

Development of OA abroad and its inspirations

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Abstract: This study introduces the concept and characteristics of open access (OA), analyses the status quo and development of OA in foreign countries, and discusses its inspiration to its future development in China.

Key words: open access; OA abroad; development; inspiration

Open access (OA), is a new concept concerning academic exchange and exchange mechanism lately developed under internet circumstances, which aims at achieving free preservation and access of academic information through network. Since the late 1990s, open access has entered, from the stage of discussion and proposal in theory, into the stage of experimentation in practice. Many counties have taken various measures to initiate relevant plans to maneuver development of open access.

1. The concept and characteristics of OA

With increasing use of internet, open access, a relatively new concept which has emerged in recent years, has received extensive concern. Budapest Open Access Initiative defines: The so-called open access is a process of free access to information through the public network. OA allows any users to read, download, copy, transfer, print, retrieve, and obtain the full-text information online, allows hyper linking and indexes for uses as the input data to software, or for any other legitimate use, without economic, legal, and technical restrictions. But OA should ensure authors' right to control the integrity of their works and that the works are properly accepted and quoted. Therefore, there are two basic meanings of OA: (1) It means academic information open to the public free of charge, which breaks the price barrier; and (2) It refers to the availability of academic documents, which breaks the barriers to the use of authority.

OA has the following main features: (1) In terms of content, OA only has quality control of specific information to be exchanged, rather than strict limitations to its content and form; (2) In terms of preservation and retrieval of information, OA emphasizes the importance of open communication, which means the same information could be retrieved and read through a variety of ways in the wide range of the entire internet. Therefore, it is required that all systems relating to OA should have good compatibility and interoperability in order to reduce barriers to access by means of no charge or charging for a small amount of fee for uses; (3) In terms of permission, readers' authority to use academic documents is greatly expanded; (4) In terms of communicating, efficiency and ways of its realization, OA lays high emphasis on improvement of the direct communication and interaction between the information source and the end users, which would help to achieve one-to-one, one-to-many, and many-to-many interactive modes for communication among authors, readers, and editors. In addition, OA also attaches importance to advancement of the timeliness of academic exchanges to

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promote automatic dealing of documents so as to shorten the publishing cycle; (5) Instead of being paid by readers or users, it is the originator (author or academic institutions) or organizations of the work that should pay for readers' uses because their works target to publication rather than accumulate fees for using it, thus, data use would become even more popular; and (6) Copyright of works should be reserved to the originator instead of the publisher, allowing readers' unrestricted reading, downloading, copying, sharing of their works, etc., only with the exception that some works should be prohibited from commercial reuses.

2. The status quo and development of OA abroad

2.1 Technology: OAI-based metadata acquisition mechanism, quality and quality control of metadata

The first issue that OA should address is to improve the interoperability of metadata systems. By doing so, academic documents published online are no longer limited to platforms, applications, disciplines, national borders and languages, but could achieve wide circulation among users. In January 2001, open archives initiatives (OAI) released a protocol called Open Archives Initiatives Metadata Harvesting Project (OAI-PMH). With a metadata-based framework for interoperability which is independent of specific application, OAI-PMH provided a viable solution to the problem of interoperability of metadata systems online. OAI-PMH has good open applicability, under which users use OAI to retrieve data in the resources of OA even without the knowledge of its types, storage location and content areas. Under the influence of OAI, the United Kingdom Joint Information Systems Committee (JISC) initiated Focus on Access to Institutional Resources Programme (FAIR). In OA, the quality and integrity of metadata is of greatest importance to the effectiveness of sharing and using information resources. FAIR applies the Open Archives Initiatives Metadata Harvesting Project (OAI-PMH) and Dublin Core Metadata Element Set (DC) as the technical standards for quality control of metadata harvesting, which greatly ensures high efficiency of OA.

2.2 Intellectual Property Rights

Open Access ensures the protection of original works legally while in the realization of resource-sharing. Currently, the relatively common used protocol is the Creative Common License based on the national copyright law. As a new license agreement aiming at sharing of digital works as well as protecting of the creators' right, CCL retains copyright to their creators or publishers.

