF and metadata. Scientist brings in the signed publishing contract.
Staff finish publishing

To deliver full-text publications, academics can upload via the repository website.
The library deposits the full text in the repository, adding the required metadata.
Academics can use other means for delivery, for instance sending a cd-rom or email (dissertations).
The library actively collects articles by searching the internet for publicly available material. Within the library documentation staff do all the collecting and depositing work, coordinated by a repository manager.

Examples of delivery by academics, depositing by specialised staff members

Publications are received in the library. Metadata input, detailed indexing, storage, preservation and subsequent open web access is completely organised in the library.

At the moment all the material deposited in the repository is delivered by the library staff. For the future it is planned to use self depositing by academics with quality control by specialised library staff members.

(part of the comment translated from French)
In order to facilitate the depositing process and the distribution of as many publications as possible, we do not only rely on the self-deposits by the authors, but also we search and collect ourselves. Every week, we check publications, authored by researchers from our institute via Current Contents Connect®. We check the policy of the publishers of these journal articles with the information from the website Sherpa/RoMEO.
If the policy of the publisher is not clear, we systematically contact the publisher ourselves to ask for permission to deposit the article in our digital repository.
If the publisher allows archiving of the PDF file, we download and deposit the PDF file of the article in the digital repository ourselves.
If the policy of the publisher restricts self-archiving to the last author version of the article, we contact the author to request this author version of the article via an automated procedure. If the author provides us with the author version of the article, we convert the article into a PDF file and deposit it in the digital repository.

Academics deliver lists of publications. Staff members copy the bibliographic descriptions in the local repository systems. Thereafter staff members contact the academics in order to acquire the full-text versions. Academics make the selection (Open Access /campus access/no access).
Examples of other procedures

We have an internal scientific output review system with workflow processes and QA checks. Our scientific reviewer decides which publications are transferred from this internal closed system to our institutional repository. After this decision, the publication is automated.

We have an institutional university information system, which contains all agendas and access to our repositories.

Each year staff members collect information about publication for the purpose of the scientific annual report of our university. Since 2006 it is possible to upload the full text of the publications simultaneously to the repository, but few organisations use the upload possibility at present. Most of the publications added this year to the repository are collected and uploaded by the library.
Chapter 4 summary

Software packages

Which software package is used for the digital repository? The main results are:

- The top two of the most frequently used software packages are GNU Eprints (24%) and DSpace (20%).
- Locally developed software packages are also frequently used (17%).
- The OPUS software package is also quite frequently used (10.5%), but its usage is mainly restricted to Germany.
- 14 other software packages were mentioned by the respondents.

In total 17 different software packages have been mentioned, while 19 respondents reported a locally developed software package. This means that digital repositories in the European Union use at least 18 and probably more than 30 different software packages.

Persistent identifiers

Is a persistent identifier assigned to each document? According to the respondents, it appears that approximately 75% of the digital repositories have a persistent identifier, while 15% do not have a persistent identifier. Eleven per cent answered with “don’t know”. Several experts in the field have commented on these results: they think some respondents have misinterpreted the question, as they believe that the percentage of repositories with a persistent identifier in place will be much lower in reality.

Long-term availability

Is the long-term availability of the materials in the repositories secured? It appears that nearly 73% of the digital repositories do have the long-term availability of their materials secured while 16% do not. About 11% of the respondents answered this question with “don’t know”.

From the comments of the respondents it appears that (1) a number of digital repositories try to guarantee the long-term availability by internal procedures, (2) a number of digital repositories have delegated the
long-term availability issue to their national libraries (the national libraries of Germany, the Netherlands and Sweden are specifically mentioned) and 3) a number of digital repositories plan to act on this issue in the near future.

**Statistical data on access and usage**

Are statistical data on access to the repository and usage of the materials logged? It appears that the majority of the digital repositories (70%) does log the statistical data on access to the repository and the usage of the materials; 22% do not and 8% of the respondents answered this question with “don’t know”.

From the comments of the respondents it appears that the analysis and interpretation of the logged data by a statistical package appears often to be in development or problematic.

**Metadata standards**

Which metadata standards are followed? It appears that 52% of the digital repositories follow the qualified Dublin Core standards and 37% of the digital repositories follow the unqualified Dublin Core standards. Additionally, 8% follow archival metadata standards, 2% follow print-on-demand metadata standards, 2% follow ONIX metadata standards and 24% follow other metadata standards in addition to the other aforementioned standards.

**Subject and keyword indexing**

From a question about which subject indexing and/or keyword indexing system was used for the digital repository, it appears that 48% of the digital repositories use a standardised system of keywords or classifications for indexing, while 44% of the digital repositories use a system of freely assigned keywords. A large majority of the digital repositories (61%) uses one of these systems in the language of their own country and in English, while a minority of the digital repositories (32%) uses one of these systems only in the language of their own country.

**Author identifier**

Is a unique identifier assigned to each author? It appears that one-third of the digital repositories assign a unique identifier to each author, while 26% are developing such an identifier. Forty-one per cent of the digital repositories have no plans for such a development. From the comments from the respondents it appears that (1) several digital repositories currently use an institutional identifier and use this to form an
4.1 Software packages

**Figure 7**

Which software package is used for the digital repository? The results are as follows (see also figure 7):

- The two most frequently used software packages are GNU Eprints (24%) and DSpace (20%).
- Locally developed software packages are also frequently used (17%).
- The OPUS software package is also quite frequently used (10.5%), but its usage is mainly restricted to Germany.
- The other software packages (ARNO, CDSWare, DIVA, Fedora, iTOR) are used by 5% or less of the participating institutes.
- Nearly 16% of the respondents indicated that they used another software package, not mentioned in one of the answer categories. In comments, these respondents mention PURE (a software package developed by a Danish firm for eight Danish universities), Eprints (2 respondents), DoKS, eSTUP, TRIP, Cadic, Edoc, Stellent CMS and ProQuest digital Commons.
- In total, 17 different software packages have been mentioned, while 19 respondents reported a locally developed software package. This means that the digital repositories in the European Union use at least 20 and perhaps more than 30 different software packages.
4.2 Persistent identifiers

Is a persistent identifier assigned to each document? A question about this was answered as follows (see also figure 8):

– Approximately 75% of the digital repositories do have a persistent identifier assigned to each document.
– Approximately 15% do not have such a persistent identifier.
– About 11% of the respondents answered this question with ‘don’t know’.

In their comments the respondents mentioned the following persistent identifiers:

– URN (9 respondents).
– Handle system® persistent identifier (9 respondents).
– BiTex entry (1 respondent).
– PURL (2 respondents).
– MD5 PGP keys (1 respondent).
– ISBN, DOI (1 respondent)

URN and the Handle® system are explained in the textbox below.

Several experts in this field have commented on these results and – surprised by the high percentage of repositories with a persistent identifier in place – expressed concern that many respondents might have misinterpreted this term. According to these experts, the percentage of repositories that have a persistent identifier in place is in reality much lower.

The Handle System®

“The Handle System® is a general purpose distributed information system that provides efficient, extensible, and secure identifier and resolution services for use on networks such as the internet. It includes an open set of protocols, a namespace, and a reference implementation of
the protocols. The protocols enable a distributed computer system to store identifiers, known as handles, of arbitrary resources and resolve those handles into the information necessary to locate, access, contact, authenticate, or otherwise make use of the resources. This information can be changed as needed to reflect the current state of the identified resource without changing its identifier, thus allowing the name of the item to persist over changes of location and other related state information". [from www.handle.net]

**URN**

A Uniform Resource Name (URN) is a Uniform Resource Identifier (URI) that uses the URN scheme, and does not imply availability of the identified resource. Both URNs (names) and URLs (locators) are URIs, and a particular URI may be a name and a locator at the same time.

The URNs are part of a larger internet information architecture which is composed of URNs, Uniform Resource Characteristics (URCs), and Uniform Resource Locators (URLs). Each plays a specific role:
- URNs are used for identification
- URCs for including meta-information
- URLs for locating or finding resources

Uniform Resource Names (URNs) are intended to serve as persistent, location-independent resource identifiers and are designed to make it easy to map other namespaces (that share the properties of URNs) into URN-space. [adapted from Wikipedia]

### 4.3 Long-term availability

![Graph showing long-term availability](image)

*Figure 9*
Is the long-term availability of the materials in the repositories secured? A question about this was answered as follows (see also figure 9):

- Nearly 73% of the digital repositories do have the long-term availability of their materials secured.
- Nearly 16% of the digital repositories do not have the long-term availability of their materials secured.
- About 11% of the respondents answered this question with ‘don’t know’.

In the list below a few comments on the issue of long-term availability of the respondents are presented. From these comments, it appears that:

- A number of digital repositories try to guarantee the long-term availability with internal procedures.
- A number of digital repositories have delegated the long-term availability issue to their national libraries: the national libraries of Germany, the Netherlands and Sweden are mentioned.
- A number of digital repositories plan to act on this issue in the near future.

A few comments on the issue of long-term availability

The server infrastructure of the university is used to secure the archiving, evolutions are followed in the sustainability sphere.

We work on a Fedora long-term preservation schema in international cooperation. However, at this point of time, the schema/procedures are not very mature.

Files are checked and converted to unified format. Regular backups to different geographical location.

Theses and publications are copied to the German National Library.

We do not remove objects from our repository. A copy of the object is also secured for long-term availability by the Dutch Royal Library.

We guarantee 25 years online from the publishing date.

In cooperation with the national library in Sweden.

Under discussion - bid submitted.

We guarantee the work will be available for 10 years. The repository is funded by the three university libraries. Ongoing central funding has not yet been secured. However, we are looking at long-term digital preservation of materials and are optimistic that the repository will be a long-term proposition.

Long-term preservation is one of the main ‘selling points’. We are working on it right now.
4.4 Statistical data on access and usage

Are statistical data on access to the repository and usage of the materials logged? This question was answered as follows (see also figure 10):

- 70% of the digital repositories do log the statistical data on access to the repository and the usage of the materials.
- 22% of the digital repositories do not log these statistical data.
- 8% of the respondents answered this question with ‘don’t know’.

A number of comments by the respondents on this issue are presented below. From these comments the following observations can be made:

- A number of digital repositories log the statistical data on access and usage, but the analysis and interpretation of these data by a statistical package appears often to be in development or problematic.
- A number of digital repositories have the statistical data on access and usage available for their own staff and, in one case, for the authors as well.

A number of comments on the issue of statistical data on access and usage

- Number of views per record and downloads per record are logged.
- We log, but we have not yet implemented a statistics module to show the results. The logging is so precise that we can follow user behaviour, searches, downloads and such like.
- Not yet, we have asked the system provider to give a price estimate for developing a user statistics module.
- The number of sessions, number of queries and number of downloaded documents are logged.
- The statistics are found in our intranet and thus directly available only to our staff and academics.
4.5 Metadata standards

**B5. Which metadata standards are followed with your digital repository? (n=114)**

- Approximately 52% of the digital repositories follow qualified Dublin Core standards.
- Approximately 37% of the digital repositories follow unqualified Dublin Core standards.
- Approximately 8% follow archival metadata standards.
- Approximately 2% follow print-on-demand metadata standards.
- Approximately 2% follow ONIX metadata standards.
- Approximately 24% follow other metadata standards next to their primarily used standard.

In the list below, the comments of the respondents mentioning other metadata standards are presented.

**Comments on other metadata standards**

The metadata scheme used in the ASFA database, namely the ASFIS system, used by FAO, the Food and Agriculture Organization of the UN.
OAI exchange with: ETD-MS for e-theses MARCXML.

More metadata than Dublin Core set as national standard for thesis.

We are following a commonly used Danish metadata standard, developed and used by nearly all Danish universities.

All our data is in a national xml standard and can be persistent. We are able to transform to any international standard, among others EU CERIF. We support native Dublin Core through OAI-PMH and have implemented web services to serve other standards to external systems (university homepages).

Technical metadata from files, relationships metadata, rights metadata.

Extended with UNIMARC to match AFNOR pre-recommendation.

HAL format, includes description of laboratory and author.

MPEG 21 DIDL (small subset, mainly for the link to the [Dutch] Royal Library preservation).

Extra formats: Dare-didl and Nereus.

Native internal format & DIDL.

Library of Congress metadata.

MARCXML, DDI, UNIMARC, MARC21.

METS and UNIMARC are other relevant metadata schemas used for these objects.

Also MASTER.

Swedish SVEP format.

Depends on object type – for ETDs we use the UK-ETD metadata application profile, for E-prints we will adopt the Eprints AP.

We will be adding archival metadata and our schema has used parts of ONIX.

ePrints.org was Dublin Core qualified but we will be using MODS, METS, simple DC and probably mapping to

4.6 Subject and keyword indexing

<table>
<thead>
<tr>
<th>B6. Which statement best describes the subject indexing of your digital repository?</th>
<th>n</th>
<th>Answers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keywords or classifications according to (a) standardised system(s) (in the language of the country and/or in English)</td>
<td>36</td>
<td>31.6</td>
</tr>
<tr>
<td>Freely assigned keywords (in the language of the country and/or in English)</td>
<td>33</td>
<td>28.9</td>
</tr>
<tr>
<td>Keywords or classifications according to (a) standardised system(s) (in the language of the country)</td>
<td>19</td>
<td>16.7</td>
</tr>
</tbody>
</table>
The next question addressed the subject and/or keyword indexing of the digital repository. The question was answered as follows (see also table 7):

- Approximately 32% of the digital repositories index the contents with keywords or classifications according to a standardised system in the language of their own country or in English.
- Approximately 17% of the digital repositories index the contents according to a standardised system in the language of their own country only.
- Approximately 29% use a system of freely assigned keywords in the language of the country or in English.
- Approximately 15% use a system of freely assigned keywords in the language of their own country only.
- Approximately 8% of the digital repositories have no subject indexing.
- In conclusion:
  - Approximately 48% of the digital repositories use a standardised system of keywords or classifications for indexing in English and/or in the language of their own country.
  - Approximately 44% of the digital repositories use a system of freely assigned keywords in English and/or in the language of their own country.
  - A large majority of the digital repositories (61%) uses one of these systems in the language of their own country and in English.
  - A minority of the digital repositories (32%) uses one of these systems only in the language of their own country.

In the list below some comments with regard to subject and/or keyword indexing by the respondents are presented. From these comments the following observation can be made:

- A number of digital repositories use library thesauri and/or thesauri used for bibliographic databases.

Some comments with regard to subject and/or keyword indexing

IWETO classification.
ASFA Thesaurus in English and Dutch; freely assigned keywords in English and Dutch.
Using the library keyword system.
This topic is changing a lot and differs between organisational units. Most do not use keywords, other do freely or dynamically.
We use the Rameau classification system which is often used in French libraries.
Based on ArXiv classification then extended by a committee of researchers upon authors’ proposal.
Following the ‘SWD’ Thesaurus.
Freely assigned keywords in German and English as well as standardised keywords in German (SWD) and standardised classification (DDC and subject specific systems like PACS, ACM, CCS).

Furthermore the academic can record freely assigned keywords in the language of the country and/or in English.

TGN, subjects of Library of Congress.

We use keywords or classifications according to standardised systems (ACM and MSC systems for informatics and applied mathematics, ASFA for natural science, MeSH for life sciences) if they exist, freely assigned keywords (in the language of the country and/or in English) otherwise LCSH.

We try to have all the works classified by UDC.

A home-made thesaurus is used.

We are using subject categories and freely assigned keywords. Both are in Swedish and English. Freely assigned keywords are often taken from other standardised systems which are more specific to the subject of the document.

We use the Aquatic Sciences & Fisheries Abstracts Thesaurus.

We add MeSH headings or Library of Congress headings, but only if the title is not self-explanatory. Most records have no subject indexing.

We intend to offer standardised keyword schemes but are rather put off by reports that users don’t tend to use this type of retrieval mechanism.

We use both the American Mathematical Societies subject codes and those of the American Physical Society (PACS).

Natural language keywords and Library of Congress subject areas added in English.

We developed a digital preservation subject heading list based on PADI’s subject headings. In the past year, we have expanded these to cover digital preservation headings in the past year.

Very basic – more classification than subject headings.

4.7 Author identifier

Figure 12

<table>
<thead>
<tr>
<th>32.5%</th>
<th>26.3%</th>
<th>41.2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No, but are developing</td>
<td>No, no plans either</td>
</tr>
</tbody>
</table>

B7. Is a unique identifier assigned to each author? (n=114)
Is a unique identifier assigned to each author? This question is answered as follows (see also figure 12):

- 33% of the digital repositories assign a unique identifier to each author.
- 26% of the digital repositories are developing such a unique identifier for each author.
- 41% of the digital repositories have no plans for such a development.

In the list below some comments with regard to the author identifier are presented. From these comments the following observations can be made:

- A number of digital repositories use an institutional identifier and use this to form an author identifier.
- In Germany and the Netherlands projects for databases with author identifiers appear to be under way.

Some comments with regard to the author identifier

Institutional identifier.

We are shifting to another research registration system in 2007. Maybe not in the very near future but there are plans for assigning identifiers from the German reference database for person’s names (PND).

Unique identifiers will be assigned to authors from our institution but not to coauthors from other institutions.

The DAI number will be used (Dutch national project, initiated by SURF and led by the University of Groningen).

If authors self-archive, there is no problem as they are identified by their LDAP code. Problems arise when authors do not self-archive. We are thinking in terms of interoperability with the university’s staff data warehouse.

We link the staff authors back to the organisation’s unique person identifier.

Well, sort of. We use the author’s email address. This is sufficiently distinct to generate useful per-author reports.

We hope to use some form of author authority in the new repository.
5. Institutional policies

Chapter 5 summary

*Mandatory versus voluntary depositing*

What kind of policy is followed by the institute maintaining the digital repository towards the academics with regard to depositing material? It appears that 51% of the participating digital repositories have a policy of voluntary depositing, while 25% have a policy of (partly) mandatory depositing. The others have no official policy or a different one. From the comments of the respondents it appears that (1) at a number of institutes the academics are obliged to deposit the metadata of their publications (2) at a number of institutes the PhD students are obliged to deposit their theses in the repository and (3) in some UK institutes the deposited articles are used for the country-wide Research Assessment Exercise, which is important for research funding.

*Spread of various institutional policies*

What kind of other policies have been realised within the institutes with regard to the repository?

The most widespread institutional policies (realized in more than 50% of the digital repositories) relate to awareness-raising campaigns among academics and integration and linking of the repository all with other systems in the institute.

Less widespread policies (30% to 50% of the digital repositories) relate to (1) contact with a coordinating national body (2) guidelines for the selection of material for inclusion in the digital repository (3) high interest from the decision-makers within the institute in the repository (4) safeguarding the long-term preservation of the deposited material and (5) a link to a national central gateway.

