A New Role of Chinese Academic Librarians—The Development of Embedded Patent Information Services at Nanjing Technology University Library, China

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ABSTRACT

Patent information service is a newly emerging specialized in-depth information consultation service in Chinese academic libraries, developed with the implementation of the "National Intellectual Property (IP) Strategy" in China. This paper presents the embedded patent information service at Nanjing Technology University (NJTech) Library (Nanjing, China) and focuses on how it was designed and developed. Citation analysis and questionnaire survey were applied to study NJTech researchers' information behavior on patents so that the librarians could identify their unmet information needs. Based on the analysis of data collected from the citation analysis and questionnaire, the librarians found that they could assist researchers through collaboration and partnership in searching related patents, analyzing technology trends, identifying valuable patents, and tracking new emerging related patents. In the process of embedded service on patents, the role of the academic librarian at NJTech University has been extended to "Patent Specialist," requiring close collaboration with researchers, embedding in their research units and groups, and helping them to make full use of patent information resources and become more effectively innovative in research.

INTRODUCTION

With the arrival of the knowledge economy age in the 21st century, intellectual property (IP) disputes have become increasingly significant, and protection and management of IP has become a topic of universal attention. In 2008, the Chinese government launched a "National Intellectual Property (IP) Strategy," aimed at enhancing the quality and competence of R&D organizations in IP creation, protection, utilization and management (The State Council of The People's Republic of China, 2008). In its national IP strategy, the Chinese government also emphasized the development of the IP information service industry to promote the utilization of IP resources.

For scientific researchers in Chinese universities, patents are the most important aspect of IP. With the implementation of the National IP Strategy, many important scientific research and grant proposals in China require detailed patent creation and management plans, such as the "National Science and Technology Major Projects." Consequently, the demands for professional help in patent analysis and management have increased greatly in China. Moreover, in recent years scientific researchers in universities paid more attention to innovation and expanded their R&D mission to industrialization and commercialization, which has been reflected in a rapid increase in the number of universities' patent applications (National Bureau of Statistics of the People's Republic of China, 2013). For example, Nanjing Technology University (NJTech) applied for 128 patents in 2007, while in 2013 NJTech applied for 659 patents. Besides traditional academic publications, effective use of patent documents has become increasingly important to the scientific researchers in universities.

In response to these new changes, since 2010, Chinese academic librarians, as key supporters of R&D activities in universities, have to seriously consider developing relevant collection resources and expanding services to meet the needs of researchers in IP, particularly patents. By accessing the website of university libraries listed in CALIS (China Academic Library & Information System, http://www.calis.edu.cn/educhina/libnav.do?page=libnavbycalis, the biggest library consortium in China), it is notable that about 40% of university libraries have purchased commercial patent databases, and about 55% of university libraries launched specialized patent information services, such as patent retrieval service and patent information analysis service. In addition to the Nanjing Technology University (NJTech) Library, other libraries included Tsinghua University Library, Shang Hai Jiao Tong University Library, and Zhejiang University Library, among others.

This paper is intended to provide a perspective of newly emerging patent information service in Chinese academic libraries through a case study of the NJTech Library which demonstrates strategic efforts

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made by Chinese academic librarians. Currently, a majority of Chinese academic libraries provide the patent information service in a traditional and reactive way: the librarians stay in the library and only respond to user requests, helping them search and analyze related patent documents. For example: prior to this study, the NJTech Library provided the patent service in this traditional way; when researchers requested the patent information service, they were required to complete a "Request Sheet" on the NJTech Library website, in which they would detail their research topics and information demands. Then the librarians would search and analyze related patents according to the online request sheet and send a report to the researchers.

One problem with this traditional model is that the service is initiated by the users. If the users don't know how to make full use of patent information, they will not ask the librarian for help timely. Furthermore, feedback collected from the NJTech researchers who had used the traditional patent information service indicated that this service approach made it challenging to satisfy their dynamic patent information needs in the research process. Meanwhile, the librarians involved in the traditional service, realized that due to their lack of in-depth knowledge of a particular field of technology, they could not take full advantage of their superior patent search, analysis, and management skills. In order to effectively assist the researchers in using patent documents more productively, they must work closely with the researchers and be involved in their research process. Therefore, the aim of the NJTech Library in this work was to develop an embedded patent information service, in which the librarians would play a proactive role, moving out of the library and partnering with users in their work in order to help them identify and satisfy patent information needs in a timely and effective fashion.

BACKGROUND

Nanjing Technology University (NJTech) is a medium-sized Chinese university with a main focus in engineering, located in Nanjing, Jiangsu Province, 300 km from Shanghai. NJTech was part of the first group of universities approved by the Chinese Ministry of Education for the training of "Excellent Engineers." NJTech has around 20,000 undergraduate students, 7000 graduate students and 900 academic staff.

