Research on IR-construction of Shenyang Aerospace University Library

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Abstract: This paper introduces the present situation of construction of institutional library in China, and puts forward the idea and content of construction of institutional library of Shenyang aeronautics and Astronautics University based on the actual situation of Shenyang Aerospace University.

The concept of institutional knowledge (IR) was first proposed by Raym Crow in 2002[1] later, it was widely concerned by the library community. The institutional bank is an important part of open access and a service platform for educational and scientific institutions to store their academic research results and intellectual assets. The library further promotes the transformation of services through the construction of institutional knowledge bases and services. In terms of boosting scientific research and supporting decision-making management, the library gradually begins to present information collection and utilization, as well as cross-departmental information sharing and collaboration, and realizes service expansion and transformation.

1. The Present Situation and Problems of the Construction of Institutional Knowledge Base in Colleges and Universities.

According to the distribution of the institutional knowledge base listed on the Open DEAR on November 11, 2016, China has 103 institutional knowledge bases, including 34in mainland China, 9 in Hong Kong and Macao, and 60 in Taiwan. Of the 34 included in the mainland region, 26 are the institutional knowledge base of the Chinese Academy of Sciences system, and 6 are the knowledge base of university institutions [2].In fact, in recent years, China's institutional knowledge base has developed rapidly, and the number in far more that. However, due to the fact that Open DOAR is an English-language website established by foreign institutions, the ability it discover many institutions' knowledge bases built in Chinese-based languages in China is limited. As a result, many established and fully functional institutional knowledge bases have not been counted.

2. Ideas and Principles for Building an Institutional Knowledge Base.

The institutional knowledge base can realize the knowledge asset management, dissemination and the use of knowledge assets to carry out outreach services, adopt the bottom-up construction model, and be initiated and implemented by the library as the lead. Combining the resources or departments that have special or representative characteristics in the organization as a pilot and demonstration, focusing on construction, publicity, and promotion, it has been recognized by relevant functional departments within the organization (such as scientific research management departments, graduate schools, etc), and has won support from the management and decision-making levels of the organization. Under the policy requirements and guidance of the functional departments, the institutional knowledge base system platform with its own characteristics will be built. Based on the integrity of the system architecture, the system construction must follow the following principles:

2.1 Comprehensive and Systematic Principles.

As a repository of institutional knowledge assets, the institutional knowledge base needs to be

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systematically and comprehensively preserved, organized and disclosed for the various types of knowledge assets generated and owned by the institution in order to promote the preservation, dissemination, use and management of knowledge assets. At the same time, from a systemic perspective, the institutional knowledge base need to achieve long-term preservation of knowledge assets in different formats, versions, types, and sources.

2.2 The Principle of Openness.

The institutional knowledge base of the project, while preserving knowledge assets, and more importantly, promoting the dissemination, use and management of institutional knowledge assets and enhancing the impact and academic reputation of the institution, needs to be open to the principle. Ensure smooth access, retrieval, browsing and acquisition of the institutional knowledge base's own data and information. Achieve integration with external data and information, and share data and information with related systems. At the same time, the institutional knowledge base should be scalable and be able to continuously improve and enrich the asset types, performance forms and service functions of the institutional knowledge base according to the needs of users, achieve custom or modular functions, ensure its openness, flexibility and advancement, and achieve sustainable development.

2.3 Authoritative Normative Principles.

As one of the information infrastructure of the school, the institutional knowledge base needs to ensure the authenticity, accuracy and authority of the data in the process of building to preserve, disseminate, share and utilize the institutional knowledge assets. At the same time, we need to standardize the storage, description, organization and management of the various types of assets involved, taking into account the normative principles and the provisions of laws, regulations and policies, so as to ensure the quality of the building of the institutional knowledge base and achieve efficient utilization. It also ensures that the content and results of the institutional knowledge base are protected by legal policies and that the benefits of results are maximized.