A number of policies have only been carried out in a small minority of the repositories (less than 20%). These policies relate to (1) some academics are required to deposit research output by the research funding organisations in the country (2) financial support from a national funding program for the setting-up of the repository and (3) the usage of the deposited materials to measure the output of the individual researchers for evaluation purposes.
In the comments of the respondents research evaluation is mentioned several times as an important purpose for the digital repository and as an important motivational factor for academics to deposit materials.

5.1 Policies with regard to depositing materials by the academics

<table>
<thead>
<tr>
<th>Policy Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory</td>
<td>8.8%</td>
</tr>
<tr>
<td>Partly mandatory</td>
<td>15.8%</td>
</tr>
<tr>
<td>Voluntarily encouraged</td>
<td>30.7%</td>
</tr>
<tr>
<td>Voluntarily, free</td>
<td>20.2%</td>
</tr>
<tr>
<td>No official policy</td>
<td>21.9%</td>
</tr>
<tr>
<td>Other</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

*Figure 13*

What kind of policy is followed by the institute maintaining the digital repository towards the academics with regard to depositing material? A question about this topic was answered as follows (see also figure 13):
- 31% of the participating digital repositories have a policy of voluntarily depositing combined with a strong encouragement to do so.
- 20% have a policy of voluntarily depositing.
- 16% have a policy of partly mandatory depositing: for some materials (e.g. theses) the academics are required to deposit, for other materials they are free to deposit.
- 9% have a policy of mandatory depositing: academics are required to deposit materials in the repository.
- 22% of the participating digital repositories have no official policy.

These results can also present as follows:
- 51% of the participating digital repositories have a policy of voluntary depositing; 25% have a policy of (partly) mandatory depositing. The others have no official policy or a different one.
In the list below some comments with regard to the depositing policies are presented. From these comments the following observations can be made:

– At a number of institutes the academics are obliged to deposit the metadata of their publications.
– At a number of institutes the PhD students are obliged to deposit their theses in the repository. Sometimes this is mandatory countrywide.
– In some UK institutes the deposited articles are used for the (country-wide) Research Assessment Exercise, which is important for research funding. In practice, this means that depositing can be mandatory for academics.

Some comments with regard to depositing policy

Academics are obliged to put metadata in the bibliography, and encouraged to put full text in archive.

We hope to come to ‘mandatory depositing’.

Scientific output records are awarded with scores and linked to research projects. These scores have an impact on the budget of the same projects. More qualitative scientific output = more money.

Since January 2006 it is mandatory, however the system is fully functioning with respect to deposition since June 2006. Even though the deposition rate is still much below our goals and we work on a statement from the dean to push towards 100% deposition.

Theses must be deposited (compulsory institutional policy), other material is strongly encouraged. We are working towards a policy of mandatory deposit of all material published through direct university financing.

The legal deposit of thesis and dissertations is mandatory in the country.

It’s enough with metadata, full texts are not mandatory.

All materials published by the university should be published electronically if there are no copyright problems, but we cannot force the authors to publish electronically according to our university lawyer.

The main requirement is to deposit those articles that will form the basis of the academic’s entry in the upcoming Research Assessment Exercise (RAE). This is a UK thing that controls the distribution of research funding and each academic is required to nominate (and thus archive) his or her four most significant papers from recent years.

It depends on the faculty. Some faculties have mandated deposit.

We are working towards a mandatory deposition policy when we bring the new institutional repository online.
5.2 Other institutional policies

Table 8

C2. Please tick the statements below that are valid for the digital repository in your institute

<table>
<thead>
<tr>
<th>Statement</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness-raising campaign(s) among academics about the digital repository have been carried out within our institute.</td>
<td>67</td>
<td>58.8</td>
</tr>
<tr>
<td>The digital repository in our institute is integrated/linked with other systems in our institute.</td>
<td>66</td>
<td>57.9</td>
</tr>
<tr>
<td>There is a coordinating national body for digital repositories, with which we have contacts.</td>
<td>50</td>
<td>43.9</td>
</tr>
<tr>
<td>There are clear guidelines for the selection of material for inclusion in the digital repository.</td>
<td>48</td>
<td>42.1</td>
</tr>
<tr>
<td>The interest from decision makers within our institute in the digital repository is (rather) high.</td>
<td>46</td>
<td>40.4</td>
</tr>
<tr>
<td>There is a policy to safeguard the long-term preservation of the deposited material.</td>
<td>44</td>
<td>38.6</td>
</tr>
<tr>
<td>There is a central gateway to the digital repositories in our country, to which our digital repository is linked.</td>
<td>38</td>
<td>33.3</td>
</tr>
<tr>
<td>Some academics in our institute are required to deposit research output by research funding organisations in our country.</td>
<td>22</td>
<td>19.3</td>
</tr>
<tr>
<td>The digital repository of our institute has been set up with financial support from a national funding programme for digital repositories in our country.</td>
<td>20</td>
<td>17.5</td>
</tr>
<tr>
<td>In our institute the deposited materials are used to measure the output of individual researchers for evaluation purposes (accountability).</td>
<td>19</td>
<td>16.7</td>
</tr>
</tbody>
</table>

114 responses

In a following question the respondents were asked to assess a number of statements with regard to the digital repository in their institute. This question was answered as follows (see also table 8):

– In more than 50% of the digital repositories:
  – An awareness-raising campaign among academics about the digital repository has been carried out.
  – The digital repository is integrated and/or linked with other systems in the institute.
– In between 30% to 50% of the digital repositories:
  – There is contact with a coordinating national body.
  – There are clear guidelines for the selection of material for inclusion in the digital repository.
  – There is high interest from the decision makers within the institute in the repository.
  – There is a policy to safeguard the long-term preservation of the deposited material.
There is a national central gateway to the digital repositories, to which the digital repository is linked.

In fewer than 20% of the digital repositories:

- Some academics are required to deposit research output by the research funding organisations in the country.
- The digital repository of the institute has been set up with financial support from a national funding program.
- The deposited materials are used to measure the output of the individual researchers for evaluation purposes.

In the list below some comments with regard to other institutional policies are presented. From these comments the following observation can be made:

- Research evaluation is mentioned several times as an important purpose for the digital repository and as an important motivational factor for academics to deposit materials.

**Some comments with regard to other institutional policies**

At the moment the repository solves the needs of the library which is responsible for collecting paper theses of the university and for the access to this collection. One of the purposes of building such a repository is to give a possibility to deposit the information about the research output of the university as a tool for some evaluation purposes.

The deposited materials are used to measure the research output of the institution for evaluation purposes. It is only used to a limited degree in evaluating the individual researcher. The central gateway – DDF – is not really a central gateway to digital repositories, but a central research publications database which harvests metadata from decentralised research databases.

The digital repository has been set up with funding from the reUse project within the EU e-Content programme. The ongoing development has been planned into our institutional budget.

(Shortened)

... the Senate of Potsdam University passed the following resolution for the optimisation of the practice of Open Access:

1. The Senate encourages researchers of Potsdam University to publish in Open Access journals. The number of quality controlled academic Open Access journals listed in the Directory of Open Access journals (DOAJ) (http://www.doaj.org/) is steadily increasing.
2. The Senate recommends researchers to publish their results (monographs, reports, proceedings, periodicals etc.) either in electronic or if required in printed form (at Potsdam University Press).
3. The Senate welcomes the fact that a growing number of Potsdam University researchers are filing copies of their published, reviewed articles (so-called post-print versions) on the academic publication server, the institutional repository of Potsdam University. The Senate encourages all researchers to follow this example unless there are legal objections by publishers.

There is a national work group, and we are part of it, but there is no real national coordination. The most difficult step is awareness raising. It very much depends on the disciplinary field academics belong to.
One institution will be using the repository to measure research output in the future, although technical problems have delayed this.

At present there are none in force. This will change when we have a true institutional repository. We expect that at first there will be a requirement to deposit all the materials for the RAE 2008.

When RCUK kicks in – many researchers at Oxford are funded by RCUK and Wellcome trust – advocacy will begin in earnest early next year (2007). All policies are under development – preservation, collection, etc. No links yet set up but are planned.
6. Services created on top of the digital repositories

Chapter 6 summary

Search engines

Via which channels is the digital repository searchable/accessible? It appears that over 50% of the participating digital repositories are searchable via general Internet search engines such as Google, Yahoo or MSN, via OAIster and via Google Scholar. All other search engines or portals access less than 50% of the participating digital repositories. It has to be emphasised that these findings reflect the answers of the respondents to the questionnaire and not actual searches using the search engines/gateways/portals mentioned. Therefore the results might reflect only the awareness of respondents about the searchability of their repositories. However, if their awareness is accurate, there appears to be no single search engine, portal or gateway that can access all participating digital repositories.

Other services on top of the digital repositories

The spread of possible services on top of the digital repositories appeared to be as follows:

Many repositories have their contents listed in a library catalogue: in the catalogue of the library of the institution (54%) and/or in a regional or national catalogue (47%).

A small minority of the repositories has added a printing-on-demand service to their repository (12%, while 13% have plans to develop such a link to a printing-on-demand service. A large majority (75%) has presently no plans for such a printing-on-demand service.

About one-third of the repositories have a service of displaying usage statistics per digital item (31%), while 25% have plans for such a service. Nearly half of the repositories (45%) have presently no plans for such a service.

About one third of the repositories have personal services for the depositing scientists, such as an automatically generated publication list, added to their repository (35%), while 18% have plans for such personal services. Nearly half of the repositories (47%) have presently no plans for such a service.
### Services desired at a European level

In addition, the respondents were asked which services should have priority for further development at a European scale. The top three answers (selected by more than 33% of the respondents) were (1) general search engines, gateways and portals; (2) disciplinary and thematic search engines, gateways and portals; and (3) citation index services.

Next on the priority list (indicated by 20% to 30%) were (4) preservation services; (5) advisory services (Open Access advocacy); and (6) usage statistics services.

#### 6.1 Search engines, gateways and portals

**Table 9**

<table>
<thead>
<tr>
<th>D1. The contents of your digital repository are searchable via the following general engines/gateways/portals: (Please tick all boxes that apply)</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>General internet search engines such as Google, Yahoo, MSN, etc.</td>
<td>74</td>
<td>64.9</td>
</tr>
<tr>
<td>OAIster</td>
<td>66</td>
<td>57.9</td>
</tr>
<tr>
<td>Google Scholar</td>
<td>59</td>
<td>51.8</td>
</tr>
<tr>
<td>OpenDOAR</td>
<td>47</td>
<td>41.2</td>
</tr>
<tr>
<td>OAI Search</td>
<td>39</td>
<td>34.2</td>
</tr>
<tr>
<td>Scirus</td>
<td>21</td>
<td>18.4</td>
</tr>
<tr>
<td>BASE</td>
<td>20</td>
<td>17.5</td>
</tr>
<tr>
<td>OPUS</td>
<td>14</td>
<td>12.3</td>
</tr>
<tr>
<td>OASE</td>
<td>8</td>
<td>7.0</td>
</tr>
<tr>
<td>MetaGer</td>
<td>7</td>
<td>6.1</td>
</tr>
<tr>
<td>MEIND</td>
<td>6</td>
<td>5.3</td>
</tr>
<tr>
<td>Citeseer: Computer Science</td>
<td>5</td>
<td>4.4</td>
</tr>
<tr>
<td>PLEIADI</td>
<td>5</td>
<td>4.4</td>
</tr>
<tr>
<td>Other</td>
<td>21</td>
<td>18.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>114 responses</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Via which channels is the digital repository searchable/accessible? This question was answered as follows (see also table 9):

- Over 50% of the participating digital repositories are searchable via general internet search engines such as Google, Yahoo or MSN, via OAIster and via Google Scholar.
- Between 30% and 50% of the participating digital repositories are accessible via OpenDOAR and OAI Search.
- Between 10% and 20% of the participating digital repositories are accessible via Scirus, BASE, OPUS and other channels.
Less than 10% of the participating digital repositories are accessible via OASE, MetaGer, MEIND, Citeseer and PLEIADI.

In the list below some comments by the respondents with regard to other search engines, gateways or portals are presented.

Some comments with regard to other search engines, gateways or portals

Crossref.
Public Knowledge Project – registrations are pending with the services above.
The repository is searchable via the European Library portal – www.theeuropeanlibrary.org. The repository is harvestable via OAI-PMH.
Portail des Maisons des Sciences de l’Homme Scientific Commons etc.
NARCIS.
DAREnet.
RePEc; SSRN.
NDLTD.
National services, such as PORBASE and B-ON.
Swedish Uppşök – for student theses.
MASS http://mass.aber.ac.uk/.
We have recently asked CiteSeer to index our site. Also http://eprints-uk.rdn.ac.uk/search/.

6.2 Other services on top of the digital repositories

Listing in catalogues

Figure 14
A question about a listing of the digital repository in library catalogues is answered as follows (the answer categories were not mutually exclusive; see also figure 14):

- 54% of the digital repositories have their contents listed in the catalogue of the library of the institution.
- 47% of the digital repositories have their contents listed in a regional or national catalogue.

In the list below the catalogues mentioned by the respondents are listed.

**Catalogues mentioned**

- Österreichischen Verbundkatalog
- Antilope & CCB
- Bibliotheksverbund Bayern (BVB)
- Blumtritt, Ziegler
- BVB, Katalog der DNB
- Catalogo Italiano dei Periodici ACNP
- Czech National eVSKP Portal
- DAREnet/NARCIS
- DCU Library catalogue
- Den Danske Forskningsbase
- Deutsche Nationalbibliographie
- DINI
- Directorio y recolector de recursos digitales (Ministerio de Cultura)
- DNB
- Dreilanderkatalog
- FENNICA
- GCC / Picarta
- HeBIS / KVK, ZDB
- Helka library catalogue
- http://www.iue.it/LIB/Catalogue/
- KB e-Depot
- KVK
- KVK, SWB, DNB-Catalog
- Library.dk/Danbib
- LIBRIS, Uppsök
- Linda
- Lithuanian Virtual Library
- National Library Catalogue, Charles University Union Catalogue
- Online-Katalog der Deutschen Nationalbibliothek
- OPAC DNB (German National Library): only dissertation and habilitation, KVK (Karlsruher Virtueller Katalog): only parts
- PiCarta and DAREnet
- PORBASE
With regard to a question about the linking of the digital repositories to printing-on-demand services, the results are as follows (see also figure 15):

- Approximately 12% of the digital repositories are linked to such a service.
- Approximately 13% of the digital repositories have plans to develop such a link to printing-on-demand service.
- Approximately 75% of the digital repositories have no printing-on-demand service nor plans to set up one.
Usage statistics

With regard to a question about a service of displaying usage statistics per digital item the results are as follows (see also figure 16):
- Approximately 31% of the participating digital repositories have such a service.
- Approximately 25% of the participating digital repositories plan such a service.
- Approximately 45% of the participating digital repositories have no such service, nor plans to set up one.

Personal services

With regard to a question about personal services for the depositing scientists (such as an automatically generated publication list), the results are as follows (see also figure 17):
– Approximately 35% of the participating digital repositories have such personal services.
– Approximately 18% of the participating digital repositories have plans for such personal services.
– Approximately 47% of the participating digital repositories have no personal services, nor plans to set up one.

6.3 Priorities for services at a European scale

Table 10

<table>
<thead>
<tr>
<th>Service</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disciplinary/thematic search engines/gateways/portals/repositories</td>
<td>48</td>
<td>42.1</td>
</tr>
<tr>
<td>General search engines/gateways/portals</td>
<td>46</td>
<td>40.4</td>
</tr>
<tr>
<td>Citation index services</td>
<td>39</td>
<td>34.2</td>
</tr>
<tr>
<td>Preservation services</td>
<td>31</td>
<td>27.2</td>
</tr>
<tr>
<td>Advisory services (Open Access advocacy)</td>
<td>28</td>
<td>24.6</td>
</tr>
<tr>
<td>Usage statistics services</td>
<td>23</td>
<td>20.2</td>
</tr>
<tr>
<td>Personal services for the depositing scientists</td>
<td>17</td>
<td>14.9</td>
</tr>
<tr>
<td>Research assessment/evaluation services</td>
<td>15</td>
<td>13.2</td>
</tr>
<tr>
<td>Advisory services (technical aspects)</td>
<td>13</td>
<td>11.4</td>
</tr>
<tr>
<td>Repository hosting services</td>
<td>13</td>
<td>11.4</td>
</tr>
<tr>
<td>Cataloguing or metadata creation/enhancement services</td>
<td>12</td>
<td>10.5</td>
</tr>
<tr>
<td>Publishing services</td>
<td>7</td>
<td>6.1</td>
</tr>
<tr>
<td>Printing-on-demand services</td>
<td>3</td>
<td>2.6</td>
</tr>
<tr>
<td>Other services</td>
<td>1</td>
<td>0.9</td>
</tr>
</tbody>
</table>

114 responses 100.0%

Which services should have priority for further development at the European scale? The question about this was answered as follows (see also table 10):

– The top three (over one third of the respondents) on the priority list are:
  – general search engines, gateways and portals
  – disciplinary and thematic search engines, gateways and portals
  – citation index services
– Next on the priority list, indicated by 20% to 30% of the respondents are:
  – preservation services
  – advisory services (Open Access advocacy)
  – usage statistics services
– Between 10% and 15% of the respondents indicated the following services:
  – personal services for the depositing scientists
research assessment/evaluations services
advisory services (technical aspects)
repository hosting services
cataloguing or metadata creation/enhancement services

At the bottom of the priority list, with the priority given by less than 10% of the respondents, rank the following services:

- publishing services
- printing-on-demand services

In the list below, a few comments by the respondents about the priority for services at a European level are presented. From these comments, the following observations can be made:

- A number of respondents doubt the need for services on a European scale: apparently some think these services should be set up on a truly global basis, others fear bureaucracy.
- Other respondents mention advocacy policies, research funding agency policies and technical issues.

Comments with regard to priorities for services at a European level

We believe that at the European level, advocacy and general policy services are most useful.

I don’t think that there is a need on a European scale. The basis should be more international / more regional.

What we need most is a better fundament to develop services. Technically this is the same as saying: ditch PDFs, get XML documents. PDFs are garbage and we should not design shovels to fill the bins with just PDFs.

None, we prefer bottom-up approach, based upon agile principles, rather than bureaucratic driven development.

These items are not specifically interesting for development at a European scale. I can’t imagine any European specific service.

