Brazilian Open Archives Initiatives:
The Influence of ElPub Conferences and the Role of IBICT

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Abstract

There is a worldwide tendency towards an "open access philosophy" and the adoption of OAI facilities everywhere, including developing countries. We present a case study on how Brazilian academic institutions such as universities and research institutes have responded to this global movement towards OAI This paper reports the results of the first phase of a three-year, cross-sectional study into the growth of OAI systems in a developing country, Brazil. The study looked at four kinds of initiatives with the OAI-PMH protocol, namely, authors' independent/direct self-archiving, institutional repositories, electronic journals and electronic conference proceedings. Results of the study showed that there are 24 institutions that have implemented one or more kinds of OAI in Brazil. All four types of initiatives have been implemented in the country, mostly within university environments. Compared to other countries, the initiatives identified still represent a slow response of the country, considering what has been observed in other regions worldwide. Initial observations of the OAI in Brazil point to an influence of the participation of Brazilian decision makers in the ElPub conferences over the last two or three years, in most of the initiatives identified. Likewise, IBICT's (Brazilian Institute for Information on Science and technology) policy has made and will continue to make a significant contribution to promoting open access in Brazil.

1   Introduction

There is a worldwide tendency towards an "open access philosophy" and the adoption of OAI facilities everywhere, including developing countries. We present a case study on how Brazilian academic institutions such as universities and research institutes have responded to this global movement towards OAI (Costa & Moreira, 2003).

The open access philosophy has spawned a number of new services and products, especially for academics, resulting in changes in the research environment, particularly within the scholarly communities. Open archives and institutional repositories point to a new paradigm for the scholarly communication system. This paper reports the results of the first phase of a three-year, cross-sectional study into the growth of OAI systems in a developing country, Brazil. This paper provides an initial picture of Brazilian initiatives with open archives-related implementations and of adopters' view of the future as a contribution to the worldwide picture of the theme.

2   Research Theoretical Framework: the Issues of Practical Interoperability and Increased Visibility

As mentioned before, our study focused on implementations with the OAI-PMH protocol and took into account four kinds of initiatives with the protocol.

1) Initiatives involving authors' independent/direct self-archiving, only.
2) The development and implementation of institutional repositories.
3) Initiatives that aim to create electronic journals in an interoperable environment.
4) Initiatives that aim to manage conferences and make their proceedings available electronically in an interoperable environment.

We assume that interoperability and all its consequences constitute the major motivation for the research community to adopt OAI-PMH. In fact, what is being implemented within the Brazilian scholarly community and a few government organizations, in terms of OAI, is in line with what Lagoze & Van de Sompel (2001) call

Figure 1 - A framework for multiple communities
(Lagoze & Van de Sompel, 2001)

"the technical umbrella for practical interoperability" (Figure 1). They discuss the multiplicity of communities that now exploit OAI technical framework for metadata harvesting. Indeed, a variety of actors can be found within the OAI-PMH community today, including authors, publishers, librarians, and funding agencies.

It is interesting to note that the umbrella is expected to accommodate a growing number of actors in a new publication system. Although Lagoze & Van de Sompel have highlighted publishers and librarians as the main actors—along with authors—others will soon be part of that. Funding agencies, especially in developing countries, will. It is, for instance, the case of Capes* in Brazil, which has provided open access to researchers and will undoubtedly offer access to information that is available through open archives in the near future.

We further assume that the Brazilian community is aware of the expected increase in their own visibility by making their contents available through an OAI-PMH—therefore interoperable—implementation. Lawrence (2001), analysing this issue in the computer science field, highlights the relationship between the free online availability of a paper and the increase in its impact. The author observes that

> "more highly cited articles, and more recent articles, are significantly more likely
> to be online, in computer science. The mean number of citations to offline articles
> is 2.74, and the mean number of citations to online articles is 7.03, an increase of
> 157%".

In fact, OAI, whether free or not (with or without open access) is certainly a way to increase the visibility of researchers around the globe. Even if not freely accessible, it can actually contribute, as highlighted by Lawrence, "to maximize impact, minimize redundancy and speed scientific progress". For that, both authors and publishers should aim to make research easily accessible.

