

EDITORIAL

The SciX project is entering its final half-year. Several services are up, running, including gigabytes of content, with hundreds of registered and thousands of anonymous users. The impact of the project is felt, both in the professional communities of architecture and engineering as well as in the overall scientific communities where the SciX partners are acting locally to address the change in national environments. Very influential workshops took place in Finland and Slovenia. Technical work has followed this trend and local language implantations of the SciX applications have been set up.

But there is still a long way to go. All key players in the scientific publishing process (publishers, librarians, bibliometrists, funding bodies), with a possible exception of the scientists themselves, have a role to play in the current system and therefore a vested interest that it does not change. Machiavelli explained the situation well, centuries ago: *"It must be remembered that there is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new system. For the initiator has the enmity of all who would profit by the preservation of the old institutions and merely lukewarm defenders in those who would gain by the new one."* The analysis of this situation is the focus of this newsletter.

BARRIERS TO CHANGING THE SCHOLARY PUBLISHING PROCESS

The experiences of the first wave of Open Access journals and repositories demonstrate that the barriers for changing the current scholarly publishing system were greatly underestimated. Due to such barriers the impact of Open Access on the total volume of scientific publishing is still negligible.

In the summer of 2002 researchers at Hanken identified 317 active OA-journals. The real number of open access peer reviewed journals can be assumed to be substantially bigger than this number, but due to the lack of comprehensive directories it is very difficult to get information about smaller journals and journals publishing in other languages than English. By comparing the number of journals with the total number of sci-

entific peer review journals in Ulrichsweb, it was found that the share of OA-journals of the total number of journals was only 0,7 % and of electronically available titles 1,5 %.

Barriers to change

Table 1. A classification of different types of barriers for increased open access publishing and their relative importance. More stars, greater the barrier.

	Open access Journals	Eprint servers	Institutional repositories
Legal framework	-	*	***
IT-infrastructure	**	*	**
Business models	***	**	*
Institutional behaviour	***	*	*
Standards and indexing services	**	*	***
General Awareness of Open Access	***	**	*
Branding and marketing	***	**	*
Critical mass	***	***	***

The Table 1 can be used as a starting point for a discussion about the prerequisites and barriers for open access publishing. The three major channels are open access journals, which function as primary outlets, and eprint servers and institutional repositories which mainly function as secondary outlets complementing the mainstream channels of journals and conference proceedings. The barriers and means have been classified into eight different categories: *legal framework, IT-infrastructure, business models used, Institutional behaviour, Indexing services and standards, Awareness of OA, Branding and Marketing and critical mass*. The number of asterisks denotes the importance of a particular item. Thus in the opinion of this author there are no legal obstacles for the proliferation of Open Access Journals, whereas this is a very central issue to be solved if institu-

tional repositories are to take a prominent position in the academic communication system.

In the following the discussion will, due to space limitations, focus on the first four of these categories.

Legal framework

Journals. The author usually grants the publisher or a journal a rather exclusive copyright in return for the services that the publisher renders the author (and usually gets no monetary compensation). In many of the copyright forms which publishers ask authors to sign, the publishing of a copy on the Web is not properly addressed and constitutes a grey zone.

Open Access journals have from the start adopted a rather liberal approach reminiscent of the licensing schemes used by the Open Source programming community. As a rule the author retains the copyright to the work, and can freely distribute it further.

Eprint servers. It is up to the authors and their discretion to take out papers once they have been accepted for publication, if they have signed copyright agreements which prohibit keeping the copies in the server. On one hand the situation resembles that of Napster, on the other hand there are significant differences. The biggest difference is that in the case of scientific publications it is the author of the work who voluntarily puts up a copy on the server, not a third party. The legal problems resemble the situation with institutional repositories.

Institutional repositories. In the longer run, the critical mass of institutional repositories depends on the inclusion of the best work of each university's faculty, that is the journal papers published elsewhere. From a legal viewpoint this constitutes a challenge, since university administrations will be very careful not to break any copyright contracts, in contrast to individual researchers posting copies of their work on their home pages quite freely in spite of possible legal obstacles.

IT infrastructure

Open access Journals. The IT technical infrastructure of electronic peer reviewed journals is most demanding of the three.

Most Open Access Journals are individual efforts created by single academics and groups of academics, often managing the journals on a part-time basis. The IT technical infrastructure is quite varied, ranging from rather rudimentary static HTML-versions to quite sophisticated database driven systems, depending on the skills of the creators.

New business model for running a portfolio of OA journals is the technical infrastructure of Biomed Central. It is on a par with the leading commercial publishers.

