



INTERNATIONAL FEDERATION OF DATA ORGANIZATIONS  
FOR SOCIAL SCIENCE

# Policies for Sharing Research Data in Social Sciences and Humanities

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A survey about research funders' data policies

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This report provides an overview of current data management trends and data policies in the social sciences worldwide. Based on the results of an informal web-survey conducted by IF-DO in 2013, the report discusses challenges to data creation and data sharing internationally and, in particular, to what extent data sharing policies are adopted and practiced in various countries. The report provides examples of various international data policy initiatives as well as policies from selected national research funders. Combined with this it presents and discusses in more detail the country-by-country results of the web-survey on current institutional research data policies in countries that have established some research and data infrastructure for social sciences.

# Foreword

International Federation of Data Organisations (IFDO) is a community working to promote open access and informed use of research data in the social sciences and humanities. Many IFDO members are social science data archives, some of which were established as early as the 1960s and 1970s.

As forerunners of open data, we are happy to notice progress. Both at international and national levels, science policies are now taking major steps towards open access to research data. IFDO wishes that policy makers, research funders and research organisations will find this report helpful in learning from the developments worldwide.

Good SSH data policy supports the life-cycle and quality of research data by pointing out clear responsibilities and standards for documenting and preserving the data, and mechanisms to support its secondary use. One of the main purposes of IFDO is to facilitate and support the further development of such policies.

IFDO leans heavily on the contribution of its member organisations. I would like to thank Norwegian Social Science Data Services (NSD) for providing expertise of Vigdis Kvalheim and Trond Kvamme to write this report.

The empirical part of the report is based on a data policy survey, which was designed collaboratively during 2011-2012 by IFDO board members (Sami Borg, Jonathan Crabtree, Peter Granda, Vigdis Kvalheim, Yukio Maeda, Hans Jørgen Marker and Steven McEachern).

Survey findings have been reported earlier in connection with IASSIST conferences in 2012-2013 by Thu-Mai Christian from the Odum Archive and Vigdis Kvalheim. Thu-Mai Christian has also written parts of the section 3 of this report.

In the near future, IFDO will analyse individual policy documents more closely, and provide information about them and developing data policies on its website [www.ifdo.org](http://www.ifdo.org). Thanks to all IFDO Board Members and their member organisations for their support and efforts to make this happen.

March 13, 2014

Sami Borg IFDO President

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# 1 Introduction

With the increased awareness and emphasis by national governments and international bodies on open access and data sharing, research funding bodies are developing new instruments to support the development of efficient national and international research infrastructures. The motivation for the efforts in this area is an acknowledgement that all major challenges facing all countries in areas such as health, climate and energy cannot be dealt with adequately without the availability of and easy access to high quality data and information. At the same time it is recognized that in spite of large public investments in data collections and research worldwide, the contributions of science to the knowledge challenges facing societies of today are hampered by lack of adequate data sharing arrangements. It is accepted that scientific databases and efficient access mechanisms are crucial parts of the infrastructure of the global science system and that open access to such databases for research is necessary to develop the knowledge essential to meet the major challenges in a modern society, and in turn produce effective solutions and improve policy.

The current situation has challenged science policy makers and research funders to seek tools for increasing openness and sharing of research data. In some countries, academic research funders have adopted new funding mechanisms to build and support world class research infrastructures and data policies and procedures to guide data management and data sharing in new research projects. In others research funders and data producers are not familiar with data sharing policies and promotion.

This report aims to provide a state-of-the-art overview of data management trends, data policies and data sharing practices in particular in the social sciences worldwide. Based on the results of an informal web-survey conducted by the International Federation of Data Organizations (IFDO) in 2013, the report discusses to what extent data sharing practices are in use internationally and points to some of the challenges many countries are facing in order to move from general policy statements to policy enforcement and data sharing in practice.

## 1.1 Methodologies and procedures

IFDO and the national social science data archives that founded IFDO in the mid 1970's, have a long history working to promote and support open access to data and data sharing within the social sciences long before the concept 'open access' climbed high up on the political agenda and it became generally acknowledged that data are key elements of any world class research infrastructure. The Consortium of European Social Science Data Archives (CESSDA) has provided networked infrastructural services for the social sciences for the past 38 years through the acquisition, support and supply of data for the European social science and humanities (SSH) research community. Over this period it has grown both in geographical and substantive terms. Now, CESSDA is established as a permanent legal entity owned and financed by the individual member states' ministry of research or a delegated institution.

IFDO was established to foster a worldwide network of data services for the social sciences. Its main purpose is to facilitate and support research through cooperation between data organizations across countries, regions and continents. Most IFDO members are national social science data organizations with mandates to acquire, curate and preserve digital research data, and support its secondary use in research and teaching. But IFDO also works in countries where data producers, research funders and data brokers are not familiar with promotion of data sharing.

Based on its mission, in 2012, IFDO collected country-by-country information on current institutional research data policies by means of a web-survey. The survey focused mainly on the social sciences and on formal data policies of key research funders, with an overall aim to produce easily accessible information on the basic questions, arrangements and tools fostering access to research data.

Therefore, most survey questions cover general topics about the existence, contents, and quality of data sharing requirements, and what type of link the requirements have to funding. In some countries funders enforce researchers to share their data, while in some countries sharing relies on recommendations, or there are no requirements at all.

It is common knowledge that most countries do not have strong infrastructures for research data sharing. Thus our simple assumption is that in the majority of world's sovereign states, key social science funders neither have institutional data policies nor requirements for data sharing. Based on this assumption our survey was not designed to be fully representative in terms of number of countries. Instead, a pragmatic approach was chosen. We wished to cover, more or less, those countries that are known to have some academic infrastructures for data sharing in social sciences, or are participating at least to some of the well-known international comparative research projects, like the International Social Survey Programme or the World Values Survey.

As the main aim of the project is to provide an overview of the current situation in such countries, the survey was targeted towards country experts who were expected to be able to describe the overall situation in their own country. Another option would have been sending the questionnaire directly to individual research funder organizations, but we preferred individual country experts working with data sharing, and researchers who had basic ideas of data sharing by producing comparative social science data from their own countries.

From May 2012 to January 2013, survey invitations were sent to potential respondents in 90 different countries. Individuals were contacted by email, with a description of the project and a direct link to a web-based survey powered by Qualtrics survey software. As of September 2013, 43 individuals from 32 countries have successfully completed the survey, of which 18 are European and 10 'non-Western' countries, including Russia. The relatively small number of responses from 'non-Western' countries may illustrate that the infrastructure for sharing social science data not yet is at a point where specific policies and proce-

dures are in place or where it might not yet be possible to identify specific individuals to contact. Though most participating countries are represented by one respondent, 10 have multiple respondents.

The survey instrument was designed by the IFDO Board and administered by the H. W. Odum Institute at the University of North Carolina at Chapel Hill. The survey remains active; more countries and experts are welcome to add their responses.

This report presents key findings from the survey responses received thus far. More than providing an overview of formal policies implemented in each country, the survey responses consider levels of enforcement and the perceived degree to which policies are enforced. The report attempts to create a broader picture of the process of data sharing, rather than simply list funders' requirements in each country.

## 2 Why data sharing and why data policies?

### 2.1 Challenges to data creation

All research disciplines are faced with great challenges with respect to data creation, management, curation, access and sharing. The **CORDIS**<sup>1</sup> project points to some of the most important issues:

- How will we preserve the data? What will be the point of storing all this scientific data if, a century from now, it has degraded, been corrupted, or is simply too difficult for anyone but a well-equipped expert to use? Over time non-maintainability of essential hardware, software or support environment may make the information inaccessible and/or users may become unable to understand or use the data.
- How will we protect the integrity of the data? As the 'data tide rises' higher, how will we detect unauthorised alterations? Should every researcher, and every citizen, have access to the data repositories? Should there be different levels of access allowed?
- How will we convey the context and provenance of the data? Given the emerging trend to make all publicly funded research data publicly available, just how will users from a wide range of backgrounds understand and query the data they are accessing, and recognise the special circumstances under which it was collected?

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<sup>1</sup> Community Research and Development Information Service: *Riding the wave. How Europe can gain from the rising tide of scientific data. Final report of the High Level Expert Group on Scientific Data.*  
<http://cordis.europa.eu/fp7/ict/e-infrastructure/docs/hlg-sdi-report.pdf>

- What new funding and business models will we need, so that everyone – researchers, enterprises, citizens – has adequate incentive to contribute to the data infrastructure? What kinds of data, under what circumstances, should be free?
- How will we protect the privacy of individuals linked to the data on the one hand, while providing researchers access to vital data on the other hand?

These questions imply a need to produce and adopt universal rules for data description, to define minimum data curation services, and to identify rules for data security that are designed for use across different disciplines. It also implies that data management and sharing policies/requirements should be met at the cross-national level<sup>2</sup>.

As a result there is a growing awareness at the political level across Europe as well as within scientific communities that research activities, spanning from the provision of resources (research funding) to the management of information outputs produced by research, should not be thought of as a *reactive* activities. Formally agreed policies, practices and procedures should be part of *proactive* routines in the SSH research community.

A policy, in broader terms, may

- contain a clear and unambiguous statement of intent, a mission statement that supports the data archives, adds to their legitimacy and trust and allows the institutions to capture the purposes of their activities
- contain a definition of how a given institutional activity should ‘behave’ (that is, it describes what the activity covers)
- contain a plan to guide the decisions in an institution, through a precise, brief and unambiguous description of the processes and activities. Hence, the processes/activities should (ideally) start from the policies, and process descriptions should contain the detailed steps on how policies will be enforced/implemented in the institution<sup>3</sup>

Policies and strategies to achieve improved access to research data are being put in force on several levels – from international organisations and interest groups, national science organisations, research funding bodies and professional associations, to individual universities and research projects<sup>4</sup>. In this context a comprehensive policy framework is a vital tool to establish the operational boundaries within which an institution operates: it supports the shorter-

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<sup>2</sup> DCC/JISC: *A Comparative Study of International Approaches to Enabling the Sharing of Research Data*: <http://www.dcc.ac.uk/sites/default/files/documents/publications/reports/Data-Sharing-Report.pdf>

<sup>3</sup> Some of these points are derived from a lecture called *Policies and Processes in iRODS* by Adil Hasan, presented at the 1<sup>st</sup> EU-DAT Conference, held 22-24 October 2012. <http://www.eudat.eu/system/files/Policies-and-Procedures-in-iRODS.pdf>

<sup>4</sup> See note 2

term management of the institutional activities whilst simultaneously taking the longer-term vision of future operational activities into account<sup>5</sup>.

A *research funder* policy, more specifically, should take into consideration core aspects of research and provide an overarching framework and common principles for individual research funder policies on data. As such, the policies should contain statements on, and requirements to the following<sup>6</sup>:

- *Data availability and accessibility.* As publicly funded research data may be considered a common good, produced in the public interest, research output should be made available with as few restrictions as possible in a timely and responsible manner that does not harm *intellectual property*.
- *Data management.* E.g. relevant standards and community best practice, preservation of research output, etc.
- *Data re-use and discoverability.* E.g. metadata and information on how to access the research output.
- *Legal, ethical and commercial issues.* E.g. constraints on release of research data, sensitive personal data, etc.
- *Data citation.* E.g. recognising intellectual contributors, data sources, terms and conditions, etc.
- *Efficiency and cost-effectiveness.* To maximise the research benefit which can be gained from budgets, the mechanisms for the research activities should be efficient and cost-effective in the use of public funds.

## 2.2 Data sharing and trust

When building policy frameworks into information systems (or what we in this context can call '*digital repositories*'), the element of *trust* is also an important issue. A trusted digital repository is one whose mission is to provide reliable, long-term access to managed digital resources to its *designated community*, now and in the future<sup>7</sup>.

Also, many of these issues involve trust and give rise to questions regarding the trustworthiness of the stored information. Producers and consumers of information are questioning which "memory organizations" are capable of ensuring the authenticity, integrity, confidentiality and availability of digital information. The fundamental question is whether it is possi-

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<sup>5</sup> Repository Policy Framework (RPF): <http://www.rsp.ac.uk/documents/briefing-papers/repoadmin-policyv2.pdf>

<sup>6</sup> Mostly drawn from RCUK Common Principles on Data Policy: <http://www.rcuk.ac.uk/research/Pages/DataPolicy.aspx>

<sup>7</sup> OCLC: Trusted Digital Repositories, Attributes and Responsibilities: <https://www.oclc.org/content/dam/research/activities/trustedrep/repositories.pdf>

ble to find authentic and trustworthy ways of preserving, protecting and providing continuously access to this information<sup>8</sup>.

