Regional Document Supply Networks and Their Influence on Nationwide Document Supply Networks in China

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Abstract

Purpose – This paper aims to describe typical regional document supply networks in China through detailed discussion of their framework, service mode and influence on the nationwide document supply networks.

Design/methodology/approach – This paper highlights various kinds of regional document supply networks in China that serve as document resource sharing cooperation networks within provinces, cities and university towns. Their framework, service mode and influence on the nationwide document supply networks are discussed, followed by suggestions for improvement.

Findings – Regional document supply networks have their natural advantages in local financial support and extensive local coverage, and are capable of providing fine service to meet various user needs timely and economically. They become an important part and beneficial supplement to nationwide document supply networks.

Originality/value – This paper studies regional document supply networks in China which has rarely been addressed in the international library literature.

Keywords Regional Document Supply Network, Interlibrary Loan, Document Delivery, China

Paper type Research paper

1. Overview of regional document supply networks in China

Document supply service is one of the most effective methods to realize document resource sharing. It involves two main contents: interlibrary loan for returnable resources and document delivery for non-returnable resources. Regional document supply networks in China normally consist of neighboring libraries in local area, affiliated to the same social organization, having similar social and cultural backgrounds, which makes it easy for them to form a common ground. As a matter of fact, regional document delivery networks have become the most important components and beneficial supplement to the nationwide document supply networks. There are three main forms of regional document supply networks in China which serve as document resource sharing cooperation networks within provinces, cities and university towns.

1.1 Regional networks within provinces

Before the year of 2000, interlibrary loan service was provided only in a few provinces and in a limited scale. Users had to use universal library cards to borrow books from other libraries. That was the primary form of interlibrary loan. All process was manual. About the year of 2000, some provinces started to develop ILL system to support interlibrary loan service. Hainan province installed the same library automatic system (ILAS software) in every academic library and on the basis of which they developed ILL software and carried out ILL service led by Hainan Provincial Education Commission at the beginning of 2000 (Huang *et al*., 2003). Another example is that academic libraries in Tianjin used the same library automatic system Unicorn to build a combined retrieval platform in 2002. Their users can log on the union OPAC provided by the web server to find out the real time situation of collections to make a reservation or renew loans on line. This measure made interlibrary loan as easy as borrowing from one's own library (Li *et al*., 2009).

In addition to that, the start of Chinese Academic Library & Information System (CALIS) further promoted the development of provincial document supply networks. CALIS has established a three-tiered service network consisting of national centers, provincial centers and member libraries. Fifteen provincial centers such as JALIS (Jiangsu Academic Library & Information System, http://www.jalis.org.cn/), HALIS (Henan Academic Library & Information System, http://202.197.191.235/) and TALIS (Tianjin Academic Library & Information System, http://www.tjdl.cn) have been built in order to strengthen the service capabilities of CALIS with the support of provincial education commission and/or library committee. From then on, regional document supply networks within other provinces have been set up over time. They use CALIS ILL/DD system which was developed and put into use in 2004 to offer ILL/DD service. Up to the year of 2012, CALIS has built provincial centers in almost all provinces, municipality directly under the central government, autonomous regions and even Macao the special administrative region in China. Having rich collections and mature ILL networks of their own, Taiwan and Hong Kong libraries are the only two exceptions that don't use CALIS service.

1.2 Regional networks within cities

Typical regional document supply networks within cities mainly emerge in the areas of Beijing and Shanghai where higher education is prosperous and all kinds of universities and colleges are in a great number. Famous and well-run regional document supply networks within cities include Beijing Academic Libraries Coalition, BALIS (Beijing Academic Library and Information System, http://balis.ruc.edu.cn), SIRN (Shanghai Information Resources Network, http://www.libnet.sh.cn/newsirn) and Shanghai Education Libraries (http://www.shelib.edu.cn) etc. Other typical municipal document supply networks include Guangzhou Academic Libraries Coalition (http://www.th.superlib.net) in Guangdong Province and Minnan Academic Libraries Coalition (http://www.mndqlib.net) among three cities of Xiamen, Zhangzhou and Quanzhou in Fujian Province.

