# A Case Study on the Efficient Management for Research Achievements

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## Abstract

*Researchers produce thousands of achievements and publications. To manage these achievements, institutions and universities have developed institutional repositories, providing it as a service to their users. However, these institutional repositories are limited in their ability to spread the news of the university's accomplishments. Furthermore, they are commonly not used for evaluations and assessments within an institution. After much consideration, the KAIST library, wanting to increase the satisfaction of professors, students and administration staff, decided to add diverse functions such as Journal Impact Factor (JIF), citation, ResearcherID etc. to their new research management system. This paper introduces the KAIST library as case study of efficiently managing research achievements. This paper suggests that other libraries have the opportunity to raise their competitiveness through similar techniques.*

**Keywords:** *Institutional repository, KAIST, KOASAS, Research achievement management, ResearcherID*

## 1. Introduction

   All researchers strive to write excellent academic papers and publish them in the best journals. Many institutions and universities have developed an institutional repository or have plans to develop one in the future. These repositories promote researchers and professors who have influential articles and outstanding research achievements and distribute their work. However, the data in an institutional repository is not used for statistical analysis or evaluation assessments such as promotions. Therefore, this study suggests a business area and influence expansion plan of a library by introducing the system that the KAIST library developed. This includes an institutional repository and adding various necessary features that draws even staff in administration departments as users to the library.

## 2. Start of an institutional repository service – KOASAS

   Early in 2000, as an open access movement spread all over the world, some institutions and universities quickly developed a repository for their digital resources. The most representative system of this is DSpace, which is an open digital repository. At the time, the library's main concern was that it emphasized the importance of the role that libraries systematically collect and manage the research achievements produced in the organization and offer it as a service to the outside.
   KOASAS (KAIST Open Access Self-Archiving System) of KAIST was the first system developed with this vision and goal in mind. In 2002, MIT and HP co-developed an institutional repository software system called DSpace. In 2007, KAIST was the first Korean University to adopt DSpace, customizing it to meet the specific needs of KAIST. This system is called

KOASAS. KOASAS is a digital repository that is available to everyone for free to read articles based on the open access self-archiving system of researcher achievements published by KAIST professors. KOASAS helps diffuse professors' research achievements, increase citation numbers and improve the image of KAIST by increasing its ranking in webometrics. As a result of this constant effort until 2008, data such as articles and proceedings published by KAIST professors added up to a base that has become stable and viable to offer as a service.



**Figure 1. KOASAS front page**

Through the Open Archives Initiative (OAI) service, the information in KOASAS has been found via Google, Naver and other search engines. Furthermore, availability has reached a significantly high level. Adopting the Handle System allows users to easily move, access and use the information. Utilizing Google Analytics allows KOASIS to provide users with statistical information.
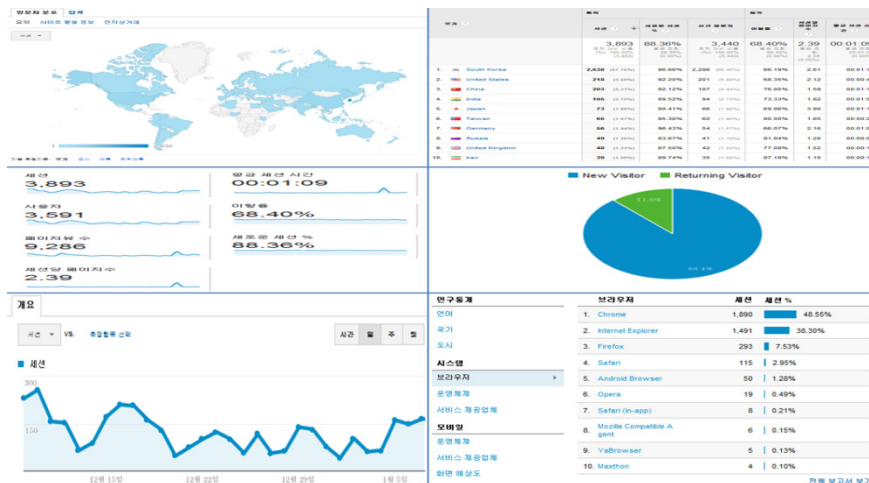