The requirement that a digital repository have to demonstrate compliance with a set of criteria is critical; with the result that the acquisition of trust is assumed to be largely synonymous with a defined set of *requirement specifications*, or through processes of *audit* and *certification*<sup>9</sup>.

To this end, several initiatives have developed tools to enable repositories to be audited or self-assessed. Several of these are built upon the **OAIS** model<sup>10</sup>, which provides a high-level reference model or framework identifying the participants in digital preservation, their roles and responsibilities, and the kinds of information to be exchanged during the course of deposit and ingest into and dissemination from a digital repository.

These initiatives have been characterized by two complementary approaches. The **TDR**<sup>11</sup> and **NESTOR**<sup>12</sup> groups have produced checklists of specific criteria which repositories are required to fulfil and document in order to obtain certification. The work of the TDR group later evolved into an international official standard, namely the ISO 16363 "Audit and certification of trustworthy digital repositories"<sup>13</sup>. The checklist approach is concrete and specific and well-suited for an external certification process. On the other hand it is somewhat strict and rigid and may be difficult to apply among the wide variety of digital repositories that might wish to seek trusted status.

Consequently, other approaches like the **PLATTER**<sup>14</sup>, **DRAMBORA**<sup>15</sup> and **Data Seal of Approval**<sup>16</sup> have developed toolkits that seek to guide repositories through a risk-assessment exercise which enable them to evaluate, through self-assessment, their ability to fulfil their self-specified goals.

### 2.3 International data policy initiatives

The benefits of a comprehensive policy framework are highlighted in several cross-country initiatives. The **OECD** Principles and Guidelines for Access to Research Data from Public

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<sup>8</sup> DASISH Deliverable 4.1. Roadmap for Preservation and Curation in the SSH:

[http://dasish.eu/publications/projectreports/D4.1\\_-\\_Roadmap\\_for\\_Preservation\\_and\\_Curation\\_in\\_the\\_SSH.pdf/](http://dasish.eu/publications/projectreports/D4.1_-_Roadmap_for_Preservation_and_Curation_in_the_SSH.pdf/)

<sup>9</sup> DigitalPreservationEurope, *Repository Planning Checklist and Guidance*:

<http://www.digitalpreservationeurope.eu/platter.pdf>

<sup>10</sup> CCSDS (ISO 14721:2012): *Open Archival Information System Reference Model*:

<http://public.ccsds.org/publications/archive/650x0m2.pdf>

<sup>11</sup> RLG-OCLC: *Trusted Digital Repositories, Attributes and Responsibilities*:

<https://www.oclc.org/content/dam/research/activities/trustedrep/repositories.pdf>

<sup>12</sup> NESTOR: *Catalogue of Criteria for Trusted Digital Repositories*, [http://files.d-nb.de/NESTOR/materialien/NESTOR\\_mat\\_08\\_eng.pdf](http://files.d-nb.de/NESTOR/materialien/NESTOR_mat_08_eng.pdf)

<sup>13</sup> CCSDS (ISO 16363:2012): *Audit and certification of trustworthy digital repositories*:

<http://public.ccsds.org/publications/archive/652x0m1.pdf>

<sup>14</sup> See note 7

<sup>15</sup> DCC: *Digital Repository Audit Method Based on Risk Assessments*: <http://www.repositoryaudit.eu/>

<sup>16</sup> Data Seal of Approval: <http://datasealofapproval.org/>

Funding<sup>17</sup> was created to assist governments, research support and funding organisations, research institutions and researchers themselves to overcome the barriers and challenges to international access to and sharing of research data. The principles in the document, which all directly affect data access and sharing practices and should be fully taken into account formulating data policy and data access arrangements, are listed below:

- a. **Openness** - *access on equal terms for the international research community at the lowest possible cost*
- b. **Flexibility** - *taking into account changes in information technologies, the characteristics of each research field and the diversity of research systems, legal systems and cultures of each member country*
- c. **Transparency** - *Information on research data and data-producing organizations, documentation on the data and specifications of conditions attached to the use of these data should be internationally available in a transparent way*
- d. **Legal conformity** - *Data access arrangements should respect the legal rights and legitimate interests of all stakeholders in the public research enterprise*
- e. **Protection of intellectual property** - *Data access arrangements should consider the applicability of copyright or of other intellectual property laws that may be relevant to publicly funded research databases*
- f. **Formal responsibility** - *Access arrangements should promote explicit, formal institutional practices, such as the development of rules and regulations, regarding the responsibilities of the various parties involved in data-related activities.*
- g. **Professionalism** - *Institutional arrangements for the management of research data should be based on the relevant professional standards and values embodied in the codes of conduct of the scientific communities involved*
- h. **Interoperability** - *enabling and promoting international and interdisciplinary access to and use of research data, through technological and semantic interoperability (e.g. data documentation standards)*
- i. **Quality** - *Data managers, and data collection organisations, should pay particular attention to ensuring compliance with explicit quality standards*
- j. **Security** - *Specific attention should be devoted to supporting the use of techniques and instruments to guarantee the integrity and security of research data*

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<sup>17</sup> OECD: *Principles and Guidelines for Access to Research Data from Public Funding*:  
<http://www.oecd.org/sti/sci-tech/38500813.pdf>

- k. **Efficiency** - *promote data access and sharing to improve the overall efficiency of publicly funded scientific research, and to avoid the expensive and unnecessary duplication of data collection efforts*
- l. **Accountability** - *The performance of data access arrangements should be subject to periodic evaluation by user groups, responsible institutions and research funding agencies*
- m. **Sustainability** - *Due consideration should be given to the sustainability of access to publicly funded research data as a key element of the research infrastructure. This means taking administrative responsibility for the measures to guarantee permanent access to data that have been determined to require long-term retention.*

Although all of these issues are tightly intertwined, in later years there has been an increased focus especially on *openness*, and *open access*. One of the major international initiatives on open access is the **Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities**, emerging from a 2003 conference hosted in Berlin by the Max Planck Society. It defines open access as a comprehensive source of human knowledge and cultural heritage that has been approved by the scientific community. Further, the declaration states that open access contributions should include original scientific research results, raw data and metadata, source materials, digital representations of pictorial and graphical materials and scholarly multimedia material.

Excerpts from the Declaration<sup>18</sup>:

*“Open access contributions must satisfy two conditions:*

- *The author(s) and right holder(s) of such contributions grant(s) to all users a free, irrevocable, worldwide, right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship (community standards, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now), as well as the right to make small numbers of printed copies for their personal use.*
- *A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in an appropriate standard electronic format is deposited (and thus published) in at least one online repository using suitable technical standards (such as the Open Archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, inter-operability, and long-term archiving”.*

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<sup>18</sup> Berlin Declaration: <http://oa.mpg.de/lang/en-uk/berlin-prozess/berliner-erklarung/>

The open access initiative is reflected in several succeeding international initiatives. The **European Commission**, in a report on access to and preservation of scientific information (2012), states that open access should be rooted in explicit policies<sup>19</sup>:

*“Policies on open access to scientific research results should apply to all research that receives public funds. Such policies are expected to improve conditions for conducting research by reducing duplication of efforts and by minimising the time spent searching for information and accessing it. This will speed up scientific progress and make it easier to cooperate across and beyond the EU. Such policies will also respond to calls within the scientific community for greater access to scientific information”.*

In 2008, the Commission launched the **Open Access Pilot** in FP7 that will run until the end of the Framework Programme (2013). It aims to ensure that research results funded by the EU citizen are made available to the population at large for free. In this way, Open Access is considered a way to improve the EU's return on research and development (R&D) investment. In one of its later reports the Commission addresses some of the major issues involved in data sharing and accessibility<sup>20</sup>:

*“The lack of organisation and clarity about responsibilities in improving access to and use of scientific data are major barriers to change. E-infrastructures and thematic data infrastructures for storing and providing access to data are now rapidly emerging worldwide, but the financing models to ensure long-term access are often lacking. In addition, interoperability among countries and disciplines remains an issue”.*

The lack of organisational clarity and financial responsibilities is also emphasised by the Blue Ribbon Task Force on Sustainable Digital Preservation and Access (**BRTF-SDPA**). In a report (2010)<sup>21</sup> it points out that although in principle everyone would benefit from free access to scholarly discourse, especially scholarship produced with public funds, the potential downside for such an access policy is that if there is no provision for sustaining the data over time, preservation becomes an unfunded mandate. “Open access is like any other form of access: without preservation, there will be no access, open or otherwise”. The task force comes up with an explicit recommendation: “All open-access strategies that assume the persistence of information over time must consider provisions for the funding of preservation”.

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<sup>19</sup> EU Commission: *Recommendations on access to and preservation of scientific information*: [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/recommendation-access-and-preservation-scientific-information\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/recommendation-access-and-preservation-scientific-information_en.pdf)

<sup>20</sup> EU Commission: *Towards better access to scientific information*: [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/era-communication-towards-better-access-to-scientific-information\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/era-communication-towards-better-access-to-scientific-information_en.pdf)

<sup>21</sup> BRTF-SDPA: *Sustainable Economics for a Digital Planet - Ensuring Sustainable Economics for a Digital Planet*: [http://brtf.sdsc.edu/biblio/BRTF\\_Final\\_Report.pdf](http://brtf.sdsc.edu/biblio/BRTF_Final_Report.pdf)

Similar statements can be found in the **UNESCO** report “Policy Guidelines for the development and promotion of open access” (2012)<sup>22</sup>. Although the report embraces open access principles it also points to some of the challenges regarding the difference between scientific *publications* and scientific *data*:

*“Research data are increasingly covered by policies and often these policies are being implemented by smaller, niche players as well as large research funders. These policies are not usually, however, the same (Open Access) policies that cover the text-based literature. Data are exceptional because policies must take into account issues of privacy and special cases where data cannot be released for other reasons. Developing and wording Open Data policies is therefore a specialised issue that is not as straightforward as developing policies for Open Access to the literature. Where there is Open Access policy development now, Open Data policy development will follow”.*

Challenges for policy-driven data sharing are also pointed out in the **ESFRI** Roadmap report<sup>23</sup>:

*... .“One major obstacle for access to empirical data in Europe is the multitude of data access policies and regulations implemented by national governments. To make data easily available for cross national research, a mapping of data resources in various countries is required followed by the establishment of harmonised access regulations”.*<sup>24</sup>

These examples from an *international* level show that the key organisations like OECD, UNESCO, EU and groups like ESFRI have concentrated their policy statements around the principle of open access to publicly funded research outputs. The example also illustrates that, while they may have policies explicitly for data sharing, there is also an explicit concern about the challenges of implementing open access policies.

The challenges connected to generating, processing and sharing digital data are summarised in a recent OECD Global Science Forum Report on Data and Research Infrastructure for the Social Sciences<sup>25</sup>, along with a set of recommendations to deal with these challenges.

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<sup>22</sup> UNESCO: *Policy Guidelines for the development and promotion of open access*:  
<http://unesdoc.unesco.org/images/0021/002158/215863e.pdf>

<sup>23</sup> ESFRI: *Social Sciences and Humanities, Roadmap Working Group Report 2008*:  
[http://ec.europa.eu/research/infrastructures/pdf/esfri/esfri\\_roadmap/roadmap\\_2008/ssh\\_report\\_2008\\_en.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/infrastructures/pdf/esfri/esfri_roadmap/roadmap_2008/ssh_report_2008_en.pdf#view=fit&pagemode=none)

<sup>24</sup> ESFRI: *Roadmap 2008 (Update)*:  
[http://ec.europa.eu/research/infrastructures/pdf/esfri/esfri\\_roadmap/roadmap\\_2008/esfri\\_roadmap\\_update\\_2008.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/infrastructures/pdf/esfri/esfri_roadmap/roadmap_2008/esfri_roadmap_update_2008.pdf#view=fit&pagemode=none)

<sup>25</sup> OECD Global Science Forum Report on data and research Infrastructure for the Social Sciences, 2013: *New Data for Understanding the Human Condition. International Perspectives*: <http://www.oecd.org/sti/sci-tech/new-data-for-understanding-the-human-condition.pdf>

**Table 1: Summary of challenges and recommendations from the OECD Global Science Forum Report**

Challenge	Recommendation	Main actors
Reliability, statistical validity and generalizability of new forms of digital data	Collaborate internationally to provide resources (methods and tools) for researchers	National research funding agencies
Information about the existence of micro-data and their availability	Data should be processed and documented to agreed and common standards	National and international statistical organisations
Privacy of individuals	Collaboration to develop an internationally recognised framework code of conduct for research use of new forms of personal data	Research funding agencies and data protection authorities
Barriers to access (legal, cultural, language, proprietary rights)	Cooperation on mechanisms to improve access for comparative research	National statistical agencies and international agencies (e.g. World Bank, WHO, OECD)
Increasingly interdisciplinary research agenda	Share expertise, knowledge and resources, particularly in the areas of data access, linkage, integration and analysis	Data producers and data users
Increased focus on cross-country comparative research	Harmonise social and economic data; foster an integrated approach to data design and harmonisation, access and sharing	National and international statistical agencies, researchers and research funders
Re-usability of data	Requirements for researchers to make data management plans	National funding agencies
Resources and infrastructures connected to professional data preservation and curation	Assessment of national needs and assets that will contribute to national plans of action	Social science research communities
Ensure effective data sharing	Incentives to ensure data sharing, through common systems for referencing and recognizing data resources in research publications	Research funding agencies, publishers of research and employers of researchers

In the next chapter we will look at some of these main actors on the *national* level, their policies and strategies documents, with an emphasis on national research funding agencies.