2.3 Software

To achieve complete OA, it is required to develop an open-source software on the basis of OAI-PMH agreement. For example, Eprints developed by University of Southampton in England, Dspace jointly conducted by Massachusetts Institute of Technology Libraries and Hewlett-Packard, CDSware originated by European Organization for Nuclear Research, Fedore initiated by Cornell University, and etc., are all systems that support operation of open access. Most projects of FAIR program, initiated by Joint Information Systems Committee (JISC), also used open-source software. Meanwhile, the program itself has developed a number of software tools for OA. As to the evaluation and selection of knowledge base software, software must be integrated into its content, management mode, the local technical environment and settings and so on. There are many different open-source software available for creation of knowledge base. In addition to application of the already existing open-source software, FAIR program has also opened up a number of the corresponding software tools pertaining to the specific practical needs of different projects. Most of these software programs are available to users on the

websites relating to FAIR program.

2.4 Funds

Currently, OA is mainly funded and sponsored by national projects, foundations, institutions, and organizations, etc.

2.5 Two main ways of realization

There are two main ways of realization to OA: OA journals and OA repositories. Furthermore, OA repositories are subdivided into subject repository and institutional repository.

The so-called OA journals are academic journals that not to charge readers or their institutions. In other words, readers have the right to freely “read, download, copy, transfer, print, search or hyperlink the entire text”.

OA subject repositories refer to collection and storage of academic papers and research reports in accordance with different subjects, the two best known of which are e-print arXiv, for mathematics and physics articles and reports, and E-LIS (E-prints in Library and Information Science) for library and information science.

An OA subject repository is characterized by simultaneous publishing of research papers that, may be originally prepared for academic conferences or traditional print-based journals, but released in the repository online in advance. This is conducive to faster and more efficient dissemination of research results. In comparison to OA subject repository and OA journal, institutional repository is a relatively new channel to OA. However, it is clear that a university and its library are more capable of long-term and systematic access to academic documents, and therefore, institutional repository is another channel also of great importance to OA publishing.

3. Inspirations

3.1 Open access of academic resources needs co-ordination and promotion at the national level

For the purpose of development and resources sharing of OA at the highest level, it should vigorously accelerate construction of institutional repositories in the area of research organizations and educational institutions. Furthermore, the construction should be focused on resource sharing, not conflicts. Therefore, it should actively promote the construction of institutional repositories at the national level. Many countries have already launched similar programmes, such as the FAIR programme in the United Kingdom, development of institutional repository plan of Database of Abstracts of Reviews of Effectiveness (DARE) in Norway, Open Archives Initiative project (OAI) funded by Mellon Foundation in the United States, etc. However, China lacks an overall planning on OA at the national level. Presently, China has only Chinese Academy of Sciences, Tsinghua University, Xiamen University, and a few other institutions to explore the construction of institutional repositories. Consequently, OA construction at the national level should be promoted.

3.2 To pay attention to follow the mature agreements, standards, and software tools

As a technical standard for interoperability of metadata harvesting, OAI, an agreement being independent of specific application and helpful to advancement of network coverage and capacity of resources sharing, has been more and more widely used in the international community.

3.3 To focus on convergence of related projects and continues to promote their development

British FAIR plan, as an exploratory programme, well integrated some of the previous research results and resources. Meanwhile their research has also become the cornerstone of other follow-up plan forward. In order to drive forward China’s development in OA to academic resources, China should learn from studies relevant to OA

plans abroad while integrating domestic digital libraries and informatization results.

3.4 To attach importance to legal and cultural issues, promote policy and legal system building concerning to OA to information resources

One of the important and valuable experiences in implementing FAIR plan is that full attention was given to legal and cultural issues in the process of constructing the institutional repository. “Technical problems deserve little mention when compared with the more important cultural, organizational, and legal issues”. Beside the establishment of the ROMEO (Rights Metadata for Open Archiving) project specialized in investigation of intellectual property issues, other projects also explored legal and cultural issues concerning OA. These projects have made encouraging progress in the aspects of defining legal rights and interests of authors, data providers and service providers, promoting changes in publishing and institutional practice, which should deserve our high attention.

The key factor to the EU’s success in implementing the mode of OA to information resources is that it has a relatively complete system of legal policies and regulations on protection. In addition to EU’s regulations on Public Access to the European Parliament, Council, and Commission Documents as well as instructions regarding to OA to environmental information, the EU member countries have also established a number of highly effective laws and regulations on it. For example, British Freedom of Information Act provides that anybody, regardless of whether he holds a British nationality or is living in the United Kingdom, has the right to know information about roughly 100,000 British public sectors including central and local government departments, police, national medical care system and educational institutions.

