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New publishing models for scholarly communication and the Brazilian open access policy

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Abstract

High prices of journal subscriptions, which have triggered the exhaustively discussed crisis of scholarly journals, made information access very limited. Within this context, information access has been a great challenge to developing countries such as Brazil. Although such crisis had started in the middle 80's, there is not a definitive solution hitherto. Nevertheless, new information and communication technologies have provided emerging alternatives for the scholarly communication. One that deserves mention is concerned with the standards established by the Open Archives Initiative, which defines a model of interoperability for digital collections, including electronic journals, institutional repositories and digital libraries, amongst others. Within this context, this paper aims to provide a picture of the Brazilian initiatives with open access journals and conferences over the last four years using both PkP OJS and OCS as their platform, respectively. Based on the study of the scholarly communication process and the impacts brought about by the use of information technologies, the paper focuses on the adoption of a national information policy concerned with the open access movement and implemented by the Brazilian Institute of Information on Science and Technology (Ibict afterwards). In this sense, the work reported comprises the assessment of a number of initiatives with OJS (141 journals created and maintained so far) and a few others with OCS (around six conferences or so). Moreover, it points out the achievements of a technology transfer programme implemented by Ibict in order to have the academic community involved with open access publishing models, methodologies and tools. Besides this national approach, the paper slightly comments on **alemplus**, an acronym that stands for "open access in Portuguese speaking countries", a programme that aims to join efforts within this whole community and to expand the Brazilian and Portuguese initiatives already implemented.

Keywords: Scholarly communication. Open access. Publication models. Brazilian policies.

Introduction

This paper aims to provide a picture of the Brazilian open access policy, which is being constructed via both Ibict and Scielo initiatives. The focus of the work reported here is concerned with the policy that has been built up by Ibict only, because of its national jurisdiction and multidisciplinary context. Such policy, in spite of still taking place, has already helped the country to be part of the worldwide open access movement. In this context, the study focuses on journals (mostly) and conferences. It is understandable that journals and conferences are part of a Brazilian policy that includes the development of institutional and discipline repositories as well, using mostly MIT's DSpace as their platform, though there are initiatives using Southampton's E-prints and others.

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The focus of this paper is on OJS, because of the conference theme, yet it is highly justified also because of the enormous benefits these two software packages have brought to the Brazilian community. The approach adopted to look at these issues is the one defined as the green and golden roads or, in other words, the Open Access Archiving and Open Access Publishing models, as it seems to be a useful way of analysing the role played by Ibict's information policy. Accordingly, initiatives carried out in Brazil represent new publication models for the scholarly literature and are consistent with a worldwide tendency that has gradually expanded over the last decade.