The single most useful thing would be for important funding agencies to require Open Access publishing of results. At least in the case of state-funded granting agencies, I can see no reasonable argument against such a policy: the taxpayer has already paid for the research and should be able to access the results free of charge.
7. Stimulants and inhibitors for maintaining digital repositories

Chapter 7 summary

Factors influencing repositories

In two questions, the respondents were asked to select the three most important stimulants for the development of their digital repository and the three most important inhibitors out of 14 factors.

More than 25% of the respondents listed as the most important stimulants for the development of digital repositories: (1) the increased visibility for the publications of the academics; (2) a simple and user-friendly depositing process; (3) awareness campaigns for academics; and (4) interest from decision makers in the institute.

More than 25% of the respondents listed as the most important inhibitors for the development of digital repositories: (1) the lack of an institutional policy of mandatory depositing; (2) the situation with regard to copyright of (to be) published materials and the knowledge about this among academics in our institute; and (3) the lack of requirements of research funding organisations about depositing research output in Open Access repositories.

Highest priority issue on European agenda

In an open question the respondents were asked to state which issues should be highest on the priority list for the development of digital repositories in Europe. The need for (specific) services was mentioned most (n=16), followed by issues with regard to copyright (n=11), the need for mandatory policies with regard todepositing (n=10), coordination and harmonisation issues (n=8) and issues of advocacy (n=7).
7.1 Stimulants for maintaining digital repositories

Table 11

<table>
<thead>
<tr>
<th>E1. What do you see as the most important stimulants for the development of the digital repository and its contents in your institute? (Please tick a maximum of 3 items)</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased visibility and citations for the publications of the academics in our institute</td>
<td>53</td>
<td>46.5</td>
</tr>
<tr>
<td>Our simple and user-friendly depositing process</td>
<td>50</td>
<td>43.9</td>
</tr>
<tr>
<td>Awareness-raising efforts among the academics in our institute</td>
<td>33</td>
<td>28.9</td>
</tr>
<tr>
<td>Interest from the decision makers within our institute</td>
<td>30</td>
<td>26.3</td>
</tr>
<tr>
<td>Our institutional policy of mandatory depositing</td>
<td>23</td>
<td>20.2</td>
</tr>
<tr>
<td>Integration/linking of the digital repository with other systems in our institute</td>
<td>21</td>
<td>18.4</td>
</tr>
<tr>
<td>The requirements of research funding organisations in our country about depositing research output in Open Access repositories</td>
<td>17</td>
<td>14.9</td>
</tr>
<tr>
<td>Our policy to safeguard the long-term preservation of the deposited material</td>
<td>17</td>
<td>14.9</td>
</tr>
<tr>
<td>Situation with regard to copyright of (to be) published materials and the knowledge about this among academics in our institute</td>
<td>12</td>
<td>10.5</td>
</tr>
<tr>
<td>Search services as provided by national and international gateways</td>
<td>11</td>
<td>9.6</td>
</tr>
<tr>
<td>Financial support from a national funding programme for the digital repository in our institute</td>
<td>9</td>
<td>7.9</td>
</tr>
<tr>
<td>Our institutional policy of accountability</td>
<td>5</td>
<td>4.4</td>
</tr>
<tr>
<td>Coordination of a national body for digital repositories</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>Our clear guidelines for selection of material for inclusion</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>6.1</td>
</tr>
</tbody>
</table>

114 responses 100.0

A question about the most important stimulants for the development of the digital repository and its contents in the institute of the respondents was answered as follows (see also table 11):

- More than 40% of the respondents indicated that they saw as the most important stimulants:  
  - a simple and user-friendly depositing process  
  - increased visibility and citations for academics’ publications
- Between 20% and 30% of the respondents indicated that they saw as the most important stimulants:  
  - awareness-raising efforts among the academics in the institute  
  - interest from the decision makers within the institute  
  - the institutional policy of mandatory depositing
- Between 10% and 20% of the respondents indicated that they saw as the most important stimulants:  
  - requirements of research funding organisations in their country about depositing research output in Open Access repositories
– integration of the digital repositories with other systems in the institute
– a policy to safeguard the long-term preservation of the deposited material
– the situation with regard to copyright of the published materials and the knowledge about this among academics
– Less than 10% of the respondents indicated that they saw as the most important stimulants:
  – search services as provided by national and international gateways
  – the financial support from a national funding program for digital repositories
  – the institutional policy of accountability
  – the coordination of a national body for digital repositories
  – clear guidelines for selection of material for inclusion

7.2 Inhibitors for maintaining digital repositories

<table>
<thead>
<tr>
<th>E2. What do you see as the most important inhibitors for the development of the digital repository and its contents in your institute? (Please tick a maximum of 3 items)</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of an institutional policy of mandatory depositing</td>
<td>57</td>
<td>50.0</td>
</tr>
<tr>
<td>Situation with regard to copyright of (to be) published materials and the knowledge about this among academics in our institute</td>
<td>56</td>
<td>49.1</td>
</tr>
<tr>
<td>Lack of requirements of research funding organisations in our country about depositing research output in Open Access repositories</td>
<td>31</td>
<td>27.2</td>
</tr>
<tr>
<td>Lack of interest from the decision makers within our institute</td>
<td>25</td>
<td>21.9</td>
</tr>
<tr>
<td>Lack of financial support from a national funding programme for the digital repository in our institute</td>
<td>18</td>
<td>15.8</td>
</tr>
<tr>
<td>Lack of awareness-raising efforts among the academics in our institute</td>
<td>18</td>
<td>15.8</td>
</tr>
<tr>
<td>Lack of a simple and user-friendly depositing process</td>
<td>18</td>
<td>15.8</td>
</tr>
<tr>
<td>Lack of integration/linking of the digital repository with other systems in our institute</td>
<td>13</td>
<td>11.4</td>
</tr>
<tr>
<td>Lack of coordination of a national body for digital repositories</td>
<td>11</td>
<td>9.6</td>
</tr>
<tr>
<td>Lack of support for increased visibility and citations for the publications of the academics in our institute</td>
<td>7</td>
<td>6.1</td>
</tr>
<tr>
<td>Lack of search services as provided by national and international gateways</td>
<td>5</td>
<td>4.4</td>
</tr>
<tr>
<td>Lack of an institutional policy of accountability</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>Lack of clear guidelines for selection of material for inclusion</td>
<td>3</td>
<td>2.6</td>
</tr>
<tr>
<td>Lack of a policy to safeguard the long-term preservation of the deposited material</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>3.5</td>
</tr>
</tbody>
</table>

114 responses 100.0
What do you see as the most important inhibitors for the development of the digital repository and its contents in your institute? This question was answered as follows (see also table 12):

– Approximately 50% of the respondents indicated that they saw as the most important inhibitors:
  – the lack of an institutional policy of mandatory depositing
  – the situation with regard to copyright of published materials and the knowledge about this among academics
– Between 20% and 30% of the respondents indicated that they saw as the most important inhibitors:
  – the lack of requirements of research funding organisations in their country about depositing research output in Open Access repositories
  – the lack of interest from the decision makers in their institute
– Between 10% and 20% of the respondents indicated that they saw as the most important inhibitors:
  – the lack of financial support from national funding programmes
  – the lack of awareness-raising efforts among academics in their institute
  – the lack of a simple and user-friendly depositing process
  – the lack of integration of the digital repository with other systems in the institute
– Less than 10% of the respondents indicated that they saw as the most important inhibitors:
  – the lack of coordination of a national body for digital repositories
  – the lack of support for increased visibility and citations for the publications of the academics
  – the lack of an institutional policy of accountability
  – the lack of clear guidelines for selection of material for inclusion
  – the lack of a policy to safeguard the long-term preservation of the deposited material
  – the lack of search services as provided by national and international gateways

7.3 Highest-priority issue on the European agenda

In a concluding open question the respondents were asked to state which issues should be highest on the priority list for the development of digital repositories in Europe. All answers to this question are listed below. The answers were categorised as follows:

– 16 respondents mentioned the need for (specific) services.
– 11 respondents mentioned issues with regard to copyright.
– 10 respondents mentioned the need for mandatory policies with regard to depositing.
– 8 respondents mention coordination and harmonisation issues.
– 7 respondents mention issues of advocacy.
3 respondents mention technical issues.
10 respondents mentioned issues that were categorised in the category ‘other’.

Answers to the concluding open question:

<table>
<thead>
<tr>
<th>Category</th>
<th>Which issues should be highest on the priority list for the further development of digital repositories in Europe, according to you?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advocacy</td>
<td>The knowledge among academics should be improved.</td>
</tr>
<tr>
<td>Advocacy</td>
<td>Information about OA and copyright to academics.</td>
</tr>
<tr>
<td>Advocacy</td>
<td>Effective advocacy and technical/legal support (e.g. on copyright issues).</td>
</tr>
<tr>
<td>Advocacy</td>
<td>Awareness raising and coordination of existing programmes in institutions.</td>
</tr>
<tr>
<td>Advocacy</td>
<td>Promoting Open Access repositories as an alternative to the standard publishing model in commercial journals.</td>
</tr>
<tr>
<td>Advocacy</td>
<td>Promoting acceptance among scholars of the value of free Open Access repositories as an alternative to publishing in expensive subscription journals which often limit access to scholarly output through expensive pricing of journals and other publications which libraries are finding increasingly unaffordable.</td>
</tr>
<tr>
<td>Advocacy</td>
<td>Convincing the leading persons in the universities.</td>
</tr>
<tr>
<td>Advocacy</td>
<td>Institutional repositories should one strand of a major effort to promulgate the idea that taxpayer-supported data/research should be as freely available as possible: neither the state, nor state-funded researchers and their institutions, should be in the business of trying to sell data for profit.</td>
</tr>
<tr>
<td>Advocacy</td>
<td>A strong European policy for Open Access repositories, supported by adequate funding to realise sustainable open repositories.</td>
</tr>
<tr>
<td>Coordination and harmonisation</td>
<td>Coordination of a national body for digital repository.</td>
</tr>
<tr>
<td>Coordination and harmonisation</td>
<td>A clear policy and coordination. Institutions should be pushed to follow an OA policy.</td>
</tr>
<tr>
<td>Coordination and harmonisation</td>
<td>The creation of European networks involving national bodies. The raising of a higher awareness among the national bodies (ministries of science, etc.).</td>
</tr>
<tr>
<td>Coordination and harmonisation</td>
<td>Greater coordination.</td>
</tr>
<tr>
<td>Coordination and harmonisation</td>
<td>1) Prevent certain countries (such as ours) to develop strictly national views on the subject; 2) help institutions (and not national superstructures) to develop a coherent repository; 3) support OA advocacy and mandatory deposit.</td>
</tr>
</tbody>
</table>
Institutional decisions to make Open Access deposit mandatory before submission to a review harmonisation of subject classification and metadata formats generalisation of directories (journals, laboratories etc.) multilingual metadata management systems development of automated metadata extraction of deposited articles citation tools develop epijournals from institutional repositories.

Agreement on common standards for governmental and research funders policies recommending OA.

Coordination and harmonisation

Copyright restrictions to self-archiving.

Clearing of copyright issues concerning Open Access on EU level.

Dealing with copyright issues and the Open Access policy.

The copyright question. There must be clarity about this in the future.

Situation with regards to copyrights is at this moment very labor-intensive work with little effort due to all different policies of publishers and their lack of cooperation.

Ownership of copyright and publishers’ policies.

Open Access philosophy should be widely accepted. Copyright contrasts between authors and publishers should be resolved.

The copyright issue philosophy in Europe should take example from the experience of the Netherlands (a special law that gives the copyright for the electronic publication of older documents to the authors themselves).

The copyright issue.

Establishing clarity and coordinated approach to copyright matters in relation to digital repositories.

Copyright issues with publishers.

Mandatory self-archiving should be considered, there should be more advocacy on the part of the funding agencies, better standards have to be developed for non-textual material.

European policy of mandatory depositing.

Public access to public funded research content.

Institutional policy of mandatory depositing.

The public funded research should have a mandatory Open Access policy attached.

Establishing an European mandate to self-archive European publicly financed research in Open Access repositories.

Policy of mandatory depositing.

Mandates to deposit.
Mandating deposit of research into IR. Mandatory

A requirement for all IST and suchlike EU-funded programmes to self-archive their work somewhere would be very useful in driving adoption. Mandatory

Preservation and free access. Other

File format research. Other

To support European-wide initiatives to find international funds by increasing bibliographic visibility of academics. Other

High amount of publications in Open Accessible institutional repositories. Other

There should be an easy way to access papers/articles to certain topics. Search would be much easier like that. Other

I see no specific issue for the development on European level. Of course there is a need for a good search facility but that should preferably be on world level. Other

The most important issue is the stimulation of (European) research funding condition: research results publicly available, preferably in an open repository. Other

Certainly with repositories being a relatively new concept, I think that advisory services and also encouragement for institutions to develop repositories would help. I also think that persuading publishers to be less restrictive would enable most repositories to develop further. Other

Long-term preservation. Other

Engagement with the academic community across different subject disciplines; what do they want? What would tip the balance from repository success depending upon mandates, to repository success being ensured because of researcher support? Other

Funding. Other

Repositories by discipline. Services

Co-reference disambiguation services. Services

Automated metadata generation. It is expensive and time consuming to create metadata and it would leave managers and their staff with more time for advocacy and finding other sources of items. Services

The direct benefits for the researchers. Services

Subject repositories. Services

The first priority is to support digital disciplinary repositories that aren’t institutional! Services

Linking OA repositories to research assessment policies. Services

Regarding theses repositories there should be a general search portal to increase the visibility of graduating students on the European labour market by making the metadata compliant with the Bologna declaration. Services
Most important would be pressure on service providers such as Web of Science, to ensure persistent linking to their resources, or even web services to bring back data into our portals. (It seems not possible to even link to the WoS page that presents the citation frequency of a given publication – it seems that they change id’s systematically to avoid others to find a solution...). Open Access must be supported to enable our researchers to deposit without problems. Cooperation and common developments for a international infrastructure, common search and retrieval based on a decentralised basis. In the longer run, development of a infrastructure that can evolve to research and educational, cooperative infrastructure.

Service layers tailored to academics needs.

Integrated searchability of all European digital repositories with search options author, research school/university, discipline etc (see Wopec).

Citation index services.

An international co-operation to set up an international search portal. Citation index for articles in our system. Part of the funds to the researchers should be depending on how much the university has published electronically. Technique development and new technique for archiving research material.

I think a common portal and a resolution service for unique identifiers should be prioritised. An international format registry like Pronom should be created and the exchange of archival packages should be possible to make archiving more safe.

Development of disciplinary/ thematic search engines/gateways/portals/repositories.

Search engines/portals across all repositories.

How to create files that are really made for long-term availability in an easy way, so that every scientist can create it.

First quality metadata and services built upon this foundation.

Development of more professional and more flexible document management systems for institutional repositories to manage e-journals within portal sites. Improvement of the quality of deposited documents for long-term preservation.

To get rid of the idea that repositories now are a mature technology. We should not YET focus on organisation embedding (always stated in the form: we need content), we should focus on the development of an adequate XML-based infrastructure.
8. Situation per EU country

Chapter 8 summary

Situation per EU country

What is the situation per country in the European Union with regard to digital repositories with research output? Based on this study it is estimated that there are approximately 230 institutes with a digital repository for research output in the countries of the European Union.

The situation per country differs greatly. In seven EU countries there appear to be no research institutions with a digital repository for research output. Five EU countries seem to be in a starting phase, where a few institutions have set up such a repository. In 15 EU countries a sizeable proportion of the research universities have implemented a digital repository for research output: in seven of these countries it is estimated that more than half of the research universities have done so.

Conclusion

Although the categories are arbitrary and the categorisation of each country is arbitrary as well and often based on limited data, it seems safe to conclude that in a majority of the EU countries (15 of the 25) a sizeable part of the research-oriented universities have implemented a digital repository for their research output. These countries include the larger EU countries with the largest research efforts.

What is the situation per country in the European Union with regard to digital repositories with research output?

There are approximately 230 institutes with a digital repository for research output in the countries of the European Union. This estimate is based on the number of addresses of digital repositories collected for this study and the response to the questionnaire.

To put this number of institutes with a digital repository in context, two sources (Braintrack and the European University Association) have been used to assess the number of universities in the European Union countries (assuming that most digital repositories for research output will be linked to a university). From these figures it can be (very roughly) estimated that between 34% and 45% of the EU universities have a digital repository for
research output. These figures leads to a rough estimate that about 40% of the EU universities have a digital repository for research output.¹

In addition, the available data per country were also put into context. In the map on the next page and the table after that, the data from the web survey and the data collected from the national correspondents are used to sketch the situation per country by categorising each country in four stages.

The following categories were distinguished:

- Not enough data or no digital repository: seven countries fall in this category. For these countries no national correspondent was available to provide a perspective on the situation with regard to digital repositories or the national correspondent indicated that no repository for research output was available. In addition, no repositories for research output of were listed in the directories OpenDOAR or OAIster.

- Starting up: five countries fall in this category. A few institutions have set up a digital repository for research output in these countries.

- Early stage: eight countries fall in this category. A sizeable part of the research-oriented universities – estimated to be between 10% and 50% of the relevant universities in the country – has implemented a digital repository for research output.

- More advanced stage: seven countries fall in this category. A sizeable part of the research-oriented universities – estimated to be 50% or more of the relevant universities in the country – has implemented a digital repository for research output.

It has to be emphasised that the categories are arbitrary and that the categorisation per country is often arbitrary as well and sometimes based on limited information. However, the aim of this exercise is to sketch an overall picture of the situation with regard to digital repositories for research output in the European Union.

From these data one can conclude that in a majority of the EU countries (15 of the 25) a sizeable part of the research-oriented universities have implemented a digital repository for their research output. These countries include the larger EU countries with the largest research efforts.

The results per country are presented in annex A, “Country reports”. 
Map 1 – Development stage of digital repositories for research output per EU country as estimated in January 2007.
<table>
<thead>
<tr>
<th>Number of universities</th>
<th>Braintrack European University Association (full members)</th>
<th>no data or no DR</th>
<th>starting early stage</th>
<th>more advanced stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>11</td>
<td>17</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>16</td>
<td>11</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>27</td>
<td>15</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>0</td>
<td>1</td>
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9. Summary, discussion and conclusions

Chapter 9 summary

In this chapter the results of the DRIVER inventory study are summarised (9.1) and discussed in detail (9.2). Furthermore, these findings are discussed in light of a European agenda for digital repositories (9.3). This last part of this chapter is summarised below.

