

Open Access in Sweden 2002-2005

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Abstract

The paper gives an overview of recent developments in Sweden concerning the communication and reception of the Open Access concept and the growth and co-ordination of digital academic repositories. The Open Access concept was primarily introduced in Sweden from library circles which also coloured the arguments used. University leaders started to show an interest from 2002 and their association, the SUHF, issued a report favorable to Open Access in 2003. In the consecutive years both the SUHF and the Swedish Research Council signed the Berlin declaration. The relatively swift change of policy towards a support of Open Access by these two important stakeholders was obviously influenced by the international discussion but also by the way the issue was raised in Sweden and by the absence of a national publisher lobby arguing against Open Access. The development of e-publishing within Swedish higher education started to gather momentum in the years following 2000. Universities either chose to participate in the DiVA consortium or to implement available Open Source software. In 2003 the national SVEP project was launched to co-ordinate and scale up the development of e-publishing within higher education. Recommendations were issued for metadata descriptions of e-publications, for publication databases and for subject categories. The SUHF gave support to the metadata recommendations for publication databases (local registers of academic publications) which clears the way for a co-ordination between publication databases and freely available full-text material in repositories. Important building blocks of a generalized archiving workflow between a local repository and a national archive were implemented. A resolution service for the use of permanent identifiers and a service for administrating name spaces in URN:NBN were established. A national search service for undergraduate theses was developed and put into operation at the LIBRIS website. The service uses the OAI-PMH to harvest local repositories who have to implement a metadata model based on simple Dublin Core. A new development programme to support Open Access in Sweden is now being initiated. It will engage the major stakeholders in Sweden and will have a clear focus on promoting the growth of the volume and diversity of content in academic repositories.

Keywords: Open Access; academic repositories; higher education; e-publishing; metadata; long-term access

1 Introduction

In a relatively short span of time significant achievements have been made in promoting the Open Access model in Sweden. There have been two parallel tracks of development:

- The communication and reception of the Open Access model;
- Building a new infrastructure based on digital repositories.

These developments are presented and discussed. What makes changes come about? Who are the actors and which are their motives? What strategic choices are made? Do these seem wise in hindsight? Is there anything unique about the Swedish experience?

This is an overview of recent history in a field which has attracted huge attention. Changes of opinion have been swift and potentially have very radical consequences for the whole system of scientific communication and for the role of academic libraries. These changes have a local, a national as well as an international dimension. The historic overview of the developments in one country in such an important field has a value in itself as a documentation. Here are also highlighted experiences, points of debate and choices of strategy that hopefully might have some interest to others involved in the same issues elsewhere.

2 Spreading the Word - How the Open Access concept was Communicated and Received

The Open Access model was first introduced in Sweden at a meeting arranged by BIBSAM – The Royal Library's Department for National Co-ordination and Development – for the directors of Higher Education (HE)

libraries in the autumn of 1996. The title of the meeting was “Researchers, netbased publishing and libraries” and the key-note speaker was Stevan Harnad. Some Swedish researchers engaged in e-publishing also appeared on the programme. The discussion was heated and interesting but did not in at the time lead to any specific action.

In 2001 a thorough, critical report about the market of scientific communication was written by Ingegerd Rabow as the outcome of a BIBSAM-funded project [1]. In 2002 a number of important initiatives were taken by Lund University Libraries. The First Nordic Conference on Scholarly Communication in October 2002 brought the international discussion on Open Access to a Nordic audience [2].

Lund University Libraries started another project to inform about the changing landscape of scientific communication. The project was called “Scientific Communication (ScieCom) – Svenskt Resurscentrum för vetenskaplig kommunikation”, and was supported by BIBSAM [3]. The network of the project was from the start made up mostly of librarians, but gradually more researchers and university officials became members. Information about the Open Access developments was presented to a larger audience through the website of the project, through university meetings and seminars arranged all over Sweden and also via articles in local and national media.

In 2003 Lund University Libraries developed the internationally well known service, the Directory of Open Access Journals (DOAJ) [4], with funding from the Open Society Institute and some co-funding from BIBSAM. This project gave Open Access a visible face for librarians and users. BIBSAM staff also communicated the new developments to library circles and to media [5].

