国立情報学研究所 国立大学図書館協会 共催シンポジウム

「大学からの研究成果オープンアクセス化方針を考える」

ーハーバード大学，レディング大学，北海道大学を事例にー

Introduction to open access: summary report

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Abstract

To consider the open-access policy of research results from universities, which is the theme of this symposium, I will talk about the background knowledge that lies behind it. To begin with, I briefly consider the definition of open access, its background and development, and the current situation of the two methods that have been proposed for implementing open access. Then I will take up the present situation and challenges of related projects for institutional repositories being pursued by university libraries and the National Institute of Informatics, in conjunction with the main efforts to promote open access in our country. Lastly, I will introduce trends in the systematization of the dissemination of research outcomes within and outside the country.

Koichi Ojiro

Koichi Ojiro was employed by the Nagoya University Library and began working as a librarian in January of 1983. He later worked for the Tokyo Institute of Technology Library, the National Diet Library, Chiba University Library, and the National Institute of Informatics. He was involved in the Institutional Repositories Promotion Project while at Chiba University and the National Institute of Informatics. Since April of 2009, he has held his current position, Manager of Information Processing and Management of the University of Tokyo Library. He is also the executive officer of the ad Hoc Committee for the Reform of Scholarly Information Distribution of the Japan Association of National University Libraries and the committee of the study studying the problems of academic journals, Scientist Board, Science Council of Japan.

What is open access?—definition and background

I hope that you will take my speech as an introduction meant to deepen the discussion about the open access policy for the results of research obtained from universities.

I recognize that there are many definitions of open access, but the one I use here is the most common: “no-barrier access to peer-reviewed journal articles.” This way of viewing it was suggested by the Budapest Open Access Initiative.

The movement promoting open access has been

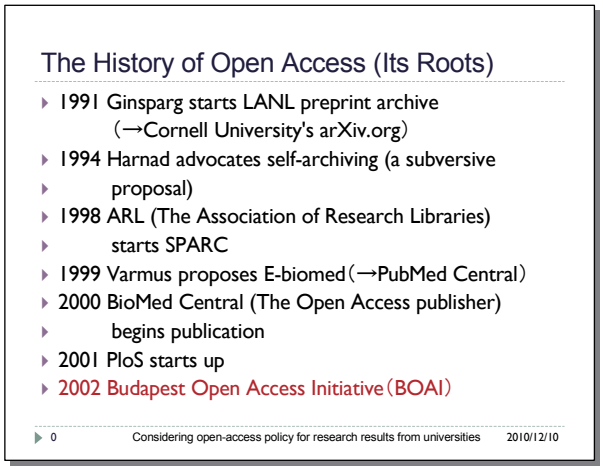
spreading worldwide during the last ten years or so. Taking a look at the background of this phenomenon, we note, first, the special nature of journal articles as products. Researchers do not write articles with the idea of profiting from them financially. Books bring their authors a certain amount of income from royalties, but what the writer of an academic article wants is for it to be read and quoted from by as many researchers as possible, thus adding to the writer's academic reputation and increasing his/her chances of promotion. Open access is the best way to improve the circulation of a paper.

My second point has to do with the serials crisis. When I say serials crisis, I mean the vicious cycle of rising prices being caused by commercial publishers' monopoly in the market place, which leads to academic journals becoming more expensive and to a decrease in the number of titles being subscribed to. In particular, some libraries and scholars are advocating open access as one way of escaping from this cycle.

My third point is that with the spread of digital technology and the Internet, publishing costs are now significantly lower than they were in the paper age, so cost considerations have also made open access feasible. I think that open access would have been impossible in the paper age.

Lastly, I believe this is particularly an American idea, but taxpayers feel that free access to the results of research funded by the money of the public money (tax money) is their right. It seems to me that these are the factors behind the notion of open access.

Well, now, how did the open access movement begin? There are various explanations, but the roots of open access are said to be the preprint



(Figure 1) The History of Open Access (Its Roots)

server (now the Cornell University arXiv), which was begun in 1991 by Ginsparg at the Los Alamos National Laboratory. Since then, there have been various sorts of open access arrangements made by research groups, libraries, and publishing companies (Figure 1). It was the declaration by the Budapest Open Access Initiative in 2002 that encouraged this movement. With this declaration, the concept of open access was clearly defined for the first time, and at the same time, the term open access came into general use.