In China, policies and regulations on protection of OA to information resources are relatively insufficient. Firstly, the absence of a comprehensive law similar to British Freedom Information Act, on OA to information resources severely impeded development of OA; though Regulations on Open Government Information has received extensive concern in recent years, it has not yet been signed to law. Secondly, legislation on opening up of information has also been lacking. Taking disclosure of environmental information and public access to it for example, the Environmental Protection Law only sets down that relevant authority should regularly publish state of the environment bulletin, but no detailed regulations on citizenry right to know full information about the environment, not to mention a specific Environmental Information Act to guarantee citizenry access to it. The deficiency of relevant regulations and policies made the concept of openness and access to information resources difficult to strike deep roots in the public, and also very difficult to realize its full implementation. Thus, China’s priority should be to promote legislations on OA to information resources, and to set down a series of detailed laws, regulations and policies on protection of it.

3.5 To strengthen the integration of e-government websites information resources

Since the late 1990s, China has achieved great progress in e-government building. China witnessed that a large number of government websites have emerged like mushrooms. According to statistics, ownership rate of e-government websites above the county level has reached to 73.5% by 2005, with ministries level, provincial level and county level accounting for 93.4%, 90.3% and 69.3% respectively, increased by 22.3 percentage compared with that of the corresponding period of the previous year. Though the country has a large number of government portals, due to decentralized management, they did not facilitate mutual communication, and instead, “fragmentation” phenomenon and even worse, “information-isolated island” problems have aroused thereafter. In

addition, it is difficult to guarantee the overall functioning and quality of these e-government websites, not only because of the extremely unbalanced development of government websites in different regions and different government departments, but also some government websites even issued obsolete and erroneous government information, which greatly affected the efficiency of citizenry access to government information through internet.

The need to change this situation requires China to strengthen integration of information resources on the e-government websites for the purpose of building up an reliable and authoritative channel to release government information online. German has attached great importance to integration of e-government information resources. In June 2003, Gerhard Schroeder, the President of German then, and government ministers approved a common strategy for integration of e-government information resources—the German Online project, through which the electronic federal, state and local governments to work together to provide online information and services. At present, federal government and state governments provide over 400 and 300 online services respectively, enabling 30% people across the country to enjoy online services.

In order to meet the rapid development of information technology, the US government actively applies internet and other technologies into the opening-up of government information through propelling improvement of e-government. The US e-government began at the beginning of the 1990s. In 1993, the National Performance Review Committee, established by the Clinton administration, submitted two reports, *Creating a Government That Works Better and Costs Less* and *Reengineering through Information Technology*. In the reports, it is suggested that high technology related to information resources network should be employed to overcome the US government drawbacks in the management and provision of services, which makes building “electronic government” an important direction for the US government reform.

3.6 To establish mechanisms for re-use of public sector information resources

An important experience of European Union in promoting public access to information resources is its promulgation of the Re-use of Public Sector Information Regulation Directive. After promulgation and implementation of the Directive and domestic policies set down under it by member countries of the EU, exploitation and uses of the EU public sector information resources achieved progress to a certain degree. On the one hand, it has brought considerable economic benefits, which laid a good foundation for the EU to compete with the US in the products market. And it has also immensely accelerated development of OA to the public sector information resources, and facilitated citizenry access to obtain information from a variety of ways.

China has vast public sector information resources. In the 1970s-1980s, it is estimated that the proportion of our government information resources in the society was quite considerable, amounting 80% of the total. However, the present situation of reuse of public sector information resources is not encouraging, because, firstly, the public sectors were lacking of initiatives in opening up information; secondly, no market mechanism was conducive to promote re-use for public sector information resources. This situation not only made our country a wealth of public sector information resources are not used effectively, but also further impeded the development of China’s information resources industry.

To change this situation, China needs to establish the public-sector mechanisms for re-use of information resources. On the one hand, establishment and improvement of re-use systems of public sector information resources would help to define the rights and obligations of the related parties to develop a reasonable operating procedures, pricing principles and relief procedures. On the other hand, China also needs to establish an effective

regulatory administration to supervise development of the public sector information resources to ensure its smooth progress.

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