3   Research Design

In this first stage of the study, the population investigated consisted of 23 academic institutions and a government organization. It included institutions nominated by IBICT's (Brazilian Institute for Information on Science and technology) project coordinator as involved with OAI in Brazil. IBICT has, indeed, been partially responsible for the Brazilian information policy. Most of the OAI movement in Brazil started because of the IBICT's work in this area. The major purpose of IBICT's policy has been to help implement a number of initiatives at its own server, at least in this initial period of implementations. By doing this, the institute aims to both persuade and help Brazilian universities and research institutes to really implement OAI-PMH applications. Out of the 23 institutions identified, 18 were contacted via e-mail and five via telephone. Out of those, nine (six via e-mail) replied; only five had implemented an initiative with open archives: two research institutes, two universities and one government organization. The research institutes are IBICT and INPE (National Institute for Space Research). The universities are UnB (the University of Brasilia) and UCB (the Catholic University of

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* Capes is an acronym that stands for: Coordination for the Training of Higher Education Personnel. It is a government body within the Ministry of Education hierarchy, responsible for both accreditation and assessment of further education (post-graduate) programs in Brazil.

Brasilia). We also contacted the University of São Paulo, where an institutional repository is being implemented; however, so far we have not gathered data about the work being done there. The government organization is STJ (the Superior Court of Justice).

We conducted a structured interview with each of the five implementer institutions (Table 1). Both INPE and UnB reported as having an OAI-PMH implementation in two departments each. As regard UCB and IBICT, both reported having implementations available from one department each. IBICT's department, however, has two kinds of applications. The case of STJ is related to an implementation, which is planned to become a consortium of implementation amongst a library network within the judiciary government branch. This counts for eight implementations identified, as depicted in Table 2.

The interview schedule consisted of four groups of questions:

1) Questions about the respondent's profile (intended just as 'warm-up questions').
2) Questions about the kind of implementation and its characteristics in terms of the kind of software used, the kind of application, raison d'être etc were asked.
3) A few questions about the perceptions of the respondent regarding advantages and disadvantages of OAI were put to respondents.
4) Questions about their expectations in terms of the future of OAI in Brazil.

One interview was carried out by telephone and all the others were face-to-face interviews.

Table 1: The Brazilian OAI Implementer Institutions

Acronym	Full Name	Project(s)	Software	URL(s)
IBICT	Instituto Brasileiro de Informação em Ciência e Tecnologia	1. Author's Self Archiving 2. Electronic Journal	E-prints SEER (translation of OJS, from PKP)	http://dici.ibict.br/ http://www.ibict.br/cienciadainformacao
UnB/CID UnB/CEFTRU	Universidade de Brasília. Dep. de Ciência da Informação Universidade de Brasília. Centro de Formação de Recursos Humanos em Transportes	1. Conference Proceedings 2. Electronic Journal	SOAC (translation of OCS, from PKP) SEER (translation of OJS, from PKP)	http://portal.cid.unb.br/elpub http://www.revistatransportes.org.br
INPE	Instituto Nacional Pesquisas Espaciais	1. Institutional Repository 2. Conference Proceedings	URLibService URLibService	http://iris.sid.inpe.br:1905 http://iris.sid.inpe.brr:1905
UCB	Universidade Católica de Brasília	Institutional Repository (Theses & Dissertations)	TEDE (translation of NDLTD)	http://www.biblioteca.ucb.br/bdigital.htm
STJ	Superior Tribunal de Justiça	Institutional Repository	DSpace	http://bdjur.stj.gov.br/dspace/index.jsp

4   Results

4.1   Respondents Characteristics and the Distribution of Brazilian OAI-PMH Initiatives

The majority of interviewees are from the social and human sciences division. All of them are responsible for the implementation of the OAI-PMH in their institutions. The distribution of the institutions and their kind of applications are depicted in Table 2, which shows how each institution identified is dealing with OAI-PMH-related applications.

