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「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

# The situation of the institutional repository of Hokkaido University

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## Abstract

I am going to give you a report about our understanding and effort in Hokkaido University on the structure of the situation of what is required for open access to research results. There are about 2,000 institutional repositories registered in ROAR around the world with 300 of them registering and opening their policies. Hokkaido University is the only registrant of the policy from Japan at present. In Hokkaido University, the library developed the rules of the institutional repository on March 2006, which went into operation on April of the same year. On November of the following year 2007, Hokkaido University provided an operating policy as a university and determined to “strongly recommend” to all researchers at the university to share their research results in the institutional repository. For measures to further expand open access, another consultation was carried out in 2010 and resulted in reaching a conclusion that the spreading of open access philosophy to researchers would be effective. The library is now approaching each researcher as well as rebuilding its system on a practical level.



## Kazuo Yamamoto

Mr. Yamamoto had been engaged in an electronic journal contract at Chiba University, University of Tokyo and Ibaraki University, and served as a secretariat at the earliest stages of forming an electronic journal consortium of the national universities. Since then, he has been in charge of an institutional repository first at the University of Tokyo and now at Hokkaido University Library as a Manager of the Information System Division. Secretariat for the Digital Repository Federation (DRF)

## The Situation of the Institutional Repository in Japan

I am going to talk to you today about the situation of the institutional repository of Hokkaido University (HU). Other than common parts of the repository that certainly exist a lot throughout the

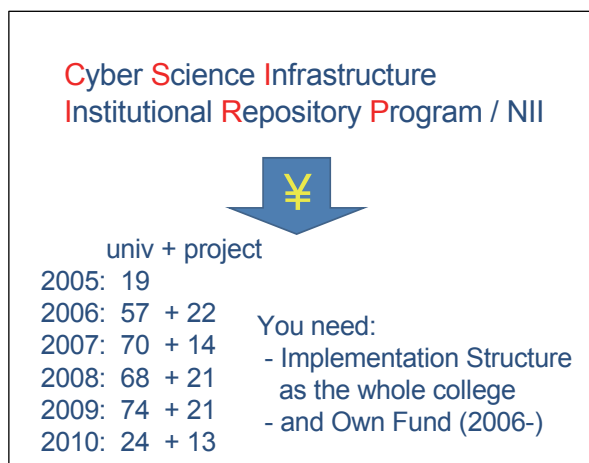
world, HU unmistakably reflects the unique situation of the repository in Japan in addition to having its own. Looking at this ROARMAP, you will see HU's name as the only registrant in Japan. The repository in Japan is supported and funded under the Cyber Science Infrastructure Project of

the National Institute of Informatics (NII) and seems to have expanded as it is today as its outcomes (Figure 1). However, this funding is not an unexpected windfall. To apply for the funding, you are required to prepare a university-wide implementation structure in each university, as well as own funds that were added as another requirement from 2006, to ensure continuous and proper operation of the repository system.

The funding has been given to almost the same universities every year until 2009, but most of 24 universities received the funding in 2010 was new after it was determined that the universities already received the funding before would no longer be able to apply. Another situation in Japan is that, as open access (OA) will not move on just by building the system and providing the contents, each university is working hard through support not only for the contents of the repository but also for various projects associated with them.

### The Situation of Hokkaido University - until Policy Formulation

As for HU in these situations, firstly there is a Library Committee under a Library Director which represents the whole university. Another structure was newly established under the Library Committee called a Subcommittee for Dissemination of Research Accomplishments to serve as a center for discussions on the repository, in which the Information System Division is responsible for conducting administrative work. A special working group was organized when setting up the subcommittee to handle operations with additional duties throughout the whole university, but was closed recently and their role was now taken by the System Division.



(Figure 1) Cyber Science Infrastructure Institutional Repository Program / NII

“HUSCAP” is a nickname for HU’s repository. Each university has its own nickname for the repository such as Barrel at Otaru University of Commerce and KURENAI at Kyoto University. Although a nickname is difficult to understand for people from other universities, there seems to be psychological effects on people at the university having the nickname to make them emotionally involved with work. “HUSCAP” will make more sense when you talk about the repository in HU instead of saying the “repository.”

One of the projects for the repository includes the Digital Repository Federation (DRF). This community was set up to exchange information including reference to advanced cases, as it is rather difficult for each university to launch a new approach, the repository, on its own, which has been continuing until this day. Another project called AIRway is also in operation.

And, in 2007, due to the requirement to prepare own funds, I assume that many universities have taken measures to raise some money from operating expenses of the library, or the section manager have pushed the Financial Affairs of the headquarter to collect money in some way. To handle this

situation in HU, the development of an appropriate policy was required including the reason and purpose of using such money. Accordingly, we were able to formulate a policy in the form of a decision by the president after informing each trustee and obtaining approval.