## 2.4 Examples of research funders policies

Policy statements from national science funders can largely be divided into three groups: those who have explicit policies on data sharing and clear implementation of these policies (e.g. by specifying where data should be deposited); those who have explicit policies but no clear implementation; and those who have no explicit data sharing policy statements.

One example of an institution that has an explicit policy and a clear implementation is the **ARC (Australian Research Council)**<sup>26</sup>. In one of its recent funding agreements<sup>27</sup> (regarding projects to commence in 2014), it states more generally that it “...strongly encourages publication in publicly accessible outlets and the depositing of data and any publications arising from a Project in an appropriate subject and/or institutional repository”. However, regarding social science data sets, the agreement becomes more specific, by explicitly pointing to a named archive institution:

<sup>26</sup> Australian Research Council: <http://www.arc.gov.au/default.htm>

<sup>27</sup> ARC Funding Agreement: [http://www.arc.gov.au/ncgp/ce/ce\\_fundingagreement.htm](http://www.arc.gov.au/ncgp/ce/ce_fundingagreement.htm)

*“Any digital data arising from a Project involving research relating to the social sciences should be lodged with the Australian Social Science Data Archive (ASSDA) for secondary use by other investigators. This should normally be done within two years of the conclusion of any fieldwork relating to the Project research. If a Chief Investigator is not intending to do so within the two-year period, he/she should include the reasons in the Project’s Final Report”.*

Similar statements can be found in the Australian **NHMRC (National Health and Medical Research Council)**<sup>28</sup>. However, instead of pointing to a specific archive institution the NHMRC requires a deposit into an unspecified open access institutional repository:

*“...NHMRC wants to ensure the widest possible dissemination of the research supported by NHMRC funding, in the most effective manner and at the earliest opportunity. NHMRC therefore requires that **any publications** arising from an NHMRC supported research project must be deposited into an open access institutional repository within a twelve month period from the date of publication”<sup>29</sup>.*

This means that where the ARC is requiring open access and sharing of research publications as well as data, the NHMRC’s requirement only concern publications. Specification of institution is not further specified (other than the fact that it has to be ‘open access’) and it is up to the researcher to select an appropriate repository.

The government of Canada’s principal funders of research and scholarship in the higher education sector, the **Canadian Institutes of Health Research (CIHR)**<sup>30</sup>, the **Natural Sciences and Engineering Research Council (NSERC)**<sup>31</sup>, and the **Social Sciences and Humanities Research Council (SSHRC)**<sup>32</sup> all adhere to a new open access principle. The principle is laid out in detail in a report (*Tri-Agency Open Access Policy*) which is expected to be available in its final form by fall 2014. Regarding research data archiving, only the SSHRC provides a dedicated policy. It states that all research data collected with the use of SSHRC funds “...must be preserved and made available for use by others within a reasonable period of time. SSHRC considers “a reasonable period” to be within two years of the completion of the research project for which the data was collected”<sup>33</sup>. There is no explicit requirement of a specific preservation facility; the policy simply states that:

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<sup>28</sup> National Health and Medical Research Council: <http://www.nhmrc.gov.au/>

<sup>29</sup> NHMRC Dissemination of Research Findings: <http://www.nhmrc.gov.au/grants/policy/dissemination-research-findings>

<sup>30</sup> CIHR: <http://www.cihr-irsc.gc.ca>

<sup>31</sup> NSERC: <http://www.nserc-crsng.gc.ca>

<sup>32</sup> SSHRC: <http://www.sshrc-crsh.gc.ca>

<sup>33</sup> SSHRC Research Data Archiving Policy: [http://www.sshrc-crsh.gc.ca/about-au\\_sujet/policies-politiques/statements-enonces/edata-donnees\\_electroniques-eng.aspx](http://www.sshrc-crsh.gc.ca/about-au_sujet/policies-politiques/statements-enonces/edata-donnees_electroniques-eng.aspx)

*“...researchers should ask their postsecondary institution's or organization's library or data service if it can preserve the data. If it cannot or if one wishes to have the data deposited at another institution, researchers could consider contacting one of the members of the Canadian Association of University Libraries to enquire about data management assistance<sup>34</sup>”.*

In the **US**, the **NSF (National Science Foundation<sup>35</sup>)** has since January 2011 required a data management plan with all new research proposals, to ensure that researchers plan how to look after data during and after research to optimise data sharing.

*“Proposals submitted or due on or after January 18, 2011, must include a supplementary document of no more than two pages labelled “Data Management Plan”. This supplementary document should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results”.*

*“The DMP should describe physical and cyber resources and facilities that will be used for the effective preservation and storage of research data. These can include third party facilities and repositories<sup>36</sup>.”*

It is up to the researcher to specify and describe “cyber resources” that are to be used for data preservation and storage. The only further specification on dissemination and data sharing is that all funded research projects must share their research results “at no more than incremental cost and within a reasonable time, the data, samples, physical collections and other supporting materials created or gathered in the course of the work.” In addition, “grantees are expected to encourage and facilitate such sharing<sup>37</sup>.”

The NSF **Directorate for Social, Behavioral & Economic Sciences (SBE)** has formulated a more specific Data Archiving Policy<sup>38</sup> which contains guidelines for categories of data. For quantitative social and economic data sets it states (similar to the NSF's general policy) that applicants will be asked to specify in writing where they plan to deposit their data set(s). And more specifically, that “...this may be the Inter-university Consortium for Political and Social Research (ICPSR) at the University of Michigan, but other public archives are also available”.

The NSF/SBE approach is an example of policies that contain ‘flexible requirements’: they are intended to be flexible enough to accommodate the variety of scientific enterprises that constitute their programs.

The **US National Institutes of Health<sup>39</sup> (NIH)** has an explicit requirement of preservation facility when it comes to scientific publications:

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<sup>34</sup> See footnote above

<sup>35</sup> National Science Foundation: <http://www.nsf.gov/>

<sup>36</sup> Data Management Plan Policy: [http://www.nsf.gov/sbe/SBE\\_DataMgmtPlanPolicy.pdf](http://www.nsf.gov/sbe/SBE_DataMgmtPlanPolicy.pdf)

<sup>37</sup> Dissemination and Sharing of Research Results:

[http://www.nsf.gov/pubs/policydocs/pappguide/nsf13001/aag\\_6.jsp#VID4](http://www.nsf.gov/pubs/policydocs/pappguide/nsf13001/aag_6.jsp#VID4)

<sup>38</sup> NSF/SBE Data Archiving Policy: <http://www.nsf.gov/sbe/ses/common/archive.jsp>

<sup>39</sup> National Institutes of Health: <http://www.nih.gov/>

*“The Director of the National Institutes of Health shall require that all investigators funded by the NIH submit or have submitted for them to the National Library of Medicine’s PubMed Central an electronic version of their final, peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication: Provided, that the NIH shall implement the public access policy in a manner consistent with copyright law”<sup>40</sup>.*

This is similar to the approach by the Australian National Health and Medical Research Council. But when it comes to the actual *data*, their data sharing policy<sup>41</sup> has a ‘softer’ approach. The policy requires a data sharing plan from the applicants, but the content of the plan is flexible and seems to be more of a guideline than a requirement:

*“Applicants who are planning to share data may wish to describe briefly the expected schedule for data sharing, the format of the final dataset, the documentation to be provided, whether or not any analytic tools also will be provided, whether or not a data-sharing agreement will be required and, if so, a brief description of such an agreement”.*

Also located in the US is the **World Bank**. It’s worth mentioning that in 2012 the World Bank announced an Open Access Policy<sup>42</sup> for research and knowledge and as part of the process, also launched the Open Knowledge Repository<sup>43</sup> for publications and adopted a set of Creative Commons copyright licenses<sup>44</sup>. Similar institutional-specific and ‘self-contained’ repositories have been launched in several higher education institutions, like **Harvard University**. Scholarly articles provided to the university are stored, preserved, and made freely accessible in digital form in DASH (Digital Access to Scholarship at Harvard)<sup>45</sup>, the University Library’s open access repository<sup>46</sup>.

In Europe, one of the leading research councils in sciences and humanities is the **European Research Council**<sup>47</sup> (ERC). The ERC supports the principle of open access to the published outputs of research as a fundamental part of its mission. Accordingly, the ERC requires electronic copies of any research papers and monographs, as well as data-related products such

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<sup>40</sup> NIH Public Access Policy Details: <http://publicaccess.nih.gov/policy.htm>

<sup>41</sup> NIH Data Sharing Policy and Implementation Guidance: [http://www.grants.nih.gov/grants/policy/data\\_sharing/data\\_sharing\\_guidance.htm](http://www.grants.nih.gov/grants/policy/data_sharing/data_sharing_guidance.htm)

<sup>42</sup> World Bank Open Access Policy for Formal Publications: <http://documents.worldbank.org/curated/en/2012/04/16200740/world-bank-open-access-policy-formal-publications>

<sup>43</sup> <https://openknowledge.worldbank.org/>

<sup>44</sup> World Bank Announces Open Access Policy for Research and Knowledge, Launches Open Knowledge Repository: [http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:23164491~pagePK:64257043~piPK:437376~theSitePK:4607\\_00.html](http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:23164491~pagePK:64257043~piPK:437376~theSitePK:4607_00.html)

<sup>45</sup> Digital Access to Scholarship at Harvard: <http://dash.harvard.edu/>

<sup>46</sup> Harvard University, Open Access Policies: <http://osc.hul.harvard.edu/policies>

<sup>47</sup> European Research Council: <http://erc.europa.eu/>

as computer codes, that are supported in whole, or in part, by ERC funding to be made publicly available (“in the relevant databases”) as soon as possible, and no later than six months after the official publication date of the original article<sup>48</sup>. The Council recommends (not a requirement) that researchers deposit their data and research publications in open access repositories. Their guidelines lists discipline-specific repositories; the recommended repository for Life Sciences, is the Europe PMC<sup>49</sup> (formerly known as UK PubMed Central); and for Physical Sciences and Engineering ArXiv<sup>50</sup> is recommended. Regarding Social Sciences and Humanities the ERC states that it: “...is reviewing existing practices and open access infrastructures...and will make recommendations in the future”.

In the **United Kingdom (UK)**, funding bodies such as the **Economic and Social Research Council**<sup>51</sup> (**ESRC**), the **Natural Environment Research Council**<sup>52</sup> (**NERC**) and the **British Academy**<sup>53</sup> require researchers to offer all research data generated during research grants to designated data centres – the UK Data Archive and NERC data centres<sup>54</sup>. The **Medical Research Council**<sup>55</sup> (**MRC**) and the **Wellcome Trust**<sup>56</sup> have similar open access data policies in place, which encourage researchers to share their research data in a timely manner, with as few restrictions as possible. Notice that the pattern is similar to Australia and USA and that the three medical research councils encourage data sharing where the economic and social research councils implement their policy by requiring that data should be deposited in a designated data archive.

In addition, ESRC, MRC, NERC and the Wellcome Trust require data managing and sharing plans as part of grant applications for projects generating new research data.