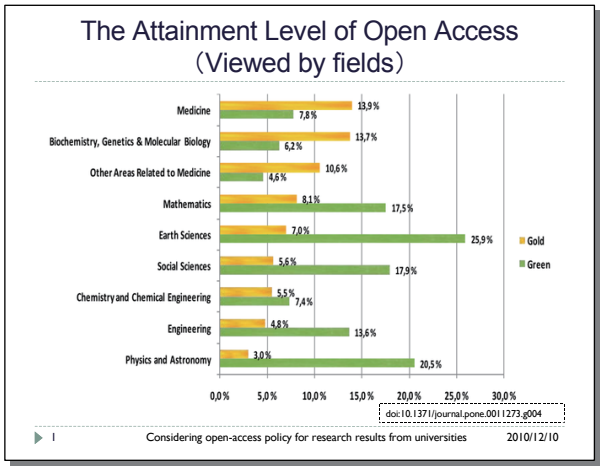
The way to the implementation of open access and its goal

The declaration of the Budapest Open Access Initiative mentions two ways of implementing open access. One is the so-called green road, which would have the researchers themselves deposit (self-archive) their articles on an Internet server called a repository and make them freely available to the public. There are already more than 1,900 open-access repositories around the world that are being used for self-archiving, among them the websites of authors, specialized archives, the institutional repositories of academic institutions

and the like, and government-led central archives.

One more way of providing open access is the gold road. This method would make the academic journals themselves free for anyone to read. Even open-access journals would naturally cost something to publish, so there would need to be a business model for recovering those expenses. Currently, open access seems to be heading in the direction of having the authors pay a fee to publish, which would make it possible. There are two ways of working within this model that would have the authors pay: making all the articles in a journal open access, or following a hybrid model in which the author selects articles for open access (the author's choice model). I have heard that at present there are more than 5,600 scholarly journals included in the Directory of Open Access Journals (DOAJ).

How much progress has open access made using these two methods? An investigation that took a sampling of 1,837 peer-reviewed articles published in various fields in 2008 found that 20.4% per cent of the total number had been made open access, 11.9% being green (self-archived) and 8.5% being gold (appearing in open-access journals). Viewed by fields, earth science had the highest percentage of open-access theses, 33%, while the field with the lowest percentage was chemistry, at 13% (Figure 2).



(Figure 2) The Attainment Level of Open Access (Viewed by fields)

The main issue for open access abroad—systematizing it—and the current state of policy development

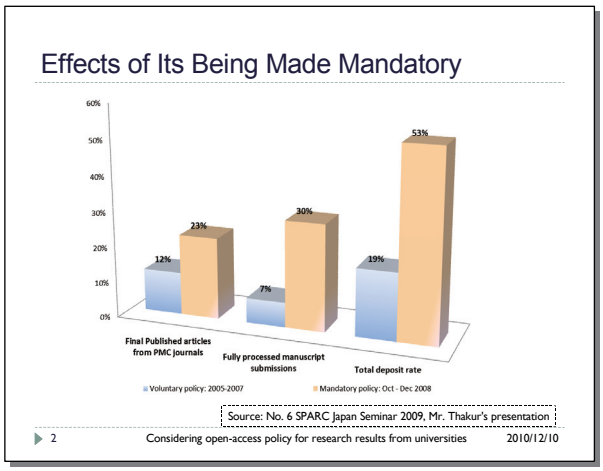
First, we will consider the state of systematization of open access. There is a site called ROARMAP, which has summarized the open-access policies of universities, research organizations, and research grant organizations around the world. The organizations that have settled on a policy and been registered here amount to 106 universities and organizations, 29 groups on the departmental level, 46 research grant organizations, 70 institutions that are making it compulsory to deposit articles, and 1 compound organization. The policies of Harvard University and the University of Reading are, of course, also registered here. At present, Hokkaido University is the only one in Japan that has registered.

The public access policy of the National Institutes of Health (NIH) in the United States

I will next take up the public access policy of NIH. NIH put its first public access policy into effect in 2005. The policy stated that researchers who have received research grants from NIH should, within twelve months of having an article published in a scholarly journal, voluntarily deposit the final copy of it in the repository of PubMed Central. I would like to draw your attention to the fact that this deposit was not compulsory, but left up to the researchers; and as a result, not many articles were deposited.

After reflecting on this situation, NIH stepped up the pressure on all sides, and a law making it compulsory to deposit articles was passed in December of 2007. This policy of requiring the depositing of articles was begun in the following year, April 2008, and is still in effect.