As elements of a so-called 'open philosophy' (Costa; Moreira, 2003), Brazilian initiatives resultant of the national information policy as well as some spontaneous initiatives embrace the use of open software, the orientation of the open access policy and the adoption of the open archives initiative model. Consequently, both the green road (authors' self-archiving of refereed published material), implemented through institutional (mostly universities) repositories, and the golden road (guaranteed by electronic journals), are taking place in Brazil. In sum, the context of the study is rooted in such an open philosophy. This, in turn, points to the notion that using open software under the orientation of an open access policy with the adoption of the open archives initiative model, it is possible to implement both the "green road" approach (institutional repositories – **O**pen **A**ccess **A**rchiving) and the "golden road" approach (open access scholarly journals – **O**pen **A**ccess **P**ublishing).
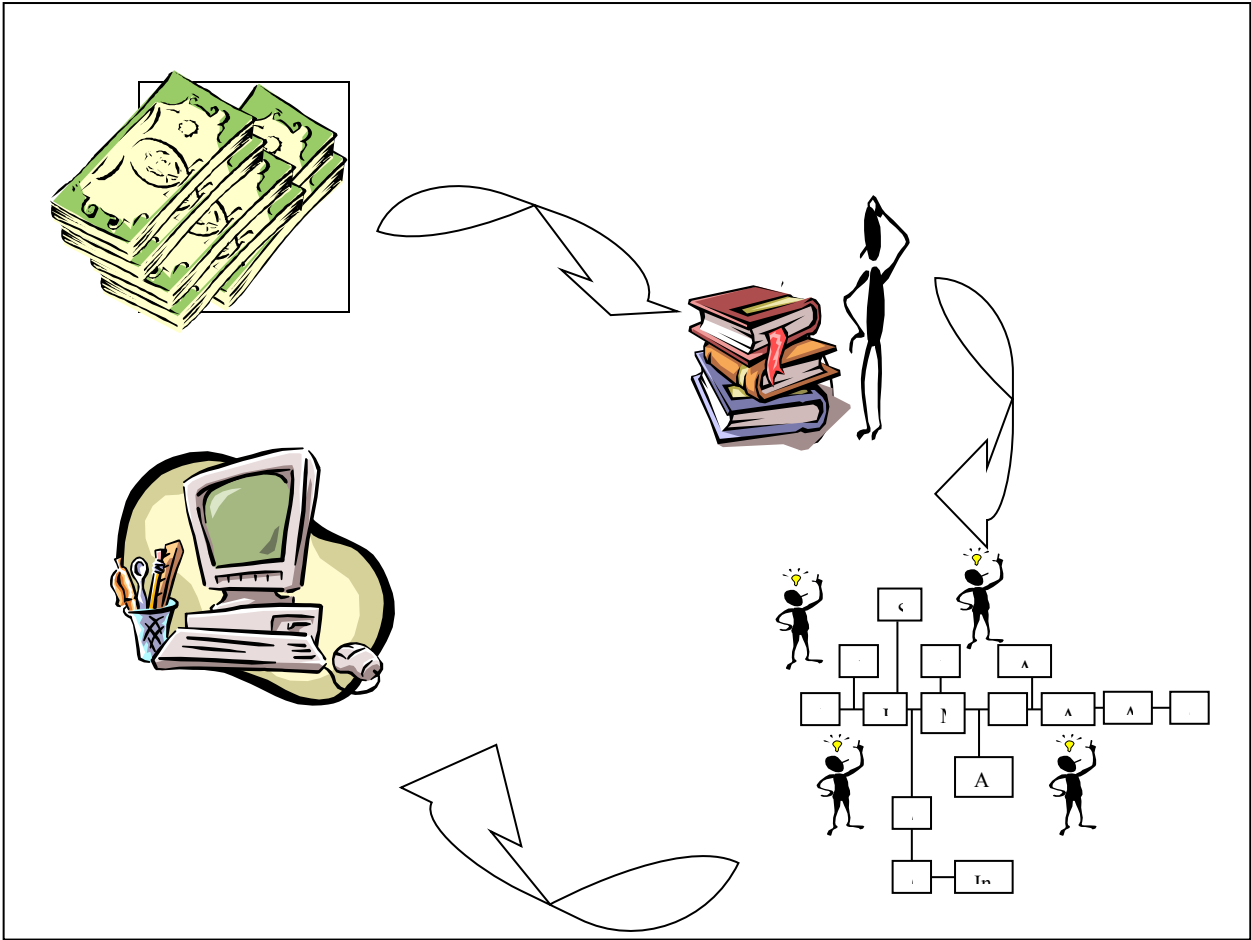
The challenging perspective is to implement a control quality system in order for journals (and, very likely, repositories) to take part in the **oasis.br**, a Brazilian service provider that harvests journals metadata, giving access to their entire content. This, in turn, shall complement the technology transfer programme adopted by Ibict, which is concerned with customizing all those cited software, training developers, journal editors and librarians, distributing tool kits to them as data providers and consistently disseminating the open philosophy throughout the country. This paper, therefore, aims to provide a well-built picture of the Brazilian national information policy as the strategy that has made possible to implement new scholarly publishing models, highlighting the role played by PKP in the open access initiatives taking place in the country so far.

Methodology (theoretical framework and study design)

Scholarly communication and open access epitomize a hot combination. It is because the combination reflects worries that have pervaded the scholarly literature, coming from all kinds of actors within the scholarly communication, namely researchers, publishers, librarians, funding bodies, university decision makers and information service providers. This, in turn, can be seen as an evident consequence of what has become the commonest business model of scholarly publishers, particularly, journal publishers. As the major expression of the scholarly communication process in a great number of disciplines, the scholarly journal along with facilities made available via the World Wide Web yielded the so-called golden road, materialized in the open access electronic journal.

It follows that a theoretical approach that properly underlies this discussion shall take account of at least five relevant issues. The first one is the scholarly communication system, and its (apparently) most important portion, which is the formal publication. The second one is the business model ultimately prevalent in such system, which actually is resultant of the prestige built up by well-established publishers. The third is the journal crisis, brought about by the high prices of signatures required in order to access the content of prestigious journals published by prestigious publishers. The fourth is related to the recent reaction occurred within the scholarly community against to no less than the two latter ones. Finally, there are the alternative business models, which constitute a response for all that.