Excerpts from the ESRC data policy<sup>57</sup>:

*“In cases where applications involve the creation of new data, we will require that the data must be made available for preparation for re-use and/or archiving with the ESRC data service providers within three months of the end of the award”.*

*“All ESRC-funded research projects, collecting or producing data, are required to develop and implement a data management plan to ensure that data are well managed during their life-cycle and are ready to be offered for archiving and sharing when a project ends”.*

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<sup>48</sup> Open Access Guidelines for researchers funded by the ERC:

[http://erc.europa.eu/sites/default/files/document/file/open\\_access\\_policy\\_researchers\\_funded\\_ERC.pdf](http://erc.europa.eu/sites/default/files/document/file/open_access_policy_researchers_funded_ERC.pdf)

<sup>49</sup> Europe PubMed Central: <http://europepmc.org/>

<sup>50</sup> ArXiv: <http://arxiv.org/>

<sup>51</sup> Economic and Social Research Council: <http://www.esrc.ac.uk/>

<sup>52</sup> Natural Environment Research Council: <http://www.nerc.ac.uk/>

<sup>53</sup> British Academy: <http://www.britac.ac.uk/>

<sup>54</sup> Source: UKDA, *Managing and Sharing Data*: <http://www.data-archive.ac.uk/media/2894/managingsharing.pdf>

<sup>55</sup> Medical Research Council: <http://www.mrc.ac.uk>

<sup>56</sup> Wellcome Trust: <http://www.wellcome.ac.uk/>

<sup>57</sup> ESRC Research Data Policy: [http://www.esrc.ac.uk/images/Research\\_Data\\_Policy\\_2010\\_tcm8-4595.pdf](http://www.esrc.ac.uk/images/Research_Data_Policy_2010_tcm8-4595.pdf)

*“It is the responsibility of the grant holder to formally offer any data created or repurposed during the lifetime of the award to the UKDS within three months of the end of the award. The grant holder is responsible for providing these data to the UKDS for assessment, and if accepted, to ensure that they meet the requirements of the UKDS for preservation and future re-use. If data were accepted, the grant holder is expected to make them available to the UKDS for preparation for re-use and archiving without delay”.*

ESRC is also the only funding institution reviewed this far that has explicit sanctioning opportunities; the policy states that the ESRC will “... withhold the final payment of an award if data have not been offered for archiving to the required standard within three months of the end of the award”.

Also worth mentioning based in the UK is the **Research Councils UK**<sup>58</sup> (**RCUK**), which is a strategic partnership of the seven research councils in the UK. In July 2012 the RCUK announced a revised Open Access policy. The policy requires all RCUK-funded publications submitted for publication after 1 April 2013 to adopt either of the two Open Access (OA) models described below<sup>59</sup>:

- Green OA: the author deposits articles accepted for publication in an online repository, often institutional repositories managed by research institutes and higher education institutions.
- Gold OA: published material is made available immediately by the journal publisher in return for an article processing charge.

Journals increasingly require data that form the basis for publications to be shared or deposited within an accessible database or repository, and these models are to be adopted by several large academic publishers and higher education institutions.

As mentioned earlier, Harvard University in the US have recently launched its own Open Access repository. In a similar fashion, several universities in the UK have adopted the same strategy. For example, the **Oxford University** has its own Oxford Open Access Project Group which aims to facilitate Open Access through enhancing the Oxford Research Archive<sup>60</sup> and assisting staff and students to understand and meet research funders’ requirements in relation to Open Access and the reporting of publications<sup>61</sup>.

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<sup>58</sup> Research Councils UK: <http://www.rcuk.ac.uk/pages/home.aspx>

<sup>59</sup> Source: <http://www.cam.ac.uk/research/research-at-cambridge/open-access>

See also: *RCUK Policy on Open Access and Supporting Guidance*:

<http://www.rcuk.ac.uk/documents/documents/RCUKOpenAccessPolicy.pdf>

<sup>60</sup> Oxford Research Archive: <http://ora.ox.ac.uk>

<sup>61</sup> Open Access at Oxford: <http://openaccess.ox.ac.uk/home-2/open-access-at-oxford/>

See also: *Statement on Open Access at the University of Oxford*: <http://openaccess.ox.ac.uk/wp-uploads/2013/03/Statement-on-Open-Access-at-the-University-of-Oxford-Approved-by-Council-on-11-March-2013.pdf>

The **Research Council of Norway (RCN)**<sup>62</sup> provides a general statement on open access policy<sup>63</sup> in addition to a more specific statement, found in the Project Agreement Document<sup>64</sup>, on archiving requirements:

*“Unless otherwise agreed with the Research Council, copies of all research-generated data, including requisite documentation, shall be transferred from the Project Owner to the Norwegian Social Science Data Services (NSD). This shall be carried out as soon as possible and at the latest two years following the conclusion of the project period”.*

It should be noted that this archiving requirement applies to more or less *all* research projects funded by the RCN regardless of the research discipline. This means that the humanities, the medical and health sciences, the natural sciences as well as social sciences are covered by this contractual requirement.

Similar arrangement can be found in **Denmark**, where the **Danish National Research Foundation**<sup>65</sup> states that funded data should be archived at the DDA (Danish Data Archive)<sup>66</sup>. In **Sweden** and **Finland** on the other hand, there are no requirements on archiving in explicit designated data repositories. However, applicants receiving grants from the **Swedish Research Council**<sup>67</sup> must “...either publish their results in Web-based journals that allow open access, or they must archive the article in an openly searchable database immediately after, or within at least 6 months, of its publication in a traditional journal”<sup>68</sup>.

In a general statement on conditions of funding the **Academy of Finland**<sup>69</sup> recommends (not a requirement) that “... Academy-funded researchers publish their research articles in open-access electronic scientific journals in cases where there are electronic journals available that meet at least the same quality standards as traditional subscription-based journals”; and further, that “... Academy-funded social science data be delivered to the Finnish Social Science Data Archive (FSD), based at the University of Tampere. Delivery shall take place as soon as possible after Academy funding has ceased”<sup>70</sup>. This means that where the Swedish Research Council focus on depositing of publications the Academy of Finland also has a poli-

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<sup>62</sup> Research Council of Norway: [http://www.forskningsradet.no/en/Home\\_page/1177315753906](http://www.forskningsradet.no/en/Home_page/1177315753906)

<sup>63</sup> The Research Council's Principles for Open Access to Scientific Publications: <http://bit.ly/ZPISjK>

<sup>64</sup> Project Agreement Document: <http://bit.ly/12WOYxd>

<sup>65</sup> Danish National Research Foundation: <http://dg.dk/en/>

<sup>66</sup> Source of statement: the IFDO survey

<sup>67</sup> Swedish Research Council: <http://www.vr.se/inenglish.4.12fff4451215cbd83e4800015152.html>

<sup>68</sup> Swedish Research Council : *Open Access — free accessibility to research findings*: <http://vr.se/inenglish/researchfunding/applyforgrants/generalconditionsforgrantapplications/openaccess.106.5adac704126af4b4be280007766.html>

<sup>69</sup> Academy of Finland: <http://www.aka.fi/en-GB/A/>

<sup>70</sup> Academy of Finland: *General Conditions and Guidelines for Funding 2011-2012*: [http://www.aka.fi/Tiedostot/Tiedostot/Rahoituksen%20k%C3%A4ytt%C3%B6/Yleiset\\_ehdot\\_2011\\_2012\\_eng.pdf](http://www.aka.fi/Tiedostot/Tiedostot/Rahoituksen%20k%C3%A4ytt%C3%B6/Yleiset_ehdot_2011_2012_eng.pdf)

cy promoting data sharing, pointing to FSD as an archive where data can (not required but recommended) be delivered.

Most of the research funders mentioned so far have explicitly formulated, and provide easy access to, data policies and data archiving policies. Due to the accessibility of the material our examples so far have been limited to a selection of high-income OECD countries (e.g. the Nordic countries, North America and Australia). It's proven harder to find similar policies for countries from other parts of the world, either due to lack of awareness on the subject of data preservation and data sharing, or simply because the relevant material is unavailable in English.

However, there are some processes and initiatives worth mentioning. In **Eastern Europe** several countries have increased their research and development expenditure (as % of GDP) in recent years (see appendix1 for an overview of R&D expenditure since 2000 for countries included in the IFDO survey). Estonia and Slovenia have seen significant increases in recent years, reaching above the EU average. The Czech Republic has reached a level that is close to the EU average, while Hungary, Lithuania, Latvia, Slovakia and Romania still score significantly lower than the EU average. Although there is no certain relationship between the level of R&D expenditure and the provision of data sharing and access policies, it is reasonable to assume that economic resources and/or tied grants may have a significant influence on the general level of awareness of data accessibility.

Although there seems to be little or no infrastructure to support a fully developed research funding system, including dedicated data archives, there are several open data initiatives/ programs in **Africa** that makes it clear that more nations are dealing with the importance of accessibility to knowledge and research. Open data initiatives have started in Kenya<sup>71</sup>, Tunisia<sup>72</sup>, Morocco<sup>73</sup>, Tanzania<sup>74</sup>, Sierra Leone<sup>75</sup> and Ghana<sup>76</sup>, in addition to initiatives from the African Development Bank Group<sup>77</sup> and the Open Africa Platform<sup>78</sup>, which aims to be a "...Library of Congress of Data for Africa". Although it is too early to judge the quality and results of these initiatives, they contribute positively to the further development of a research infrastructure in African countries.

In **India**, the Ministry of Science & Technology has published a 'National Data Sharing and Accessibility Policy (NDSAP)', where the issues of data access and data sharing are addressed. The policy states that it "... is designed so as to apply to all sharable non-sensitive data available either in digital or analog forms but generated using public funds by various

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<sup>71</sup> Kenya Open Data: <https://opendata.go.ke/>

<sup>72</sup> Open Data Tunisia: <http://www.data.gov.tn/>

<sup>73</sup> Morocco Open Data Initiative: <http://data.gov.ma/>

<sup>74</sup> Open Government Tanzania: <http://www.opengov.go.tz/>

<sup>75</sup> Transparency Sierra Leone: <http://www.transparencysierraleone.gov.sl/>

<sup>76</sup> Ghana Open Data Initiative: <http://data.gov.gh/>

<sup>77</sup> African Development Bank Group's Open Data for Africa: <http://opendataforafrica.org/>

<sup>78</sup> Africa Open Data: <http://africaopendata.org/>

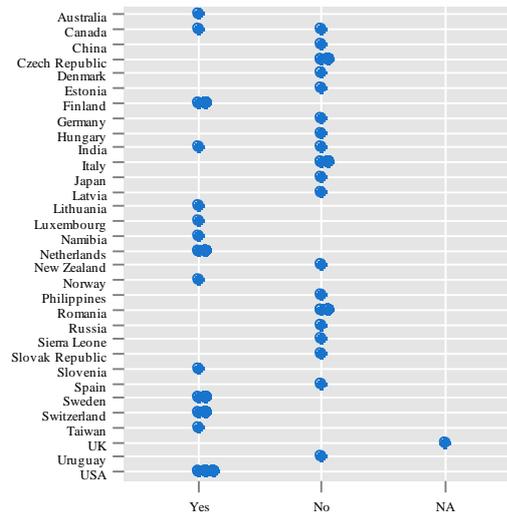
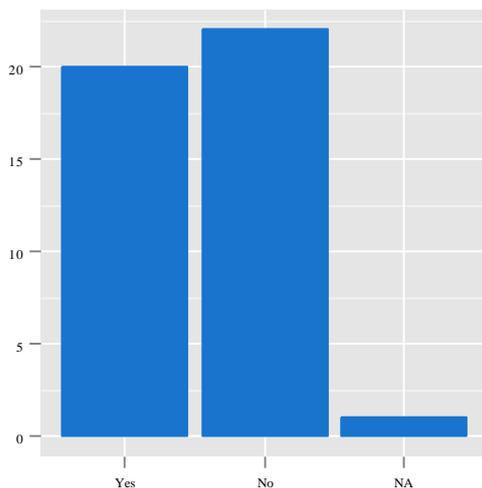
ministries / departments / subordinate offices / organizations / agencies of Government of India. The NDSAP policy is designed to promote data sharing and enable access to Government of India owned data for national planning and development”. Further it states that “...a state-of-the-art data warehouse and data archive with online analytical processing (OLAP) capabilities, which includes providing, a multi-dimensional and subject oriented view of the database needs to be created”.

### 3 Survey Findings

Based on the survey results, the broader picture is one in which researchers in about half of the 32 countries that responded to the survey, are confronted with research funders’ and other research stakeholders’ data sharing requirements, but not always receive the support or motivation needed to comply with the requirements. On the other hand, the existence of data repositories in the majority of countries indicates that data sharing activities are occurring. Data sharing culture, however, becomes hazy when funding, policy enforcement, or rewards—tangible or otherwise—are nonexistent. The following gives specific frequencies to survey questions that address these issues. Note that the total number of responses for each question may exceed the number of countries represented in the survey data. This is the result of those countries having more than one respondent, some giving different, even conflicting answers to questions.