In the longer run it seems evident that the publishers of individual journals would benefit a lot from pooling resources or use open source applications for running such journals.

Eprint servers. Like OA journals most discipline specific eprint servers are the results of individual efforts and the corresponding IT systems have been made by the academics themselves. Readers care less about sophisticated technical features than about being assured that they can find most of the stuff they are interested in at one place.

Institutional Repositories. Large university libraries have considerable funds at their disposal and are used to outsourcing part of the work in building their IT-infrastructure. They also take a very long-term perspective in the setting up of institutional repositories. The currently best-known open source solution is the D-space system, originally developed by MIT for its own internal use but currently offered for use to other universities.

Business models

Open Access Journals. The main business model has been to minimise costs and to fund the operations as a form of open source like project, where hardly any transfer of money is involved and all costs are absorbed by the employers of the individuals participating. This business model is very vulnerable to sustain operations in the longer term and for scaling up from a few papers per year to larger publication volumes.

Other possible business models, which would provide more funding for professional-level operations (such as the employment of staff) could use advertisement, subsidies from learned societies or research funding agencies, or author charges, in order to keep the end product freely available on the web, rather than take recourse to subscription fees.

The business model issue is central to the further proliferation of Open access journals. The currently dominating volunteer work only model doesn't easily scale up to large-scale and sustainable operations and the other business models need yet to demonstrate their strengths.

Eprint Servers. Discipline-specific Eprint servers are usually rather tightly aligned with pre-existing communities of researchers. It would be very difficult for such servers to start to either charge subscription fees or to start to levy fees on authors uploading their papers. Thus the main options left would be subsidies or advertisement.

Probably the combinations of subsidies with voluntary work will prevail. A possible model of financing these servers is that the conference organisers, that publish the proceedings that would eventually end up in this repository, pay a handling fee to the repository, out of the fees that they charged to the participants of the conference.

Institutional Repositories. If institutional repositories gain momentum and are indexed effectively through standards such as the Open Archives Initiative, they will offer a parallel channel to the same content as E-print servers, and have clear advantages over discipline-specific repositories in their business models. The development of institutional repositories will depend a lot on the political decisions universities have to make concerning the future roles of their libraries and publishing departments in the electronic world.

Institutional behaviour

Open Access Journals. Institutional behaviour concerns both the behaviour of academics as they choose to which journals and conferences they submit their papers as well as the behaviour of the academic institutions that use publishing in journals as important criteria for assessment of academics. In this respect the academic community is very conservative. This naturally put academics (and in particular the younger ones) in a situation where primary publishing of their best work in relatively unknown Open Access Journals is a very low priority.

It will take many years to change this behaviour and much depends on critical mass. The system is more or less a viscous circle, where measures such as journal impact factors inhibit change. An obvious shortcut would be if a number of established journals would change their business model, but this is unlikely to happen as long as publishing is as profitable a business as it is today.

E-print servers. E-print servers are also highly dependent on the behaviour of scientists, but here the dilemma is slightly different. The papers uploaded are typically drafts intended for final publication elsewhere. Thus the researcher is not really forced to make an either/or choice. Rather he has to make the decision whether it is worth his while to take the trouble to upload his paper to the server. And this is again dependent on critical mass.

Institutional repositories. Institutional repositories can function both as primary and secondary channels. As for the first function (for instance Ph.D. thesis and working paper series) their development is unproblematic. The wide use of institutional repositories for secondary publication will

however demand a number of measures, both push and pull by nature. Scientists and their departments can be rewarded for posting electronic copies or their work to institutional repositories, or posting copies can be made mandatory.

Conclusions

Although many Open Access initiatives have proved their sustainability during the last ten years, their effects on the total volume of scientific papers published annually (around two million journal articles alone) is still very marginal. The enthusiasm and iconoclastic spirit of the early days is now changing into a more realistic search for sustainable business models, and a better understanding of the formidable barriers to change.

Trying to get researchers to support the move towards Open Access, which most agree in principle would be good for the advancement of science, is like trying to get people to behave in a more ecological way. While most people recognise the need to save energy and recycle waste it takes more than just awareness to get them to change their habits on a large scale. It takes a combination of measures of many different kinds to get massive behavioural changes underway. The SciX does its share of the work.

Bo-Christer Björk

SCIX GOES MULTILINGUAL

The technical development in SciX set up a system that allows for a rather simple and easy translation of the services and applications from English into other languages. This is done by an automatic extraction of language specific GUI elements, manual translation of the texts and later automatic merging of the service logic with the other language's texts. Institutional repositories in German and Slovenian languages were set up using this approach. A Spanish speaking version of the services is planned.