A conceptual model that depicts this approach is presented in Figure 1. The theory embedded in the model stresses that burgeoning new and varied business models for the scholarly journal publication system is the viable response to the journal crisis brought about by high prices of journal signatures required by prestigious publishers. This, in turn, resulted in changes not only in the scholarly communication process as a whole, but also in all its actors in particular. Moreover, it makes possible, increases and improves research output in terms of productivity and impact.

Figure 1: The study conceptual model

This theoretical approach pointed to the use of a study design that consisted of methodological procedures involving the definition of the research method, approach, population and sample as well as data collection instrument. It takes into account that the study sought for characteristics of scholarly journals available in the Internet by using the PKP-OJS platform. It also looked at open access policies defined by Ibict in order to rule initiatives that are expected to take place in Brazil in the near future. Therefore, the investigation consisted of a descriptive study using mostly documentary analysis. Further stages of the research will involve interviews, too. In this stage, the research population is comprised by the entire set of Brazilian scholarly journals implemented by using PKP-OJS platform, 170 in total and the documents available in which Brazilian open access policies are stated.

Part of this study consisted of analyzing these journals in order to identify a few issues that reveal the Brazilian adoption of a model that helps the country navigate through the golden road. Additional data have been obtained from the open access policy that has been gradually implemented in Brazil and that are concerned with three kinds of initiatives. Data obtained from journals are quantitative and comprise: year of firstly available through the OCS platform, division of knowledge, and the Brazilian geographical region concerned, as available at Ibict's home page.

In terms of the additional data, the approach is qualitative and comprises a very short description of six issues of which data have been obtained from Ibict's documents. The first one is related to customizing and making available the software required to develop and implement electronic open access journals. The second one related to information about transferring those packages already customized to any academic institution interested in them. The third one is concerned with a training program that enable publishers to both create and maintain scholarly journals. The fourth is regard to the quality control of the open access journals either already implemented or being implemented in the future; it is going to guide selection to a Brazilian portal of open access journals and repositories, named Oasis.br (Open Access Scholarly Information System - Brazil) and not yet implemented. Fifthly, there is the initiative of persuading the Brazilian scholarly community the use of OJS and other platforms for open access electronic journals and repositories. Finally, to expand that even more, a commitment has been officially taken by Ibict I order to take part of **_alemplus_** (Open Access in Portuguese Speaking Countries), along with Portugal and Mozambique.

Data analysis and discussion

A study by Costa;Deusdará (2005) investigated how Brazilian universities and research institutes had been responding to the global movement towards both open access to scholarly literature and the Open Archives Initiative. They reported partial results of a three-year, cross-sectional study into the growth of OAI in Brazil. The study pointed out the responsibility of IBICT as, indeed, being in the leading role of the Brazilian information policy on open access through both the green road and the golden road (Harnad, 2001).

It is interesting to mention that most of the open access movement in Brazil through either the green road (mostly institutional repositories), or the golden road (electronic journals) started because of IBICT's work in this area. In this regard, the major purpose of IBICT's policy has been to help implement initiatives throughout the country, including either having some of them available in its own server -at least in this initial period of implementation- or training people on how to fully benefit from those software facilities. These implementations comprise the use of the Open Journal Systems, Open Conference Systems, E-prints and Dspace In addition, Ibict had developed a software package to self archive and disseminate theses and dissertations, which supports a Brazilian consortium of digital libraries of theses and dissertations using a methodology similar to the NDLTD. This consortium, named BDTD (Brazilian Digital Library of Theses and Dissertations) comprises 57 universities. There are ca. 58,000 theses and dissertations available so far, in full text. Finep, one of the major Brazilian funding agencies for research and development programs, funds the initiative, which is part of a major Finep project named Portal of Open Access Repositories and Serials Publications (PCAL). By doing this, Ibict aims to both persuade and help Brazilian universities and research institutes to really implement OAI-PMH applications.

An historical note actually draws attention to the fact 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, Dr. Kuramoto, in the 7th International Conference on Electronic Publishing (ElPub2003). At least concerning the adoption of OCS and OJS.

OCS adoption used to be entirely related to ElPub conferences in 2003 (Portugal) and 2004 (Brazil). Coming across OCS and its consequent use for the submission process of Elpub2003 occurred by chance, when the conference chair of the program committee was looking for this sort of facilities on the Internet. Nevertheless, its adoption has slightly expanded in the country, being the platform used to run a few other conferences, including the 1st Iberoamerican Conference on Electronic Publishing held in Brazil in April 2006 and made available in three languages, namely Portuguese, English and Spanish. The constraints of the platform design so far have brought about the need for actually having three interconnected web pages, one in each language. It is relevant to highlight that since Elpub204, OCS has been used with all the facilities available.