1.3 Regional networks within university towns

University town is a new mode of running schools intensively to keep up with the rapid development of higher education in China in the recent years. Over 60 university towns has emerged in China, such as Orient University Town (http://www.ouc.gov.cn) in Hebei Langfang, the first university town in China built in 1999, Shenzhen University Town (http://lib.utsz.edu.cn), Chongqing University Town (http://www.cquc.net), XianLin University Town in Nanjing (http://xleu.njnu.edu.cn) and Fuzhou University Town in Fujian province (http://www.fulink.edu.cn) etc. Universities, colleges, research institutes and university level institutes are centralized in University Town. Vicinity in geography and convenience in communications make it easier for them to set up document resource sharing coalition and to launch interlibrary loan and document delivery service.

2. Framework of regional document supply networks

Generally speaking, a regional document supply network is comprised of a management center, central libraries and member libraries (Yang, 2010). The management Center is normally a virtual institute led by local education commission and/or library committee and is made up of directors of member libraries. The responsibility of management center involves: 1. to establish regulations and ordinances for the network, 2. to definite duties of central libraries and member libraries and balance interests among members, 3. to organize and coordinate daily service of network, 4. to build good relationship with nationwide document supply networks, 5. to promote the network. Central Libraries are commonly composed by one or several libraries with rich collections and good service capability. Their roles are to offer ILL/DD service, identify problems and collect suggestions, calculate registered user numbers and usage amount, offer technical support to maintain the platform, and give regular report to management center. Member libraries are to authorize users, oversee usage of ILL/DD service and

promote service within campus. With the enhancement of ILL/DD system and change of service mode from centralized mode to the distributed mode in recent years, many member libraries become service providers as well as service consumers. As a result, a noticeable change is that some regional document supply networks no longer have central libraries, and all member libraries become equal partners.

In addition to central libraries, some regional document supply networks set up specialized libraries. When a user can't locate the materials they want within member libraries of regional network, they can submit request to these specialized libraries. BALIS has six specialized libraries: Peking University Health Science Library, Beijing Jiaotong University Library, Library of University of Science and Technology Beijing, Beijing Normal University Library, Beijing University of Posts and Telecommunications Library and Library of Renmin University of China.

3. ILL/DD system used by regional document supply networks

In my opinion, ILL/DD system is the main factor that determines the service mode of document supply networks. There are two kinds of ILL/DD system that are widely used in regional document supply networks in China. One is CALIS ILL/DD system, the other is commercial ILL/DD system.

CALIS ILL/DD system is commonly used by academic libraries in China. This system is compliant with the ISO ILL 10160/10161 Protocol and has been used by about 60 service-supply libraries from 2004 to 2009 (Yao and Zeng, 2012). After the year of 2010, CALIS Phase 3 improved its ILL/DD system by incorporating software-as-a-service (SaaS) technology (Zhong, 2009) and allowed academic libraries to rent this system for free through provincial centers. There are over 1000 libraries in China using CALIS ILL/DD system to submit requests among each other currently. Among them, about 300 libraries are active participants.

In addition to CALIS ILL/DD system, some commercial companies have taken part in ILL/DD service for academic libraries. Chaoxing Company is a typical one with its two products Duxiu (http://www.duxiu.com) and Bailian (http://www.blyun.com). It helps some regional document resource sharing cooperation networks to integrate libraries' collections and build one-stop document retrieval platform in which document delivery service module has been embedded. Users can submit requests online and get documents by email rapidly and conveniently.

Another option is to run CALIS ILL/DD system and Commercial ILL/DD system concurrently to provide service to users. Such examples include ZADL (Zhejiang Academic Digital Library, http://zadl.zj.edu.cn) and Fuzhou University Town.

It is worth noting that some regional document supply networks do not even have ILL system. They simply issue universal library cards and allow users to borrow from each member library. Beijing Academic Libraries Coalition is in such case.