2.1 Open Access Arguments and BIBSAM Policy

The Open Access movement was initiated and pushed ahead by engaged researchers like Stevan Harnad, Paul Ginsparg, Jean-Claude Guedon and Harold Varmus. An alliance with the library centered SPARC initiative was manifested i.a. in the Budapest Open Access Initiative [6]. In Sweden the Open Access model was first introduced by Harnad in 1996, but was then primarily taken up and communicated by librarians. Perhaps this explains why the analysis and the arguments from this time very often focussed on the problem of the rising journal prices. The analysis might as well have taken the starting point in the potential for development of scientific communication or research impact offered by the Internet.

Some supporters of Open Access also made a strong connection to a critique of Big Deals. From BIBSAM it was argued that these were two separate issues. BIBSAM would continue to renew its Big Deals within the national consortium of research libraries as long as the members wanted this. At the same time BIBSAM supported new initiatives to promote Open Access like ScieCom and DOAJ. Both lines of action could be derived from the main mission of BIBSAM, as stipulated by the Government, to enhance and increase the efficiency of information provision for higher education and research, which could be achieved i.a. by promoting access to information.

In hindsight this seems to have been a wise policy. Journal prices certainly create restrictions for access and may catch the interest of media because of the extreme price levels. They are also definitively an indication of a malfunctioning system. But if Open Access were to be seen as an issue mainly of library economy there would be little chance to get wide support for a change from researchers and the institutions of the research community. Making support for Open Access dependent on rejection of package deals for e-journals would also risk to estrange researchers who had got used to an easy access to thousands of e-journals through these deals. The positive arguments for Open Access concerning widened access and impact are more likely to engage a wider support from researchers.

2.2 Policies Pursued by Universities and Research Funders

The ambitions of librarians to engage researchers and university leaders for support of Open Access was directly supported by the international debate. Interest from the SUHF (Swedish Association of Higher Education) [7] was triggered by an OECD conference in Paris 2002 [8]. The SUHF set up a committee of inquiry consisting of senior university officials and chief librarians, most of whom had taken part in the OECD Paris conference. In September 2003 the committee issued a report entitled “Pathways for Knowledge - the need for a common new strategic orientation for universities and their libraries” [9]. The report gave an overview of the international Open Access discussion. It concluded that it wanted “to draw the attention of SUHF to the need for changes in the current system for publishing and the need to establish economic prerequisites for creating professional, publishing services within the universities and university colleges.” The concrete proposals of the report are not so far-reaching but the analysis of the report is favorable to Open Access and cleared the way for further

development. This was notably the first time that the SUHF entered into a closer contact with the library directors of its member institutions.

The report was followed by the creation of a working party commissioned to develop national strategies for scientific information provision. The focus of the group was to look closer on the changes within scientific communication and give advice on SUHF policy. The group consisted of university leaders, researchers, library directors and a representative of the Royal Library. The work of this group led to the decision of the SUHF to sign the Berlin Declaration on Open Access in the Sciences and Humanities [10] at its General Assembly meeting in October 2004. The group also participated the Southampton Berlin 3 meeting in February 2005 [11]. 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 still must be seen as an important step forward in comparison to the more general support for Open Access formulated in the Berlin Declaration. The group also promoted an important choice of strategy in the way universities would be reporting on Swedish research output (see more about this later in connection with the SVEP project).

The Swedish Research Council initially showed showed a low level of interest and at times expressed a clearly negative attitude towards Open Access. However, by Spring 2005 the Council announced that it would sign the Berlin declaration and it also highlighted Open Access in its external communication.

It is somewhat surprising that those two organizations could move so quickly to a positive view of Open Access. How much were the positions taken by important Swedish stakeholder influenced by the international discussion and how much by local contacts and developments? It is clear that the OECD conference had a direct impact. Generally it is improbable that this change of opinion could have come about so quickly if the people involved had not been aware of the international debate. The information from ScieCom certainly contributed to this awareness. It is also highly likely that the closer regular contacts between library leaders and university leaders made a difference. Open Access was thus seen by university leaders as an issue raised from within their own organization and not as something pushed on them from the outside. Another important factor is that Sweden has not had any publisher lobby arguing against Open Access. Actually only a few concerned library directors have argued publicly against Open Access, basing themselves on the fear that costs would increase for research intensive organizations with an author-pays model [12].