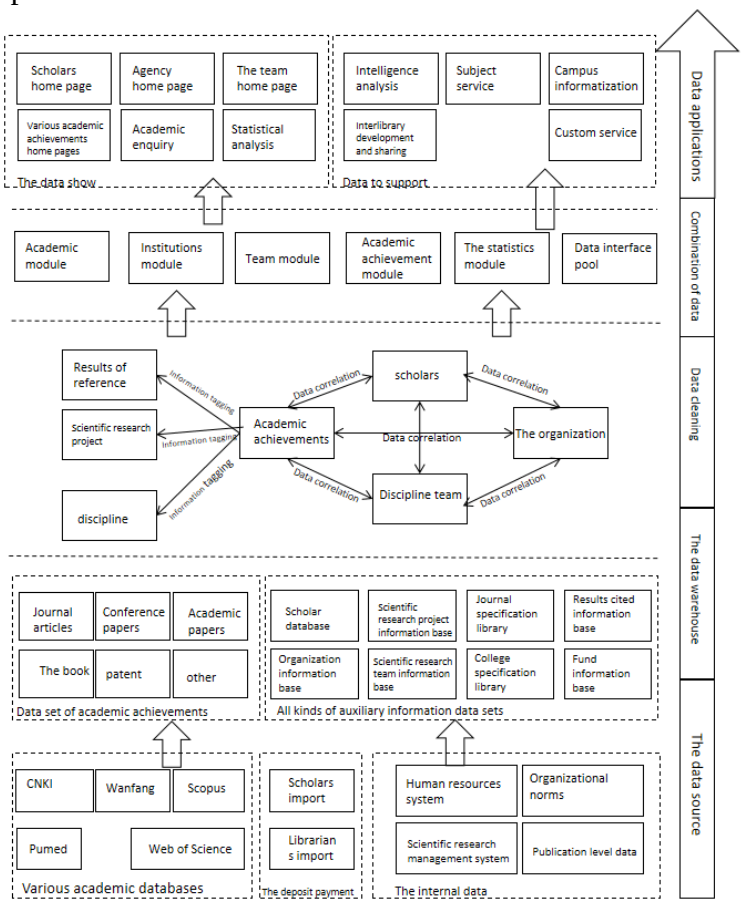

Figure. 1 System architecture description

3. Construction of Institutional Knowledge Base of Shenyang Aerospace University

According to the assumption of the notes, the content construction of the institutional knowledge base of our school includes data warehouse platform, results claim platform, results retrieval and display platform and results Association, excavation and statistics.

3.1 Data Warehousing Platform.

According to the collection, management and sharing of various types of knowledge assets in the school, the data warehousing function is the basic function of the institutional knowledge base, and it can store different types and different formats of academic achievement resources as the basic elements of system services. It is necessary to build a data storage system with extensibility and harvest the related data resources of the organization.

3.2 Results Claim Platform.

The system should support the automatic harvesting method, support the automatic harvesting and automatic cleaning of databases from mainstream information sources, and establish a results-based claim mechanism to ensure the accuracy of the harvesting of results, which mainly includes many functions:

Self-deposit method: The author can supplement other deposit results based on the metadata template to support bulk import Third party deposit: The author can entrust others to deposit the results through the system, and the same result type supports batch import.

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Results to heavy: develop a complete strategy and automatic implementation, but also allow a small number of results to be manually reviewed to clean up and heavy. (At least to the hospital, department; Level, etc.).

3.3 Results Retrieval and Presentation Platform.

As the front-end service platform of the enterprise knowledge service system, the search and display of results should be designed and developed in terms of convenience of retrieval and diversity of results. The specific functions need to be as follows.

Dividing and browsing: Supporting data classification management of mainly defined fields, realizing multi-dimensional, multi-channel, and multi-way browsing for various types of knowledge assets.

Type of search: Support simple search, advanced search, secondary search and other search methods, support for multiple dimensions and multiple methods of screening, sorting and exporting results according to different conditions.

Degree display: In addition to displaying according to the various fields of the publication , it is also necessary to provide academic resume , academic trajectory display , academic display of departments and institutions , and display of scientific research activities. In addition , it can flexibly combine various description fields , perform multi-dimensional and multi-angle statistical analysis according to needs , and automatically complete basic academic statistics , academic contributions , trend judgments , and other basic analysis functions of basic academics/departments/teams. Visual presentation.

Customization of resources: Users can customize results resources based on the research areas that they focus on. Customization patterns include RSS and so on.

Visualization: It has visual data representation and supports text format export; Support multi-dimensional statistical analysis and visual display of academic information related to scholars, institutions, and disciplines. Provides visual data analysis tools that support custom data field drag analysis mining and support custom icon display.

3.4 Link, Mining and Statistics Of Results.

On the basis of data, the system should provide an innovative function of association of results,

and data mining and statistics of results can be carried out, in order to provide an authoritative evaluation basis for the development of scientific research and statistics of results in schools.

3.4.1 Data Heavy

The process is that after the data is checked, the data is reloaded according to the rules set in the previous source library, and the rule setting can be set by the librarian himself, and the multiple processes that can support the data are currently reloaded. That is, the rules are different according to different data. After the data is checked, the data is patched by default, and the merged field is retained as a field replacement according to the established template.