4. Service Mode
4.1 Distributed mode prevails over centralized mode
The service mode of ILL/DD can be divided into centralized mode and distributed mode in view of organization and management. Centralized mode means central libraries or specialized libraries provide ILL/DD service to member libraries with their own collections or other libraries joining the agreement, while distributed mode means all libraries in regional network can not only be service consumers but also service providers (Fan and Zhan, 2005). Before the year of 2010, only about 60 service-supply libraries use CALIS ILL/DD system and offer ILL/DD service to other member libraries, so provincial document supply networks are in centralized mode. After CALIS Phase 3 launched the enhanced ILL/DD system by incorporating software-as-a-service (SaaS) technology, whichever academic library can sign an agreement with CALIS and use the system to submit requests to each other. Meanwhile, most of commercial companies adopt distributed mode to cater to the demand of the market.

Therefore, distributed mode has become prevalent over the past three years.

The fact that distributed mode has been widely used in regional document supply networks shows that document supply in China no longer relies on a limited number of central libraries with rich collections to offer ILL/DD service, it has moved to union document resources guarantee as well as union services.

4.2 Mediated vs unmediated modes

The difference between mediated and unmediated mode is whether there is a librarian working as a medium between users and document suppliers. Mediated mode need librarian authorize users, choose document suppliers to submit requests, receive documents from the suppliers and forward them to users. As for regional document supply networks in China, those regional document supply networks that use CALIS ILL/DD system are still in mediated mode. Yet nearly all the commercial ILL/DD systems support the unmediated mode at variable scales. BALIS ILL system was developed by Beijing Chuangxun Future Software Technique Co., LTD. Users can choose service providers and submit requests directly without any librarian working as a medium. Only user authorization and document returning have to be handled by librarians. Two products of Duxiu and Bailian developed by Chaoxing company can send the document requests to the best service supplier automatically and full texts will be sent back by email. User authorization can be controlled by IP address.

But unmediated mode brings about some headachy problems that have been mentioned many times in various research papers. One typical example is that interlibrary loan service users keep asking for documents within the collection of their own library. But it can be and is being solved by technological means to some extent. In view of development, unmediated mode is the tendency in the future, but mediated mode will still exist for quite a while.

4.3 Automatic vs manual modes

From the current situation, CALIS union catalog, CALIS Current Contents of Western Journals, CALIS unified retrieval system eDU (http://www.yidu.edu.cn) and other commercial integrated platforms can all interface seamlessly with document delivery system. So document delivery service can be processed in full automatic way so far. On these platforms, resources can be retrieved and ways to access will be listed. Full-text documents are available automatically when the user is authorized, or else one can ask for them through the document delivery service. The system will forward the requests to the library which has the resources and deliver those documents through email or FTP server. Except for application making that still need the help of a librarian, all the other processes in CALIS are operated automatically.

In spite of the above-mention convenience, interlibrary loan still need much manual operation. Not to mention that many commercial integrated platforms don't support interlibrary loan service, even CALIS ILL/DD system, with relative detailed process designed, can hardly cover the whole procedure for its pool functions of locating and statistics. The process of interlibrary loan is really too burdensome. As a supplier, librarian should borrow books from stacks, mail by surface mail or express delivery, urge document return and put them back to the stacks. As a requestor, librarian should make an inventory when books arrive, inform users by email or phone, record picking up time, users' name, library card and book titles, remind them to return in time repeatedly, classify the returned books according to their sources and mail them back to the suppliers. All those operations mentioned above are hardly covered by ILL system and have to be done manually.

5.   Influence to nationwide document supply networks

Regional document supply networks are crucial component of the document supply networks of a nation. On one hand, they rely on nationwide document supply networks to a great extent. On the other hand, they have their own advantages not found in nationwide document supply networks. Those advantages include comprehensive

regional coverage, fine and timely service and so on, which enable them to exert helpful influence over nationwide document supply networks.