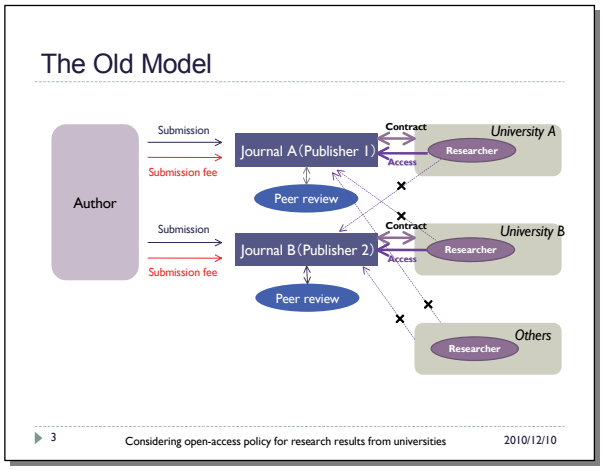
When depositing was voluntary, the acquisition rate was only 19%, but after it was made mandatory, the rate went up to 53% (Figure 3). This data is from about a year ago; the rate must be still higher now.



(Figure 3) Effects of Its Being Made Mandatory

SCOAP³

I will next introduce SCOAP³. This is headed by the European Organization for Nuclear Research (CERN) and is a movement whose goal is open access to journals in the field of high energy physics (HEP). The original model for subscribing to the journals was for access to be limited to universities or researchers who had subscribed to them. (Figure 4). SCOAP³, on the other hand, formed worldwide consortiums of research grant organizations and libraries, and the consortiums as groups bore the expenses of publication; this is the model for achieving open access for the consortium in the field of high energy physics. I think this will find a place as one of the new models for financing the publication of scholarly journals.



(Figure 4) The Old Model

For the time being, the goal is open access for *Physical Review D, Physical Review Letters, Physics Letters B, Nuclear Physics B, the Journal of High Energy Physics,* and *European Physical Journal C*. I have been told that these six journals cover 90% of articles in the HEP field.

It has been calculated that the cost of making these six journals open access will be approximately 10,000,000 Euros, and there is a plan to have each country bear a proportion of the cost, depending on the number of authors who wrote articles in the HEP field. Japan's share will be 7.1%, and we have heard that it is being asked for a yearly outlay of about 80,000,000 yen. According to SCOAP³'s homepage, it is estimated that they can secure approximately 70% of the total cost. Those concerned in this matter in Japan, the High Energy Accelerator Research Organization, the Physical Society, the National Institute of Informatics (NII), university libraries, and other related organizations are conferring as to how to respond.

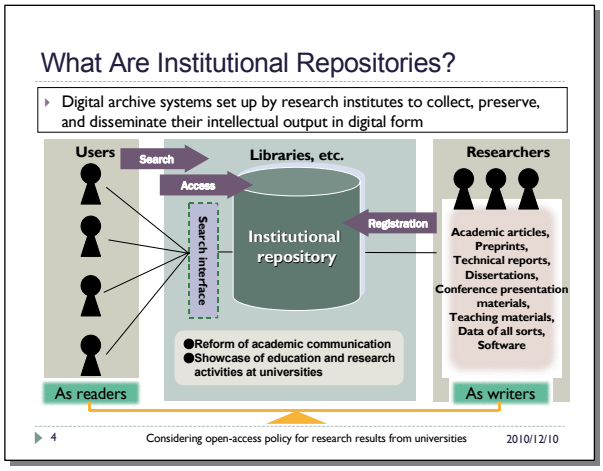
The response of commercial publishers and scholarly communities

When it comes to the response of commercial and society publishers to open access, approximately 60% of them have indicated that they would agree to it. According to data collected by the SHERPA/RoMEO project concerning the copyright policies of foreign publishers, about 25% are green publishers, who recognize both preprint and postprint self-archiving; 27% are blue publishers, who allow only postprint self-archiving; and 9% are yellow publishers, recognizing it only preprint. Incidentally, the policy of the notorious Elsevier Company gives authors the right to self archive their revised personal versions reflecting peer reviews, which would make it a green publisher in terms of the SHERPA/RoMEO categories.