Table 2: Distribution of Brazilian Institutions, Regarding the Implementation of OAI

Initiatives	Government	Research Institutes		Universities	
		Science & Technology	Space science	Public	Private
Self-archiving	NO	**YES**	NO	NO	NO
Institutional Repositories	**YES**	NO	**YES**	NO	**YES**
E-Journal	NO	**YES**	NO	**YES**	NO
Conference Proceedings	NO	NO	**YES**	**YES**	NO

4.2   Brazilian Initiatives Regarding Purely Self-archiving by Authors

Regarding what has been considered in this paper as "purely" author's direct self-archiving, only IBICT responded as having this sort of initiative implemented. That is, an OAI site that allows authors from everywhere to deposit their work, in any format (journal articles, book chapters, technical reports, books and so on). The software used is Eprint. Authors come from the social and human sciences division; they deposit journal articles, conference papers and other research reports. The raison d'être is the interest on OAI and this implementation is available for more than 24 months.

4.3   Brazilian Initiatives Regarding Institutional Repositories

For their institutional repositories, UCB, INPE and STJ use OAI-PMH. The university is doing it only for the deposit of theses and dissertations using TEDE (an adapted translation to Portuguese of the NDLTD); the implementation is available from the central library server. The research institute is doing it for the deposit of a number of materials (theses and dissertations, journal articles, conference papers, books, book chapters, technical reports, etc.) using their own software (URLib Service); there are a number of repositories implemented in the areas of metrology, remote monitoring, and combustion. The government organization is using it to create a judiciary inter-institutional repository (a consortium); this, in turn, will follow the arrangement of a well-established judiciary libraries network.

4.4   Brazilian Initiatives Regarding Electronic Journals

IBICT and an engineering department of UnB have journals implemented in an OAI-OMH platform (Table 5). Both are editors of the journals. The software used is SEER (a translated version to Portuguese of the Open Journal System, from PKP, Canada).
One of the major efforts made by IBICT is to make SEER available at each Brazilian university or any other academic institution interested in publishing research results on the net. So far, there are 28 scholarly journals in Brazil already implemented through SEER platforms.
It is important to note that the freeness of the package appear to be the unique way of having these journals available electronically in the country. There is clear evidence that SEER will be widely used in the Brazil as a solution to the availability of journals in digital format. Developments towards making it feasible to support collections of journals are in progress.

4.5   Brazilian Initiatives Regarding Electronic Conference Proceedings

There are two institutions identified that have used OAI-PMH to run conferences and make their electronic proceedings available. UnB has used OCS (Open Conference System, from PKP, Canada), to run both ElPub2003 and ElPub2004. The software has been used by people from the Department of Information Science. Although it is possible to have the proceedings of the two conferences available under OCS, it has not been fully implemented because of the policy of making all ElPub proceedings available at the same platform, which is the Sci-X, also an OAI-PMH implementation. The research institute developed its own software (URLib Service), and has the proceedings of national conferences on their subject published in there.

4.6   Perceptions on Advantages, Disadvantages and Perspectives of OAI-PMH in Brazil

Although initiatives with open archives in Brazil are still very embryonic, results on perceptions of the respondents in terms of advantages and disadvantages of OAI-PMH within the academic environment point mostly to an optimistic view. Respondents actually could not yet foresee disadvantages of integrating the Brazilian community in the OAI movement, certainly because of its level of novelty. However, all respondents of this phase of the study are developers or decision makers. Therefore, people directly involved with the decision of implementing OAI-PMH. They are not authors, who constitute the major actors of the process being affected by changes introduced by the OAI-PMH approach.

In terms of self-archiving, one of the major advantages perceived by respondents is having one's own work widely available and more visible. On the other hand, it creates wider openness to criticism. It therefore needs to be assessed by authors themselves, too, as the main actors of the scholarly communication process. Authors are more concerned with how their peers, funding agencies and university tenure committees view the publication of their work at an OAI-related environment. So far, there is no official sign of recognition of these new forms of publication in Brazil, despite what is happening in other countries, and authors do not yet appear to see an OAI as a good option for publication.

With respect to institutional repositories, another advantage pointed out during the interviews is the preservation of an entire institution's intellectual production through an institutional repository. OAI-PMH has indeed been widely recognized as an important, new, modern tool for the communication process amongst scholars and scientists because of its capability of making the process more agile.

In relation to e-journals that are implemented in an OAI-PMH environment, SEER seems to be the major option. So far, 36 titles published in Brazil are already running under SEER. Though still very few, the increase in the adoption of the system has been considerable and it will certainly continue to grow. There are even fewer conference proceedings that run within an OAI-PMH environment. Despite the effort made by IBICT to customize OCS from PKP, British Columbia, in Canada, to a Portuguese version, and make it widely and feely available, there has not been an 'addiction' to that within the scholarly community. Maybe because there are now a number of other options available, tough not necessarily dealing with OAI.