To establish the extent that research funder policies have issued data sharing requirements around the world, the survey instrument asked respondents whether or not funders in their countries have such policies. Of the 32 countries represented in the responses, slightly more than half, or 22 ( 51.2%), indicated that funder policies for data sharing do not exist . This number is slightly higher than the 20 countries (46.5%) in which funder policies for data sharing do exist.

**“In your country, do any major funders of academic SSH research have similar types of data sharing requirements in their guidelines as described in any or all of these examples?”<sup>79</sup>**



<sup>79</sup> As an introduction to this question, the survey provided examples of data policies of SSH research funders in the UK, in the US, and in Finland.

For those countries that indicated that such data sharing requirements do not exist in their country, the majority reiterated that no policy has been established. The most cited reason was the lack of culture for data sharing. Other reasons given were the lack of infrastructure and the fact that researchers consider themselves to be private owners of their data. The word cloud below approximates the frequency of terms used in text responses to the open-ended survey question.

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**“Please list main reasons why, in your opinion, there are no such data sharing requirements”.**

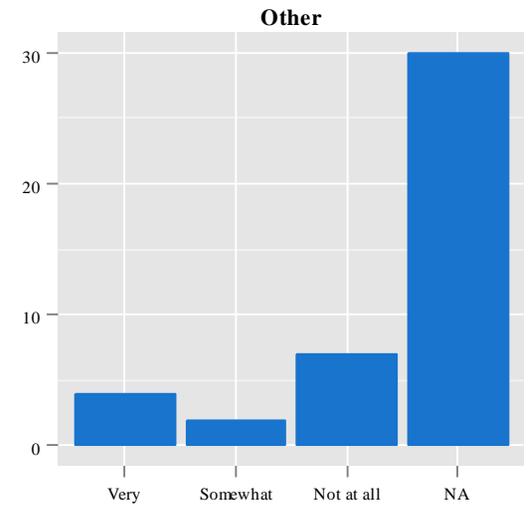
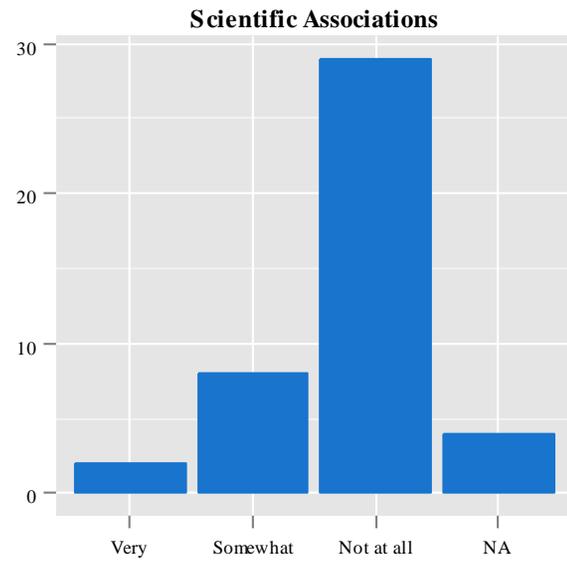
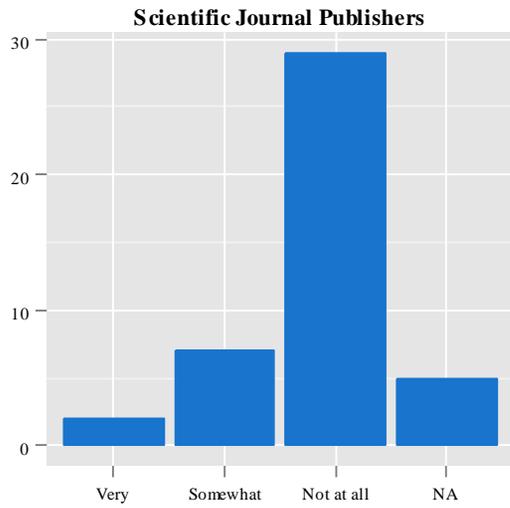
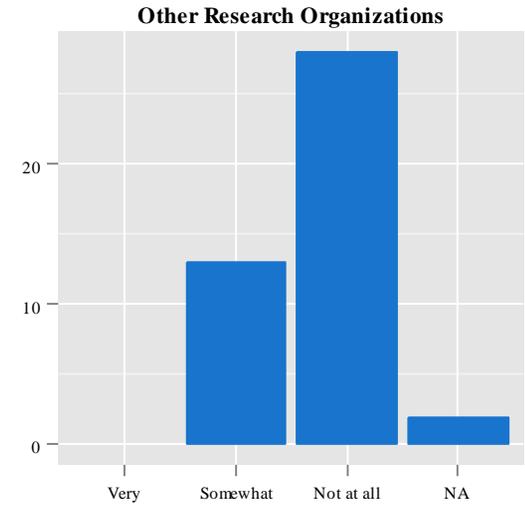
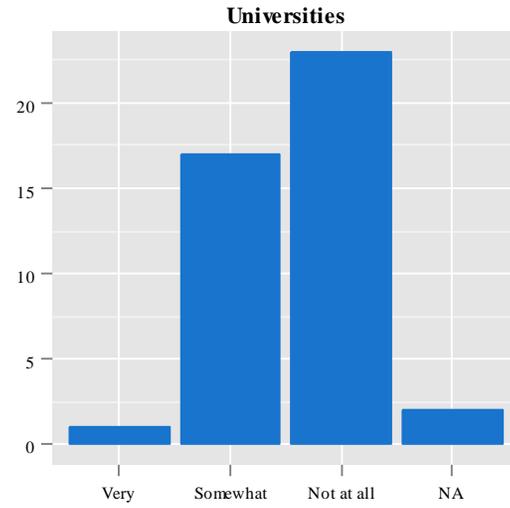
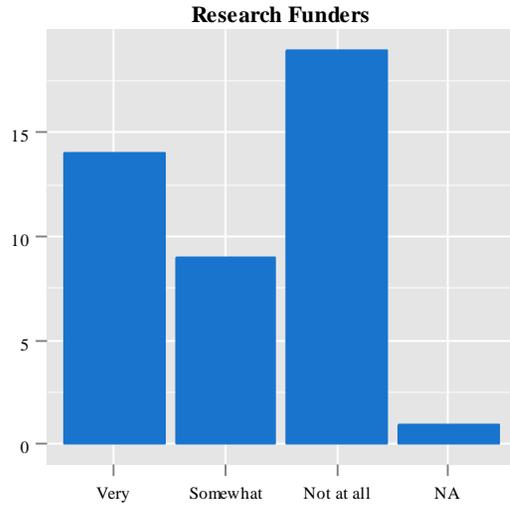
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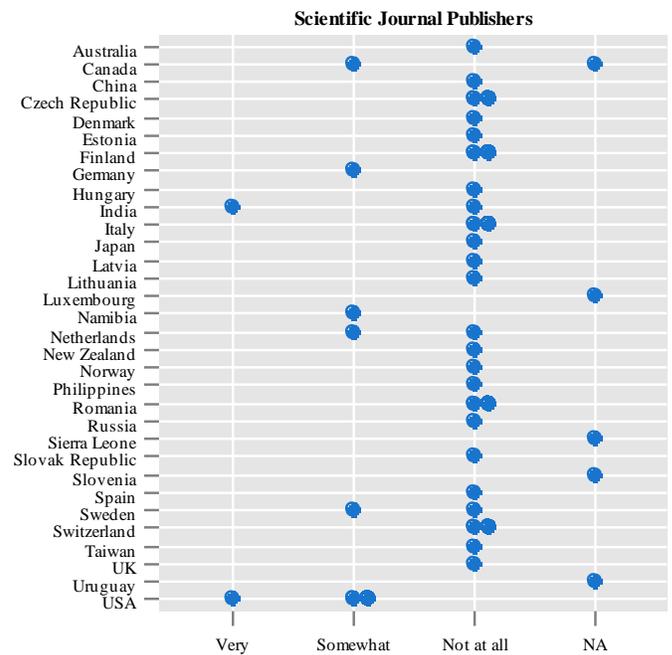
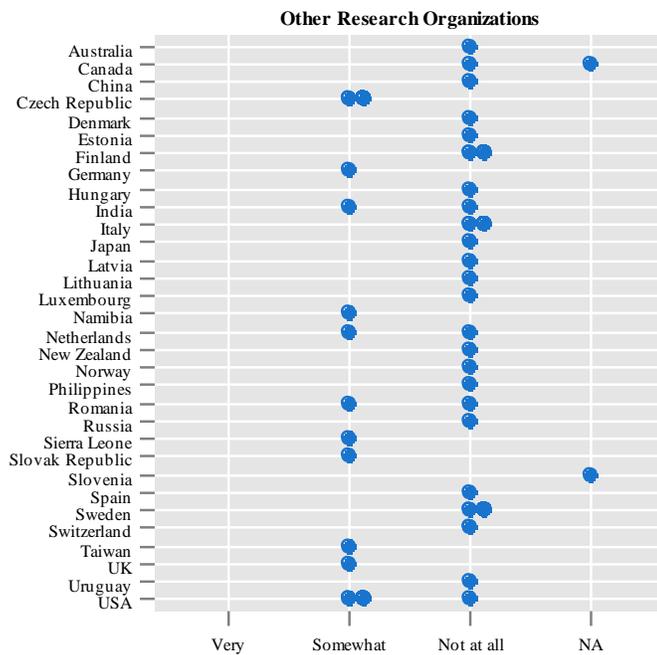
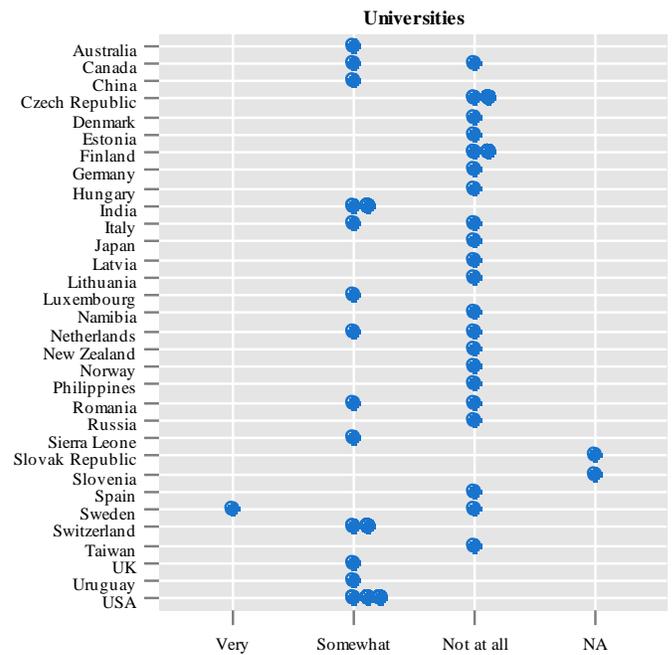
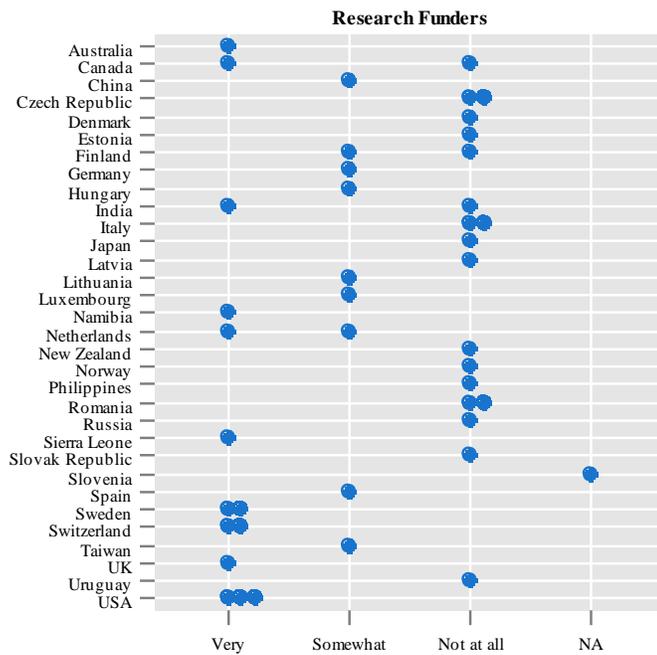
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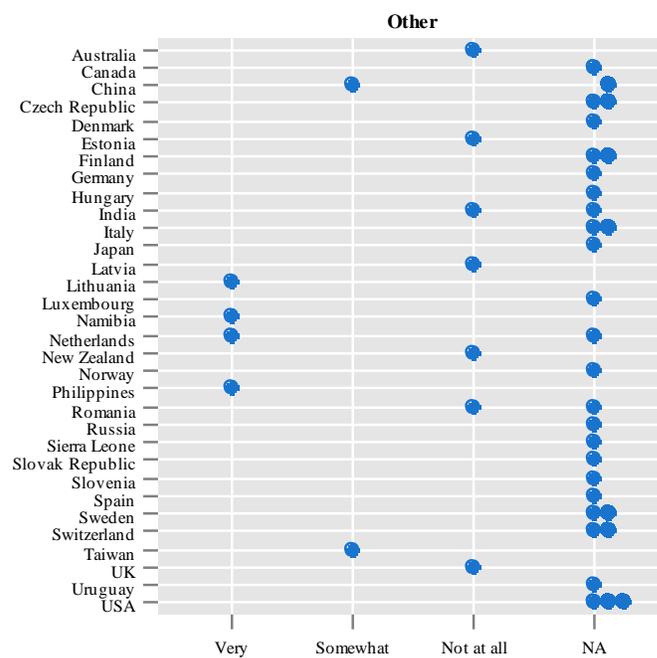
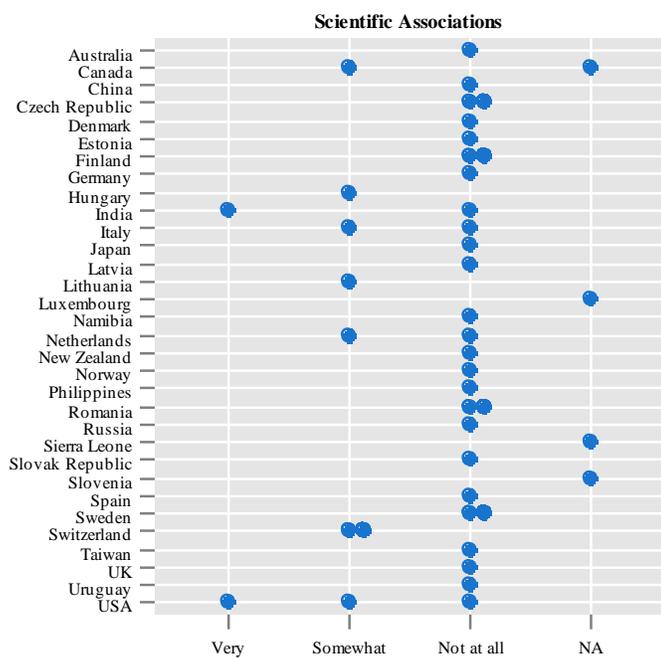
The survey also asked respondents to consider requirements for data sharing issued by not only research funders, but also universities, other research organizations, scientific journal publishers, and scientific associations. Based on survey responses, issuance of requirements promoting data sharing were not common among universities, scientific journal publishers, and scientific associations in most countries. About half of the countries reported that research funder requirements are somewhat or very common. The majority of countries reported that it is somewhat or very common for research organizations to have issued data sharing requirements in their country.