5.1 Local financial and policy support to promote nationwide document supply networks indirectly

Regional document supply networks enjoy local financial and policy support in addition to those of nationwide document supply networks, so that they can promote document supply service in depth through incentives like subsidies and awards. Such promotion is a dynamic driver of further development of nationwide document supply networks as well as their own.

Though some nationwide document supply networks such as CALIS and CASHL (the Chinese Academic Humanities and Social Sciences Library) offer to users subsidy ranging from 50% to 100% according to region and special offer, there still are documents too expensive for users to afford, such as standards, reports, and those supplied by overseas libraries. What's more, many users demand that library bear the responsibility to satisfy users' need as far as possible and not graft such cost to users. This problem can be solved well in regional document supply networks.

Regional document supply networks usually have the financial support from local government which allow users to get documents for free or at an affordable price. For those who use Duxiu and Bailian, they only need pay for the integrated platform and there's no charge for document delivery service. For those who use CALIS ILL/DD system, BALIS document delivery service (BALIS has two systems for ILL and DD separately, and DD system has changed to use CALIS ILL/DD system from the end of 2012) and TALIS offer the other 50% subsidy to users in addition to the 50% subsidy of CALIS. In this way, users can get documents for free. BALIS ILL service pays the logistics costs, users only pay for loss, damage and late return. SIRN members only need to pay logistics and pay nothing for borrowing. Furthermore, some regional document supply networks also allocate finance as rewards to those supplying libraries to encourage them offer ILL/DD service zealously with low price. Fuzhou University Town awards 5 YUAN per request for document delivery and 10 YUAN per request for interlibrary loan. Both subsidies and awards not only encourage users to ask for what he want but also stimulate libraries to offer better service. As regional document supply networks rely much on national networks, their progress and development facilitate their nationwide counterparts to extend indirectly their service to a further scope that they otherwise could not have reached.

5.2 Introduce more member libraries into nationwide networks

The emphasis of CALIS Phase 3 is relying on the influence of provincial centers (or shared domains) to push services into universities and colleges of all kinds and all levels in their regions. That is to say, nationwide document supply networks have come to realize the advantages of their regional counterparts and take measures to build on such advantages to mutual benefits. Regional networks can take advantage of leverage of governmental measures and their local connections to attract more local libraries to join their networks. That also means introducing more member libraries into nationwide networks. In this way, regional member libraries benefit from rich collections and favorable allowance policy of the nationwide networks. In return, new member libraries should submit their catalogs to nationwide union catalogs. This benefits nationwide networks by way of consummating their union catalog construction and foster national document guarantee system. This is truly a win-win strategy of development. Taking Fujian Province as an example, provincial center library has introduced 54 libraries to CALIS during the last 2 years.

5.3 Establish relationship with cross-system members

In China, public libraries, academic libraries and related institutes are managed by different administrative departments and financial supports also come from different sources. So it is quite difficult for them to be united

and share resources with each other. Regional document supply networks help their national counterparts gain indirect access to various local libraries and institutes. With local connections and contacts over time, it's easier for regional networks to establish relationships with cross-system members within the region, such as local public libraries, research institutes, scientific information institutes, archives, statistical bureau, patent office and information companies for close geographic location and the same culture background. A case in point is SIRN, which is composed of seventy eight members of public libraries, academic libraries and scientific research libraries which makes it a regional cross-system model in China (Fang, 2010). Relying on regional document supply networks to develop cross-system members will enrich document origins and optimize the structure the national document supply networks.

5.4 Highlight regional feature collections as alternative to national networks

Due to historical and geographical connections, some local libraries have unique collections of documents featuring local characteristics. Regional document supply networks have the closest access to recommend such collections to users. By highlighting local feature collections, regional networks can help to divert heavy loan burdens of national networks to local ones on one hand and thus optimize both regional and national resources, and provide alternatives of document supply to regional and even national users with specialized interests.

6. Suggestions for Improvement

Regional document supply networks have been making progress in recent years, and they have been an important component and beneficial supplement to nationwide document supply networks. But there's much room for improvement.

