

University Library Intellectual Property Information Service Exploration and Practice

—Taking Huazhong University of Science and Technology as an Example

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Abstract—It has puzzled many university library departments that how to launch intellectual property information service which is a new important work of library in the new era. This paper introduces some experiences in the service that Huazhong University of Science and Technology Library has gained in recent years, which provides some references for university libraries on the same journey. It is imperative for university libraries to carry out intellectual property information service, though they a long way to go. This shall not only serve the scientific research on campus but also contribute to the local economic development and innovations.

Keywords—university library; intellectual property; information service; practice

I. INTRODUCTION

China's intellectual property system keeps on evolving along with the reform and opening up, and provides powerful support for the strategy. As China enters the new era, it has attempted to open wider to the outside world by strengthening the intellectual property protection which is the most important part in the property rights protection system. With the release of the policy papers like Several Opinions of the State Council on Building a Powerful Intellectual Property Nation under New Conditions (No. 71 [2015], State Council), the National Plan for the Protection and Use of Intellectual Property Rights during the "13th Five-Year Plan" (No. 86 [2016], State Council), and Outline of the 13th Five-Year Plan for the National Educational Development of the People's Republic of China (No. 4 [2017], State Council), the importance of intellectual property information service is also increasingly prominent. For the implementation of the national innovation-driven development strategy, the construction of university intellectual property information service center, the improvement of the intellectual property information public service network, schools' capability to innovate and the "Double First-Rate" construction, the State Intellectual Property Office and the Ministry of Education jointly formulated the Implementation of Intellectual Property Information Service Center Construction of Colleges and Universities [1], in December 2017 noticed various intellectual property office and the affiliated colleges and universities. At the same time, the selection of the first batch of national intellectual property information service centers of colleges and universities was conducted. Finally, 23 national intellectual property information service centers of universities were

selected through the independent application, submission of materials, preliminary screening, experts' preliminary evaluation and on-site defense [2]. It can be said that the development of patent information services in university libraries has been supported by policies, and the work has gradually become clear and standardized.

Early in 2010, Library Huazhong University of Science and Technology took the lead in the country to carry out the patent information service, and established the patent information service center in 2012. In 2017, it has become a member of the national patent literature information service network. Huazhong University of Science and Technology Intellectual Property Information Service Center was established in March 2018, and in June the library was included in the first batch of "university intellectual property information service center" council units. This paper will introduce some of its practices in intellectual property information service, aiming to provide some references for other university libraries that intend to develop intellectual property information service.

II. INTELLECTUAL PROPERTY INFORMATION SERVICE PRACTICES

What can university libraries do to develop intellectual property information service? Where to start? Who are they serving? What services should be offered? These questions have been encountered by many university libraries. After years of practice and accumulation, it is believed that the intellectual property information service of university libraries can be developed around the following tasks. First, it should serve the development of the school, and provide patent information analysis for the school to be listed in the "Double First-Rate". Second, it can serve scientific research and provide accurate data for scientific researchers in the university. Third, it needs to help the government to make decisions and drive regional economic development and innovation. Fourth, support industrial development and provide consultation and analysis for industrial innovation inside and outside the university. The practices of intellectual property information service of Huazhong University of Science and Technology Library in recent years can be summarized and embodied in the following aspects.

A. Patent retrieval

1) Patent novelty retrieval

Patent novelty retrieval is a kind of technology novelty retrieval for the purpose of applying for a patent. Since 1992, HUST library has been engaged in patent novelty retrieval business, and there have been a certain number of patent novelty retrieval subjects every year. In the past five years, we have completed more than 40 subjects entrusted by universities or enterprises. There are subjects like intra-bone marrow infusion entrusted by South-Central University for Nationalities and Software for rapid generation of ship cross-section structure scheme entrusted by China Ship Research and Development Academy.

2) Patent subject retrieval

Patent subject retrieval is adopted to search related patents of a specific topic at the requirements of customers and summarize and analyze according to their intentions. In recent years, we have accomplished more than 10 patent subject retrieval for universities and enterprises. For the universities, there are German BOSCH REXROTH patent search, Spanish FAGOR patent search, Italian FIDIA SPA patent search, computer storage technology patent search, pavement condition detector patent search, etc. For the enterprise, there are packaging related patent search and building garbage classification patent search.

3) Other patent searches

This kind of patent information retrieval is mainly provided for customers with specific needs, such as patent legal status retrieval, patent timeliness retrieval, and retrieval of the number of patent applications and authorizations of the client.