The NJTech Library has 85 employees, including 20 liaison librarians. By the end of 2013, the total size of the library's print collection had reached more than 1.92 million volumes, including books, journals, and bound volumes of newspapers. The NJTech Library also had more than 50 databases, such as Web of Science, EBSCO, and the commercial patent database Derwent Innovation Index (DII).

In the last five years, the NJTech Library received numerous requests for analysis and assessment of patents. In response to these demands, in 2010, the library started to prepare for the patent information service in two ways: firstly, librarians with master's degrees in science or engineering were selected to attend various training programs which were launched by the State Intellectual Property Office of China (SIPO) or professional intelligence research institutions. It is important to note that with the implementation of the National IP Strategy, many professional training programs related to patents emerged in China. These professional programs can be roughly divided into two categories: one kind of training is launched by the State Intellectual Property Office of China (SIPO), which mainly focuses on basic knowledge of patents, IP management, etc.; another kind of training is developed by professional intelligence research institutions, such as the Institute of Scientific & Technical Information of Shanghai (ISTIC), which focus on the methods of patent information analysis. Secondly, the NJTech Library bought the online IP analysis software "Innography" (https://www.innography.com/) to support the work of the librarians. This software should only be used by the librarians because its proper use requires professional training; otherwise, it will lead to incorrect analyses and conclusions.

LITERATURE REVIEW

Patent documents are a rich source of information about the latest technology, covering almost every field. More than 90% of inventions in the world are patented, and 70% of the technical information disclosed in patent documents is not published in any other form ("Using Patent Information for the Benefit of Your SME"). According to statistics (http://www.innography.com), there are currently nearly 60 million patents worldwide, and the number of patents will increase at a rate of 1 million per year in the future. If properly processed and analyzed, patent documents can yield a wealth of information about R&D trends, emerging fields, collaborations, etc., which are useful to R&D activities (Burhan & Jain, 2012). Because the patent documents are closely associated with the patent system and are often written in "patent jargon," they are more difficult to utilize and understand (Pradeep, 2012; Cetintas & Si, 2012). Therefore, the proper use of patent documents requires greater professional help.

PATENT INFORMATION SERVICE IN THE U.S. AND OTHER ACADEMIC LIBRARIES

In the United States, the U.S. Patent and Trademark Office (USPTO) has designated numerous Patent and Trademark Resource Centers (PTRC) throughout the country to provide assistance on patent and trademark search and research questions (Jenda, 2005). The PTRCs include academic, public, and state libraries, with at least one PTRC in every state. For example, in Illinois, Malpass Library in Western Illinois University (WIU) is a PTRC. According to the website of the WIU Library (http://www.wiu.edu/libraries/govpubs/patents.php), it provides patent information services, such as guiding patent searches and providing access to an intellectual property awareness assessment tool. Generally, PTRC librarians don't provide in-depth assistance, such as assisting in formulating patent claims, because they lack the required training from the USPTO (Fischlschweiger, 2011). In addition, most other American academic libraries help staff or students to use patent documents through online tutorials (Baldwin, 2007).

Zhang, a librarian at the University of Saskatchewan (U of S) library, developed a systematic patent training program based on the analysis of citation patterns (i.e. types of references) of all the patents owned by the U of S (Zhang, 2009). Yu and Kehoe pointed out that sci-tech librarians could "often be drawn into the intersection with business information research that involves the study of technology trends and technical industries for business decision-making." They demonstrated this in a case study, in which they used "the patents issued in the technology of global positioning systems (GPS) as an example to discuss how patent data can be retrieved and mined to find patterns of development and innovations in an area of technology" (Yu & Kehoe, 2001).

PATENT INFORMATION SERVICE IN CHINESE ACADEMIC LIBRARIES

In China, there is no specialized patent library system like the PTRCs in the U.S. With the implementation of the National IP Strategy, many Chinese academic librarians began to discuss the necessity, challenges, and practical strategies of offering patent information services in academic libraries (Li, 2011; Zhao, 2012). Zhao investigated 147 Chinese academic libraries by questionnaire survey and found that 41% of academic libraries offered patent retrieval services, 22% offered specialized patent consultation service, and 37% offered patent information analysis service (Zhao, 2012). The investigation also showed the challenges and difficulties in providing patent information service in academic libraries, mainly including: (1) the training of the librarians to be specialists in patent search, analysis and management; and (2) lack of sufficient funding to buy patent information analysis software, which is necessary to the in-depth patent information service (Zhao, 2012).

Besides offering tutorials and training, Chinese academic librarians have made more efforts to provide in-depth assistance in patent