6.1 More resourceful funding

Up to now, Regional document supply networks depend almost completely on local government supports, which are subject to fluctuation due to change of officials, shortage of local funds, expiry of projects or other unforeseeable reasons. Service cessation or price rise may happen in the following years which jeopardize the development of regional document supply networks. To change such a situation，they must be more resourceful in funding. In addition to securing governmental financial support, they can turn to local community for funding. For local firms and business, they can raise fund by providing paid services like information counseling, commercial ancillary service and project development support. For museums, cultural centers and public media, they can raise fund by cooperating to run theme gallery, popular science projects and local folk events. For general public, donation can be raised by running open day, public welfare lectures or activities. In this way, it will not only open more channels for funding, but also lend more insight and depth to the role of regional networks.

6.2 Library-characteristic orientation

At current stage of development, regional networks are still dependant on their national counterparts. Libraries in regional networks tend to imitate the model of their national counterparts, with their specialties weakened or even ignored. Such imitation will waste limited resources in repetitive construction and blur their due characteristics in regional networks.

To regain their identity, it is necessary for them to sort out their strengths and weaknesses and establish a library-characteristic orientation. Based on this orientation, local libraries can focus on establishing a series of feature databases with characteristics of subject, region and language, then bring them into integrated resources platform and document delivery service. These feature databases should not be confined to published resources. Instead, any unpublished resource that might be useful to users should be collected, such as grey literature, scientific data and images, statistics, episodes, trivial matters, etc. In this way, characteristics of each member

library will be preserved and basis for future knowledge delivery will be laid.

6.3 Expand sharing scope

Document sharing within regional networks tends to be limited in scope. Many libraries are unwilling to share documents they valued highly, which include foreign publications, feature collections, ancient books, books and journals published within 1911-1949 and so on. Such unwillingness stems from the following concerns: 1. concerns about protecting rare and delicate documents, 2. worries about losing their dominance after sharing, 3. concerns about copyright infringement.

To expand the scope of document sharing, regional networks should provide more incentives for the sharing of such treasured documents. These incentives might include: 1. to allocate fund as bonus for supplying libraries in proportion to the volumes of valued document shared; 2. to allow supplying libraries to charge higher fees for sharing valued documents to limit them to true researchers, with raised fund used in the upkeep of such documents; 3. to digitize rare and delicate documents for sharing instead of the original copies; 4. to sign legal document with users to prevent copyright infringement.

6.4 Raise research momentum

Research is a driving force of development, and the development of regional document supply networks is no exception. Unfortunately, there is not much research momentum within regional networks, which is reflected in the limited amount of literature on regional document supply networks. When regional networks are losing research momentum, they are also losing insight and vision for future development. Without insight and vision, regional networks will remain as they were, with much potential lying wasted.

It will take the efforts of both regional networks and individual librarians to raise research momentum. On the one hand, regional networks can take advantage of their connections to hosts more seminars concerning the role, function, and development of their networks. They can invite famous scholars and researchers to the seminars, so that librarians on the first lines will have exposure to the latest development and form an across-the-board view of the regional networks. In addition, they can raise fund as awards for excellent research papers from librarian-researchers. On the other hand, individual librarians should try to find a balance between routine work and research efforts. This will not be easy since a lot of librarians have heavy workloads. But they have unique advantages: access and channels to rare and latest documents and first-hand feedbacks of users. Given time and efforts, individual librarians will be able to be productive in both routine work and research. In short, only with concerted efforts of both regional networks and individual librarians can research momentum be picked up and more dynamics for development will be found.

7. Conclusion

Regional document supply networks have been changing continuously with the development of technology and users' need especially in the recent three years. Their framework, ILL/DD system and service mode are all influenced deeply by nationwide document supply networks. Meanwhile, regional document supply networks are taking its unique advantages to affect and contribute to nationwide document supply networks. If regional document supply networks can learn from others' strong points to offset their weakness, they can work better and better in the future.

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