Towards an agenda for establishing an infrastructure for digital repositories in the European Union

What is the current state of digital repositories for research output in the European Union? From this inventory study it is clear that digital research repositories are already well established throughout many countries in the European Union. In 2006 approximately 230 institutes had implemented one or more digital repositories for research output. In addition, from the contacts with respondents in various EU countries it appears there is a growing and active interest in implementing digital repositories at other institutes. Recent surveys in the US show similar results. Clearly, digital repositories for research output are on their way to become a permanent part of the scholarly communication and documentation infrastructure.

Next steps in stimulating an integrative infrastructure for repositories

What are the next steps to stimulate a connecting and integrative infrastructure for digital repositories at a European level? The further deployment and development of the digital repositories will follow a two-tier approach:

- Deployment of digital repositories at research institutions that do not have one yet.
- Increasing the coverage of the existing digital repositories of published and unpublished textual research output, with a possible future expansion of the coverage of digital repositories to other, non-textual types of research output (e.g. images, video, and research data sets).
Seven items for the European repository agenda

With regard to such a two-tier approach, an agenda for activities at the European level can be formulated. Based on the results of this inventory study, such an agenda should include the following seven items:

1. Increased visibility by increasing retrievability
2. Best practices for the depositing processes
3. A nuanced approach to effective mandatory depositing policies
4. Flexibility in forms of access
5. Awareness and interest among academics and decision makers at research institutes
6. Development of services, such as citation index services or preservation services.
7. Development of further technical standards and a possible close collaboration between the various software solutions.

9.1 Summary of the results

Inventory study using web survey, wiki and telephone interviews

An inventory study into the present types and level of digital repository activity in the countries of the European Union has been carried out as part of the DRIVER project. By a combination of a web survey, publishing results on a wiki and telephone interviews, an attempt was made to make the inventory as complete as possible and to generate feedback amongst participants in the study. The responses generated by this inventory study leads to the following results:

- 230 institutes with one or more digital repositories: It is estimated that there are approximately 230 institutes with one or more digital repositories with research output in the European Union, of which 50% participated in this study.

- The situation per country differs:
  - In 7 EU countries there appear to be no research institutes with a digital repository for research output.
  - 5 EU countries seem to be in a starting phase, where a few institutions have set up such a repository.
  - In 15 EU countries a sizeable part of the research universities has implemented a digital repository for research output: in seven of these countries it is estimated that more than half of the research universities have done so.
Contents and related issues

Qualitative contents
It appears that the large majority of the participating institutes (70%) maintains one digital repository for their research output themselves. A minority (23%) maintains more than one digital repository, while 7% have outsourced the maintenance of a digital repository. Of those digital repositories, the large majority contains full-text materials, such as journal articles, theses, working papers, books or book chapters and proceedings. A minority of repositories contains metadata without the full text, but the total amount of metadata-only records outnumbers the full-text records by and large. Only two repositories were identified that consisted solely of metadata-only records. In addition, a small minority contains non-textual materials, such as images, video or primary data sets.

Quantitative contents
Based on figures given by 104 repositories, it appears that average digital repositories contained nearly 9,000 records (8,984, as assessed in the second half of 2006). The large majority of these records (90%) relates to textual research materials: these records can be split in metadata-only records (61%) and full-text records (29%).

Five per cent of the records relate to non-textual materials such as images, video, music and primary data sets. The 5% ‘other materials’ relate to learning materials, student papers and so on.

Type of textual materials
What type of textual research materials is deposited? More than half of the textual materials relate to journal articles (53%), a smaller share are for books or book chapters (18%). Theses, proceedings and working papers – often labelled as grey literature – have a share of 30%.

Access forms offered by the repositories
What forms of access for full-text records are offered by the repositories? Is Open Access the only form of access, or are other variants also offered? The most important other variants are Open Access with embargo for a certain time period, campus access or not publicly accessible at all (archival purposes only). It appears that most repositories (95%) offer Open Access accessibility. Open Access with an embargo period for full-text records is only offered by 18% of the repositories. About a quarter of the repositories (26%) offer campus access or contain records with no access (14%). Other forms of access are offered by 8% of the repositories, such as available for a fee, after an email request or restricted to members of a project team.
Disciplines
In the next question the respondents were asked to give an estimate about the percentage of materials covering the various disciplines. It appears that on average 30% of the materials in the participating digital repositories are related to disciplines in humanities and social sciences, 25% in natural sciences, 20% in engineering, 13% in life sciences and 12% in other disciplines.

Version of journal articles deposited
Which version of the journal article is deposited (and accepted by the repository)? It appears that 61% of the digital repositories contain the published version of the journal articles, 60% the post-print version and 47% the pre-print version. The respondents were also asked to give a more quantitative indication: it appears that in 52% of the digital repositories, the published form of the journal article is mostly present, in 30% the post-print form is dominant and in 18% the preprint version. In conclusion: although most digital repositories cover all three possible versions of the journal articles, in quantitative terms the published version and the post-print version are dominant.

Coverage of the digital repositories
What percentage of the academics delivers material to the digital repository? Which percentage of research output of the institute from 2005 is deposited in the repository? More than half of the respondents gave estimated percentages, leading to the following averages: the estimated percentage of academics delivering material to the digital repositories is on average 38%. The estimated percentage of research output of 2005 deposited in the digital repositories is on average 37%.

Work processes
How is the material deposited in a digital repository? It appears that a procedure of self-depositing by the academics, with quality control by specialised staff members, is most common (28%), closely followed by a procedure of delivery by the academics, and depositing by the specialised staff members (26%). Only 7% of the repositories followed a procedure whereby the materials were collected by staff members independent of the academics. However, 28% of the digital repositories of the participating institutes followed a combination of the above-mentioned procedures.
Technical infrastructure and technical issues

Software packages
Which software package is used for the digital repository? The main results are:

- The two most frequently used software packages are GNU Eprints (24%) and DSpace (20%).
- Locally developed software packages are also frequently used (17%).
- The OPUS software package is also quite frequently used (10.5%), but its usage is mainly restricted to Germany.
- 14 other software packages were mentioned by the respondents.

In total 17 different software packages have been mentioned, while 19 respondents reported a locally developed software package. This means that the digital repositories in the European Union use at least 18 and probably more than 30 different software packages.

Persistent identifiers
Is a persistent identifier assigned to each document? It appears that according to the respondents approximately 75% of the digital repositories do have a persistent identifier, while 15% do not have such a persistent identifier. Eleven per cent answered with 'don’t know'. Several experts in the field have commented on these results: they think some respondents have misinterpreted the question, as they believe that the percentage of repositories with a persistent identifier in place will be much lower in reality.

Long-term availability
Is the long-term availability of the materials in the repositories secured? It appears that nearly 73% of the digital repositories do have the long-term availability of their materials secured while 16% do not. About 11% of the respondents answered this question with 'don’t know'.

From the comments of the respondents it appears that (1) a number of digital repositories try to guarantee the long-term availability by internal procedures; (2) a number of digital repositories have delegated the long-term availability issue to their national libraries: the national libraries of Germany, the Netherlands and Sweden are specifically mentioned; and (3) a number of digital repositories plan to act on this issue in the near future.

Statistical data on access and usage
Are statistical data on access to the repository and usage of the materials logged? It appears that the majority of the digital repositories (70%) do log the statistical data on access to the repository and the usage of the materi-
als; 22% do not while 8% of the respondents answered this question with ‘don’t know’.

From the comments of the respondents it appears that the analysis and interpretation of the logged data by a statistical package appears often to be in development or problematic.

Metadata standards
Which metadata standards are followed? It appears that 52% of the digital repositories follow qualified Dublin Core standards, while 37% of the digital repositories follow unqualified Dublin Core standards. In addition, 8% follow archival metadata standards, 2% follow print-on-demand metadata standards, 2% follow ONIX metadata standards and 24% follow other metadata standards as well.

Institutional policies

Mandatory versus voluntary depositing
What kind of policy is followed by the institute maintaining the digital repository towards the academics with regard to depositing material? It appears that 51% of the participating digital repositories have a policy of voluntary depositing, while 25% have a policy of (partly) mandatory depositing. The others have no official policy or a different one. From the comments of the respondents it appears that (1) at a number of institutes the academics are obliged to deposit the metadata of their publications; (2) at a number of institutes the PhD students are obliged to deposit their theses in the repository; and (3) in some UK institutes the deposited articles are used for the country-wide Research Assessment Exercise, which is important for research funding.

Spread of various institutional policies
What kind of other policies have been realised within the institutes with regard to the repository?

– In more than 50% of the digital repositories an awareness-raising campaign among academics has been carried out and the repository is integrated and/or linked with other systems in the institute.

In between 30% to 50% of the digital repositories (1) there is contact with a coordinating national body; (2) there are clear guidelines for the selection of material for inclusion in the digital repository; (3) there is high interest from the decision makers within the institute in the repository; (4) there is a policy to safeguard the long-term preservation of the deposited material; and (5) there is a national central gateway to the digital repositories, to which the digital repository is linked.
In less than 20% of the digital repositories (1) some academics are required to deposit research output by the research funding organisations in the country; (2) the digital repository of the institute has been set up with financial support from a national funding program; and (3) the deposited materials are used to measure the output of the individual researchers for evaluation purposes.

In the comments of the respondents research evaluation is mentioned several times as an important purpose for the digital repository and as an important motivational factor for academics to deposit materials.

**Services created on top of the digital repositories**

**Search engines**
Via which channels is the digital repository searchable/accessible? It appears that over 50% of the participating digital repositories are searchable via general internet search engines such as Google, Yahoo or MSN, via OA-Ister and via Google Scholar. All other search engines or portals access less than 50% of the participating digital repositories. It has to be emphasised that these findings reflect the answers of the respondents to the questionnaire and not actual searches using the search engines/gateways/ portals mentioned. Therefore the results might reflect only the awareness of respondents about the searchability of their repositories. However, if their awareness is accurate, there appears to be no single search engine, portal or gateway that can access all participating digital repositories.

**Other services on top of the digital repositories**
The spread of possible services on top of the digital repositories appeared to be as follows:

Many repositories have their contents listed in a library catalogue: in the catalogue of the library of the institution (54%) and/or in a regional or national catalogue (47%).

A small minority of the repositories has added a printing-on-demand service to their repository (12%), while 13% have plans to develop such a link to a printing-on-demand service. A large majority (75%) has presently no plans for such a printing-on-demand service.

About one third of the repositories have a service of displaying usage statistics per digital item (31%), while 25% have plans for such a service. Nearly half of the repositories (45%) have presently no plans for such a service.

About one third of the repositories have personal services for the depositing scientists, such as an automatically generated publication list, added to their repository (35%), while 18% have plans for such personal services. Nearly half of the repositories (47%) have presently no plans for such a service.
Services desired at a European level
In addition, the respondents were asked which services should have priority for further development at a European scale. The top three answers (selected by more than 33% of the respondents) were (1) general search engines, gateways and portals; (2) disciplinary and thematic search engines, gateways and portals; and (3) citation index services.

Next on the priority list (indicated by 20% to 30%) were (4) preservation services; (5) advisory services (Open Access advocacy); and (6) usage statistics services.

Stimulants and inhibitors for maintaining digital repositories
In two questions, the respondents were asked to select the three most important stimulants for the development of their digital repository and the three most important inhibitors out of 14 factors.

More than 25% of the respondents listed as the most important stimulants for the development of digital repositories (1) the increased visibility for the publications of the academics; (2) a simple and user-friendly depositing process; (3) awareness campaigns for academics; and (4) interest from decision makers in the institute.

More than 25% of the respondents listed as the most important inhibitors for the development of digital repositories (1) the lack of an institutional policy of mandatory depositing; (2) the situation with regard to copyright of (to be) published materials and the knowledge about this among academics in our institute; and (3) the lack of requirements of research funding organisations about depositing research output in Open Access repositories.

Highest priority issue on European agenda
In an open question the respondents were asked to state which issues should be highest on the priority list for the development of digital repositories in Europe. The need for (specific) services was mentioned most (n=16), followed by issues with regard to copyright (n=11), the need for mandatory policies with regard to depositing (n=10), coordination and harmonisation issues (n=8) and issues of advocacy (n=7).
9.2 Discussion and conclusions

Coverage

The main results with regard to coverage are:
- There are approximately 230 institutes with one or more digital repositories with research output in the European Union.
- The situation per country differs:
  - In 7 EU countries there appear to be no research institutes with a digital repository for research output.
  - 5 EU countries seem to be in a starting phase, where a few institutions have set up such a repository.
  - In 15 EU countries a sizeable proportion of the research universities has implemented a digital repository for research output: in seven of these countries it is estimated that more than half of the research universities have done so.

Is the glass half full or half empty? Clearly, in the majority of the EU countries a sizeable proportion of the research institutes has implemented one or more repositories for research output. This means that digital repositories for research output are strongly established throughout the European Union. It is also clear from the country reports that many initiatives are under way to deploy repositories to other institutes. Thus, with regard to the deployment of repositories, one could say that the glass is half full and filling rapidly.

On the other hand, the existing repositories cover only an estimated 38% of the research output of their institutes from 2005, while an estimated 37% of the academics in their institutes deposited their materials. Therefore, one could say that with regard to the contents of the existing repositories the glass is still half empty.

Contents

A large majority of the participating institutes (70%) has only one digital repository for research output. However, a sizeable minority (23%) maintains more than one digital repository. Seven per cent of the institutes have outsourced the maintenance of their digital repository.

On average the digital repository contains 8,984 records in total (as of the second half of 2006).

With regard to the type of materials in the digital repositories, records relating to textual materials are dominant (90%). Approximately one-third of the records are full text (32%); the other records are metadata only (68%). Only a small part of the digital repositories contain non-textual materials: 5% of the total number of records relate to non-textual materials, mostly images, video or primary data sets.
The majority of the textual materials relate to articles (53%). Books and book chapters have a share of 18%. Theses, proceedings and working papers often are uniquely available in the digital repositories and have a combined share of 30%.

A large part of the public discussion about digital repositories addresses the issue of the version of the journal articles that should be deposited in relation to the copyright permission by the publisher. From an analysis of the results of this question 28% of the digital repositories appear to have a pragmatic approach and include all versions (published version, post-print version or preprint version), while 41% cover the published version and/or the post-print version. These various approaches have resulted in the situation, in which in over half of the digital repositories (52%) the published form is most prominent, in 30% the post-print form and in 18% preprint version.

In relation to the above-mentioned discussion about the version of the journal articles to be deposited, the forms of access are also in discussion: there is for instance an on-going discussion with the journal publishers about possible accessibility of journal articles in repositories via Open Access with an embargo period. However, from this study (in a separate analysis) it appears that Open Access without restrictions is dominant: 75% of the most digital repositories do not contain materials with Open Access after an embargo period or campus access only and probably will not have the facilities in place for these forms of access.

**Technical aspects**

There appears to be a great variation in software packages that are used to maintain the digital repositories. In all, 17 different software packages were mentioned by name by the participants in this study, while the category ‘locally developed software package’ was mentioned by 19 respondents. Thus, more than 20 and possibly more than 30 different software packages for the maintenance of digital repositories are in use across the European Union. However, in a sign of a possible consolidation of the market for software packages for digital repositories, more than half of the digital repositories used GNU EPrints, DSPACE or OPUS.

With regard to other technical aspects, a large majority (70% or more) of the digital repositories have a persistent identifier in place, the long-term availability secured and produce statistical data on access and usage. With regard to an author identifier, only a minority of the digital repositories assign a unique identifier to each author.

With regard to indexing, 8% of the digital repositories have no subject indexing at all. The others are more or less evenly split in using a standardised system (48%) or using freely assigned keywords (42%). Approximately a third of the digital repositories use a method of subject indexing only in the language of their own country. Obviously, the method of subject
and/or keyword indexing and the language are very important issues in relation to the retrievability of the contents of the various digital repositories.

Services

With regard to the search engines, gateways or portals there appears to be no single search engine, portal or gateway that can access all participating digital repositories. The highest shares of the digital repositories are accessed by general search engines such as Google or Yahoo (65%), OAIster (58%) and Google Scholar (52%).

With regard to a number of services, 54% of the digital repositories have their content listed in a regional or national catalogue, 35% offer personal services for the depositing scientists (such as automatically generated publication lists), 31% have a service of displaying usage statistics per digital item and 12% have a link to a printing-on-demand service.

With regard to priorities for services at a European scale, the highest priorities were given to general and thematic/disciplinary search engines, gateways or portals and citation index services.

Policy issues

- Mandatory depositing: from this study it appears that 25% of the digital repositories have a policy of (partly) mandatory depositing. Twenty per cent of the respondents see this as an important stimulant, 50% of the respondents see a lack of an institutional policy of mandatory depositing as an important inhibitor for the further development of their digital repository.
- Awareness campaigns and advocacy: 59% of the digital repositories in this study have carried out an awareness campaign in their institute. Such awareness-raising efforts among the academics in the institute are seen as an important stimulant by 29%, while 16% see a lack of such awareness-raising efforts as an important inhibitor.
- Integration of the digital repository with other systems in the institute: 58% of the digital repositories have created an integration or link with other systems in the institute. Such an integration or linking is seen by 18% as an important stimulant for the further development of the digital repository. The lack of such links or integration is seen as an important inhibitor by 11%.
- Coordinating national body for repositories: 44% of the digital repositories report having contact with a coordinating national body. Four per cent of the respondents see this as an important stimulant, 10% see the lack of such coordination by the national body as an important inhibitor.
- Clear guidelines for the selection of material for inclusion in the digital repository: 42% of the respondents report to have clear guidelines for their
digital repository. Two per cent see these clear guidelines as an important stimulant, 3% as an important inhibitor for the further development of their digital repository.

- **Interest from decision makers within the institute:** 40% of the digital repositories report that the interest from decision makers within their institute in the digital repositories is (rather) high. Twenty-six per cent of the respondents see this as an important stimulant, 22% see this as an important inhibitor for the further development of their digital repository.

- **Long-term preservation:** 39% of the respondents report that for their repository a policy is in place to safeguard the long-term preservation of the deposited material. Fifteen per cent of the respondents see such long-term preservation policy as an important stimulant, 2% see the lack of a long-term preservation policy as an important inhibitor for the further development of their digital repository.

- **Linked to a central countrywide gateway:** 33% of the digital repositories report a link to a central country-wide gateway for digital repositories. Ten per cent report search services as provided by national and international gateways as an important stimulant for the further development of their digital repository, 4% see the lack of such search services as an important inhibitor.

- **Requirements by funding organisations to deposit research output in repositories:** 19% of the respondents report that some academics in their institutes are required to deposit research output by research funding organisations in their country. Fifteen per cent of the respondents see such requirements by research funding organisations in their country as an important stimulant, 27% see the lack of such requirements by research funding organisations as an important inhibitor for the further development of their digital repository.