3 Building a New Infrastructure: Development of Academic Repositories

E-publishing in universities has been growing slowly since the mid nineties. Linköping University Electronic Press, starting in 1996, was an early, well-organized university initiative [13]. In general, developments in the nineties were slow and lacked any co-ordination. The IT solutions used for e-publishing were locally developed or adapted from existing general database software. 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 [14]. 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 [15] but recently also Dspace [16]. Still others continued to develop their local solutions and in some cases also made these OAI-compliant [17].

3.1 The SVEP project – Co-Ordination of Electronic Publishing within Swedish Higher Education

In the autumn of 2003 the national SVEP project was launched [18]. The project was initiated by two project proposals to BIBSAM from Uppsala University Library and a group headed by Lund University Libraries. BIBSAM wanted to have *one* co-ordinated large-scale national project within the area. The planning of the project was developed in a dialogue mainly between these three parties. BIBSAM funded the project with slightly more than three million SEK (roughly 310 000 EURO) and appointed the general project co-ordinator from its staff. The five different work packages were led by Uppsala University Library and Lund University Libraries respectively.

The aim was to co-ordinate and scale up the development of e-publishing within higher education. This was to be done mainly by giving advice on technical platforms and by collaboration concerning standards, but also by creating pilot services. The long-term goals were to support maximum visibility of output of research and learning and to promote long-term availability. Another goal was to promote efficiency by avoiding duplication of efforts. The project was completed by the end of 2005. The main outcomes of the project are presented and discussed in the following.

3.2 SVEP – Interoperability

Work package 1 wanted to achieve a higher level of interoperability by harmonisation of metadata descriptions of electronically published scientific publications from Swedish universities and university colleges [19]. A number of recommendations were developed to support the exchange of information about e-publications and create opportunities for new services. The working team was led by the Electronic Publishing Centre (EPC) at Uppsala University Library and included representatives of a number of university libraries and of the Royal Library. Three recommendations were issued:

1. Recommendations for harmonising metadata descriptions for electronically published scientific publications from Swedish universities and university colleges;
2. National format for publication databases (local registers of academic publications);
3. Subject categories for scientific publications.

3.3 Publication Databases

From the outset the project had no intentions to deal with anything but electronic publications. However, a discussion had started already in 2002 about the reporting of research output to the Government. Local databases containing bibliographic data for the total output of research publications (here called publication databases) were developed at some universities. Co-ordinated format recommendations were badly needed if these local databases should be usable for comparisons and for aggregated national data on research publications. In the SVEP project it was regarded crucial that metadata for these databases were compatible with metadata for scientific e-publications. There was a clear risk that we would otherwise get divergent standards because these publication databases were developed primarily for reasons of evaluation and often by other agencies than libraries within universities. The long-term strategy was to create conditions where researchers only would register their publications once and where it would be natural also to link the full text to the publication registered.

Work on this format for publication databases developed in close co-operation with the SUHF who wanted to use locally produced data rather than accepting the alternative solution, proposed by the Swedish Research Council, of using ISI-data for national reporting to the Government. The proposed format recommendations were submitted for considerations to all universities and university colleges by the SUHF. After some revisions the format recommendations were also officially supported by the SUHF. As these recommendations are interoperable with those concerning electronic publications, the road is now clear for future co-ordination between publication databases and freely available full-text material in repositories.

The general aim of the recommendations are stated in the introduction. “The guidelines aim at specifying a minimum level for metadata descriptions as well as establishing standards for classifying publication types and subject categories. Proposed extensions of the minimum level are also given for the different elements in the description format. These extensions will essentially correspond to a full description level” [20].

3.4 Metadata for e-publications

Later in 2005 the recommendations for e-publications were issued. They had two starting points according to the introduction:

- “1. Metadata records from Swedish archives of scientific publications in electronic formats should, as a minimum level, be internationally available in a uniform way in ‘simple oai-dc’ [21] by OAI-PMH [22].
- An extension of the minimum level – the ‘SVEP level’ – makes it possible to form a basis for more advanced joint search services and makes the publishing systems compatible with other relevant bibliographic databases like the library catalogues.

The recommendations on the SVEP level are also compatible with the recommendations for ‘publication databases’.”