**“How common it is that the following organizations operating in your country have issued requirements promoting data sharing in SSH disciplines?”**



**“How common it is that the following organizations operating in your country have issued requirements promoting data sharing in SSH disciplines?” By Country.**

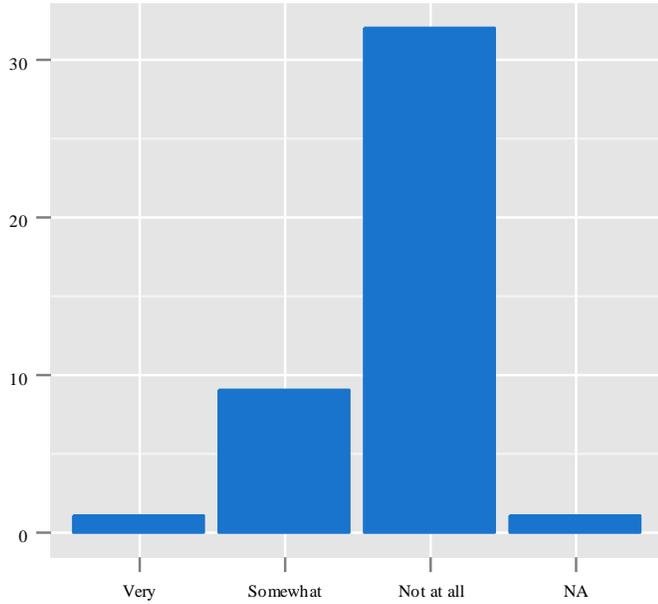




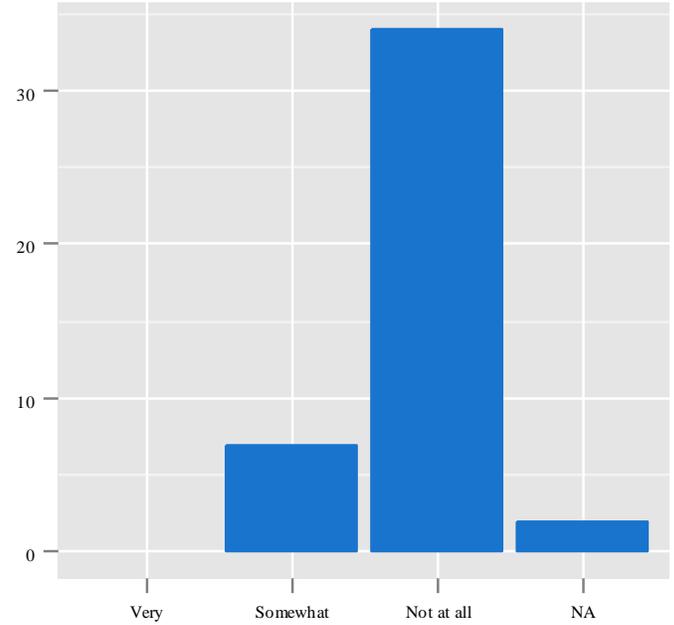
Though it is somewhat or very common for research funders in the participating countries to have issued data sharing requirements, for over 80% it is not at all common for them to provide incentives in the form of providing project funding support to support data archiving or to reward producers of reusable data (i.e., consider data sharing as merit in funding applications).

**“How common is it that major research funders operating in your country provide the following data sharing incentives to applicants in SSH disciplines?”**

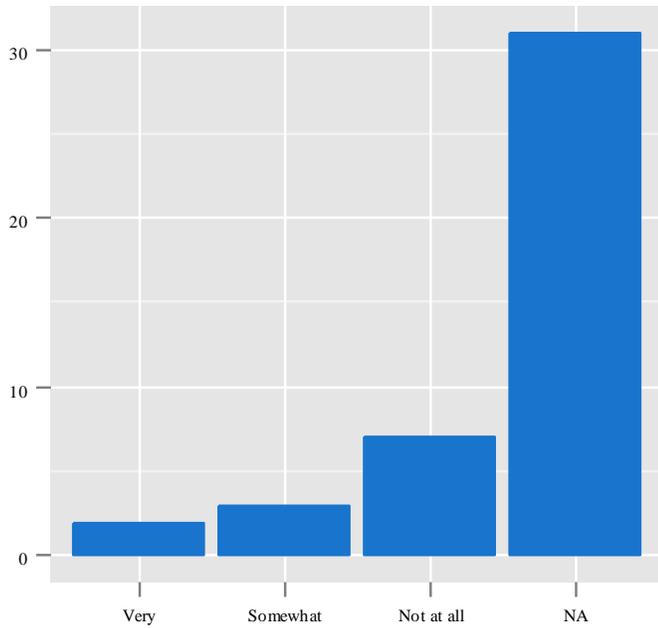
**Add specific resources to project funding to support the archiving of research data**



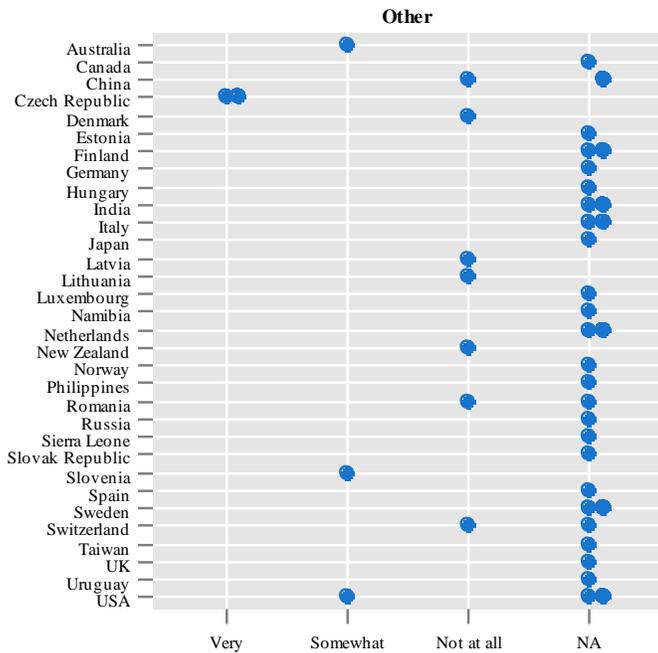
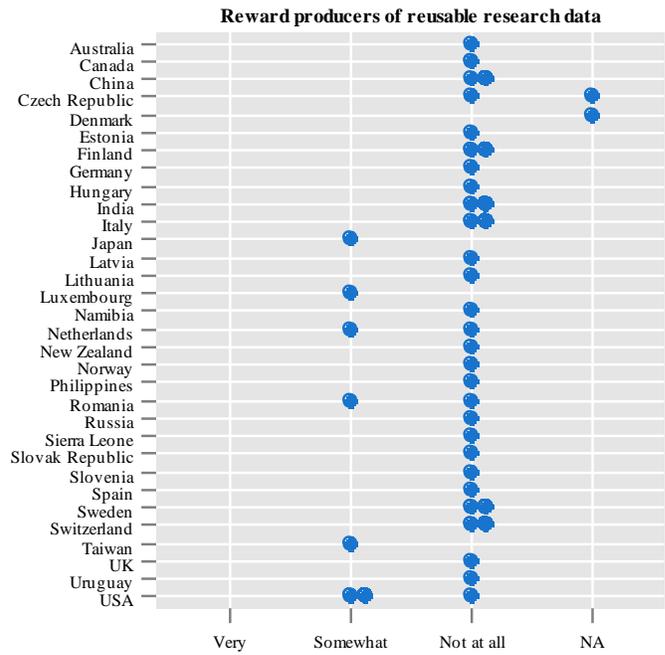
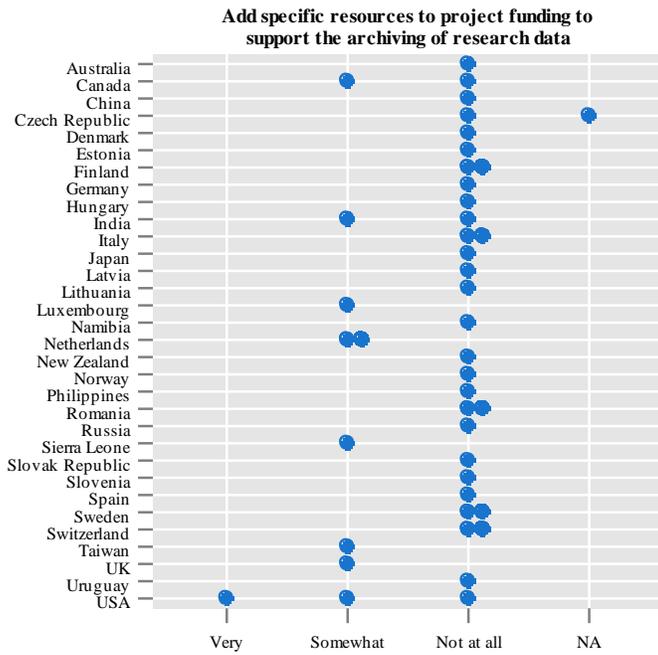
**Reward producers of reusable research data**