### Discussion on the Expansion of the Repository

Providing the policy only does not change anything. The Researcher Directory, different from the repository and proceeded by the headquarters' section in charge, is to register accomplishments by professors in the mandate framework. Despite heavy promotion by the responsible section, only 70% professors register for the directory. This is because of the fact that a university is not like moving things together as a whole even when you develop a policy and say "let's do it." And even if you ask to implement OA and say a policy is ready at a university, people who actually write and read papers are researchers, not the policy itself.

So, we discussed again within the university in 2010, based on the opinions to further expand the repository in HU and to proceed with this topic one step further as more and more overseas universities are adapting a mandate. In this discussion, we have reached a conclusion that this was not a top-down topic and an appropriate approach to each professor would be important.

Then, have we not been working on it till now? Actually the answer is no. We have been approaching each professor one by one to interview about what their researches are, after receiving their communication letter for the repository and confirming their registration to HUSCAP.

For example, one graduate student sends me a paper every month explaining how he realizes the

advantage of the repository. His Professor, Dr. Yamamura, works on the town development project with a recently popular animated cartoon character. Although still a graduate student, he received an opportunity from and is now working for other university as a part-time lecturer. The repository made his study recognized and drew the university authorities' attention. He was also invited as a visiting scholar from a private university in the Kansai Region recently. These side effects are produced one after another.

Another example is Professor Kubo who performs a statistical analysis on ecology as his main field. He insists that it doesn't make sense when analyzing and theorizing the data taken from the field to put that data into a black box and conclude "this is a theory from the results." However, no matter how much he sets off a clamor for it, it is rather difficult to be understood. After registering his easy-to-understand papers to the repository, he starts receiving comments mainly from younger professors in other fields such as "I have read your papers on the repository and finally understood what the statistical analysis was."

Professor Suzuki, a Nobel Prize winner, has certainly been depositing his papers a lot in the repository until now. With his winning of a Nobel Prize this time, we determined to put his three key papers on the repository. For the first paper, we received approval from a publisher that was easier than expected. A response we received from a publisher for the second one was extremely bad, which however was managed in some way for approval by pushing our request. The third paper took more than a month to obtain approval at last from the third publisher even though they answered "we cannot accept the repository" and said no about

five times.

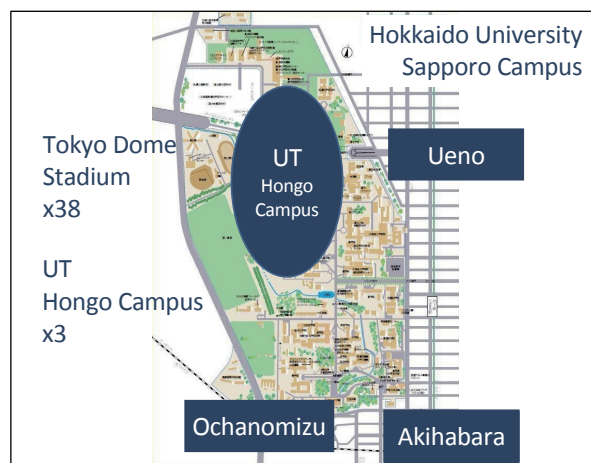
After all, I think that OA will not move forward only with the policy provided by a university and motivations of researchers. Now librarians work so hard at universities in Japan for a proper preparation that is required in proceeding with OA.

### Actual Step

During discussions to further expand the repository in the first half of 2010, we decided to make more effort and started to take actual steps.

This is HU's Sapporo Campus (Figure 2) located in front of JR Sapporo Station for convenience. For a comparison, I overlaid it with the University of Tokyo Hongo Campus and 3 JR Stations; Ueno, Akihabara, and Ochanomizu. In this figure, JR Akihabara Station is stacked on JR Sapporo Station. It is thirty-eight times larger than the Tokyo Dome and about three times larger than the total size of Hongo, Yayoi and Asano campuses of the University of Tokyo. No one will find you in this large campus if you wave a flag at the library. Therefore, in 2010, we conducted an organizational and structural review. Currently, the System Division takes care of repository work. However, as it is a library-wide work, the Division Library under the authority of the Service Division now works together as a service spot based on a request to include Service Division staff. This counts 14 locations now.

In addition, we check on the number of papers put on Web of Science by HU's professors every week, which counts about 50 to 60 usually, and pick up about 30 of them that can be put on the repository. We then send e-mails to professors who wrote those papers. After receiving responses, from most of them usually, Division Library staff starts visiting professors in different departments who said "OK"



(Figure 2) Hokkaido University Sapporo Campus

to collect their papers. These emails are sent out more and more often from the Central Library every week. During Open Access Week the other day, department staff informed people of their effort for OA.