Data is re-divided into homologous data to heavy, and heterogeneous data to heavy. The reloader rule can be configured by the librarian. After the configuration is completed, a reloader side similar to the formula is formed. When the configuration is finite, it can be called directly.

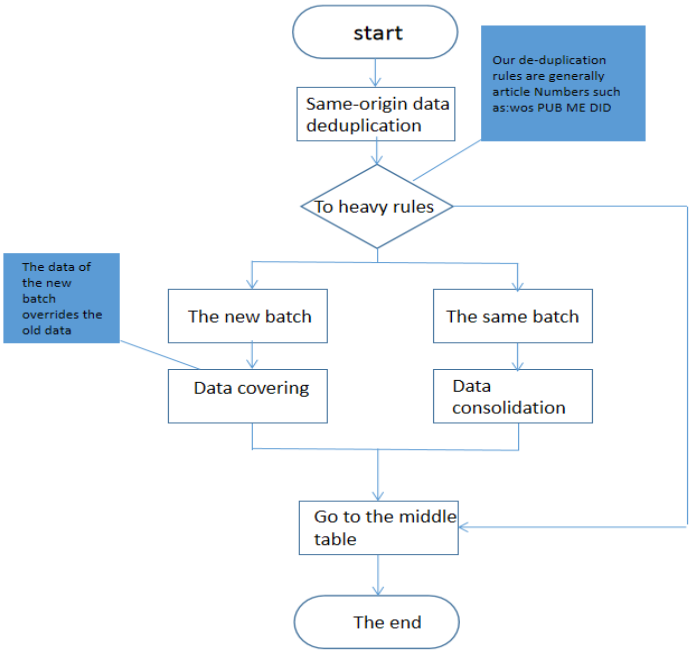

Figure. 2 homologous data to heavy

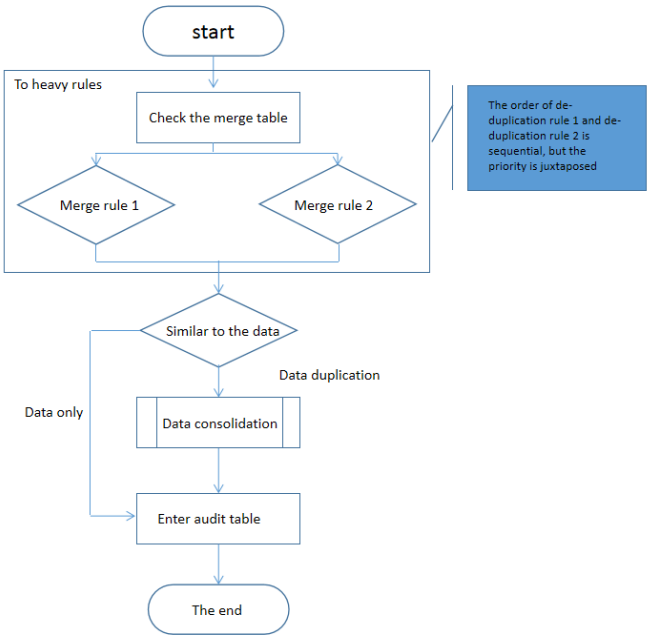

Figure. 3 heterogeneous data to heavy

3.4.2 Segment of data

There are many fields in which data can be divided. For example, the author's bit information, by reading the separation between each author in the data, performs the output of the author's bit number, the number one default is the first author, and the data is divided. Automatically merge the information into the data table.

The platform should be custom developed using the segmentation rule and custom development of the output field. The additional segmentation fields include: the number of individual posts, the number of individual posts, and the like.

3.4.3 Data linkages

Results data association: Based on results data, compatible with the CERIF model, providing a wealth of resource expressions, including dynamic relationships between people and publication information, people and institutions, people and various teaching and research activities. Through data mining or statistical analysis, it embodies the catalogue and clustering of results of organizations, teams, and individuals. At the same time, it can provide links for the author's scientific research collaboration, institutional scientific research collaboration, project collaboration, results citation, and specific fields.

3.4.4 Data management

The system management module functions such as data exchange, role definition, and permission control between system modules. It is divided into integrated unified authentication, role setting, and data sharing management.

References

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[2] Zhu lilu, Song Shijun, Wang Lin. The Development Status of Worldwide Institutional Repositories and Some Corresponding Measures [J]. *Journal of Modern Information* 2017, 37(03), 109-115.