**Other**

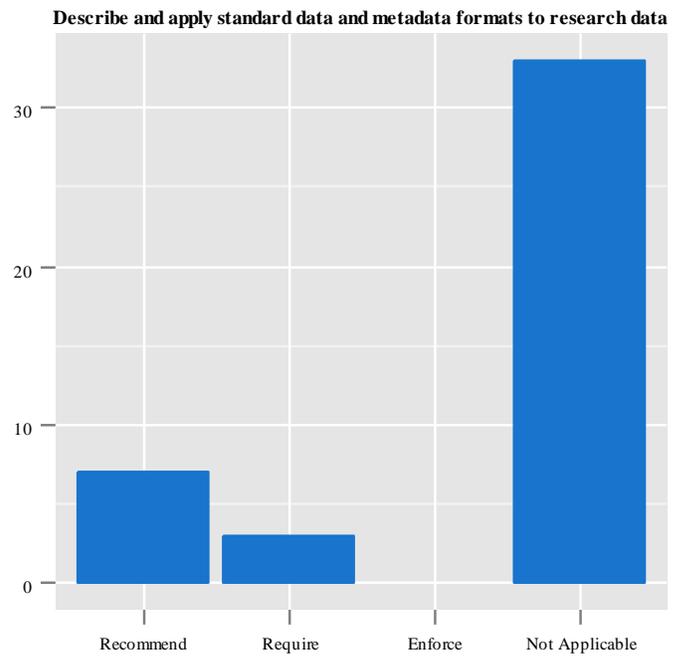
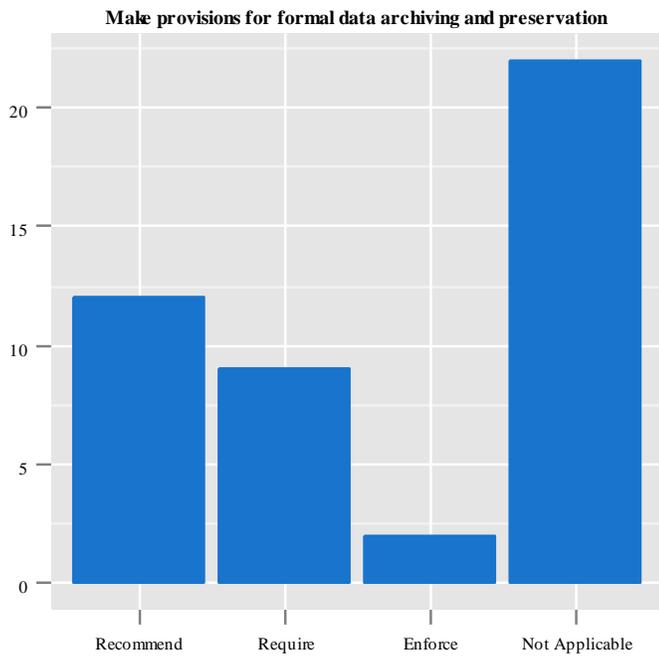
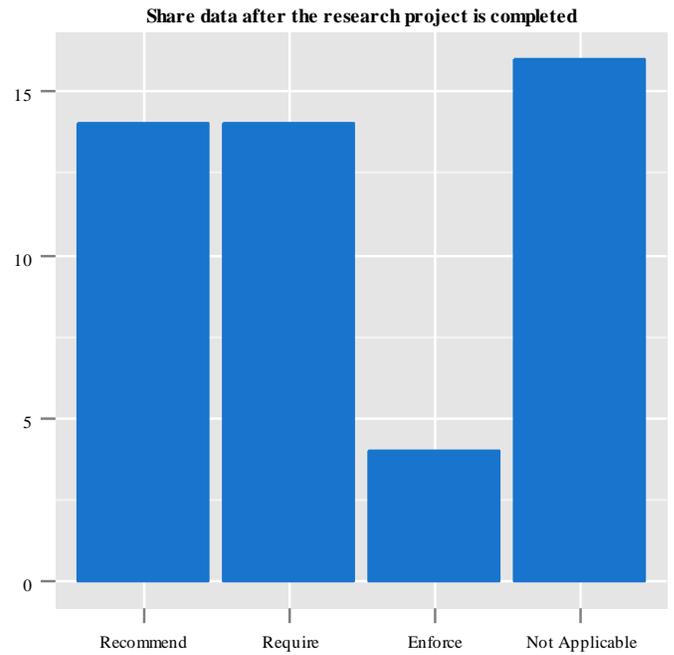
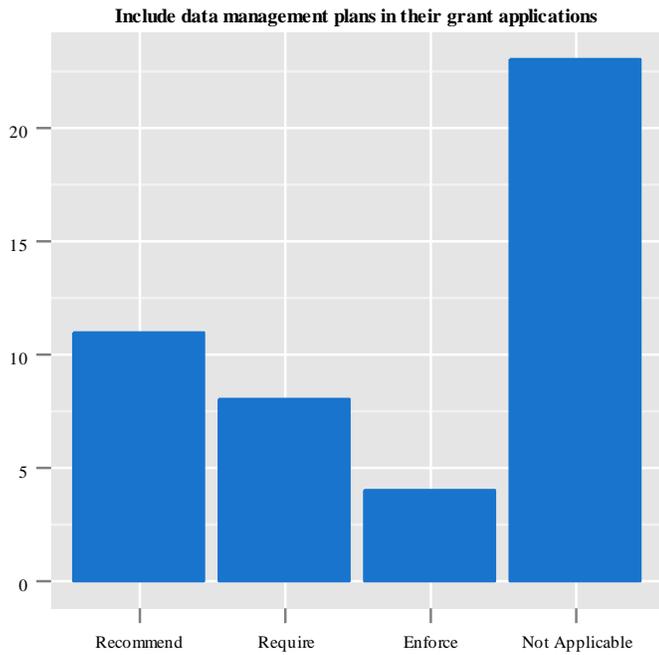


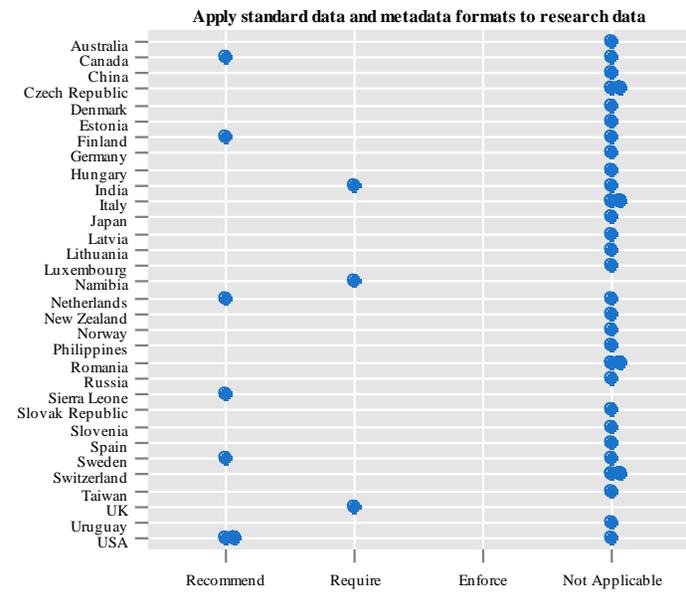
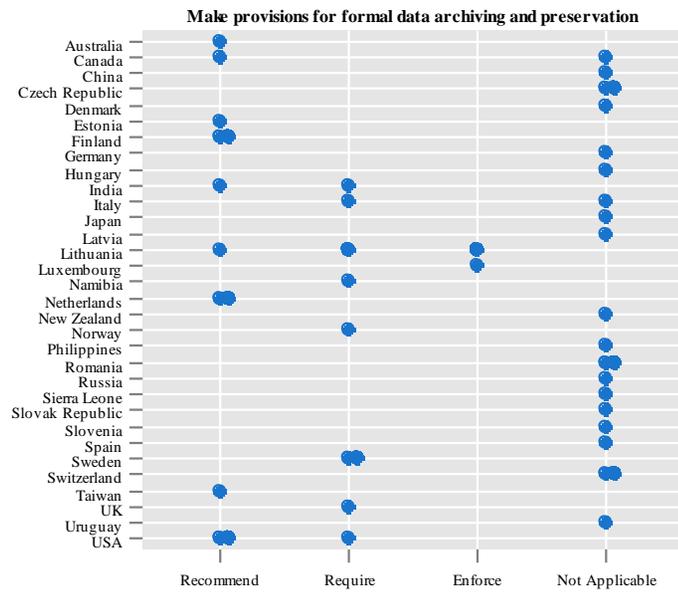
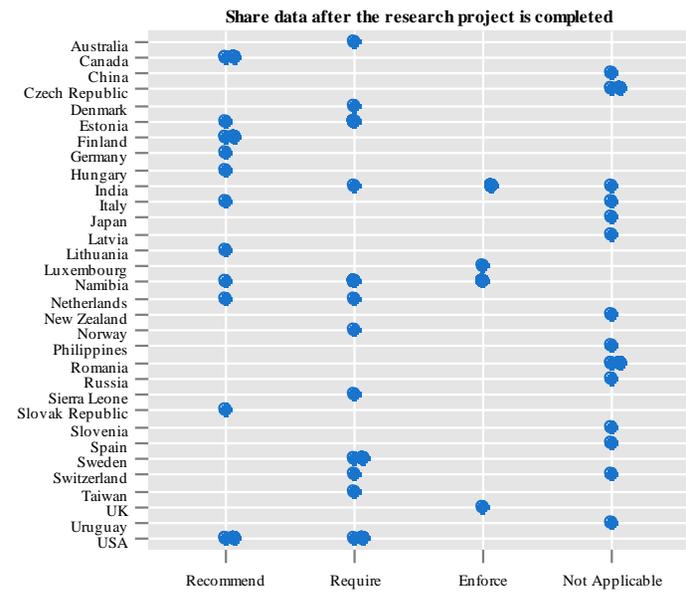
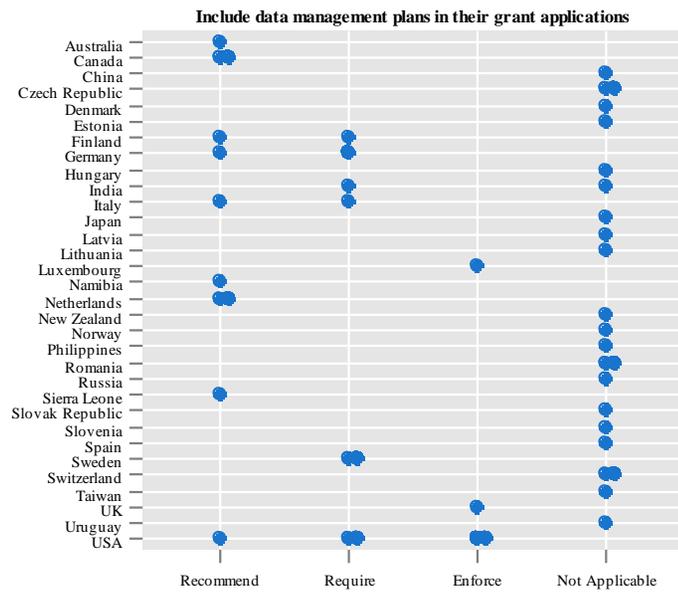
**“How common is it that major research funders operating in your country provide the following data sharing incentives to applicants in SSH disciplines?” By Country.**



Furthermore, research funders do not necessarily promote the necessary practices that support data sharing whether through recommendation, requirement, or enforcement. Research funders most often recommend or require data sharing, but recommendations or requirements for data management plan submission, provisions for data management and archiving, and metadata application were less often cited. Enforcement of any of these practices is rare among the participating countries.

**“Please indicate if any of the major SSH research funders operating in your country recommend, require, and/or enforce the following measures to promote data sharing.”**





For those researchers who do produce reusable research data, acknowledgement comes primarily in the form of citation and little else. Furthermore, the majority of respondents indicated that those researchers receive no reward for producing reusable research data.

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**Q11: "In your country, how are producers of reusable research data acknowledged?"**

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A word cloud for Q11. The most prominent words are 'no acknowledgment' and 'citation'. Other smaller words include 'footnote', 'provenance', 'research colleague', 'reputation', 'increase in work', 'contracting data acquisition', and 'press release'.

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**Q12: "In your country, how are producers of reusable research data rewarded?"**

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A word cloud for Q12. The most prominent words are 'no reward'. Other smaller words include 'promotion/tenure', 'data award', 'add to CV', 'best thesis award', 'thank you', 'footnote', 'citation', 'press releases', and 'reputation'.

Even when research funders do issue data sharing requirements, most respondents indicated that no mechanisms are in place for monitoring policy compliance. In some cases, funding agencies follow up on researchers' data sharing activities through the data repositories.