Now, the structure is established. We first make an approach to professors and ask them to introduce their colleagues to us for another approach, which we called "Itomo Plan" at HU. During about half a year from July through November, we approached 22 professors and still continue this plan until now. Since there are just entirely different ways in different fields, and interests and expectations to the library varies as well, we take procedures to visit professors and listen to and pick up each of their voices such as about their research areas or subjects, research methods, release media for accomplishments and requests to librarians.

We make the same approach also to professors who are members of the Library Committee. This approach is not like a circle of friends since they are committee members. We visited them about twelve times asking for their advice on the type of approach we should make to move their

departments.

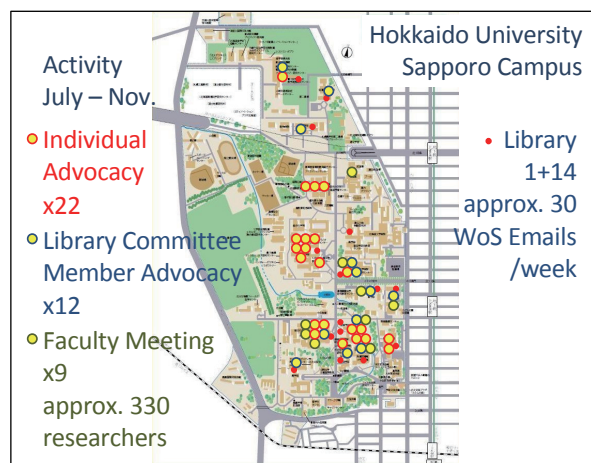
As a result, I have been having opportunities, about nine times until now, to talk and explain about OA and repository to 330 professors approximately at the Faculty Meeting (Figure 3). Other lectures are planned next week as well on journals and repository at the Faculty Meeting of the Department of Mathematics, Faculty of Science, and on weekend of Friday at the Faculty of Agriculture.

In the end, professors write papers, the library makes an approach to each professor and the university develops a policy. At the universities in Japan, librarians scramble to negotiate with publishers standing aside for the promotion of OA based on a request to do it. As a result, HU considers that putting their papers on the repository produces the side effect for professors, some of which were referred to earlier.

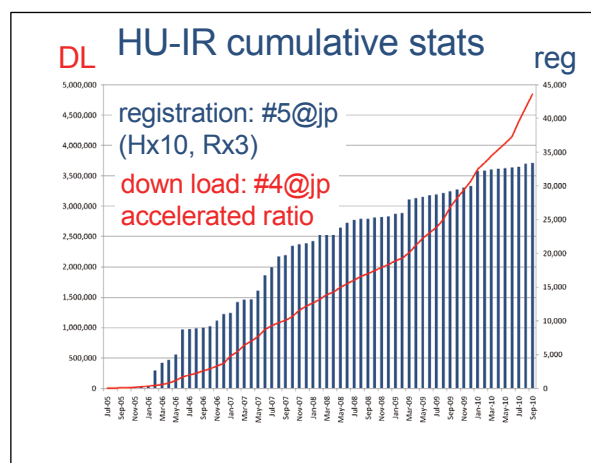
### Paper Access Record

There is another important phase, a statistical fact. This graph shows the cumulative stats of the HU's repository (Figure 4). The current number of registrations is more than 30,000, which is considered as the fifth largest number in Japan. It is ten times larger than that of the Harvard University and three times larger than that of the University of Reading. The number of downloads is ranked No.4 in Japan. I think that the steadily increasing number of downloads is particularly important.

Then, who access HUSCAP is that 82% of the accesses are from Google and seem to be people from out of the academic distribution mechanism of the past. The remaining 18% of the accesses are from the data service websites.



(Figure 3)



(Figure 4) HU-IR cumulative stats

### AIRway Project

On the other hand, professors say they do not visit Google's site when I ask them. So, we have been proceeding with the AIRway Project from 2006 to 2009 with the help of NII. The AIRway server was up in response to a request to bring a route for the repository, in which you get to the electronic journals from databases such as Web of Science and Scopus through LinkResolver that seems quite common to me at the research universities. You then pass metadata to LinkResolver through OpenURL, which was brought from 30 or more foreign servers as well as a server in Japan called

JAIRO run by NII that allow you to roughly grasp the repository of Japan. The AIRway server supports SFX, WorldCat and 360Link at present. This system will navigate professors to the repository when it has materials they searched from their usual and familiar bibliographic database even if the university does not enter into the electronic journal contract.