The truth is that IBICT has performed a major role in making OAI-PMH known, adopted, and used in Brazil. A considerable influence on shaping this policy came from the participation of one of its CEOs in ElPub2003, at least concerning the adoption of OCS and OJS. OCS adoption is entirely related to ElPub conferences. The adoption of OJS in Brazil, as an IBICT's policy, is a consequence of Willinsky's presentation at ElPub2003 (Willinsky 2003).

Concerning the perspectives foreseen by respondents of this study, the most important perspective about the future of OAI in Brazil is related to two major issues. The first is the changing roles of actors involved in the scholarly communication process. This change is clearly shown in the direct involvement of librarians and publishers as leading the initiatives identified. The second is the speed-up of publications and an increase in the availability of scientific information, which, in turn, shows an important change in the communication process. The consequence is a paradigm shift. As clearly observed, results of this study are in line with the Technical Umbrella for Practical Interoperability of Lagoze & Van de Sompel's model, which aims to depict the accommodation of a growing number of actors in a new publication system.

Results related to the government organization, The Superior Court of Justice, show a rather different perspective. Within such an environment, there are plenty of resources available and the implementation is much faster than within any university environment. Nevertheless, the view is not necessarily optimistic, in terms of its acceptance by authors from that context, within which the communication process is quite different from the scholarly environment.

5   Concluding Remarks

The increasing number of Brazilian institutions adopting OAI-PMH is a tendency foreseen in the results of this study. The interviewees of this stage of the study nominated a number of other institutions that have implemented OAI. They will be approached in the next stage of the study, along with a few others that have been searched for, and a sample of authors.

It is interesting to highlight the influence of participation of Brazilian specialists in ElPub in most of the initiatives reported in this paper. Nevertheless, there are the cases of INPE, where its specialists have developed open archives, and STJ, where the decision maker searched the literature to find information about OAI.

There certainly are further initiatives to be identified that may not have any relationship with ElPub. However, so far, the initiatives reported have been implemented because of some influence of what has been seen in ElPub debates over the past three years. Time will show whether this diagnosis is true or not. There is IBICT's policy, however, that will certainly make things happen in Brazil, and that has definitely been influenced by ElPub participation.

A last point needs to be emphasized, which is the absence of experts/researchers from computer science in these initiatives. They have mostly appeared at the implementation moment. In fact, most of actors involved in the decision-making regarding OAI-PMH in Brazil are, hitherto, from information science. Because they are not computer-literate, the major difficulties faced in the country regarding the implementation of an Open Archive Initiative seem to come from that. It is therefore crucial for the country to invest in training multidisciplinary teams that are capable to undertake such a challenging task. Moreover, decisions need to be made towards a country-wide implementation of OAI-PMH. As a developing country, Brazil would certainly reap considerable benefit from such a country-wide system.

Acknowledgements

References

Costa, Sely M. S. & Moreira, Ana Cristina S. (2003) The diversity of trends, experiences and approaches in electronic publishing: evidences of a paradigm shift on communication. In: COSTA, S. M. S., CARVALHO, J.A.C., BAPTISTA, A.A. & MOREIRA, A.C.S. *From information to knowledge*: proceedings of the 7th ICCC/IFIP International Conference on Electronic Publishing. Guimarães: Universidade do Minho, p. 5-9.

Lagoze, Carl & Van de Sompel, Herbert (2001). *The open archives initiative*: building a low-barrier interoperability framework, from http://www.openarchives.org/documents/jcdl2001-oai.pdf, access on March, 12th, 2003.

Lawrence, Steve (2001) Free online availability substantially increases a paper's impact. *Nature webdebates*, from http://www.nature.com/nature/debates/e-access/Articles/lawrence.html, access on November 20th, 2004.

Willinsky, John (2003). Can a portable, open source journal management/publishing system improve the scholarly and public quality of research? a workshop. In: Costa, Sely Maria de Souza et al (Ed.) *From information to knowledge: proceedings of the 7th ICCC/IFIP International Conference on Electronic Publishing*, held at Guimarães, from 25 to 28 June 2003. p. 14-21.