SCIX WORKSHOP IN SLOVENIA

A SciX Workshop **Open Scientific Publishing: Opportunities and Challenges** took place in Ljubljana on September 29th 2003. It was the first event related to open access scientific publishing (OASP) in Slovenia. The goal was to gather all the key players in this field and share the experiences of those that do provide open access to their publications already.

Slovenia has a well organized library information system – all libraries share a common searchable catalogue. Also, the bibliographies of researchers are maintained centrally by one organization.

64 people were personally invited to the seminar. Most of them are working for faculty libraries, others representing the Ministry of Education, Science and Sports, the University of Ljubljana, The National and University Library, the Central Technical Library and the Institute of Information Sciences that is managing the central library and bibliographic information systems in Slovenia. About 60 persons attended, including representatives of all key organizations.

The seminar had two parts that were followed by extensive discussions. In the first lectures on OASP and the related strategies were presented. In the second the practical solutions developed bottom up by the various organizations were demonstrated.

Prof. Nekrep first presented a visionary talk on the open scientific publishing. Assoc.Prof. Turk of the SciX project presented the goals and interim results of SciX. Ms. Kavcic-Colic of the National and University Library presented the work on electronic archiving at the main Slovenian library. Dr. Gerkes presented the context of the electronic archiving at the Information Sciences Institute.

Five digital repositories from different faculties (Faculty of Economics, Faculty of Arts, Faculty of Medicine, Faculty of Civil and Geodetic Engineering and Faculty of Social Sciences) of University of Ljubljana were presented in the second part of the seminar, including the SciX pilots.

Discussions revealed the problems of open scientific publishing in Slovenia: copyright issues, lack of content, lack of technical support, lack of proper organization that would allow for digital archiving in organizations. The discussion also showed that the best positioned players, the NUK and the IZUM do not have a short term strategy towards OASP and that therefore the initiative will remain bottom up, with the individual scientists and departments, hopefully with the support of the local library.

Mateja Šmid and Žiga Turk

SCIX ON THE ROAD

Conference on the future in scholarly publishing (Helsingör, Denmark, 3-4 June, 2003). Turid Hedlund has participated in a group for a Nordic co-operative solution for scholarly publishing. A result of the work of the group was this conference where she gave a presentation on the SciX project.

International Conference on Electronic Publishing (Guimares, Portugal, 25-27 June 2003). Bo-Christer Björk gave a presentation on the Scientific Publication Life-Cycle Model (SPLC). Bob Martens presented paper on the SciX project.

International Multiconference on Computer Science (Las Vegas, US, June 23-26). Ziga Turk presented the Web Services Architecture underlying the SciX applications.

Digital Libraries Conference (Espoo Finland 9-10 September 2003). Bo-Christer Björk presented a conference paper on the Barriers to the implementation of Open Access publishing.

europIA 2003 (Istanbul, Turkey, 8-10 October 2003). Bob Martens attended the conference and gave a presentation of the paper "The SciX Platform - Reaffirming the Role of Professional Societies in Scientific Information Exchange" in the framework of a plenary session. The newly created europIA-repository (<http://europIA.scix.net>) was presented, which can be regarded as the central archive for this conference series. The materials of the 2003 conference have been inputted to the repository and earlier materials will be entered with the help of previous conference chairs.

CAADfutures 2003 (Tainan, Taiwan, 13-15 October 2003). Bob Martens gave a special presentation on the SciX-project and online demonstration of the CUMINCAD-repository. All previous CAAD futures proceedings have been recorded together with full pdf-papers. This means that over 5.000 published pages are available and the CAAD futures foundation will input the publications of forthcoming conferences.

SciX Meeting (Madrid, Spain, 22-24 October, 2003). All but one partner took part at this meeting, hosted by Indra. Progress of the project was evaluated, focusing on the interactions between the conceptual and the technical work as well as addressing some technical interoperability issues. The partners revised the schedule, presentations and demonstrations of the upcoming review.

ACADIA 2003 (Indianapolis, USA, 23-26 October 2003). Nearly all conference papers in pdf-format from this association have been recorded in the CUMINCAD-repository. The presentation focused on the frame conditions for setting up a keywording system. Further input from several institutions can be expected regarding the input of dissertations and theses

5th E-ICOLC Conference of the European University Library Consortia (Copenhagen, Denmark, 23—25 October 2003). Bo-Christer Björk was invited speaker and presented results of the SciX project.

Most papers and presentations from these events are available at www.scix.net/db/use/bibliography

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