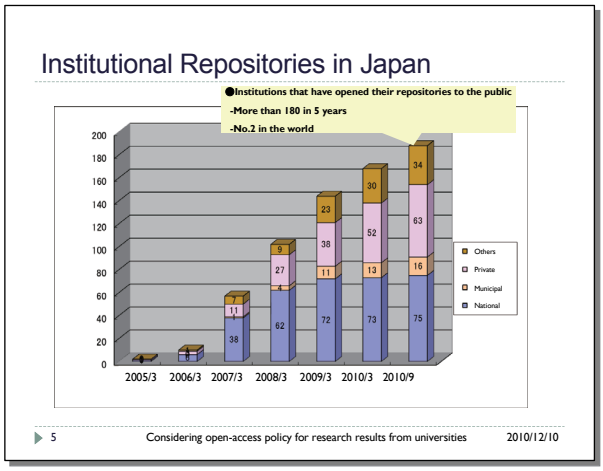
More and more publishing companies are introducing the hybrid model for open-access journals. Almost all of the big publishers have adopted this model. There are also commercial publishers who have recently begun open access journals with the authors bearing all the expense; so at first glance, one receives the impression that publishers are also taking positive steps toward open access. However, they have not forgotten the warnings about the trend to open access, and there have been frequent statements, such as the Brussels Declaration in February of 2007, issued against the easy-going adoption of open access.

The situation in Japan with regard to open access—institutional repositories

One of the characteristics of the open access movement in Japan is the efforts of the institutional repositories that are mainly being developed by the National Institute of Informatics and university libraries. By institutional repositories, I mean those in which researchers deposit the results of their research for people outside the university to search through and make use of (Figure 5).



(Figure 5) What Are Institutional Repositories?



(Figure 6) Institutional Repositories in Japan

Since 2005, the National Institute of Informatics has supported the construction and use of institutional repositories in university libraries in the form of entrusted projects, and the number of institutional repositories in Japan has increased exponentially during these past five years (Figure 6). There are currently 188 institutions that have opened their repositories to the public, a figure second only to that for the United States.

The National Institute of Informatics gathered all the metadata of the contents stored in these 188 institutional repositories. According to the NII more than one million items have now been collected in repositories throughout the country. Departmental journals articles are the most numerous. There are approximately 230,000 articles that were published in scholarly journals, but only 47% of these have full texts, and approximately 110,000 papers in all the Japanese institutional repositories are open access and have undergone peer review. I think that how to interpret these numbers will become an issue. By the way, according to Thomson's data, if the take-up rate for peer reviewed articles is calculated, the number of articles published by Japanese researchers is 78,500. Of the articles with full texts deposited in Japanese institutional repositories, 2868 were articles published in English in 2009, which means a capture rate of 3.7%.

The circumstances of academic journals in Japan

For journals in Japan, currently, of the 671 journals that have become open to the public in the Japan Science and Technology Agency's (JST) J-STAGE, 77% are open access with no authentication required.

In addition, some of the main movements in academic communities in Japan are as follows: the Japan Society of Mechanical Engineers made the transition to an entirely online open-access journal in 2006, and the Chemical Society of Japan, the Physical Society of Japan, the Japan Society of Applied Physics, and others have introduced the hybrid type of open access. New open-access journals are being started in the field of humanities and social sciences as well.

According to Society Copyright Policies in Japan (SCPJ), which is the Japanese version of SHERPA/RoMEO and is run mainly by the University of Tsukuba Library, of the 759 learned societies that have made their policies clear, 75% permit some sort of registration in a repository. Nevertheless, there are 1,486 academic societies—two-thirds of them—that have not settled on a policy, or have not announced it, or did not respond to inquiries about it, and these figures may come to pose a problem.

The debate over systematization within Japan

In comparison with various foreign countries, there has not been much debate in Japan concerning open access policies, until now. However, in the basic policy of the Fourth Science and Technology Basic Plan now being formulated, there is a proposal urging the opening to the public of institutional repositories containing the results of research and research data bases that are publicly funded. We expect that this will be the occasion for the beginning of lively debate in Japan concerning open-access policies.

Likewise, the fact is that policy crafting in our universities is not as advanced as it is in other countries. I think that, as suggested by the theme of today's symposium, the question of how to formulate university policies is truly going to be a big issue.

Summary (my subjective awareness of the situation)

Lastly, this is entirely my own subjective view of

things, but in the past ten years, open access has become increasingly diversified, and I think that this whole trend has already become unstoppable. However, we are still at the stage of attempting to find a cost model for establishing open access, and no stable model has been established yet. At present, open access has not yet succeeded in bringing about a revolution in the distribution system of academic information that is controlled by commercial publishers. Rather, I suspect that the large publishing companies are promoting adjustments to open access and are making clever use of it in their own profit structures.