The adoption of OJS in Brazil, as a IBICT's policy, is definitely a consequence of Willinsky's presentation at ElPub2003. The decision made by Dr. Kuramoto to translate it to Portuguese and spread its use in Brazil was definite to the figures found hitherto. Accordingly, OJS has been the platform to implement, up to March 2007, a total of 170 journals looked at by this study. Figures of them, to which data of the initial issue date available, the submission process and ISSN have been added, are shown in Tables 1 to 4.

Data obtained from journals – quantitative approach

OJS has been implemented in Brazil since 2004, soon after Dr. Kuramoto returned from Elpub2003. It has obviously needed to be scrutinized, customized to Portuguese and implemented in Ibict's server in the first place, and then, in a number of other institutions' server. Data on Table 1 shows the number of journals implemented by year, and allows inferring the exponential growth of these implementations.

Year of availability	Number of journal titles
2004	28
2005	42
2006	71
2007 1st sem.	66
TOTAL	207*

Table 1. Breakdown of the number of journals' new titles by year of availability through OJS, and informed ISSN and peer review (*230, already)

It is interesting to stress that the date from which the title is available through OJS does not mean that issues are available form that date on. A number of journals are actually now available from very early issues to date.

Regarding the division of knowledge with which the journal title is concerned, data obtained, surprisingly showed that the distribution of titles is reasonably similar through the three main divisions of knowledge, namely: sciences, technology and medicine (STM); social and human sciences; and arts and humanities, as can be seen in Table 3. Besides that, the category of classification named "multidisciplinary" has ca. 20% of the total number of titles and mostly comprises journals covering disciplines from humanities and social sciences.

Division of Knowledge	Number of Titles
Sciences, Technology and Medicine (STM)	62
Social and Human Sciences	54
Arts and Humanities	53
Multidisciplinary	38
TOTAL	207

Table 2. Breakdown of the number of journals titles by division of knowledge

A glance at these journals sites shows that a sound work needs to be carried out with their publishers and editors in order to improve their quality. A number of issues do need to be looked at carefully in

order to enhance those publications, including the journal title, the definition of content, the editorial policy, the information to authors, the cover design and so forth.

The use of OJS is spread throughout the country. Figures reveal that institutions from all five geographical regions are involved with taking advantaged of OJS. Table 3 shows these data and gives an idea of how these developments are taking place in Brazil. Differences observed between regions actually correspond, to some extent, to historic and geographic differences in terms of population distribution and other factors.

Geographic region	Number of titles
North	5
Northeast	20
South	82
Southeast	83
Middle West	17
TOTAL	207

Table 3. Breakdown of the number of titles by geographic regions in Brazil

As can be observed, from 2004 on, the growth of OJS in Brazil has been roughly exponential, with figures approximately doubling from one year to another. This, in turn, is related to the training program carried out by Ibict over the last three years or so. It is also part of the materialization of the Brazilian open access policy, though not yet fully implemented. In fact, these policies are being studied at the moment, in order to be proposed to decision makers from different contexts such as the Brazilian Council of University Chancellors, Learned Societies, the Brazilian Society for the advancement of Science and a few other bodies. It is interesting to emphasize that Brazilian journals are maintained by universities and learned societies and/or funding agencies. Nevertheless, resources are limited. Therefore, OJS has allowed them to both survive and have better visibility.

Data on the open access policy in Brazil – qualitative approach

The idea of a national open access policy has grown gradually. It started with prospective studies that identified and absorbed the Open Archives Initiative model. Along with this decision, the success of the Theses and Dissertations project encouraged Ibict to adopt OAI model to all information systems under the responsibility of the institute.

The experience gained with all this has supported Ibict to work on a national policy of open access to scientific knowledge. Such policy, as previously mentioned, is based on the following actions:

1. Carrying out prospective studies that aim to identify, absorb and customize to Portuguese new software packages compliant with OAI-PMH. This has allowed Ibict to identify resources needed to help Brazil take part in the global OAI-PMH community;

2. Spreading and transferring these software packages to the Brazilian information provider community. A number of organizations such as universities and learned societies have positively responded to Ibict by implementing, using and fully benefiting from these packages. So far, Ibict has transferred customized versions of Dspace (10 institutions), Eprints (4 institutions) and OJS (136 institutions);

3. Training people in installing and using these software packages. Over the last three years or so, Ibict has provided training courses to developers and publishers from around 600 individuals. Evidently, not all these people is actually working with OJS. Conversely, there are institutions that are using OJS yet have had no training from Ibict, which, in turn, do not have any control of their activities;

