

# **ACADEMIC KNOWLEDGE FACTORY**

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## **ABSTRACT**

The increasing amount of scholarly information makes it hard for management of digital collections. In Japan, The most important issue in the universities is its accountability of academic activities. This article provide an overview of Academic Knowledge Factory. AKF is the digital library which manages the information resources. The main focus of the project has been developing a kind of institutional repository to hold content ranging from peer-reviewed published papers to theses, course materials and archives. Finally, we provide some programmatic direction for the institutional repository research streams.

## **INTRODUCTION**

The environment of higher education institutions have changed rapidly. Information technology, communication and the popularization of electronic journals have been made influence on what information activities in many academic categories. The trend in international businesses has also changed, which is causing the oligopoly phenomenon in the academic publishing activities and the rising prices. On the other hand, advancement in the technology of information searching by the end user, the search engine like Google, the simple, fast and seamless way of information searching have greatly made influence on the research and education activities. In Universities, it is necessary to use information technology effectively and economically and develop it as the advanced higher education institutions. Academic library is the organizations which offer human and physical information. For example, Libraries collect materials and information resources, and systematize and preserve them. Libraries also offer materials and resources and the places to study and research to the users and do reference and information services when they need. The purpose of academic libraries is the support for the member of universities using various materials.

## **DIGITAL LIBRARIES IN JAPAN**

In Japan, Academic libraries are divided into three by the establishment body; national, public and private. They are influenced by the body of each university. Recent increase of scholarly information and the change of scholarly society, the progress of the information technology and communication, the

problems of economy, the change of student character and internationalization also make great influence on academic libraries.

The introduction of computers to academic libraries work started in 1960s. In 1968 it was discussed by the Project team of Mechanization of National University Libraries, then mechanization of academic library work started in Osaka University and Gunma University. In private universities, library system started in Kyoto Sangyo University in 1968 and Keio University and Nanzan University started to mechanize the housekeeping. This introduction seems to have been done individually.

In 1986, NACSIS: National Center for Science Information System was founded. NACSIS has offered bibliographic utility and became the driving force for drastic computerization in the world of academic library. NACSIS was reorganized in 2000, It has become NII: National Institute of Informatic. Now NII has been working on NACSIS-CAT and NACISI-LL, NACSIS-IR, NACSIS-ELS, NII-REO and NICE. In addition to that, it is arranging and developing scholarly information base and informatics like scholarly information and scholarly information system. And also it is building metadata database and working for SPARC/JAPAN and educational studying activity.

Academic libraries are changing their function from just as an important roll within college and university to all the intellectual activities inside and outside Japan; now the base of informational communication like scholarly information network and LAN are being sophisticated and arranged rapidly in colleges and universities. In this situation, academic libraries have a roll to contribute not only to the needs in a university or educational organization but also to all the people's intellectual activities and have started to satisfy the needs. What the most important is, needless to say, the progress of function which each college and university has.

Many policies about the digital libraries have been done mainly by National University Libraries. Still there's a delay in many points. Although in Japan many information resources on educational research are mainly in universities, most of them are dispersed and not standardized. Therefore we have a trouble in checking whether they exist or not and also where they are.

NII has been constructing "GeNii", *the National Institute of Informatics academic content portal*, basing it around the core of content provided by the existing services and adding a search system with enhanced usability, and also including external links<sup>1)</sup>.

GeNii is the NII's academic content portal, providing services related to provision of academic paper information, book information, etc. In addition to providing these individual services, GeNii connects the services together.

The GeNii integrated search system was officially launched on April 1 2005, including some of the services already made available on an experimental basis and incorporating integrated search of the various services. Especially *Academic Information Resources at Universities* is the portal service for the academic information resources. However the number of their registration is still small. This is due to the reason that the operations by hands are difficult and also the motivations are low between informers and users because of unexamined data on the site.

Universities should essentially be the factories of intelligent sources of knowledge. However they

cannot collect, organize and send the sources well by fully using information technology.

To break this situation and use academic information of universities, which have a function to be useful for international competition and local contribution. Nagoya University Library is planning to build the system “Academic Knowledge Factory” cooperating with Information Technology Center and Center for Information Media Studies. It is the system of using academic sources that have the function of highly digitalized library to use University Portal.

### SERIALS CRISIS AND ACADEMIC LIBRARIES

Since 1970’s the rise of scholarly journals’ price is the big problem for the academic libraries. The oligopoly by some commercial publishers have influenced the education and research activities of the universities.