3.5 Subject Categories

In parallel, recommendations for using a broad system of subject categories were also issued [23]. This work was a follow-up to previous work within the DiVA consortium. The subject categories are supposed to be used for browsing and selective harvesting of metadata records. There are only 665 approved subject terms. These are taken in the first instance from a subject structure used by Statistics Sweden, with some finer subdivisions added from subject categories used by the Swedish Research Council. We saw significant advantages in using subject terms that were already in use in research and familiar to researchers. The subject categories were edited somewhat for consistency, translated to English, and mapped to a number of classification systems, including the Library of Congress Subject Heading, the Common European Research Information Format and the national Swedish classification system and list of index terms (SAB and SAO). The subject categories can be downloaded to a local system in MS Excel or XML (in Web Ontology Language, OWL).

3.6 National Portals?

There has been a protracted discussion within the project about the usefulness of national portals for scientific e-publications. A basic goal of the project has been to attain maximum visibility, but for scientific publications the majority of users are international and they can find these publications via general search engines and, to a lesser degree, via specific OAI-based services. A national portal for e-publications would for a long time include only a fraction, that cannot be clearly defined, of the national output of scientific publications. It is hard to convince users of the value of such a service. It could be used to provide incentives for local repositories to input more data and also to test metadata recommendations. In a smaller follow-up project this kind of testing will be done without having a full-blown public service as a goal. It would seem more interesting to create a national search service that could harvest metadata from the publication databases of all HE institutions. If this succeeded it would be possible to define the content and offer a service that met several needs. It could be used both for purposes of information and evaluation. Hopefully the proportion of articles linked to openly available full text publications would gradually grow. Another follow-up study will be looking closer at the potential of this line of development. Finally, one important measure in the short term is to guarantee that all e-published dissertations and other original publications also are included and easily located in the national service LIBRIS WebSearch. We realized that this was not the case due to different cataloguing practices. Discussions were taken up with the parties involved to find a solution.

3.7 SVEP – Long-term Access

The goal in Work package 2 was to develop and implement a generalized archiving workflow between a local repository and a national archive [24]. Work was based on earlier DiVA-project but now it would be developed into solutions of general applicability independent of the publishing platform used. The Work package was led by the Electronic Publishing Centre at the Uppsala University Library who worked in co-operation with the Department of Collection Development and Documentation at the Royal Library, with the National Archives and with some universities.

A condition for achieving long-term access is to develop solutions for addressing and identifying resources. A choice of using URN:NBN as a permanent identifier had already been done in the preceding work done in co-operation between DiVA and the Royal Library. There was some general discussion within the SVEP project as to the overall usefulness of permanent identifiers. It did not change the direction of the project but heightened the awareness about the problem. A service for administrating name spaces in URN:NBN and a resolution service [25] was developed in the project and is now in operation. The development of the resolution service also benefitted from additional funding from NORDINFO to the work done by the EPC in Uppsala. The resolution service basically redirects requests to a permanent identifier, URN:NBN or others, to the present URL. The software is available under a GNU General Public License (GPL) and there has been interest from other countries to implement it.

As the project included participants from both libraries and archives it was important to find a common framework. It became clear that the Reference Model for an Open Archival Information System OAIS [26], could fulfil this role. Preliminary work was done on information packages for transmission of data and a file format registry. This work will be taken further into implementation by a follow-up project at EPC supported by BIBSAM and a matching internal project within the royal Library. The key to the useful results of this work package was the high level of technical competence and interest within the EPC and the close co-operation with the Royal Library which made it possible to move from project work to services in operation.

3.8 SVEP – National Search Service for Undergraduate Theses

In Work package 3 a national search service for undergraduate theses, based on harvesting of local repositories using OAI-PMH, was developed. Here the initiative came from Lund University Libraries and a number of other libraries. This service today includes around 14 000 theses from 15 universities and university colleges.

There were several motives for choosing undergraduate theses. They were not easily accessible but were widely requested both by students and to a degree also by the general public and practitioners in certain fields. A national search service would meet a well-known and clearly defined need. Moving to electronic publishing of undergraduate theses would save considerable resources for libraries. Also, today's students will be tomorrow's researchers, and this way they would get acquainted early with e-publishing. From a more technical point of view, this was a suitable area to test harvesting based on OAI-PMH using a relatively simple metadata model. This work package has been more fully described in a paper by Linde et al [27].

The project could also in this case move from a demonstrator to a permanent service through a close cooperation between HE libraries and the Royal Library. The initiative came from the HE libraries within the project. They developed the general specification of the service, including a metadata model, and rallied participation in the service. They early realized that LIBRIS was an obvious choice for hosting a permanent service. LIBRIS is a national library system including bibliographic services, search facilities, cataloguing and interlibrary lending. LIBRIS offers the public free access to over 5 million titles held at Swedish libraries in LIBRIS WebSearch and also hosts a number of special databases. The LIBRIS Department is a part of the Royal Library.

