

THE INTERIM EVALUATION METHOD OF THE NATIONAL PROJECT FOR INSTITUTIONAL REPOSITORIES IN JAPAN

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Abstract

The National Institute of Informatics (NII), Tokyo, Japan, was founded in April 2000 as an inter-university research institute. Its cyberscience infrastructure (CSI) initiative aims at providing industrial and social contributions as well as a base for international cooperation on scientific research. The initiative includes projects focusing on: networks, grid research, inter-university public key infrastructure (UPKI), and scholarly content services.

The project for institutional repositories (IRs), begun in 2004, is placed in the main focus of the CSI content project. In 2006, as the CSI initiative has put more emphasis on content services, NII began working with 57 universities to construct a next-generation scientific information resources infrastructure. One goal of the project is to spread open access repositories throughout Japan; 57 universities have joined. The other goal is to support research and development activities that facilitate the dissemination of scholarly contents. 22 R&D projects have been allocated to 37 universities. The total budget for the 2006 academic year amounts to 300 million Japanese Yen (\$2.6 million USD). The project runs from April 1, 2006 to March 31, 2008.

The interim evaluation of the commissioned projects was conducted from February to March 2007. The evaluators may conclude to discontinue a project, and the evaluation also focused on sharing the best practices and clarifying common problems. The check list for a proliferation project includes: the system implementation progress, the marketing practices, and the collection size. The cost for content digitization and registration was also surveyed. On the other hand, there was no uniform checklist for an R&D project, since the range of these projects varies. Five committee members are in charge of evaluating all 22 R&D projects and discussing the direction of R&D, including the possibility of restructuring commissioned projects.

The paper describes the methods and results of the interim evaluation.

Introduction and background

The National Institute of Informatics (NII) was founded in April 2000 in downtown Tokyo as an inter-university research institute. It not only conducts comprehensive research on informatics, but develops and provides an advanced infrastructure for disseminating scholarly information. Its cyberscience infrastructure (CSI) initiative aims at providing industrial and social contributions as well as international cooperation on scientific research. The initiative

includes the following projects:

- SINET. NII provides a 100M network infrastructure shared among the academic institutions in Japan.
- NAREGI. NII promotes a research grid middleware to enhance supercomputing in scientific research.
- UPKI. NII collaborates with universities to construct an interuniversity public key infrastructure.
- Next-generation content services. Infrastructures for scholarly information resources are under construction on the basis of existing scholarly content services that were established by collaboration between NII and universities.

Thus, NII serves as an academic infrastructure for all Japanese universities as well as international institutes. There were 726 universities in Japan (87 national universities, 86 municipal universities, 553 private universities, and 4 private correspondence education colleges) in the academic year 2005. Their backgrounds were diverse and the network and library systems are not uniform. Nevertheless, NII stepped forward to serve many universities as quickly as possible.

2004-2005: Pilot projects

Interest in institutional repositories in Japan arose around 2002. The report in 2002 by the Subdivision on Science the Council for Science and Technology at the Ministry of Education, Culture, Sport, Science and Technology (MEXT) of Japan, aiming at improvement of academic information dissemination infrastructure, asserted importance of online information dissemination from universities, though not explicitly mentioned IR. Chiba University began research to develop a prototype system in 2002. In 2003, the MEXT published a report that emphasized the role of university libraries in the dissemination of academic information, in particular in the areas of humanities and social science. Since then, the idea of an institutional repository has formed.

In 2004, NII started an experimental project with 6 universities to work on software implementation and to conduct trials on Dspace and eprints. IR was placed in the CSI initiative as an indispensable component of the next-generation content services in 2005. Nineteen universities have worked together with NII in a pilot project under the CSI framework to propel IRs. On June 28, 2005, the MEXT Council published an interim report on university libraries to explicitly state the significance of institutional repositories in the dissemination of academic information resources. By June 28, 2006, 17 institutional repositories were running; these repositories hold a total of 62,423 items.

2006-2008: Institutional repositories as content infrastructure

The Subdivision on Science in MEXT published an interim report on March 23, 2006, which explicitly emphasized importance of IR. A two-year full-fledged initiative for developing a next-generation scientific information resources infrastructure has been initiated and will run from April 2006 to March 2008. A content board in NII consisting of several deans from university libraries was institutionalized on September 13, 2005. A working group was installed to discuss the operation of the initiative. The center of scholarly information resources, established on August 3, 2006, also provides support to the initiative.

From 2006-2007, 57 universities will be selected from the 77 applications that were received to join a full-scaled project to promote open access repositories for scholarly communication; 40 IRs were running in Japan as of April 2007. Total 37 universities among the 57 partners carried out 22 research and development projects of a wide range on smooth operations of

IRs. They include: Connections to link resolvers; Integrated searches; Metadata for multi-type data; Connections to faculty performance databases; IR community developments; Copyright policies of Japanese academic journals; XooNIPS library modules; E-publications in IRs; and Development of IR evaluation methods. The 2006 budget was 300 million Japanese Yen (\$2.6 million USD).