## Serials purchase budget and titles

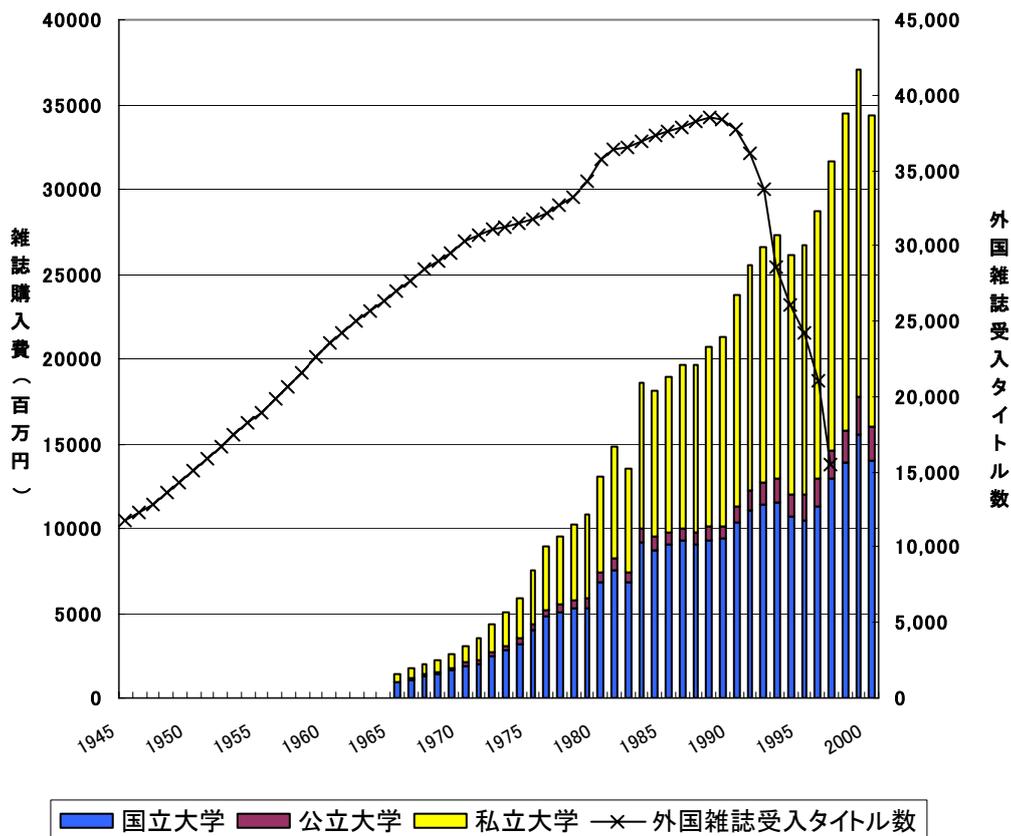


FIGURE 1 Serials Purchase Budgets and Titles in Japan

In 1989 the number of scholarly journals' title in all the academic libraries reached 39,000. However the high price of scholarly materials continued consistently. (FIGURE1) According to Association of Research Libraries (ARL), the price of scholarly books got high by 34 percent, and the price of scholarly journals did by 140 percent during 4 years from 1986 to 2000. Most of academic libraries in Japan had to reduce buying materials. As a result, the number of scholarly journals' title decreased rapidly. By the report in 2000, the number in 1997 was under 20,000.

Regardless of National, Public and Private Colleges and universities, there's a big problem of fiscal austerity and a jump in material prices. Especially, that is occurred when they buy foreign journals. The proportion of foreign journals in the budget of academic libraries is high. In some medical type libraries, the proportion is over 90 percent. Also in university libraries, the proportion is high.

The development of the electronic journals contributed to the efficient research activities for researchers, but the problem of the rise in prices of scholarly journals is not solved with it. It is a big problem of the University or the library.

Since 1977 Foreign Journals Center has made effort to collect rare scholarly journals, sharing them in 9 national academic libraries. And what's more, using NACSIS-CAT and NACSIS-ILL, it has built the mutual cooperative system like in covering the price of copying a document. In 1989 the number of scholarly journals' title in all the academic libraries reached 39,000.

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## **THE IDEA OF ACADEMIC KNOWLEDGE FACTORY AND ITS FUNCTION**

Recently, to solve the problems, various approaches have been done. Above all, open access movement in scholarly publishing is expected much by the researchers and people concerned with scholarly information. "The Institutional Repository" which is the digital repository of products of academic institutes, is positioned as the core function of open access movement. Nagoya University Library is planning the Academic Knowledge Factory to spread digital scholarly informational distribution widely and make it enhanced and the Institutional Repository.