The technical development of the service was done by the LIBRIS Department, who also was a member of the project. The search service for undergraduate theses, named Uppsök [28], is available as a special service aligned to LIBRIS WebSearch.

Work packages 4 and 5 of the project has provided start-up support for all interested HE institutions including advice on choice of software platforms and implementation. A series of seminars was held in different parts of Sweden, to share knowledge and experiences in developing repositories and to present and discuss the results of the project as a whole.

3.9 SVEP – Model for co-ordination

The project achieved some important results in co-ordinating and scaling up the development of e-publishing within higher education. The model chosen of **one** large national project involving the main actors had some obvious benefits. It promoted communication and consensus-building among all engaged in development of repositories within higher education. It created a strong backing for the recommendations issued and technical solutions chosen. It made it easier to move from development work to services in operation. It also heightened the visibility of these efforts to other interested parties and especially gave a platform for practical cooperation with the SUHF. The relatively small national scale of Sweden probably has facilitated the co-ordination of efforts. In that respect one might say that small is beautiful.

4 Status of Swedish Academic Repositories

During spring 2005 a survey was made for a masters thesis by two students in co-operation with BIBSAM [29]. With supplementary data submissions we have data from 29 of the 38 Swedish HE institutions 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, which actually means that all of the HE institutions eligible of awarding doctoral degrees have started to e-publish 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). At large the focus is still on original publishing of material. There are unfortunately no exact growth figures concerning the total quantities of different kinds of publications. It is obvious that the number of published undergraduate e-theses has grown rapidly since the start of the e-thesis search service Uppsök and now is getting close to 15 000. It is also clear the the number of e-published doctoral theses has risen during the last few years and now constitutes a substantial part of all published doctoral theses. To illustrate this one can compare, for 2004, the total number of Swedish doctoral and licentiate degrees registered (3837) with the number of e-theses (880) in the DiVA portal only, which covers 12 Swedish universities and university colleges [30]. These numbers only give some indications of developments at large. 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.

The survey also gave some interesting information about policy, organization 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.

5 Conclusions and Directions for the Future

Some conclusions can now be drawn for future work in Sweden in this area. Due to local efforts in combination with national support at least the basic parts of a national infrastructure for academic repositories is in operation. The two most significant players within the academic world have moved to a position of general support for Open Access. Content in repositories is growing in an escalating pace but still contains only a minor part of the total output of research publications. The conditions should now be ripe for an expansion of the content in general and specifically of the volume of self-archived articles.

In an evaluation of the SVEP project done by Professor Bo-Christer Björk [31], he argues that the time has come to move from the bottom-up approach that characterizes the SVEP project to a top-down approach. In such an approach you would start by formulating a national strategy for Open Access and from there move on to funding specific projects. Björk also sees the connection between digital repositories and national reporting of research output as a strategic question. He stresses that information about Open Access is more useful if it is communicated at the traditional meeting places within the research community rather than at general meetings. It is very important to influence leading Swedish researchers and study the incentives and obstacles for self-archiving. He concludes that Sweden in general is well ahead in Open Access developments with high expert competence in the field and wide political support.

The Royal Library is now (2006) going to start a new development programme to support Open Access in Sweden [32]. The programme has the strategic goal to promote maximum accessibility and visibility of works produced by researchers, teachers and students at Swedish universities and university colleges. It covers a broader range of objectives than the SVEP project and it is structured as a programme with separate projects. This programme will engage the SUHF, the Swedish Research Council and the Royal Swedish Academy of the Sciences in an active way as participants of the steering group. Formulating a strategy is part of the mission of the steering group. To promote a quick growth of the volume and diversity of material in academic repositories is a task of high priority. The programme will also support further co-ordination and development of standards and tools for e-publishing at Swedish universities and university colleges. It will promote access to and use of content in academic repositories and Open Access journals, work to secure long-term access to digital publications and other material in academic repositories, develop quality standards for content and services in academic repositories and support publishing in Open Access journals and the migration of Swedish scientific journals to an Open Access model.

Acknowledgements

I would like to thank all colleagues in the SVEP project, in BIBSAM, ScieCom and SUHF and others who have contributed to these exciting developments.

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