- **Financial support from a national funding programme for digital repositories:** 18% of the respondents report that their digital repository has been set up with financial support from a national funding programme for digital repositories in their country. Eight per cent of the respondents see this financial support as an important stimulant for the development of their digital repository, 16% see the lack of such financial support as an important inhibitor.

- **Accountability/ research evaluation purposes:** 17% of the digital repositories report that in their institute the deposited materials are used to measure the output of the individual researchers for evaluation purposes. Four per cent of the respondents see this institutional policy of accountability as an important stimulant for their digital repository, 4% see the lack of such institutional policy of accountability as an important inhibitor.

- **Situation with regard to copyright of published materials:** 11% of the respondents see the situation with regard to copyright as an important stimulant for their digital repository, 49% see this copyright situation as an important inhibitor for the further development of their digital repository.²
– *Increased visibility and citations for publications of the academics:* 47% of the respondents see the increased visibility and citations for the publications of the academics in the institute as a most important stimulant, 6% see the lack of support for such increased visibility as an important inhibitor.

– *A simple and user-friendly depositing process:* 44% see their simple and user-friendly depositing process as an important stimulant for the further development of their digital repository, 16% see the lack of such a simple and user-friendly depositing process as an important inhibitor. In other results from this study it appears that there are rather different work processes used for depositing materials: 28% use a procedure of self-depositing followed by quality control, 26% follow a procedure of delivery by academics and depositing by staff and 7% follow a procedure whereby the materials were collected independent of the academics. Twenty-eight per cent follow a combination of all three procedures.

In conclusion, the following seven factors are seen as important:
– The increased visibility for the publications of the academics.
– A simple and user-friendly depositing process.
– A mandatory policy for the depositing of the research output by the institute.
– An improvement in the situation with regard to the copyright of published materials.
– Requirements by research funding organisations for the depositing of research output in repositories.
– Awareness campaigns.
– Interest from decision makers.

The following factors are seen as somewhat important:
– Integration or links of the digital repositories with other systems in the institute.
– Long-term preservation.

The other factors are seen to be of lesser importance:
– A link with a coordinating national body.
– A link to a central country-wide gateway.
– Financial support by a national programme.
– Clear guidelines for inclusion of materials.

9.3 Towards an agenda for establishing an infrastructure for digital repositories in the European Union

A number of important outcomes of this study with regard to digital repositories in the European Union are:
– In the European Union there are an estimated 230 institutes with one or more digital repositories with research output.
In a majority of the EU countries (15) many research-oriented universities have implemented a digital repository for their research output. These countries include the larger EU countries with the largest research efforts. In the other EU countries research-oriented universities seldom have an institutional repository for research output.

The contents of the digital repositories consist for 90% of textual materials.

It is clear from this study that digital research repositories are already well established in Europe over the last few years. In addition, from the contacts with respondents in various EU countries it appears there is a growing and active interest in implementing digital repositories at other institutes. Recent surveys in the US show similar results. Clearly, digital repositories for research output are on their way to becoming a permanent part of the infrastructure of scholarly communication.

What should be the next steps to stimulate a connecting and integrative infrastructure for digital repositories at a European level? The further deployment and development of the digital repositories will follow a two-tier approach:

- Deployment of digital repositories at research institutions that do not have one yet.
- Increasing the coverage of the existing digital repositories of published and unpublished textual research output, with a possible future expansion of the coverage of digital repositories to other, non-textual types of research output (e.g. images, video, and research data sets).

To further this two-tier approach, four instruments are available at a European level:

- Developing and improving the technical infrastructure through knowledge exchange and harmonisation efforts.
- Developing and improving the organisational know-how to set up and maintain digital repositories through knowledge exchange and harmonisation efforts.
- Developing services on top of digital repositories in order to enhance the usefulness and utility of the digital repositories.
- Advocacy to influence and change existing policies of universities, research funding and behaviour of academics.

Based on the results of this DRIVER Inventory study, an agenda for establishing an infrastructure for digital repositories in the European Union should include the following seven action points:

1. **Increased visibility by increasing retrievability**: The increased visibility for academic publications is seen as a major factor for the development of digital repositories by the participants of this study. To increase visibility is to increase the retrievability, which includes accessibility for search engines. In other results from this study, it appears that no single search engine, portal or gateway can access the more than 200 digital reposi-
tories in the European Union. Indeed, the need for general and discipline/thematic search engines has the highest priority for services at a European scale according to the participants of this study. In addition, retrievability would be enhanced by better metadata, harmonised subject and/or keyword indexing etc.

2. **Best practices for the depositing processes:** A simple and user-friendly depositing process is also seen as a major factor by the participants of this study. In other results from this study, it appears that there are a number of different work procedures for the depositing process in place. An effort to establish best practices for the depositing processes (possibly followed by a harmonisation effort) will facilitate an increase in the delivery of contents to the digital repositories.

3. **Mandatory depositing:** A mandatory policy for the depositing of the research output by the institute and, in line with this, requirements by research funding organisations for the depositing of research output in repositories, are seen by many respondents as very desirable in order to maintain and fill their digital repositories. However, institutional mandates are rather controversial, as some expect them to be counterproductive. Clearly, a nuanced approach to effective mandatory policies for institutes and for research funding organisations should be part of a European agenda.

4. **Flexibility in forms of access:** The situation with regard to copyright of published materials is seen as a major inhibitor for the further development of digital repositories by the participants of this study. However, it also became apparent in this study that many digital repositories have no facilities for allowing other forms of access besides Open Access, such as Open Access with an embargo period or campus access. These variations in access forms might help to increase the coverage of published materials, in addition to further advocacy efforts with regard to the copyright policies of publishers. Again, such an approach, without watering down the Open Access vision, could be worked out in a European agenda.

5. **Awareness and interest among academics and decision makers at research institutes:** Other important goals for advocacy efforts, as seen from the perspective of this study, should be to create interest from decision makers and to stimulate or support awareness campaigns among academics.

6. **Development of services:** With regard to other possible services on top of the digital repositories, priority should be given – apart from the earlier-mentioned journal and thematic search engines – to citation index services and preservation services.

7. **Development of further technical standards and a possible close collaboration between the various software solutions:** The need for technical harmonisation by the development of common standards is also made clear by the large number of software packages in use by the various digital repositories. For the development of new services on top of the digital repositories, adherence to agreed standards and possibly close collaboration
between various software developers is seen as crucial for the development of services on top of the digital repositories and should be part of any European agenda.
Annex A – Country reports

Below the data collected per country are presented.
– If more than two participants from a country responded to the survey, the results of a number of key questions in the survey are presented.
– If more than five participants from one country responded to the survey, answers that are statistically significantly different from the other EU countries are presented as well (chi square test).
– Many participants commented that as the survey did not cover the institutions in their country completely; these results should be considered with care.

Austria

Deployment status
Number of universities (according to Braintrack) 11
Number of universities (EUA) 16
Number of institutes with DR (source: OpenDOAR) 3
Number of participants this survey 2

Contents
What type of materials are presently in the digital repository of your institute? | n | 2 Answers %
--- | --- | ---
articles (full text and metadata) | 1 | 50.0
articles (metadata only) | 0 | 0.0
books/book chapters (full text and metadata) | 1 | 50.0
books/book chapters (metadata only) | 0 | 0.0
theses (full text and metadata) | 1 | 50.0
theses (metadata only) | 0 | 0.0
proceedings (full text and metadata) | 1 | 50.0
proceedings (metadata only) | 0 | 0.0
working papers (full text and metadata) | 2 | 100.0
working papers (metadata only) | 0 | 0.0
primary data sets | 1 | 50.0
images | 1 | 50.0
video | 1 | 50.0
music | 1 | 50.0
other | 0 | 0.0
Technical aspects

<table>
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<tr>
<th>Software packages used</th>
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<th>Answers %</th>
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<td>locally developed software package</td>
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<tr>
<td>other</td>
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</table>

Institutional policies (significantly differing from the EU average)
No significant differences found.

Services (significantly differing from the EU average)
No significant differences found.

Stimulants/ inhibitors
- Most important stimulant (all equally important):
  - our simple and user-friendly depositing process
  - our institutional policy of mandatory depositing
  - awareness-raising efforts among the academics in our institute
  - increased visibility and citations for the publications of the academics in our institute.
- Most important inhibitor (both equally important):
  - lack of an institutional policy of mandatory depositing
  - lack of integration/linking of the digital repository with other systems in our institute.

Perspective from Austria

According to our information, 3 institutes in Austria maintain a digital repository for research output: the University of Vienna, the economic University of Vienna, and the Austrian Academic of Sciences.

Belgium

<table>
<thead>
<tr>
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Technical aspects

Software packages used

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<td>o blanks</td>
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</table>

Institutional policies (significantly differing from the EU average)

- The digital repository is integrated/linked with other systems in our institute: 100% in Belgium, versus 56% in the rest of Europe.

Services (significantly differing from the EU average)

No significant differences found.

Stimulants/inhibitors

- Most important stimulant:
our simple and user-friendly depositing process

Most important inhibitor (all equally important):
- lack of an institutional policy of mandatory depositing
- lack of requirements of research funding organisations in our country about depositing research output in Open Access repositories
- lack of financial support from a national funding programme for the digital repository in our institute, lack of coordination of a national body for digital repositories

Perspective from Belgium (Karen van Godtsenhoven)

There are 15 universities in Belgium, out of which 11 are the 'mother institutions' of smaller ones. Of these larger universities, 7 have already implemented a digital repository for research output. The other four universities are planning to implement one in the near future.

On 13 February 2007, 14 university rectors (all but one) have signed the Berlin Declaration at a DRIVER-instigated conference: this awareness campaign is expected to help in setting up digital repositories.

With regard to the contents of the digital repositories, most universities already have a system for the bibliographic data of research publications. Sometimes it is obligatory for the scientists to deliver the bibliographic details of their research publications to these systems. Many digital repositories start with the contents of these systems.

The respondent also notices that several subject-oriented research institutes are now setting up digital repositories. In Belgium during the DRIVER project there have been a number of meetings between the persons involved in the digital repositories of the various universities with the aim of knowledge exchange. This has been very stimulating.

The respondent thinks the increased visibility of the research publications are the main driving factor for the researchers. As the most important inhibiting factor, the respondent sees the fact that many researchers think it will be a time-consuming effort to deliver the full text of their research publications, especially in view of the complex copyright situation.

As a European stimulant, the respondent pleads for a continuation of the DRIVER project or a similar project at the European level. As many digital repositories have just started to up, guidelines, support, knowledge exchange meetings and the like will be needed until at least 2010 to establish the digital repositories firmly in the universities and research community in Belgium, according to the respondent.

Bulgaria

Deployment status
Number of universities (according to Braintrack) 27
Number of universities (EUA) 15
Number of institutes with DR (source: OpenDOAR, OAIster) 0
Number of participants this survey n.a.
Situation in Bulgaria

Bulgaria has been part of the European Union since 1 January 2007. Bulgaria was not included in the original web survey for this study that took place in 2006. No repositories from a Bulgarian research institute are registered in OpenDOAR or OAIster.

Cyprus

Deployment status
Number of universities (according to Braintrack): 0
Number of universities (EUA): 1
Number of institutes with DR: Unknown
Number of participants this survey: 0

Perspective from Cyprus

The main university of Cyprus, the University of Cyprus, has been contacted without success. No repositories are listed on their website.

Czech Republic

Deployment status
Number of universities (according to Braintrack): 16
Number of universities (EUA): 17
Number of institutes with DR (source: this survey): 4
Number of participants this survey: 4

Contents

<table>
<thead>
<tr>
<th>What type of materials are presently in the digital repository of your institute?</th>
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<th>4 Answers %</th>
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<td>books/ book chapters (metadata only)</td>
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<tr>
<td>primary data sets</td>
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<td>images</td>
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Technical aspects

<table>
<thead>
<tr>
<th>Software packages used</th>
<th>n</th>
<th>4 Answers %</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>other</td>
<td>2</td>
<td>50.0</td>
</tr>
</tbody>
</table>

Institutional policies (significantly differing from the EU average)
No significant differences.

Services (significantly differing from the EU average)
No significant differences.

Stimulants/ inhibitors

- Most important stimulant: integration/linking of the digital repository with other systems in our institute.
- Most important inhibitor: lack of an institutional policy of mandatory depositing.

Perspective from the Czech Republic

From this survey, it appears that out of the 16-17 universities in the Czech Republic, 4 universities have implemented a digital repository for research output. According to our information the building of digital repositories is in its beginnings, and there is not yet any overview of the Czech universities on this topic available. University libraries are often involved, but not always: a number of faculties are building their own repositories without collaboration with the library.

Denmark

Deployment status

- Number of universities (according to Braintrack): 9
- Number of universities (EUA): 10
- Number of institutes with DR (source: national correspondent): 7
- Number of participants this survey: 5

Contents

What type of materials are presently in the digital repository of your institute?

<table>
<thead>
<tr>
<th>articles (full text and metadata)</th>
<th>n</th>
<th>5 Answers %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>
articles (metadata only) 4 80.0
books/book chapters (full text and metadata) 1 20.0
books/book chapters (metadata only) 5 100.0
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theses (metadata only) 5 100.0
proceedings (full text and metadata) 3 60.0
proceedings (metadata only) 5 100.0
working papers (full text and metadata) 4 80.0
working papers (metadata only) 5 100.0
primary data sets 2 40.0
images 2 40.0
video 2 40.0
music 1 20.0
other 3 60.0

Technical aspects

<table>
<thead>
<tr>
<th>Software packages used</th>
<th>n</th>
<th>Answers %</th>
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</thead>
<tbody>
<tr>
<td>locally developed software package</td>
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<td>40.0</td>
</tr>
<tr>
<td>other</td>
<td>3</td>
<td>60.0</td>
</tr>
</tbody>
</table>

Additional information: currently, 9 out of 12 Danish universities runs on the same institutional repository system (PURE) and the same metadata model.

– Unique author identifier: 80% in Denmark, versus 30% in the rest of Europe.

Institutional policies (significantly differing from the EU average)

– Link with coordinating national body: 0% in Denmark, versus 46% in the rest of Europe.

Services (significantly differing from the EU average)

Priorities for services at a European scale:

– Citation index services: 100% in Denmark, versus 31% in the rest of Europe.

Stimulants/inhibitors

– Most important stimulant (both equally important):
  – increased visibility and citations for the publications of the academics in our institute
  – interest from the decision makers within our institute

– Most important inhibitor (both equally important):
  – lack of an institutional policy of mandatory depositing
  – lack of financial support from a national funding programme for the digital repository in our institute
Perspective from Denmark (Hanne Marie Kvaerndrup)

The Danish model

The Danish National Research Database (DDF) presents an overall picture of research in progress and published Danish research. The database has been established by the Ministry of Science, Technology and Innovation, and is today a part of Denmark’s Electronic Research Library. The day-to-day running of the database is maintained by the project management of the database. Since 1988, when collecting and storing information about Danish research results and research in progress began, the database has grown to include more than 150,000 research references. The DDF is based on information delivered from universities, other institutions of higher education, government research institutes, research councils and other public institutions carrying out research. The number of database suppliers continuously grows.

The database contains three types of information:

- Literature – published research: references to periodical articles, books, chapters in books, reports, conferences;
- Projects – research projects: descriptions of research in progress or completed research studies;
- Profiles – general descriptions of research carried out at institutes, laboratories or departments.

The database is also prepared for profiles of individual researchers. The database does not yet provide 100% coverage, but the DDF project management continuously makes new agreements for the supply of data.

The aim of the DDF is to give interested parties access to information about Danish research, regardless of subject or where the research is taking place. Through the DDF it is easy to obtain an overview of research in different areas, knowledge which can be used in research environments, industry and public research planning.

The database can be used for different purposes, for instance to:

- identify expertise within a specific subject area to find partners or get useful contacts
- get valuable background information for setting up priorities for science policy planning
- get an overview of the research activities of a specific research institute
- find research projects initiated under a specific research program
- identify published research within a given subject, by a given person or by a given institute

The users of the DDF comprise researchers, administration and management, the business community, the press, teachers and information brokers.

Suppliers

- 23 universities and other higher education institutions
- 17 governmental research institutions
- 8 funding organisations
- 10 other suppliers within research
The system
The system behind the DDF is developed by InfoLab, IPU. At present the system includes the following modules:
- cataloguing
- data import and administration
- search engine and database network
- user interface

During the second phase of the development project, Open Archives data export and harvesting will be added. The database and its related components are physically located at InfoLab, IPU by DTU in Lyngby, Denmark.

Formats
The current version of the new national exchange format for documents, DDF-MXD, is a new metadata format to be used when supplying publication data to the DDF. An accompanying exchange format for projects DDF-MXP will follow in spring 2006. The new format is part of a suite of changes of the DDF which aim to improve the quality of search functionalities as well as to reduce the current costs of maintaining the database. The goal of the new format is to make it possible to coordinate and index the gathered data with higher precision and consistency than has yet been possible. This will help improve search and display options as well as the options to search and compare results across different data suppliers. Furthermore, the maintenance of the national research database will be highly improved when data is supplied in a new unified format which can easily be imported without requiring post analysis and data conversion. The new format is specified in XML, whereas the check of data supplies (XML schema validation) as well as the supplying method (Open Archives metadata harvesting) can be automated.

The National Research Portal
In 2003 The Danish Ministry of Science, Technology and Innovation put dissemination of research on the agenda and DEFF was asked to develop a concept for a national research portal. The aim of the National Research Portal is to disseminate Danish research in a more populistic way and the target group is the young generation and education institutions. The portal is supposed to be supplementary to the websites of the individual universities and research institutions. DDF is to be the keystone for background information for the National Research Portal.
In 2004 DDF was evaluated by an external consultancy company in connection with its possible role within a National Research Portal.

The evaluations results showed that there is a great need and interest for a continued service as DDF as well as for a unique National Research Portal. But the evaluation also showed that the very bad data quality and low coverage is the DDF’s big problem. There is a need to improve quality and coverage by developing better facilities and formats in order to support search and statistical facilities. There is also a need for the institutions to be facilitated in their environment and a need for system support for registration and repository needs.

Institutional repositories

On the local level the systems which have been used have differed much in many ways. There has been no standardisation of data registration except when a library had the task to manage research registration in the library system.

In 2003 DEFF funded a pilot project where three university libraries participated in implementing institutional repositories (IR) with systems like DSPACE from MIT, a Swedish system called DIVA and Fedora from MIT. The experience showed major limitations in adjustment and further possibilities for the development of facilities for digital preservation in DSPACE. Fedora showed excellent possibilities based on more open XML structures.