Interim evaluation of the project

The interim evaluation was conducted from February to March 2007. The partner universities submitted a progress report and a proposal for the 2007-2008 academic year (from April 1, 2007 to March 31, 2008). The content working group members, 13 members in 2006-2007, were assigned to one of the two evaluation committees: one for the promotion projects, the other for the R&D projects. For both project classifications, three committee members will evaluate a project using the following four rankings:

Excellent (4): outstanding practice, deserving a chance to present the progress at the debriefing session

Good (3): progress as planned.

Fair (2): progress behind the initial plan; the initial target can be reached.

Poor (1): progress delayed; need to discuss possibility of cessation.

Development of measures

Measures for the assessment of IR activities were developed by a commissioned R&D project conducted by Chiba and Mie Universities. The measures primarily focus on the inputs and process. Output measures were proposed but not implemented at this time. Instead, Chiba University is now analyzing the log files of the IRs in partner universities to establishing a standard for output measurement.

There are four aspects for the evaluations: system, institutionalization, marketing activities, and input. The first two areas were evaluated to check the progress and project scheduling, while the latter two tried to assess the efficiency and effectiveness of operations with the consideration of future combination with the output measures.

Results: Expansion projects

All the universities have made reasonable progress. Some are still on the way towards system installment, but their IRs are expected by the end of the project term.

Contents created in expansion project

	2006	2007 (planned)
Journal articles	12,592	26,183
Theses and dissertations	4,469	11,752
Bulletin articles	98,356	47,904
Conference papers	761	1,647
Presentation materials	240	494
Books	673	340
Technical reports	251	387
Research reports	3,355	7,037
General articles	1,546	1,333

Preprints	274	1,065
Learning materials	476	710
Data	766	60,347
Software	0	5
Special collections	89,121	87,239
Total	212,880	246,943

Nineteen universities with experience in the 2005 pilot project had more items, while the other 38 partners also accumulated a considerable amount of content.

Year	The number of new partner universities	Average amount of content prepared		
		2006	2007 (planned)	Whole term
2005	19	11,072	12,438	23,510
2006	38	2,110	2,403	4,513
Total	57	5,097	5,748	10,845

The average personnel cost for an IR installation and operation in 2006 was 1.2 FTE.

Software

The following table shows IR software distribution in Japan.

	Software	Number	Universities
1	DSpace	34	Hokkaido, Tokyo, Nagoya, Kyoto, Kyushu, etc.
2	NALIS-R	8	Tokyo Gakugei, Tokyo University of Foreign Languages, Kagoshima, Ryukyu etc.
3	eRepository	3	Osaka, Hiroshima, Shimane
4	XoonIps	3	Asahikawa, Saitama, Keio
5	Infolib-DBR	2	Kobe, Yamaguchi
6	iLisSurf e-Lib	2	Kanto Gakuin, Doshisha
7	In-house development	2	Chiba, Tokyo Institute of Technology
8	Digital Commons	1	Okayama
9	ePrints	1	Okayama
10	GlobalBase	1	Toyo Note: GIS software
11	Not decided	1	Fukushima
	Total	58	Note: Okayama University operates two IRs

DSpace is currently pervasive, while the result also reflected the fact that some library system offers IR function as an optional feature.

Personnel cost

In 2006, the average personnel cost to operate an IR was 1.2 FTE. Most universities run their IR by below 1 FTE.

Good practices in 2006

Hokkaido University: The IR, HUSCAP, held 12,770 full-text contents as of February 2007,

as a result of excellent marketing efforts. Its items are downloaded about 40,000 times a month on average. Monthly reports of the number of download for each item are sent to each author. <http://eprints.lib.hokudai.ac.jp/index.ja.jsp>

Chiba University: The IR, CURATOR, is the oldest IR in Japan. According to the so called principles of Principled Promiscuity, it accepts any type of academic information as content and extends its function to serve e-science. CURATOR became the first partner IR of Scirus in Japan. <http://mitizane.ll.chiba-u.jp/curator/index.html>

Ochanomizu University: Incredible marketing efforts in 2006 both by the university executives (the president and the other board members) and the librarians ended up with a result where almost 100% of the faculty members have deposited at least an item for launching its IR, Tea Cup.

Shinshu University: The IR, SOAR, is placed as a part of the integrated system for academic dissemination. It links not only internally to the faculty performance database, but externally to the Web of Science. It is also equipped with LDAP. Users can access from the search results of research outputs to the authors, and vice versa. The base system is DSpace, and the other system components are publicly available as open source software. <http://soar-ir.shinshu-u.ac.jp/dspace/index.jsp>

Mie University: Thanks to a strong connection to the faculty members that the university library has established through information literacy education, positive user response to the briefing sessions of the IR has lead to the accumulation of more than 1,000 items in its first two months. <http://miuse.mie-u.ac.jp/>

Hiroshima University: Hiroshima University launched a user community for the E-repository, the software developed in Japan and currently used in Chiba, Osaka, Shimane, and Hiroshima. It developed various marketing strategies for each item type. <http://ir.lib.hiroshima-u.ac.jp/portal/>

Waseda University: The IR has developed a unique collection, which includes the educational contents of Ainu language and culture as well as documents from the university founder, Shigenobu Okuma. <http://dspace.wul.waseda.ac.jp/dspace/index.jsp>

Movement towards regional repositories: Movement towards consortium repositories with other universities and colleges in the same area began in Hiroshima and Nagasaki to form the area studies subject repositories, and Okayama University (<http://eprints.lib.okayama-u.ac.jp/>) worked together with Okayama Prefectural Library to present *Digital Okayama Encyclopedia* online (<http://www.libnet.pref.okayama.jp/mmhp/>). Some other universities have followed this trend.