Academic Knowledge Factory is based on the three ideas, that is, to open the development and effect of academic information system in universities, to be standardized as the international one and to cooperate with other academic organizations. This is the information system which has a distribution function to collect, organize, process, repository, disseminate and feed back the scholarly information necessary today. The main function is listed below. (FIGURE2)

### **(1) Harvesting Scholarly Information**

Automatically or manually we collect the valuable information resources like dissertation, electronic

course materials and the other digitalized one.

(2) Organization of academic information resources to metadata.

Identification, evaluation, classification, summary and translation of information resources (3)

Dissemination of scholarly information

We search and send information with natural interactive ways through university portal.

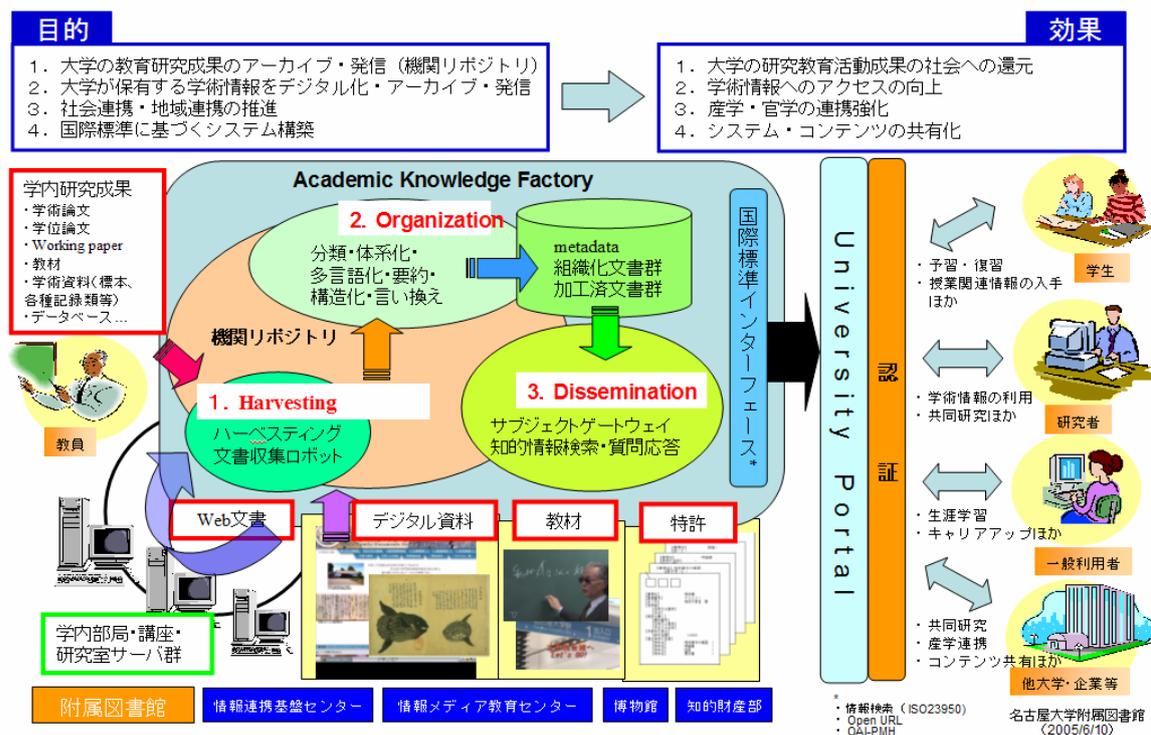


FIGURE 2 Image of Academic Knowledge Factory

### FUTURES

It's important for universities to develop, offer and make good use of the large contents which are made and owned in the universities. Academic Knowledge Factory is planned to utilize them and enhance the educational searching function of universities, which can contribute to society and open them to the community and people. Also this plan has an important function to exchange the standard data formats with other academic organization. Developing software that is based on the standard to build Knowledge Factory will bear fruits in Nagoya University. And the result and knowledge will make influence on the other universities and academic organizations. In the plan, the library will start to open *Kiyo* as a trial in the first half of 2005. Then, in the process, it will gather the system and technical know-how and at the same time, discuss the way to make it known to everyone in the university. For a full-dress use, it will also upload peer-reviewed published papers to theses, course materials and archives. Finally, we provide some programmatic direction for the institutional repository research

streams.

The policy toward the proper management and wide range of opening and sending scholarly information like the result of the research made at the university is indispensable for many universities. Nowadays, the hybrid library incorporates the values and traditions of open and free access to information, without boundaries of time or place. Students, researchers, lifelong learners and citizens are empowered because access is easy and everything they need is available digitally and seamlessly. Academic libraries in Japan are experiencing exciting as well as challenging.

## REFERNCES

1.<http://ge.nii.ac.jp/genii/jsp/index-e.jsp>