4. Building Portals such as the BDTD and the Oasis.br, to implement, by integrating data providers, all Brazilian initiatives, particularly open access institutional and disciplinary repositories, as well as scholarly journals. BDTD is a well-established initiative. Oasis.br is still at its very initial stage, because the control policy needed to guarantee quality of the collections included, amongst other questions, is still being formulated;

5. Persuading the Brazilian scholarly community[2] concerning open access by disseminating, discussing and consolidating the national policy. It has been carried out in a number of events, such as the three last annual meetings of the Brazilian Society for the Advancement of Science (SBPC), the annual meetings and conferences of learned societies from areas like Information Science, Communication, Psychology, Life Sciences and so forth. The average number of meetings and other events in which the ongoing Brazilian open access policy has been discussed over the last three years is around a dozen or so.

6. Expanding initiatives to the Portuguese speaking countries. In order to expand this even more, Ibict has officially signed up a document named "Minho commitment", which states a number of actions to be taken in order to allow Portuguese speaking countries to be part of the global movement towards open access to scientific literature. University researchers and practitioners from a number of institutions in Portugal and Brazil have also signed the document, during a conference held at the University of Minho, in November 2006. Major actions by Ibict and the University of Minho comprise to make tool kits of DSpace and OJS available to the other Portuguese speaking countries, such as Mozambique and Angola.

A point to be highlighted is the need to create national competence in the development and use of technologies compliant with OAI-PMH. This, in turn, will allow academic institutions to actually play a role as data providers. Moreover, it is necessary for them to be integrated with each other in order to

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[2] As stated before, the concept of community here is approached in its broadest sense, therefore including researchers, librarians, funding bodies, universities, research institutes, learned societies and government organizations, amongst other organizations.

facilitate information access and use in Brazil. Ibict, therefore, play the relevant role of service provider by building portals like BDTD and Oasis.br.

Conclusions and recommendations

It did not appear feasible to draw conclusions from this peace of research, considering that it is still part of a major study that has been carried out since 2004. Nevertheless, as stated in the title, new publishing models of scholarly communication are really taking place in Brazil, as a result of a ongoing open access policy coordinated by Ibict. Such policy aims to take advantage of the OAI-PMH model and all those recommendations found in all declarations publicized so far, from Bethesda to date. It has been mostly implemented through the adoption and use of OJS to create and maintain scholarly journals in disciplines from the three major divisions of knowledge. OJS, therefore, has become a great support to the Brazilian scholarly community at large. Some final notes can therefore, be drawn:

♦ There is a rapid growing number of journals being created in Brazil through OJS, making possible the gradual accomplishment of the golden road approach. Nevertheless, problems are identified, such as:

- Journal titles: there is a great number of titles that do not reflect any area, field, topic, discipline or whatsoever;
- (Des) Continuity of publication: there is no sustainability model for a great number of journals;
- Submission process and peer review: a number of journals website do not have information about the peer review process or even the submission process.

♦ The majority of the Brazilian 'OJS journals" is comprised of academic journals created and maintained by an individual researcher or a university department / course / post-graduate programme. Nevertheless, a close look reveals that a number of them are:

- Not really "academic": most have been created within an academic environment, but are not complying with academic requirements.

♦ The country urges to have competence in both electronic publishing as a whole and the scholarly communication process in particular:

- Many of the problems identified seem to be due to lack of knowledge about the Scholarly Communication Process itself.
- It looks like we now have technicians developing competence in using OJS but not being concerned, aware, interested or whatsoever with / of / in the process/system as a whole.
- Besides, there are very few experts in the computational tasks required.

♦ Ibict's role in promoting, disseminating and implementing OA initiatives and policies has been the major way of guaranteeing the Brazilian insertion in this OA world wide movement. Ex.:

- Sponsoring: ElPub2004, Cipecc2006, SBPC 2005, 2006 and 2007;
- Coordinating the Brazilian Open Access Movement (issued a manifesto in 2006);

- Working in collaboration with Portugal, LA countries and others;
- Working in collaboration with Scielo people, members of the Brazilian parliament members, the Brazilian Council of University Chancellors, learned societies, funding agencies, researchers (scientists and scholars)

It is highly recommended that these happenings keep being scanned as much as it is possible. Complementary studies looking at issues like perceived impacts of the open access philosophy, how far or near Brazil has been from other countries in this regard, what are the perceptions of all kinds of actors of the scholarly community about these issues, can certainly cast light on this discussion and help understand these endeavours.

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