Fedora as a generic IR architecture

In 2004 DEFF funded five universities and their libraries in a new IR project where the Danish software PURE was developed as an IR registration system together with Fedora as a digital archive system. The aim was to be part of an international development project. Fedora covers e-publishing facilities, registration, and preservation of digital information. The DEFF program for system architecture participates together with Cornell University, University of Virginia, the US National Science Digital Library, Tufts University, Northwestern University, the Harris Corporation, VTLS and the Australian project ARROW (Australian Research Repositories Online to the World).

A future concept for IR and DDF

The university libraries have a consensus about using the PURE and Fedora systems as core elements in future infrastructure and are focusing on preservation of digital content. The projects have also shown that there is an agreement about the interoperability with DDF in the terms of XML format and OAI harvesting methods.

Seven universities and their libraries have now implemented this concept and more are to come. Many smaller-sized research institutions are using DDF as a ‘hotel’ and DEFF expects more institutions to choose this solution. Even some of the universities are considering this opportunity of outsourcing.
Future development

There are several steps to go before this concept is reality and many challenges have to be overcome. These include having:

- all research institutions participate in the IR/DDF concept
- OAI harvesting infrastructure accepted
- a new technical solution for DDF system architecture
- common exchange formats for types of media and categories
- higher quality of bibliographic data by the use of ISI data
- full-text linking
- content covering e-science material
- institutional policy for registration and open access to research information
- the political agreement both on the ministry and institutional levels that this concept will be of benefit for Denmark

The Knowledge Exchange can help DEFF get there by showing good examples and solutions in the areas of technical issues, standards, organisation, policy and approach.

**Deployment status**

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of universities (according to Braintrack)</th>
<th>Number of universities (EUA)</th>
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</table>

**Perspective from Estonia (Liina Enok)**

There are an estimated eight universities in Estonia. One of them has a digital repository for research output. Other universities might have some digitised material, but not a repository in the strict sense of the word. However, the correspondent describes a growing interest from other universities in setting up a digital repository for research output. As the main driving factor, the correspondent notes that most material is in digital form anyway, so there is a natural
call from potential readers to archive it and make it available. A lack of funding is seen as a large inhibitor. However, the correspondent notes that even without a lack of funding, this will take some time to set up.

**Finland**

*Deployment status*

| Number of universities (according to Braintrack) | 21 |
| Number of universities (EUA) | 16 |
| Number of institutes with DR (source: national correspondent) | 7 |
| Number of participants this survey | 3 |

**Contents**

<table>
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<th>What type of materials are presently in the digital repository of your institute?</th>
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<th>3 Answers %</th>
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</tbody>
</table>

**Institutional policies (significantly differing from the EU average)**

No significant differences.
Services (significantly differing from the EU average)
No significant differences.

Stimulants/ inhibitors
- Most important stimulant (both equally important):
  - increased visibility and citations for the publications of the academics in our institute
  - interest from the decision makers within our institute
- Most important inhibitor (both equally important):
  - lack of an institutional policy of mandatory depositing
  - lack of requirements of research funding organisations in our country about depositing
  research output in Open Access repositories

Perspective from Finland (Rita Voigt)
Finland counts 20 universities, excluding a military higher education institute. Six to seven universities have at least one digital repository for research output (the University of Helsinki has more than one repository). Many of these repositories have only very recently been set up. The main focus of the coverage lies on the grey literature: reports and theses. Only one digital repository focuses on research articles from peer-reviewed journals.

Last year a national project – funded by the Ministry of Education – started with the aim of promoting institutional repositories among the universities. During this year, great progress has been made. Probably the project will be extended for another year. It is expected that if the project is continued, most of the other universities will start the digital repository for research output in the coming year.

The main driving factor behind the digital repositories is to preserve the research output of the institute. This is also the reason why the focus lies on publications, which are not published elsewhere, thus mainly grey literature.

The main inhibitor for setting up digital repositories in Finland is a lack of awareness and a lack of technical staff, according to the respondent. In Finland, the national library plays traditionally a very important central role. With regard to institutional repositories, this has led to a debate: should there be one national repository or should each institute maintain its own institutional repository? The respondent expect this debate will be solved with a compromise: the larger universities probably will set up and maintain an institutional repository themselves, the small- to medium-sized institutes might outsource of their repository to the national library (an estimated four to five institutes).

Which action at the European level would help the situation in Finland best? The provision of guidelines, best practices and standards will be extremely useful. It is seen as very important that all European Union countries should be involved in the development of best practices and guidelines in order to include the various cultural differences.
### France

**Deployment status**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Number of universities (according to Braintrack)</td>
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</tr>
<tr>
<td>Number of universities (EUA)</td>
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<tr>
<td>Number of institutes with DR (source: national correspondent)</td>
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</tr>
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<td>Number of participants this survey</td>
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### Contents

**What type of materials is presently in the digital repository of your institute?**

<table>
<thead>
<tr>
<th>Type of Material</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<td>4</td>
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<tr>
<td>working papers (full text and metadata)</td>
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<td>primary data sets</td>
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<td>0.0</td>
</tr>
<tr>
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<td>0.0</td>
</tr>
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<td>music</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>other</td>
<td>1</td>
<td>14.3</td>
</tr>
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</table>

### Technical aspects

**Software packages used**

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<thead>
<tr>
<th>Software</th>
<th>n</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>GNU Eprints</td>
<td>4</td>
<td>57.1</td>
</tr>
<tr>
<td>locally developed software package</td>
<td>2</td>
<td>28.6</td>
</tr>
<tr>
<td>other</td>
<td>1</td>
<td>14.3</td>
</tr>
</tbody>
</table>

### Institutional policies (significantly differing from the EU average)

No institutional policies differ significantly from the EU average.

### Services (significantly differing from the EU average)

No services differ significantly from the EU average.
Stimulants/ inhibitors

- Most important stimulant (both equally important):
  - our simple and user-friendly depositing process
  - Increased visibility and citations for the publications of the academics in our institute
- Most important inhibitor: situation with regard to copyright of (to be) published materials and the knowledge about this among academics in our institute.

Perspective from France

(Muriel Foulonneau and Anne-Marie Badolato; Jean-François Lutz)

There are approximately 40 OAI repositories in France. However, not all of them are institutional repositories with full text, in some cases they contain metadata only or raw data. Thus, it is estimated that more than 30 universities have a OAI repository.

The HAL archive is a national aggregator which offers a common platform to multiple archives, whether institutional (HAL-INSERM), topic related (HAL-SHS for humanities and social sciences), or format related (TEL for PHD thesis). Originally conceived to host CNRS research output, it gathers material from any French (and other) research institution. All French universities, major higher education schools (conference des grandes écoles) and major research institutes (such as INRA or IRD) have signed a common protocol to make HAL their common platform to host nationally the French research available in Open Access. This is the reason why the CCSD answers on the technical choice is actually valid for the following archives, since HAL includes all of them:

Hal, Hal Inria, Hal-Inserm, archivesic, artxiker, Tel, Hal In2p3, Thematice/Edutice, Jean nicod and Hal-shs.

The administrators of those archives were asked not to answer the questionnaire. This could be reflected in the response rate.

HAL includes approximately 40,000 records.

In summary, the above-mentioned national agreement means that all research institutions have agreed to either deposited in HAL or to develop their own repository and deposit the content of that repository in HAL.

With regard to the author identifier, it has to be noticed that in France a particular attention was paid to identifying research entities – laboratories, institutions – more than researchers.

With regard to search engines, it is noticeable that a meeting has taken place with Google Scholar so that HAL archives are appropriately indexed.

In France, institutional, national and disciplinary archives coexist. A general policy to coordinate such archives at the national level through a common platform has been widely accepted. However, if the national scale has the potential to provide efficient advisory services, metadata creation and enhancement support, and so on, it would be important to relay this effort at European and/or international level, notably through facilitating the creation of disciplinary archives. Practical tools for researchers and funding agencies, based on the archives are also likely to modify the research methodologies and habits in the long run. Those include the positioning and contribution of research entities (laboratories and institutions) to the scholarly communication activities as well as personal alerts on new material. The preservation issue is also an important line of work among French actors of the Open Access.
Jean-François Lutz from the Couperin Consortium and University of Metz added the following comments:

- Following the agreement between all French research institutions in order to develop a coordinated policy about open archives, the Couperin consortium (the sole French academic libraries consortium, http://www.couperin.org) set up a working group on open archives (GTAO) in December 2006 in which the French universities and grandes écoles are represented.

- The goals of the group are on the one hand to help institutions to build up institutional repositories (technical concerns, communication toward the research community, legal issues, etc.) linked to the above-mentioned common platform, and on the other hand to draw up an inventory of existing open archives and current projects in French universities.

- This investigation will take place during the following months and final results will be available towards June 2007. It should help in describing more precisely the French OA scene.

### Germany

**Deployment status**

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
</table>
| Number of universities (according to Braintrack) | 77  
| Number of universities (EUA)                      | 58  
| Number of institutes with DR                       | 65  
| Number of participants this survey                 | 18  

### Contents

<table>
<thead>
<tr>
<th>What type of materials are presently in the digital repository of your institute?</th>
<th>n</th>
<th>18 Answers %</th>
</tr>
</thead>
<tbody>
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<td>other</td>
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Technical aspects

<table>
<thead>
<tr>
<th>Software packages used</th>
<th>n</th>
<th>18 Answers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPUS</td>
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<td>66.7</td>
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<tr>
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<td>16.7</td>
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<tr>
<td>other</td>
<td>3</td>
<td>16.7</td>
</tr>
</tbody>
</table>

Institutional policies (significantly differing from the EU average)

No significant differences were found.

Services (significantly differing from the EU average)

- Contents listed in national/regional catalogue: 83% in Germany, versus 41% in the rest of Europe.
- Contents listed in library catalogue: 78% in Germany, versus 49% in the rest of Europe.

Stimulants/ inhibitors

- Most important stimulant: our simple and user-friendly depositing process.
- Most important inhibitor: situation with regard to copyright of (to be) published materials and the knowledge about this among academics in our institute.

Perspective from Germany (Friedrich Summann, with additional information from Frank Scholze)

Germany has approximately 100 universities. The number of higher education institutes is much higher: the German Rector’s Conference lists 371 higher educational institutes in Germany (http://www.hochschulkompass.de/kompass/xml/download/hs_liste.txt).

In Germany there are 109 OAI repositories (see http://www.dini.de/dini/wisspub/repositories/english/index_en.php). Only 50% of these repositories have OAI interfaces – this seems less than in the other countries. Most of the repositories in Germany use OPUS, a system developed by the Stuttgart University Library. OPUS is PHP-based and a relatively simple and transparent software system. Other software packages used in Germany are DSpace (around five), MyCore (around four) and a few Fedora and Eprints installations. Other implementations are mostly with locally developed software.

According to the respondent, most activities with regard to digital repositories started as initiatives from the institutes themselves. There are a number of centrally based platforms (located at country-state library networks in Cologne, Berlin and Munich). The DINI organisation (Deutsche Initiative für Netzwerkinformation) supports knowledge exchange and certification of Open Access digital repositories. Especially the certification process is seen to have a positive influence on data quality and conformity. In the federal environment of Germany, the rather strong competition among universities and libraries is acting as a stimulant for digital repositories. The most important inhibitor seems to be a lack of technical know-how.

At the European level, the situation in Germany would be best supported by a further improvement of the infrastructure in combination with advocacy activities.
It is noted that the number of 18 institutions participating in the survey is rather small compared to the 109 IRs that are known at the moment in Germany and that therefore the results have to be considered carefully regarding representativeness.

**Greece**

**Deployment status**

| Number of universities (according to Braintrack) | 18 |
| Number of universities (EUA) | 16 |
| Number of institutes with DR | Unknown |
| Number of participants this survey | 0 |

**Perspective from Greece (Kostas Saidis)**

According to our information, there are three Greek universities with digital repositories for research output: the University of Macedonia, the Aristotle University of Thessaloniki and the University of Crete.

In addition, the University of Athens and the University of Crete have also developed OAI repositories with historical and cultural content.

There are a number of locally funded projects with the aim of implementing other digital repositories for research output in the near future.

**Hungary**

**Deployment status**

| Number of universities (according to Braintrack) | 29 |
| Number of universities (EUA) | 12 |
| Number of institutes with DR (source: OpenDOAR) | 1 |
| Number of participants this survey | 0 |

**Perspective from Hungary**

The Central European University in Hungary has set up a number of repositories, listed in OpenDOAR. The Central European University is an American graduate university, and focused on social sciences and humanities. We have received indirect information suggesting that the Hungarian universities and research institutes have not set up a repositories with research output.
Ireland

deployment status

number of universities (according to Braintrack) 4
Number of universities (EUA) 8
Number of institutes with DR 3
number of participants this survey 2

Contents

What type of materials are presently in the digital repository of your institute?

<table>
<thead>
<tr>
<th>Material Type</th>
<th>n</th>
<th>2 Answers %</th>
</tr>
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<tr>
<td>other</td>
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Technical aspects

Software packages used

<table>
<thead>
<tr>
<th>Package</th>
<th>n</th>
<th>2 Answers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNU Eprints</td>
<td>2</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Institutional policies (significantly differing from the EU average)
No significant differences found.

Services (significantly differing from the EU average)
No significant differences found.

Stimulants/inhibitors

- Most important stimulant (all equally important):
  - our institutional policy of mandatory depositing
  - awareness-raising efforts among the academics in our institute
– increased visibility and citations for the publications of the academics in our institute
– interest from the decision makers within our institute
– financial support from a national funding programme for the digital repository in our institute
– situation with regard to copyright of (to be) published materials and the knowledge about this among academics in our institute
– Most important inhibitor: lack of an institutional policy of mandatory depositing.

Perspective from Ireland

According to an indirect source, Ireland counts eight universities. Three of them have set up a digital repository for research output (some of these only very recently).

### Italy

**Deployment status**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
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### Contents

**What type of materials are presently in the digital repository of your institute?**

<table>
<thead>
<tr>
<th>Material Type</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
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<tr>
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<tr>
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<td>81.8</td>
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<tr>
<td>other</td>
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</table>
Technical aspects

<table>
<thead>
<tr>
<th>Software packages used</th>
<th>n</th>
<th>11 Answers %</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>locally developed software package</td>
<td>1</td>
<td>9.1</td>
</tr>
</tbody>
</table>

Institutional policies (significantly differing from the EU average)

No significant differences.

Services (significantly differing from the EU average)

No significant differences.

Stimulants/ inhibitors

- Most important stimulant: our simple and user-friendly depositing process.
- Most important inhibitor: lack of an institutional policy of mandatory depositing.

Perspective from Italy

The central gateway in Italy is PLEIADI (http://www.openarchives.it/pleiadi/). An excerpt from their website:

The PLEIADI Project (Portale per la Letteratura Scientifica Elettronica Italiana su Archivi aperti e Depositi Istituzionali, a 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, within the framework of the AEPIC project. PLEIADI aims at building a national platform that offers centralised access to the scholarly literature archived in Italian repositories.

Latvia

<table>
<thead>
<tr>
<th>Deployment status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of universities (according to Braintrack)</td>
<td>5</td>
</tr>
<tr>
<td>Number of universities (EUA)</td>
<td>2</td>
</tr>
<tr>
<td>Number of institutes with DR</td>
<td>Unknown</td>
</tr>
<tr>
<td>Number of participants this survey</td>
<td>0</td>
</tr>
</tbody>
</table>

Perspective from Latvia

No direct information from Latvia has been received. No repositories from Latvia have been listed in the directories OpenDOAR or OAIster.
Lithuania

**Deployment status**

- Number of universities (according to Braintrack): 7
- Number of universities (EUA): 10
- Number of institutes with DR: See below
- Number of participants this survey: 0

**Perspective from Lithuania (Vilius Kuciukas)**

The Electronic Lithuanian Academic Library (eLABa) functions as a national digital library and is being created on the basis of the Lithuanian Academic Libraries Network (http://www.labt.lt) and three projects financed by European Union structural funds (http://sf.library.lt). Fedora software has been chosen as the base of eLABa repositories. Sixty-three Lithuanian academic institutions are taking part in this project. Five collections of e-documents (ETDs, books/book chapters, journals/articles, working papers and proceedings) are submitted into eLABa. In the near future eLABa is supposed to be supplemented with other collections of e-documents such as music composition, empirical data, and so on. eLABa content is available through the Lithuanian Virtual Library portal (http://www.library.lt) which is created using ALEPH, MetaLib and SFX software.

Luxembourg

**Deployment status**

- Number of universities (according to Braintrack): 2
- Number of universities (EUA): 0
- Number of institutes with DR: 0
- Number of participants this survey: 0

**Perspective from Luxembourg**

According to indirect information, there is one major university in Luxembourg, which does not have a digital repository for research output.

Malta

**Deployment status**

- Number of universities (according to Braintrack): 1
- Number of universities (EUA): 1
- Number of institutes with DR: 0
- Number of participants this survey: 2
Perspective from Malta (J. Felice)

The library of the University of Malta has carried out a number of digitisation projects with regard to historical and cultural documents and registers. In the near future, the university will start digitising dissertations submitted by students from the faculty of education.

Poland

*Deployment status*

- Number of universities (according to Braintrack): 32
- Number of universities (EUA): 41
- Number of institutes with DR (see below): 2
- Number of participants this survey: 0

Perspective from Poland

According to indirect information, two universities in Poland (University of Zielonogorskski and University of Politechnika Lodzka) have set up a digital repository for research output. In OpenDOAR, seven institutes are listed; however, it is not clear how many of these repositories relate to research output.

Katazyna Slaska of the National Library of Poland informed us that they are planning to set up a repository in 2007, but with a different character: they are thinking about a literary depository and/or depository of ‘born digital’ materials.

Portugal

*Deployment status*

- Number of universities (according to Braintrack): 24
- Number of universities (EUA): 16
- Number of institutes with DR (see below): 5
- Number of participants this survey: 2

Contents

*What type of materials are presently in the digital repository of your institute?*

<table>
<thead>
<tr>
<th>Type of Materials</th>
<th>n</th>
<th>2 Answers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>articles (full text and metadata)</td>
<td>2</td>
<td>100.0</td>
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music 0 0.0
other 0 0.0

Technical aspects

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Institutional policies (significantly differing from the EU average)
No significant differences found.

Services (significantly differing from the EU average)
No significant differences found.

Stimulants/ inhibitors
- Most important stimulant (all equally important):
  - our simple and user-friendly depositing process
  - our institutional policy of mandatory depositing
  - the requirements of research funding organisations in our country about depositing research output in Open Access repositories
  - increased visibility and citations for the publications of the academics in our institute
  - interest from the decision makers within our institute
  - search services as provided by national and international gateways
Most important inhibitor: lack of coordination of a national body for digital repositories.