**Figure 2. Google analytics for KOASAS**

## 3. Change to support management for research achievements – RIMS

An institutional repository depends greatly on the voluntary participation of professors. In other words, professors uploaded their articles and proceedings to KOASAS manually. Thus, KOASAS also has a high level of dependence on professors. The KAIST library did not receive the voluntary support from 100% of KAIST professors. Thus, it was hard to say that the KAIST library manages all of the research achievements produced by KAIST. For this reason, in order to minimize that dependence on the researchers and faculty members and systematically manage the achievements, KAIST started to develop RIMS (Researcher Information Management System) in 2010. RIMS is a system that collects, registers, maintains and utilizes the publications of faculty members and researchers.
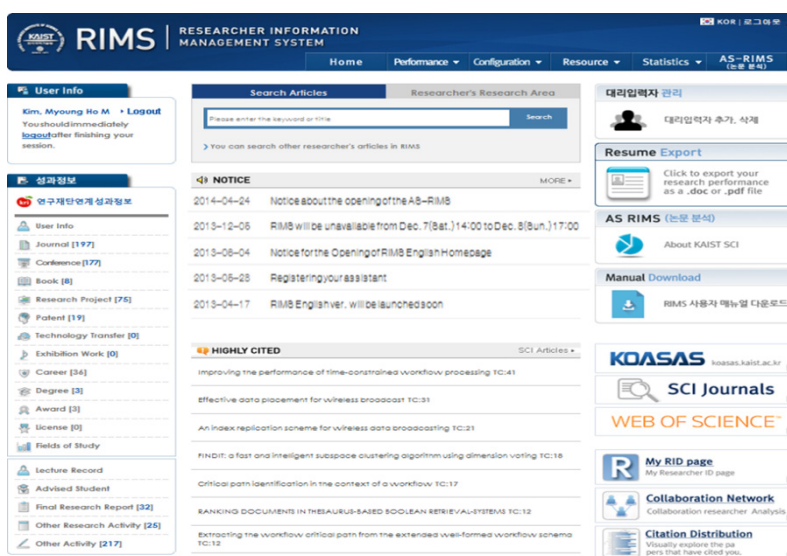


**Figure 3. RIMS front page**

RIMS, launched in June 2012, changed the way that administrators collect and enter research achievements for professors. Data is entered in advance and professors confirm the data that administrators entered to RIMS. This saves professors' time from having to manually enter and manage their achievements and enables them to concentrate more on their research. Once the data on new articles is entered to RIMS, it is capable of automatically collecting their citation and Journal Impact Factor (JIF) from the citation databases such as Scopus and Web of Science. Professors can see their citation information in RIMS and it is updated weekly. It is also capable of systematically archiving and spreading the publications through linking with ResearcherID (Author Identifier) and the institutional repository (KOASAS). This 'one source, multi use' purpose is to avoid repetitive tasks such as data entry and submission of the same data to other systems, utilize publication data for various evaluation purposes, and spread the word of publications. RIMS manages a total of 17 items including journal articles, conference proceedings, books, research projects, patents, transfers of technology, lecture records and advised students. Professors can see their all of their achievements and administration departments can utilize the data for various evaluations and assessments through the RIMS system.

Moreover, it is linked with KRI (Korean Researcher Information) of the NRF (National Research Foundation of Korea) for being utilized as the information on college information disclosure and research application.
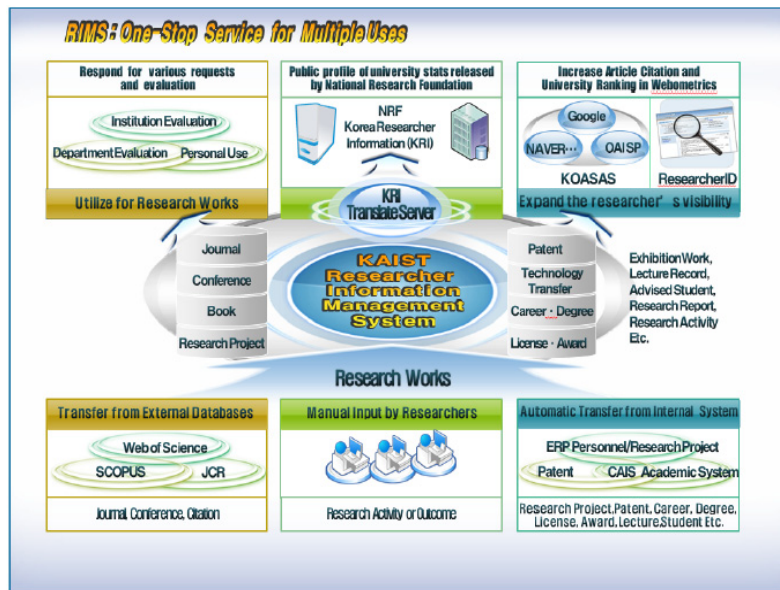
**Figure 4. RIMS diagram**