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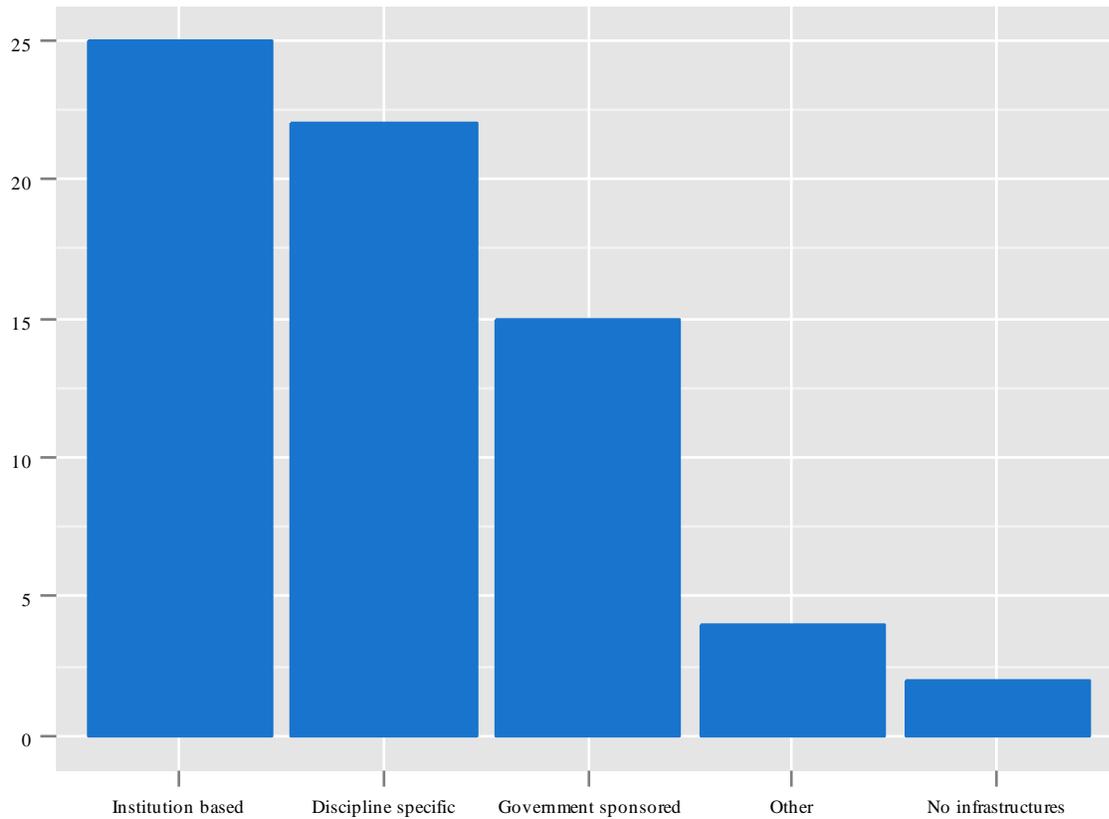
**Q8: "If research funders or other institutions in your country have issued requirements promoting data sharing, how do they monitor that these requirements are followed?"**

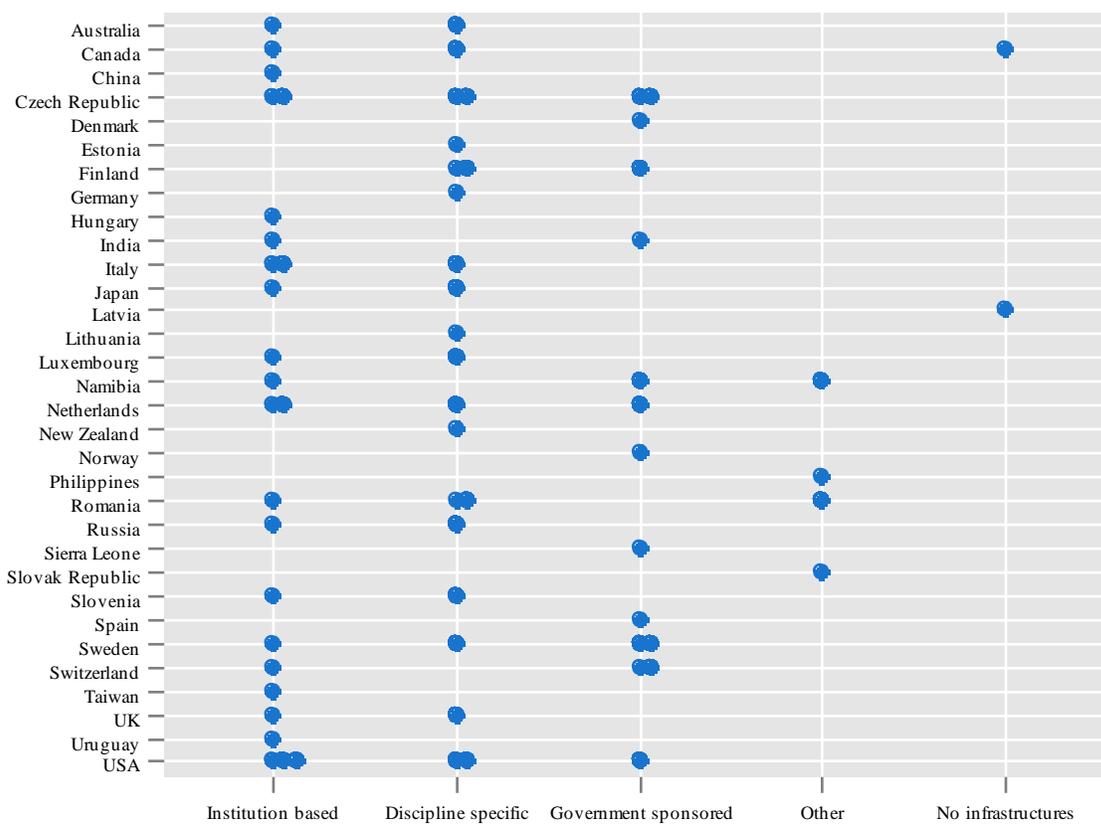
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A word cloud for Q8. The most prominent words are 'no monitoring' and 'funding agency follow-up'. Other smaller words include 'proof of deposit', 'don't know', 'data archive contract', 'data citation', and 'final project evaluation'.

Still, the majority of countries reported the availability of infrastructures that support data sharing. In all but two countries, researchers have access to an institution based repository, a discipline specific repository, a government sponsored repository and/or some other type of infrastructure.

**“If social scientists working in your country have newly-generated data and would like to share these data with the academic community, which of the following infrastructures for sharing are presently easily available to them? Please select all that apply.”**





## 4 Conclusions

The examples we have seen from selected research funders, and the subsequent IFDO survey results, only provide a glimpse into the subject of research funders' data policies within the social science and humanities. But a few points can be drawn from the material.

Firstly, the IFDO-findings clearly indicate that there is a growing awareness that research contributions and returns of public investments are restricted by lack of easy and open access to high quality data and an increasing political will to use strong incentives to improve this situation. The findings describe a wide variety of existing policies worldwide. However, they also indicate that the enforcement of these policies and the required infrastructures to implement them are often lacking or immature and still in the process of development. Whereas many countries and research organizations adhere to the principles of open access and oblige to follow various international open data declarations and data preservation obligations, the implementation of these obligations vary significantly.

Secondly, some of the comparisons we've seen in this report give reason to believe that the infrastructure for, or at least the focus on, long-term preservation and data sharing is less developed in 'non-Western' countries. The findings also indicate that the institutional research infrastructures available and data sharing requirements across the world are far more developed within the social sciences than the within the humanities and medical and health sciences. These findings are supported by the results presented in a DASISH-report on the European situation with regard to the existence of academic data archives, where it stated that "... during the selection process it became obvious to us that the institutional and academic deposit services offered to scholars across Europe are far more developed within the Social Sciences than the Humanities<sup>80</sup>". Through the ESFRI-process we do now, however, see emerging infrastructures for digital data services within all scientific fields.

To conclude, the scale of open data policies and data archiving standards and their enforcement varies widely across countries and disciplines. Many countries lack sufficient data sharing infrastructures and there is a clear need to strengthen existing and build new research infrastructures worldwide. Many countries and disciplines are still **early** in the process of establishing basic archiving services for researchers while others have elaborate and long-standing national infrastructures now seeking ways to cooperate and make their data available internationally. In this context the social sciences and gradually the humanities are well placed to develop common solutions for data management and sharing.

IFDO will continue to monitor SSH data policies in world countries, and provide new information about them on its website [www.ifdo.org](http://www.ifdo.org). The future success of policymakers and funders' efforts in this area will rely not only on political will and funding but also on their ability to move from high-policy statements to policy **enforcements and monitoring and** from short-term funding to long-term funding and institutional models that build **trust and confidence**.

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<sup>80</sup> Unpublished (work in progress) report from DASISH: "Characteristics of Data Archive Services within the DASISH Communities"

**Appendix 1: Research and development expenditure (% of GDP), selected countries. Source: World Bank.**

Country Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Australia	1.57	-	1.75	-	1.86	-	2.19	-	2.41	-	2.38	-
Canada	1.91	2.09	2.04	2.04	2.07	2.04	2.00	1.96	1.92	1.94	1.85	1.74
China	0.90	0.95	1.07	1.13	1.23	1.32	1.39	1.40	1.47	1.70	1.76	1.84
Czech Rep.	1.17	1.16	1.15	1.20	1.20	1.35	1.49	1.48	1.41	1.47	1.55	1.84
Denmark		2.39	2.51	2.58	2.48	2.46	2.48	2.58	2.85	3.16	3.07	3.09
Estonia	0.60	0.70	0.72	0.77	0.85	0.93	1.13	1.08	1.28	1.43	1.63	2.38
EU avg.	1.81	1.87	1.84	1.86	1.83	1.82	1.84	1.84	1.94	2.04	2.03	2.05
Finland	3.35	3.32	3.36	3.44	3.45	3.48	3.48	3.47	3.70	3.94	3.90	3.78
France	2.15	2.20	2.24	2.18	2.16	2.11	2.11	2.08	2.12	2.27	2.24	2.25
Germany	2.47	2.47	2.50	2.54	2.50	2.51	2.54	2.53	2.69	2.82	2.80	2.84
Hungary	0.81	0.93	1.00	0.94	0.88	0.94	1.01	0.98	1.00	1.17	1.16	1.20
India	0.75	0.73	0.71	0.71	0.74	0.78	0.77	0.76	-	-	-	-
Italy	1.04	1.08	1.12	1.10	1.09	1.09	1.13	1.17	1.21	1.26	1.26	1.25
Japan	3.00	3.07	3.12	3.14	3.13	3.31	3.41	3.46	3.47	3.36	3.26	-
Latvia	0.44	0.40	0.42	0.38	0.42	0.56	0.70	0.59	0.61	0.46	0.60	0.70
Lithuania	0.59	0.67	0.66	0.67	0.75	0.75	0.79	0.81	0.80	0.84	0.80	0.92
Luxembourg	1.65	-	-	1.65	1.63	1.56	1.66	1.58	1.66	1.72	1.48	1.43
Namibia	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	1.94	1.93	1.88	1.92	1.93	1.90	1.88	1.81	1.77	1.82	1.85	2.04
New Zealand	-	1.12	-	1.17	-	1.14	-	1.19	-	1.30	-	-
Norway	-	1.59	1.66	1.71	1.57	1.51	1.48	1.59	1.58	1.78	1.69	1.66
Philippines	-	-	0.14	0.13	-	0.11	-	0.11	-	-	-	-
Romania	0.37	0.39	0.38	0.39	0.39	0.41	0.45	0.53	0.58	0.47	0.46	0.48
Russia	1.05	1.18	1.25	1.29	1.15	1.07	1.07	1.12	1.04	1.25	1.16	1.12
Sierra Leone	-	-	-	-	-	-	-	-	-	-	-	-
Slovakia	0.65	0.63	0.57	0.57	0.51	0.51	0.49	0.46	0.47	0.48	0.63	0.68
Slovenia	1.38	1.49	1.47	1.27	1.39	1.44	1.56	1.45	1.65	1.86	2.11	2.51
Spain	0.91	0.92	0.99	1.05	1.06	1.12	1.20	1.27	1.35	1.39	1.39	1.33
Sweden	-	4.13	-	3.80	3.58	3.56	3.68	3.40	3.70	3.60	3.39	3.37
Switzerland <sup>81</sup>	-	-	-	-	2.82	-	-	-	2.87	-	-	-
Taiwan	-	-	-	-	-	-	-	-	-	-	-	-
UK	1.82	1.79	1.80	1.75	1.69	1.72	1.74	1.77	1.78	1.84	1.80	1.77
Uruguay										0.44	0.40	
United States	2.71	2.72	2.62	2.61	2.55	2.59	2.65	2.72	2.86	2.91	2.83	2.77

<sup>81</sup> Source: Eurostat