Perspective from Portugal (Eloy Rodrigues)

Two universities in Portugal have implemented digital repositories for research output. However, a number of universities (at least three) are at the moment in the process of setting up institutional repositories. There are 14 public universities in Portugal (the fact that some sources state that there are 22 universities in Portugal relates to a number of smaller private universities mainly focused on teaching).
The rectors’ conference, consisting of the rectors of the above-mentioned 14 universities, has signed the Berlin declaration on Open Access. In addition, it has recommended that all universities should establish an institutional repository and define a policy for self-archiving of the research output. Also, they have recommended to the Portuguese research funding organisations to implement a policy of mandatory depositing of the research output. A working party has been set up in order to establish a network of Portuguese repositories and a central gateway that follows the Dutch model of DareNet.

The main driving factors mentioned are the increasing awareness of the Open Access movement and the need to showcase research outputs. The main inhibitor is the present situation with regard to the copyright situation for published research output.

Which action at European level would stimulate the Portuguese situation most? The respondent sees three lines of policies:

1 – mandatory policy for depositing at all levels, also at the European level
2 – improving the interoperability and the network of repositories
3 – a European licence model for authors who publish in journals about self-archiving in repositories.

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<tr>
<td>Number of institutes with DR</td>
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<tr>
<td>Number of participants this survey</td>
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**Perspective from Slovakia (Jan Jankela)**

There is no central database on the research activities at the Slovak universities at this moment. Such a system is in development and will be finalised at the end of 2009. Institutional repositories for research output are still rare, but universities are obliged to publish annual reports on their web pages. These annual reports, in the Slovak language, also comprise research output. Many of the Slovak universities realise quality assurance by means of the European University Association. In these cases, some information about publication activities of the university will also be available in English.

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</tr>
</tbody>
</table>
Perspective from Slovenia

No direct information from Slovenia has been received. In OpenDOAR, one repository for research output from Slovenia is registered. The faculty of computer and information science (FRI) of the University of Ljubljana implemented a repository with approximately 300 publications (http://eprints.fri.uni-lj.si/).

Spain

Deployment status
- Number of universities (according to Braintrack): 69
- Number of universities (EUA): 48
- Number of institutes with DR (source: national correspondent): 12
- Number of participants this survey: 3

Contents

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Technical aspects

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Institutional policies (significantly differing from the EU average)
No significant differences.

Services (significantly differing from the EU average)
No significant differences.

Stimulants/ inhibitors
- Most important stimulant: increased visibility and citations for the publications of the academics in our institute.
- Most important inhibitor: lack of an institutional policy of mandatory depositing.

Perspective from Spain (Alicia Mendez Lopez)
There are 68 universities in Spain. In addition to these, the National Council of Research (CSIC) has to be mentioned.
Twelve universities have already implemented institutional repositories (some of them have distributed their IR into several databases, by document type). Three more universities will soon release their IR and many others are in the implementation phase, at different stages of development; some have not yet started. The CSIC is already implementing an institutional repository which will centralise the research production of all of its institutes’ members.

DSpace is the most used software package, followed by Eprints. Fedora is used by the Open National University (UNED). Few universities have chosen other commercial software packages.
The development of institutional repositories in Spain is not uniform: some universities have already repositories with reasonable content, while others have not yet started its implementation.
There are two regional initiatives:
- the Catalan Consortium CBUC
- The consortium from the public universities of Madrid, Open University and the CSIC, known as the Consorcio Madrõht, has set up a portal called e-ciencia (following the Dutch DAREnet model). At the moment, only three of the participant repositories are being harvested, but in 2007 it is planned to have all repositories harvested. The portal is strongly supported by the regional government of Madrid, at both the financial and political levels. However, one of the main inhibitors for the development of institutional repositories in Spain is often the lack of this ‘official’ support. On the other hand, most presidents of the Spanish universities have signed the Berlin Declaration.

As for a national research portal, the strategic plan 2007-2010 of the Spanish academic libraries network (REBIUN) has established as one of its operational objectives the implementation of a national portal to access Spanish research, which will be built on individual and regional initiatives of institutional repositories.
Apart from universities, there are some initiatives with regard to repositories from university departments or departments of other research institutions and from the cultural heritage area.
The main strategy at this point is to convince authors, university administrations and governmental agencies. Libraries are organising meetings for this purpose; European initiatives that develop and promote guidelines for repositories and support advocacy programs.
focused on decision makers would help to improve the Spanish situation most. There is also a strong concern about copyright matters and technical guidelines for interoperability.

**Sweden**

*Deployment status*

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**Technical aspects**

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Other technical aspects significantly differing from the EU averages:

- Subject indexing according to a system in the language of the country and/or in English: 70% Sweden versus 28% in the rest of Europe.
Institutional policies (significantly differing from the EU average)

- Deposited materials are used to measure the output of individual researchers for evaluation purposes (accountability): 50% in Sweden, versus 14% in the rest of Europe.

Services (significantly differing from the EU average)

- Contents listed in national/regional catalogue: 100% in Sweden, versus 42% in the rest of Europe.
- Contents listed in library catalogue: 90% in Sweden, versus 50% in the rest of Europe.
- Digital repository linked to printing-on-demand services: 50% in Sweden has this service planned, versus 10% in the rest of Europe.
- Service of displaying usage statistics per digital item: 70% in Sweden, versus 27% in the rest of Europe.

Stimulants/ inhibitors

- Most important stimulant: our simple and user-friendly depositing process.
- Most important inhibitor: lack of interest from the decision makers within our institute.

Perspective from Sweden (Jan Hagerlid)

'As the response rate from the Swedish digital repositories is rather low, one should see these answers as an indication. Unfortunately, there are no better data to offer. In 2005, a survey was held and published as a master’s thesis. Another approach to connect data about numbers of publication types is to collect those by searching in repositories using unambiguous search criteria. I have made some analysis of the present status of Swedish academic repositories in a paper to EIPUB 2006, ‘Open Access in Sweden 2002-2005’. Excerpts of this paper follow under relevant headings (with recent findings – from December 2006 – between brackets):

General information on digital repositories

'During spring 2005 a survey was made for a master’s thesis by two students in co-operation with BIBSAM . With supplementary data submissions we have data from 29 of the 38 Swedish Institutes of Higher Education contacted. Also, available data from the DiVA portal have been added. In all there is data from all universities and the more sizable university colleges. What are the results? There has been a significant growth between 2002 and 2005. The number of repositories publishing e-theses has grown from 13 to 16. (In OpenDOAR I find at the moment of writing 23 repositories publishing theses, although this seems to include all kinds of theses). Those publishing research reports have grown from 5 to 13 and those publishing student theses and exam papers from 6 to 20. Only four repositories publish articles, and two of these in significant numbers (>500). The focus is still mostly on original publishing of material. (This conclusion still holds true. There is a growing interest in the depositing or parallel publishing of articles, be they pre- or preferably post-print, but this is still held back by lack of practical solutions for rights clarification and mandatory policies from universities and research funders.) To make a consistent follow-up of quantitative developments one would need: 1. Data on numbers of published works in different categories collected by searching in repositories using unambiguous and published search criteria. 2. Comparisons of these data with official data, when possible, on total numbers of dissertations, published articles, etc. The proportion of online (and openly) available publications of the total number of publications is more interesting than
the number of online available publications in itself. The number of OAI-compatible repositories has also risen quite considerably from 8 in 2002 to 19 in 2005. To be exact, there are 19 repositories that can deliver metadata via OAI-PMH, and of these 14 are registered OAI data providers. These figures change all the time. OpenDOAR gives the figure of 28 Open Access repositories, of which 26 have an OAI-PMH address, for Sweden. This higher figure partly arises from the fact that some institutions have more than one repository (whereas I actually counted number of institutions having repositories), partly from newcomers.’

**Technical infrastructure and technical issues**

I enclose from the paper mentioned above a few quotations. ‘From around the year 2000 Swedish universities chose one of the following tracks of development. Uppsala University Library got the financial support from the university to develop a full scale repository software of its own, the DiVA software package. From an early stage it offered other universities the possibility to run their e-publishing on DiVA on the condition that they co-financed the further development of DiVA and certain running costs. The DiVA consortium today includes 15 Swedish universities and university colleges plus two Nordic participants’. (It is one Nordic participant today.) ‘Taking part in DiVA in effect worked as an outsourcing option for the participating institutions. For Uppsala University Library the consortium model provided a sustainable economical foundation for further development of the repository software. Other universities chose to implement available Open Source software, primarily ePrints, but recently also DSpace. Still others continued to develop their local solutions and in some cases also made these OAI-compliant’. There are at present seven repositories using GNU EPrints, including three from the same institution (SLU). There are two DSpace installations on the web and two more coming up.

**Institutional policies**

The Swedish Association of Higher Education (SUHF) is an interest organisation for Swedish universities and university colleges. It signed the Berlin Declaration in 2004. I enclose from my paper: ‘The Board of the SUHF in June 2005 issued a statement to its member institutions where it informed about the Southampton meeting and gave direct support to the two recommendations of the meeting, albeit with some weakening in that “require” was exchanged for “strongly recommends”.’ This has been followed by rather strong policy statements from the universities of Lund and Stockholm. The Swedish Research Council signed the Berlin Declaration in 2005 and has highlighted Open Access in external communication but has not yet changed its grant policy. I enclose from my paper: ‘The survey also gave some interesting information about policy, organisation and economy of repositories. The survey was addressed to libraries since they generally are responsible for running repositories. It must be deemed as highly positive that all respondents (27 answers) had plans to develop their services in scientific e-publishing in the future. A rather high number, 13 out of 23 answering, said they had plans for long term preservation. On the negative side some answers indicate that repository activities are still in an early phase. Only 9 out of 23 answering said that they had defined goals or policy for their e-publishing activities. Only 10 out of 23 answering said that they had a specific budget for e-publishing activities. The amount of staff time earmarked for e-publishing activities varies significantly. Out of 23 answering the question 19 had staff time earmarked for publishing activities, and of those only five had allotted more than one man-year for these tasks, ranging from two to four-and-a-half man-year.’
Services created on top of the digital repositories

There is a running service to harvest student theses using the OAI-PMH, UppSök. There is a pilot service to harvest research e-publications from repositories supporting metadata recommendations from the SVEP project (qualified Dublin Core) called Testsök, http://svep.epc.ub.uu.se/testbed/?lang=en.

With regard to the statistics, there are 39 higher educational institutes in Sweden, according to the Swedish Agency of Higher Education.

The Netherlands

Deployment status
Number of universities (according to Braintrack) 14
Number of universities (EUA) 14
Number of institutes with DR (source: DareNet ) 16
Number of participants this survey 12

Contents

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Other aspects regarding contents significantly differing from the EU average:

- Work processes of depositing materials:
  - self-depositing by academics, followed by quality control by specialised staff members (0% in the Netherlands, versus 31% in the rest of Europe)
– collected by staff members independent of the academics (25% in the Netherlands versus 5% in the rest of Europe)

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Other technical aspects significantly differing from the EU averages:
– Subject indexing:
  – no subject indexing: 33% in the Netherlands versus 5% in the rest of Europe
  – according to a system in the language of the country: 0% in the Netherlands versus 27% in the rest of Europe
– Unique author identifier:
  – plans to develop: 75% in the Netherlands versus 21% in the rest of Europe

Institutional policies (significantly differing from the EU average)
– Long-term preservation: 92% of the digital repositories in the Netherlands have such a policy, versus 32% in the rest of Europe.
– Set up with financial support from the national funding programme: 50% in the Netherlands, versus 14% in the rest of Europe.
– Link with coordinating national body: 92% in the Netherlands, versus 38% in the rest of Europe.
– Link to central country-wide gateway: 92% in the Netherlands, versus 27% in the rest of Europe.

Services (significantly differing from the EU average)
– Contents listed in national/regional catalogue: 75% in the Netherlands versus 44% in the rest of Europe.

Priorities for services at an European scale:
– Personal services for the depositing scientists: 50% in the Netherlands versus 11% in the rest of Europe.
– Preservation services: 0% in the Netherlands versus 30% in the rest of Europe.
– Usage statistics services: 42% in the Netherlands versus 18% in the rest of Europe.

Stimulants/ inhibitors
– Most important stimulant: increased visibility and citations for the publications of the academics.
Most important inhibitor: situation with regard to copyright of published materials.

**Perspective from the Netherlands (excerpts from www.darenet.nl)**

All 13 Dutch universities, the Royal Netherlands Academy of Arts and Sciences and the Netherlands Research Organisation support institutional repositories, made accessible by a common gateway with the name DAREnet. The number of participants is growing further. DAREnet currently contains three sections: DAREnet proper, Cream of Science, and Promise of Science. DARE is a national initiative coordinated by the SURFFoundation.

DAREnet provides access to over 100,000 digital publications at 16 institutions. Cream of Science showcases the most prominent research from the Netherlands. It lists 219 top Dutch academics, providing worldwide access to their 46,044 publications. About 60% of these can be accessed as full text (pdf). Promise of Science enables full-text search of over 13,000 e-theses. The local policies of the repository holders vary considerably. Some only collect metadata (and publications) that are openly accessible. Others also collect metadata that give access to publications to which only campus access can be given (licensed material). Finally, a few even include metadata that refer to older paper material (catalogue records). To avoid misunderstanding, in any case the repository concentrates on the production of its own institution.

Mandates are emerging for doctoral theses. At the moment this is the case at five or six universities but it is expected that the others will follow soon. There are no mandates operational or foreseen for other publications at the moment. However, at all universities the publication registry system (that produces the annual report) is linked to the institutional repository recently. So, the metadata of the institutional production will be imported into the repositories automatically. The registry application has a simple ‘upload button’ that enables a one-click posting of the publication itself. More and more authors, or their secretaries, are using this facility.

**United Kingdom**

*Deployment status*

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**Contents**

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<thead>
<tr>
<th>What type of materials are presently in the digital repository of your institute?</th>
<th>n</th>
<th>27 Answers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>articles (full text and metadata)</td>
<td>27</td>
<td>100.0</td>
</tr>
<tr>
<td>articles (metadata only)</td>
<td>14</td>
<td>51.9</td>
</tr>
<tr>
<td>books/ book chapters (full text and metadata)</td>
<td>18</td>
<td>66.7</td>
</tr>
<tr>
<td>books/ book chapters (metadata only)</td>
<td>9</td>
<td>33.3</td>
</tr>
<tr>
<td>theses (full text and metadata)</td>
<td>15</td>
<td>55.6</td>
</tr>
<tr>
<td>theses (metadata only)</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>proceedings (full text and metadata)</td>
<td>17</td>
<td>63.0</td>
</tr>
</tbody>
</table>
proceedings (metadata only) 5 18.5
working papers (full text and metadata) 17 63.0
working papers (metadata only) 6 22.2
primary data sets 0 0.0
Images 2 7.4
Video 2 7.4
Music 2 7.4
Other 7 25.9

**Technical aspects**

<table>
<thead>
<tr>
<th>Software packages used</th>
<th>n</th>
<th>27 Answers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSpace</td>
<td>7</td>
<td>25.9</td>
</tr>
<tr>
<td>GNU Eprints</td>
<td>15</td>
<td>55.6</td>
</tr>
<tr>
<td>locally developed software package</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>other</td>
<td>4</td>
<td>14.8</td>
</tr>
</tbody>
</table>

Other technical aspects significantly differing from the EU averages:

- Persistent identifier: a higher percentage of the respondents in the UK have marked the answer category ‘don’t know’ with regard to the question of a persistent identifier (30% in the UK, versus 5% in the rest of Europe).
- Long-term availability of the materials in the repositories: 52% in the UK, versus 79% in the rest of Europe.
- Subject indexing:
  - freely assigned keywords in the language of the country: 33% in the UK, versus 9% in the rest of Europe.
  - keywords or classifications according to a standardised system in the language of the country: 37% in the UK, versus 10% in the rest of Europe.

**Institutional policies (significantly differing from the EU average)**

- Some academics are required to deposit research output by research funding organisations: 52% in the UK, versus 9% in the rest of Europe.
- Long-term preservation: 19% in the UK, versus 45% in the rest of Europe.
- The repository is integrated/linked with other systems in the institute: 37% in the UK, versus 64% in the rest of Europe.

**Services (significantly differing from the EU average)**

- Contents listed in national/regional catalogue: 0% in the UK, versus 62% in the rest of Europe.
- Contents listed in library catalogue: 15% in the UK, versus 66% in the rest of Europe.
- Digital repository linked to printing-on-demand services: 96% in the UK are not linked, versus 68% in the rest of Europe.
Service of displaying usage statistics per digital item: 70% in the UK has no service, versus 37% in the rest of Europe.

Priorities for services at an European scale:

- General search engines/gateways/portals: 19% in the UK, versus 47% in the rest of Europe.

**Stimulants/inhibitors**

- Most important stimulant: awareness-raising efforts among the academics in our institute.
- Most important inhibitor: situation with regard to copyright of (to be) published materials and the knowledge about this among academics in our institute.

**Perspective from the UK (Neil Jacobs, JISC; Sophia Jones, Mary Robinson, Sherpa)**

There are approximately 170 higher education institutes in the UK. More than 70 (74 is the latest figure) of them have one or more digital repositories for research output. The large majority of the research-oriented universities have implemented a digital repository.

Step one – getting digital repositories in place for research output – is in the UK well underway. The major focus is now on step two – getting the digital repositories populated. A support programme with this purpose is being carried out by JISC.

There are various strategies for the institutional repositories to increase their coverage. One strategy is to use the contents of the repository for the research assessment exercise: this strategy means that the main focus is on the metadata of research publications. Another strategy is to showcase the research output to the outside world: this strategy mainly focuses on full text.

Other strategies followed by institutional repositories are: go for one department at the time, collect legacy material and build an sort of archive as a service to the researchers in this way.

Apart from a number of subject-oriented repositories for research publications, a number of research funding organisations are planning to set up repositories as well. In addition, it is worth mentioning that there are several initiatives underway to cover research data sets as well.

Some important initiatives and developments are:

- **Funding policies:** Out of the eight government funding agencies, six have OA policies, and three other UK funding bodies also have policies. These include the Wellcome Trust, the Medical Research Council and the Arthritis Research Campaign. The policies require or encourage that researchers make their material Open Access.

- **Institutional policies/declarations:** Some institutions are adopting archiving policies for the work of their staff. Other declarations in support of Open Access include: the Scottish Declaration on Open Access from Scottish universities, research funders, the Scottish Higher Education Funding Council, and the Scottish Executive. The Russell Group, an association of 20 major research-intensive universities of the United Kingdom, has publicly declared that they wish to minimise barriers to the dissemination of research output.