Evaluation of R&D projects

Because of the divergence of 22 projects in 2006, setting uniform evaluation checkpoints seemed impractical. Each project submitted a written interim report, which included some basic information (project name and website address), a short description of the project, timeline, budget allocation, project achievement in 2006, and plan for 2007 with a budget estimation.

In the evaluation process, two aspects were underscored. First, the outgrowth that effects

other academic institutions, not just those in charge, was highly expected. The other is the feasibility of the future plan in 2007 and after. Moreover, the progress of each project was compared to the initial plan submitted in June 2006 during the evaluation process.

The following six projects made excellent progress in 2006.

AIRway (Hokkaido, Tsukuba, Nagoya, and Kyushu Universities): The project develops an interface to link resolvers. http://airway.lib.hokudai.ac.jp/index_en.html

Digital Repository Federation (Hokkaido, Kanazawa, and Chiba Universities): The project activates the IR community in Japan to run a mailing list and a wiki. <http://drf.lib.hokudai.ac.jp/drf/index.php?Digital%20Repository%20Federation>

XooNIps library module (Keio University): XooNIps is an extension of Xoops, a community-site application, for neuroinformatics. The project develops a library module to utilize XooNIps as an IR. The Asahikawa and Saitama Universities, and the Agriculture, Forestry and Fisheries Research Information Center have already used the open source system. <http://sourceforge.jp/projects/xoonips-library/>

Copyright policy database (Tsukuba, Chiba, and Kobe Universities): The Japanese-counterpart of the SHERPA project offers a copyright policies database for Japanese academic societies. <https://www.tulips.tsukuba.ac.jp/scpj/>

Evaluation method (Chiba and Mie Universities): The project developed the measures. The input and process measures were adopted to evaluate the expansion project in 2006.

Integrated search of on-campus scholarly information (Kyushu University): The project is developing a user interface not just of the IR, but also other educational resources and research data.

Project integration and reorganization

During the interim evaluation process, the project's integration and reorganization were discussed to maximize the outcomes of the initiative. Similar projects are to be integrated; low influence to other academic institutions both in system development and content accumulation. For example, subject repositories, taken as research and development projects in 2006, were classified to a part of the operational projects.

As a result, nine projects have been continued in 2007:

- Integration and presentation of contents of various types (Kyushu University)
- Connection to faculty performance database (Kanazawa University)
- Digital Repository Federation (Hokkaido University)
- IR community development (Chiba University)
- Connection to link-resolvers (Hokkaido University)
- Copyright policy database (Tsukuba University)
- XooNIps library module (Keio University)
- IR evaluation methods (Chiba University)
- T2R2: Unified academic information system (Tokyo Institute of Technology)

Two new projects have been proposed in connection with the center of scholarly information resources at NII. First, the legal and operational aspects of electronic dissertations and theses in institutional repositories must be adjusted and discussions are now ongoing. A progress report will appear as our presentation at ETD 2007 (Sugita and Murakami 2007).

The research data in IR is another topic for 2007. NII is also leading another initiative on e-science, and 21 projects were commissioned to universities in 2006. No close communications were conducted in 2006.

2007 and future

57 universities continue to work for smooth operation of IR and content accumulation; and 9 R&D projects run in 2007 as mentioned in the last section. New partners for the promotion projects were called upon in March 2007. The application deadline is April 25, 2007, and the selection process will end before the IATUL 2007 conference. Our presentation will include updated information. The budget for 2007 is 260 million Japanese Yen (\$2.2 million USD).

The initiative will be ongoing until March 2008, when 60 IRs are expected to begin operations. The evaluation method used in 2006 will be extended in 2007, in particular with output measures.

Possible interaction between the IRs and NII's another initiatives for e-science will lead to the next generation scholarly communication framework.

Appendix: Checklist for expansion projects

System	Date of system choice, software Installation Date of NII harvesting Experimental release date Release date Cost: Initial and Maintenance Development Notes
Institutionalization	Agreement of board meeting Documentation of IR implementation Documentation of operation regulations University-level committee to implement and operate IR Administrative structure to implement and operate IR
Marketing activities	Release memorial event Briefing sessions for researchers Individual briefing Presentations: at international and domestic workshops Organization and hosting of workshops Registration to repository directories (DOAR, ROAR) Registration to search engines (OAIster, Google Scholar, Scirus etc.)
Input	Increase number of contents by types Overlay journals FTE Tasks carried out by regular member Cost of contents (digitization, metadata) Other personnel costs Number and percentage of faculty members who deposit contents

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