### Repository Policy of Hokkaido University

I would like to talk to you one more topic about a repository policy as the university.

HU's total expenditure was 92.3 billion yen for 2009, with more than 700 million yen (0.84%) for journals (including Japanese journals, Western journals, electronic journals, and newspapers). There is certainly a journal crisis, and professors want people to read papers they have written themselves or they themselves want to read papers written by other researchers. What is necessary here is a policy of the university, not that of the library nor researchers, which means that we must talk something about 100%, not about 0.84%, to make it become the university's policy.

In addition, a wide spread of information through OA might allow the university to manage accountability. The HU's repository policy describes nothing about issues of journals, prices and businesses. Instead, it does describe something about the implementation of OA to share research results with, or contribute to, society. However, librarians certainly never want to forget something about the prices.

### Zoological Science Project

Three universities pulled together to conduct another project, the Zoological Science Project,

Descriptive statistics of BioOne.2 full-text downloads			
	deposited in IRs (N=135)	not deposited in IRs (N=1,629)	not deposited in IRs (excluding articles published in 2008, N=1,476)
Average	52.4	62.1	54.6
Median	35.0	43.0	39.0
Maximum	287	840	793
Minimum	3	0	0
<small>cited from: Sho SATO@University of Tsukuba, August 7, 2010 IFLA Satellite Pre-Conference: Open Access to Science Information 48</small>			

(Figure 5) Descriptive statistics of BioOne.2 full-text downloads

including Hokkaido University, University of Tsukuba and Kyoto University. What has been done was that we deposited articles of the *Zoological Science* of the Zoological Society of Japan, which I think is one of the leading Japanese Bulletin of the English Society, not only in the repositories of these three universities but also in Zoological Science and BioOne.2 to make a comparative study of the number of their downloads and citations.

We found as one of the accomplishments that there would be no impact on the number of accesses to articles in the repositories, or those in the publisher's servers but not in the repositories, which were found to be the same after their comparison (Figure 5). What this fact indicates is that "depositing journal articles in IRs will do more good than harm to scholarly journal publishers," which I cited from information presented by Mr. Sato of the University of Tsukuba at the IFLA Satellite Pre-Conference. In other words, this will allow access for those who do not belong to the current distribution mechanism without their discontinuing the conventional methods of the past. This survey shows that there is an effect to attract new readers when depositing journal articles in the



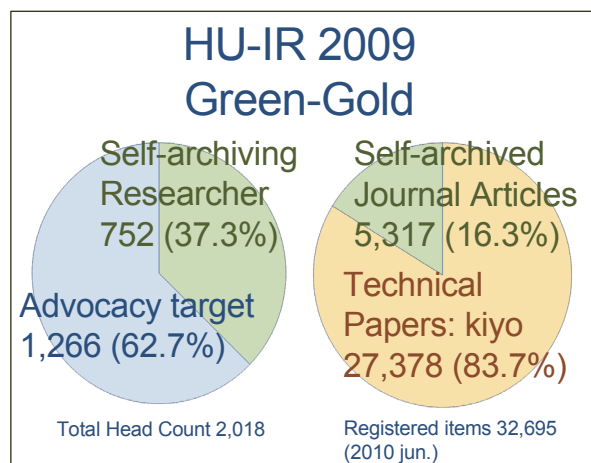
repository, rather than obstructing the business of publishers. That is, the repository will not lead to something like a direct rise in price, but will serve as a safety net to promote a business with no concerns.

### The Contents of the Repository of Hokkaido University

As for the contents of the safety net conducted in HU, self-archiving researchers are about 37% now (Figure 6). Unfortunately, 62% professors are unregistered despite our dedicated advocacy targeting those professors. Self-archived journal articles are 16% only out of more than 30,000 as a whole. Technical papers (kiyo) account for the remaining 84%. This seems to be a situation quite specific to Japan.

“Green-Gold” as indicated here is to explain about kiyo, which is, after all, a kind of publishing papers of a university that are written by researchers of the university to be issued there. No business model is required for it as it is performed within the educational and research activities. There are certainly cost issues here. And quality issues are always pointed out about kiyo, which are considered by librarians as the basic thing readers will determine. Journals available in the library will cost nothing, whether they cost a million yen or ten-thousand yen at the time of purchasing. In short, their values are something to be determined by readers, not by the library. I think this is a situation where one paper may be important for some readers but not for some researchers, and another paper may be valuable for some researchers but not for some readers.

The number of downloads clearly indicates this situation that was shown earlier. I understand



(Figure 6) HU-IR 2009 Green-Gold

that kiyo is supported that much and accepted by readers as valuable thing.