- **National support:**
  - The Repositories Support Project (RSP) has a remit to support and actively encourage all higher education institutions to establish institutional repositories.
  - INTUTE Repository Search is working on a value-added search service to promote UK research.
  - PROSPERO is producing an interim national repository to serve all researchers while institutional repositories are being set up.
- IRI Scotland is a project to link all Scottish higher education institutions’ repository projects.
- Wales has a comprehensive support programme for all institutes of higher education as part of the RSP project.
Annex B – Background information about the participating repositories

<table>
<thead>
<tr>
<th>My institute is best described as:</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>university</td>
<td>83</td>
<td>72.8</td>
</tr>
<tr>
<td>college</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>governmental research institute</td>
<td>9</td>
<td>7.9</td>
</tr>
<tr>
<td>other non-governmental research institute</td>
<td>5</td>
<td>4.4</td>
</tr>
<tr>
<td>other</td>
<td>16</td>
<td>14.0</td>
</tr>
<tr>
<td>114 answers</td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total number of academics in your institute:</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;100</td>
<td>12</td>
<td>10.5</td>
</tr>
<tr>
<td>101-250</td>
<td>15</td>
<td>13.2</td>
</tr>
<tr>
<td>251-500</td>
<td>13</td>
<td>11.4</td>
</tr>
<tr>
<td>501-1000</td>
<td>19</td>
<td>16.7</td>
</tr>
<tr>
<td>1001-2500</td>
<td>23</td>
<td>20.2</td>
</tr>
<tr>
<td>2501-5000</td>
<td>13</td>
<td>11.4</td>
</tr>
<tr>
<td>5001-10000</td>
<td>12</td>
<td>10.5</td>
</tr>
<tr>
<td>more than 10000</td>
<td>5</td>
<td>4.4</td>
</tr>
<tr>
<td>112 Answers</td>
<td></td>
<td>98.2</td>
</tr>
<tr>
<td>2 Blanks</td>
<td></td>
<td>1.8</td>
</tr>
</tbody>
</table>

URLs from repositories participating in the survey:

- http://epub.wu-wien.ac.at
- http://epub.oeaw.ac.at
- http://archive.ugent.be
- http://bib17.ulb.ac.be:8080/dspace
- http://publications.sckcen.be
- http://www.vse.cz/vskp
- http://dspace.vsb.cz/dspace/
- http://is.mendelu.cz/
- http://uk.cbs.dk/forskning_viden/videnportal
- http://forskning.hh.hosp.dk/front.do
- http://www.vbn.dk
Annex C – Quantitative data of all participants

With regard to the quantitative data, the respondents could answer open questions about the number of records per record type in their repository. When presenting the preliminary results, the data of all participants who answered these questions were presented. The results – a dominance of records with book metadata – led to many comments. When the data were reanalysed, it appeared that two repositories were deviant: these repositories reported large numbers of book metadata records (together more than 2.5 million records). Both repositories are national repositories and are probably integrated with the digital library, hence the large number of books.

In chapter 8 the results are presented without these two repositories. For the sake of completeness, in this annex the total results – including those two repositories – are presented.

<table>
<thead>
<tr>
<th>Totals per digital repository</th>
<th>Overall</th>
<th>2005 snapshot</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total EU</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of respondents</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>Articles full text and metadata</td>
<td>146,788</td>
<td>20,857</td>
</tr>
<tr>
<td>Articles metadata only</td>
<td>508,715</td>
<td>61,277</td>
</tr>
<tr>
<td>Books full text and metadata</td>
<td>25,060</td>
<td>5,336</td>
</tr>
<tr>
<td>Books metadata only</td>
<td>2,637,957</td>
<td>142,565</td>
</tr>
<tr>
<td>Theses full text and metadata</td>
<td>64,982</td>
<td>18,100</td>
</tr>
<tr>
<td>Theses metadata only</td>
<td>94,680</td>
<td>12,675</td>
</tr>
<tr>
<td>Proceedings full text and metadata</td>
<td>21,112</td>
<td>6,875</td>
</tr>
<tr>
<td>Proceedings metadata only</td>
<td>71,172</td>
<td>11,901</td>
</tr>
<tr>
<td>Working papers full text and metadata</td>
<td>26,099</td>
<td>5,770</td>
</tr>
<tr>
<td>Working papers metadata only</td>
<td>17,707</td>
<td>2,046</td>
</tr>
<tr>
<td>Primary data sets</td>
<td>475</td>
<td>318</td>
</tr>
<tr>
<td>Images</td>
<td>25,662</td>
<td>12,407</td>
</tr>
<tr>
<td>Video</td>
<td>819</td>
<td>114</td>
</tr>
<tr>
<td>Music</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>47,328</td>
<td>10,476</td>
</tr>
<tr>
<td>Grand totals</td>
<td>3,638,571</td>
<td>310,721</td>
</tr>
</tbody>
</table>
Annex D – The questionnaire

Inventory study into the present type and level of OAI-compliant digital repository activities in the EU

Welcome to this questionnaire.
This study is part of a European Union-funded project (DRIVER; see for more information the link below) and aims at making a complete inventory of the present type and level of digital repository activity in the EU, both at infrastructure and services level. The results will be made available via a wiki. All participants to this study will receive an invitation to look at and comment on the results of this inventory for their own country.
Please click here for a link to the website of the DRIVER project
http://www.driver-repository.eu
A digital repository is in this study defined as (1) containing research output (2) institutional or thematic and (3) OAI compliant
The questionnaire addresses the following topics:
A: Coverage of the academics and the research output of your institute
B: Technical infrastructure and technical issues
C: Institutional policies regarding the digital repository
D: Services created on top of the digital repositories
E: Stimulators and inhibitors for establishing, filling and maintaining digital repositories
F. Your institute and its digital repository

A: Coverage of the academics and the research output of your institute (=university/organisation)

A1. Does your institute presently maintain a digital repository for research output of your researchers?

- yes, one digital repository for research output itself
- yes, more than one digital repository for research output itself
- yes, outsourced to a third party
- no, please fill in another form available via the link below

Please comment:

Institutes without a digital repository: please click here to fill in another form
http://www.pleiadesurvey.nl/cgi-bin/webSurvey.cgi?LOGIN_CODE=teguredu

A2. What type of materials is presently in the digital repository of your institute? (If your institute maintains more than one digital repository, please state here the aggregate numbers.)

- articles (full text and metadata)
- articles (metadata only)
Please comment:

A3. Please give (an estimate of) the total number of items per type of materials now available in the digital repository of your institute? (if the type of materials is not available, please fill in 0)

articles (full text and metadata)

articles (metadata only)

books/ book chapters (full text and metadata)

books/ book chapters (metadata only)

theses (full text and metadata)

theses (metadata only)

proceedings (full text and metadata)

proceedings (metadata only)

working papers (full text and metadata)

working papers (metadata only)

primary data sets

images

video

music

other
A4. Please give (an estimate of) the number of items per type of materials that has been added in the last year (2005) in the digital repository of your institute? (if the type of material is not available, please fill in 0)

<table>
<thead>
<tr>
<th>Type of Material</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>articles (full text)</td>
<td></td>
</tr>
<tr>
<td>articles (meta data only)</td>
<td></td>
</tr>
<tr>
<td>books/book chapters (full text and metadata)</td>
<td></td>
</tr>
<tr>
<td>books/book chapters (metadata only)</td>
<td></td>
</tr>
<tr>
<td>theses (full text and metadata)</td>
<td></td>
</tr>
<tr>
<td>theses (metadata only)</td>
<td></td>
</tr>
<tr>
<td>proceedings (full text and metadata)</td>
<td></td>
</tr>
<tr>
<td>proceedings (metadata only)</td>
<td></td>
</tr>
<tr>
<td>working papers (full text and metadata)</td>
<td></td>
</tr>
<tr>
<td>working papers (metadata only)</td>
<td></td>
</tr>
<tr>
<td>primary data</td>
<td></td>
</tr>
<tr>
<td>images</td>
<td></td>
</tr>
<tr>
<td>video</td>
<td></td>
</tr>
<tr>
<td>music</td>
<td></td>
</tr>
<tr>
<td>other</td>
<td></td>
</tr>
</tbody>
</table>

Please comment:  

A5.1. With regard to (published or to be published) full text journal articles: which version is deposited (Please tick all boxes that apply)

- preprint version (pre-refereeing)
- post-print (i.e. final draft post-refereeing)
A5-1. Which statement best describes the form of journal articles in your digital repository?

- published version (publisher-generated format)
- mostly preprint form
- mostly post-print form
- mostly published form

A6-1. With regard to the availability of the full text materials (articles, books, book chapters, theses etc.): how are they available? (Please tick all boxes that apply)

- OA publicly available
- OA with embargo: publicly available after a certain period of no access
- Campus access: only available for users within our institute
- No access: archived but NOT available at all
- other

If other, please elaborate:

A6-2. Please give (an estimate of) the percentages of each form of availability of the full text materials in your digital repository. (Please make the percentages add up to 100)

- Open Access: publicly available
- Open Access with embargo: publicly available after a certain period
- Campus access: only available for users within our institute
- No access: archived but NOT available at all
- other

A7. Can you estimate the percentage of the materials covering the following disciplines? (Please make the percentages add up to 100)

- Humanities and social sciences
- Life sciences
- Natural sciences
- Engineering
- Other

Please comment:
A8. Please give some estimates about the delivery of the materials by the academics in your institute:

<table>
<thead>
<tr>
<th>Percentage of the academics delivering material to the digital repository:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of the research output from your institute in the last year (2005) deposited in the digital repository:</td>
</tr>
<tr>
<td>Total number of academics in your institute:</td>
</tr>
<tr>
<td>&gt;100</td>
</tr>
<tr>
<td>101-250</td>
</tr>
<tr>
<td>251-500</td>
</tr>
<tr>
<td>501-1000</td>
</tr>
<tr>
<td>1001-2500</td>
</tr>
<tr>
<td>2501-5000</td>
</tr>
<tr>
<td>5001-10000</td>
</tr>
<tr>
<td>more than 10000</td>
</tr>
</tbody>
</table>

Please comment:

---

A9. Which statement best describes the work processes of depositing materials in the repository?

- self depositing by academics, quality control by specialised staff members
- delivery by academics, depositing by specialised staff members
- collected by staff members independent of the academics
- a combination
- other

Please describe briefly the (organizational) work processes of depositing in the repository:

---

B: Technical infrastructure and technical issues

B1. Which software package is used for the digital repository?

- ARNO
- CDSWare
- DIVA
- DSpace
- EDT
- Fedora
- GNU Eprints
- iTOR
- OPUS
- locally developed software package
- other
If other, please elaborate: 

B2. Is a persistent identifier assigned to each document? 

- yes
- no
- don’t know

Please comment:

B3. Is the long-term availability of the materials in the repositories secured?

- yes
- no
- don’t know

Please comment:

B4. Are statistical data on access to the repository and usage of the materials logged?

- yes
- no
- don’t know

Please comment:

B5. Which metadata standards are followed with your digital repository?

- archival metadata
- Dublin Core (qualified)
- Dublin Core (unqualified)
- ONIX
- print-on-demand metadata
- other

Please comment:

B6. Which statement best describes the subject indexing of your digital repository?

- no subject indexing
- freely assigned keywords (in the language of the country)
- freely assigned keywords (in the language of the country and/or in English)
- keywords or classifications according to (a) standardised system(s) (in the language of the country)
keywords or classifications according to (a) standardised system(s) (in the language of the country and/or in English)

Please comment:

B7. Is a unique identifier assigned to each author?

- yes
- no, but we are developing such author identifier in the near future
- no, no plans for developing it either

Please comment:

C: Institutional policies regarding the digital repository

C1. Which statement best describes the policy of your institute for the academics with regard to depositing material?

- Mandatory depositing: academics are required to deposit materials (mandatory depositing)
- Partly mandatory depositing: academics are required to deposit some materials (like theses), and free to deposit other materials
- Voluntarily, encouraged: academics are strongly encouraged to deposit materials
- Voluntarily, free choice depositing: academics are free to deposit materials
- no official policy
- other

Please comment:

C2. Please tick the statements below that are valid for the digital repository in your institute:

- In our institute the deposited materials are used to measure the output of individual researchers for evaluation purposes (accountability).
- Some academics in our institute are required to deposit research output by research-funding organisations in our country.
Awareness-raising campaign(s) among academics about the digital repository have been carried out within our institute.

The interest from decision makers within our institute in the digital repository is (rather) high.

There are clear guidelines for the selection of material for inclusion in the digital repository.

There is a policy to safeguard the long-term preservation of the deposited material.

The digital repository in our institute is integrated/linked with other systems in our institute.

The digital repository of our institute has been set up with financial support from a national funding programme for digital repositories in our country.

There is a coordinating national body for digital repositories, with which we have contacts.

There is a central gateway to the digital repositories in our country, to which our digital repository is linked.

Please comment on the institutional policies:

D: Services created on top of the digital repositories

A number of services are being built on top of the digital repositories. Is the digital repository of your institute involved?

D1. The contents of your digital repository is searchable via the following general engines/gateways/portals: (Please tick all boxes that apply)

- BASE
- Citeseer: Computer Science
- General internet search engines such as Google, Yahoo, MSN etc.
- Google Scholar
- MEIND
- MetaGer
- OAI Search
- OAIster
- OASE
- OpenDOAR
D2. The contents of our digital repository is (partly) listed in the following catalogues:

- national/regional catalogue
- catalogue of our library
- other

If other, please elaborate: 

Please name the national catalogue(s) 

Please comment: 

D3. Is your digital repository linked to printing-on-demand services?

- yes
- no
- planned

Please comment: 

D4. Does your digital repository have a service of displaying usage statistics per digital item?

- yes
- no
- planned

Please comment: 

D5. Does your digital repository have personal services for the depositing scientists, such as an automatically generated publication list?

- yes
- no
- planned

Please comment: 

D6. Are there other services existing or planned based on your digital repository?

- yes
- no
- don’t know
Please comment (if possible with example and/or URL):

D7. Which services should have priority for further development at a European scale according to you? (Please tick a maximum of 3 items)

- general search engines/gateways/portals
- disciplinary/thematic search engines/gateways/portals/repositories
- advisory services (technical aspects)
- advisory services (Open Access advocacy)
- cataloguing or metadata creation/enhancement services
- citation index services
- personal services for the depositing scientists
- preservation services
- printing-on-demand services
- publishing services
- repository hosting services
- research assessment/evaluation services
- usage statistics services
- other services

Please comment:

E: Stimulators and inhibitors for establishing, filling and maintaining digital repositories

E1. What do you see as the most important STIMULANTS for the development of the digital repository and its contents in your institute? (Please tick a maximum of 3 items)

- our simple and user-friendly depositing process
- our institutional policy of mandatory depositing
- our institutional policy of accountability
- the requirements of research-funding organisations in our country about depositing research output in Open Access repositories
- awareness-raising efforts among the academics in our institute
increased visibility and citations for the publications of the academics in our institute
interest from the decision makers within our institute
our clear guidelines for selection of material for inclusion
our policy to safeguard the long-term preservation of the deposited material
integration/linking of the digital repository with other systems in our institute
financial support from a national funding programme for the digital repository in our institute
coordination of a national body for digital repositories
search services as provided by national and international gateways
situation with regard to copyright of (to be) published materials and the knowledge about this among academics in our institute
other

Please comment:

E2. What do you see as the most important INHIBITORS for the development of the digital repository and its contents in your institute? (Please tick a maximum of 3 items]

- lack of a simple and user-friendly depositing process
- lack of an institutional policy of mandatory depositing
- lack of an institutional policy of accountability
- lack of requirements of research-funding organisations in our country about depositing research output in Open Access repositories
- lack of awareness-raising efforts among the academics in our institute
- lack of support for increased visibility and citations for the publications of the academics in our institute
- lack of interest from the decision makers within our institute
- lack of clear guidelines for selection of material for inclusion
Please comment:

E3. Concluding question: Which issue should be highest on the priority list for the further development of digital repositories in Europe according to you?

F. Your institute and its digital repository

F1. My institute is best described as:

- university
- college
- governmental research institute
- other non-governmental research institute
- other

If other, please elaborate:

F2. My institute is based in:

- Austria
- Belgium
- Cyprus
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
The results of this study for your country will be published in a wiki, to which you can add additional information and your comments. We will email you the details of this wiki later. Please state for these purposes your details below (the other data of the questionnaire will be processed anonymously):

Name of your institute:  
URL of your digital repository:  
Short description of your digital repository:  
Name of contact person for the digital repository:  
Email address of this contact person:  

Click the submit button to register your answers. The system will respond with a confirmation message and an overview of your answers.
Notes

Notes to About the DRIVER studies

Notes to Introduction
1. See for a description of the DRIVER project the section ‘About the DRIVER studies’ in this publication, or www.driver-community.eu.
2. The newly entered EU member states of Romania and Bulgaria were not included in the original survey, but an attempt was made to collect data about these countries later.
   www.dlib.org/dlib/september05/westrienen/09westrienen.html.
4. The Open Archives Initiative Protocol for Metadata Harvesting.

Notes to Methods
2. www.libereurope.eu.
4. Due to an active respondent, the web survey was distributed to a wider audience.

Notes to Contents and related issues
1. Two repositories deviated strongly from the other participating repositories with regard to the number of records with metadata of books. Those two repositories appeared to be national repositories with high numbers of most types of records, but especially for records with metadata of books: 2.5 million records! It was felt that these repositories were too deviant to include in the sample. Therefore, in the tables on the next page, the figures are given for both the total numbers and the 2005 snapshot excluding these two repositories. In addition, the average total numbers and the 2005 snapshot numbers for each item are presented in the next table, also excluding these two repositories. The data including these repositories are presented in annex C.
2. Not all respondents answered this question.
Notes to Situation per EU country
1. It is possible to make a further estimate about total research output of the European Union offered by the digital repositories, according to an estimate by the respondents to the web survey that on average 37% of research output of 2005 deposited in the repositories. From these figures, it can be calculated that out of the total research output of the European Union produced in 2005, about 15% has been registered in a digital repository. However, it has to be emphasised that (too) many assumptions underlie these figures.

Notes to Summary, discussion and conclusions
1. This figure seems to be somewhat in contradiction with the earlier reported 73% of the digital repositories that have the long-term availability of their material secured.
2. As these factors were considered the same for all digital repositories, there were no questions about the situation with regard to the digital repository itself.
References


Weenink, Kasja, Leo Waaijers and Karen van Godtsenhoven (eds.), *A DRIVER’s guide to European Repositories* (AUP: Amsterdam, 2007) www.driver-community.eu

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