## 4. Management of research achievements using author identifiers – ResearcherID

The KAIST library has realized the necessity of adopting an author identifier and established policy by providing an institutional strategy to apply ResearcherID to all professors. The administrator of RIMS assigned a ResearcherID to all professors at the same time (Figure 5). ResearcherID is an identification system for scientific authors introduced in January 2008 by Thomson Reuters. ResearcherID provides a solution to the author ambiguity problem within the scholarly research community. Each member is assigned a unique identifier to enable researchers to manage their publication lists, track the number of times they have been cited, track their H-index, identify potential collaborators, and avoid author misidentification. With the introduction of ResearcherID, researchers can be accurately identified and various statistics and metrics can be extracted by researchers, institutions, countries and publication networks.



**Figure 5. How to assign a RsearcherID in RIMS**

## 5. Differentiated service by providing analysis information - AS-RIMS

Institutional upper-management and the deans of each department wanted a higher-level view of the data in RIMS. In order to meet their needs, in 2013, the KAIST library started a project called AS-RIMS (Analysis-Service-RIMS). AS-RIMS is a system designed and developed to offer analyzed information to individuals, departments, colleges and institutional upper-management. This statistical information is visualized through various types of diagrams such as charts and graphs. Through this, they can see various analyzed information on individual researcher's publications such as the number of publications, keyword Cloud, H-index, JIF, the sum and average of citations, co-researcher network by departments, colleges, institutions, and other types of information. With this, the administrative department's view on the library changed and staff satisfaction of the management of research achievements has also increased.



**Figure 6. AS-RIMS**

## 6. Evaluation of RIMS and AS-RIMS via a satisfaction survey

The KAIST library conducted a survey for 2 weeks in November, 2014 to evaluate RIMS and AS-RIMS and evaluate user satisfaction. The target users consisted of all users of RIMS and the purpose was to use the results of the survey to improve the interface and functionality of RIMS. The contents of the survey consisted of questions related to the RIMS interface, velocity, librarian attitude, data reliability, availability by research achievement, awareness of functionality and linked systems, improvement requirement as well as any other comments users may have had. The survey results showed that 82% of all users were satisfied overall with RIMS. 81% of all users answered that RIMS is helpful in managing research achievements. In addition, some professors stated that they spent less time submitting their research achievements and it is capable of easily spreading publications. Some administrative staff also stated that it is easy to extract necessary data for various reports since the development of RIMS.

## 7. Conclusion

Generally, cooperation and collaboration between libraries and administrative departments is low because a library mainly provides reference services on books and journals to users. For this reason, a library doesn't exist at the center of an organization, but at the edge. Thus, a library requires a lot of effort to draw professors, students and even staff in administrative departments as users. The KAIST library, though these systems, has created a higher respect for librarians as a profession and has expanded KAIST library's stature by incorporating research achievement management as part of its normal operations. There are a few libraries that have developed an institutional repository or have a plan to develop one. If institutions and universities are considering attracting and supporting the cooperation and collaboration between libraries and administrative departments that is not limited from developing and providing services when an institutional repository is developed, libraries will be able to provide a high-quality service to users. The ability to manage research achievements of librarians can be utilized in various ways. As in this example, KAIST library made efforts to raise their competitiveness by expanding their business area into research achievement management. Thus, the role of a library in an organization has an opportunity to be even more important if the library strives to expand their existing tasks into other business areas.

## References

KAIST. (2008). "KOASAS." KAIST. http://koasas.kaist.ac.kr.
KAIST. (2012). "RIMS." KAIST. http://rims.kaist.ac.kr.
Thomson Reuters. (2008). "ResearcherID." Thomson Reuters. http://researcherid.com.