B. Patent information analysis

Patent document information analysis is to collect patent information from patent documents, then process, sort out and analyze patent document information through scientific methods, and finally form a collection of patent information and strategies, of which the ultimate purpose is to provide support for customers' decision [3]. The patent document information analysis service shall be carried to fully explore the value of patent information from the aspects of technical attributes, economic attributes and legal attributes by comprehensively applying appropriate analysis methods according to the needs of the entrusting party. In recent years, HUST library intellectual property information center has completed more than 10 patent information analysis reports.

Patent analysis for organizations. The patent information service in higher school library mainly serves the school's decision, and "Double First-Rate" construction and scientific researches in school. To this end, it is necessary to tease out the current patents in school comprehensively from the perspectives of key schools and key subject teams. There are HUST patent analysis, HUST world patent analysis, HUST high-intensity patents analysis in recent ten years, HUST failed patent analysis in recent ten years, analysis of patent of School of Materials Science and Engineering, HUST. What's more, there are also patent analyses for individuals like patent analysis of Professor Jin Hai, and patent analysis of Professor Yin Zhouting, which are almost sent to the relevant leaders or

individuals. There are some patent analyses for some specific enterprises, such as Japan FANUC CNC machine tool patent analysis, OPTIMARE patent analysis, etc.

Patent analysis in technical field. In the past five years, we have made a number of patent analysis reports in the technical field according to the requirements of teachers who have scientific research projects or awards. Examples are 3D printing technology patent information analysis, high-performance ultra-precision vibration isolation system patent analysis, multi-station precision forging and net shape key set technology patent analysis, TWINSCAN system structure analysis and optimization project patent analysis report. "Intellectual Property Analysis Report on Bridge Diagnosis and Precise Flaw Detection Technology" provided innovative material for "Extra-Large Bridge Diagnosis and Precise Flaw Detection Technology" that wins the second prize of national technical invention, which was recognized by the client. The "Global Patent Analysis Report of Deep Hole Drilling System and Coring Technology for Deep Seabed" assisted the client gain praise from judges in the evaluation of national scientific and technological achievements. The staffs of our center were also invited to participate in the project review meeting.

C. Intellectual property information training

Intellectual property information training is also an important part of intellectual property information service. At present, the training can be categorized into training for the library, training for the school and training for the province.

As for training for the library, the activities will be held in the library regularly to share knowledge about intellectual property information and service, such as patent information service practice, patent information analysis process, organization patent analysis, and specific field patent information analysis and so on.

In terms of training for the school, lectures about patent information retrieval, patent information analyses, basic knowledge of patent have been hosted in the school. Nearly one hundred people have attended the lecture on basic knowledge of patent launched for postgraduates and doctor students of School of Optical and Electronic Information. The library has taken on the 8 class hours' experimental course on patent information retrieval for the postgraduates major in Intellectual Property of School of Management. The content of the course mainly covers the application of main tools of patent information retrieval and application of patent information analysis platform. In April 2018, the teacher of HUST gave a lecture on the scientific research methods BBS no. 20, sharing scientific research methods, encompassing patent information analysis. On September 17th, 2018, the teacher of the HUST Library patent information center was invited to give a lecture on the "National Science Day" seminars undertaken by Huazhong University of Science and Technology Graduate Student Association of Science and Technology. The utilization of library resources, especially the patent document information resources was introduced in detail at that time.

With regards to training for the province, in May 2018, the information center has organized a practical training course on patent information retrieval and analysis in colleges and

universities [4], mainly for personnel in colleges and universities within Hubei, and in research institutes, library and information institutes. Over 40 people have participated in the training, though which they got to know the patent information service experience of colleges and universities and how patent information supports the development of scientific research in universities, acquired the knowledge about legal basis of patent, patent literature, patent retrieval practice, commonly used patent information resources, and practiced with the high-end patent analysis tools. This training provides a reference for other libraries to develop patent information service, and further promotes the development of patent information service in university libraries in Hubei province.

D. Science and technology information study

We aim to grow as a science and technology information research center taking the sci-tech novelty retrieval and intellectual property information service as the core. Therefore, intellectual property information study should be an integral part of the information service. Do researches centering on the service and promote the service by researches.

Publish scientific research theses. The past five years have witnessed the publication of papers in different languages about intellectual property information service on various journals. There is Feasibility Analysis on the Implementation of the Patent Information Service in Colleges and Universities, Bibliometric Analysis of Patents of Huazhong University of Science and Technology since 2002, Research on Models of Patent Information Service in University Libraries Based on Knowledge Supply Chain.

Participate in book compilation. The library has participated in the scientific research project named *Clean Energy CCS (Intellectual Property Support and Promotion Plan) of China Europe* and contributed to *The Global Intellectual Property Analysis of CCUS and Its Information Technologies* which was published in 2016 by Science Press.

Participate in the patent application. A teacher of our center participated in three horizontal scientific research projects entrusted by the enterprise (the total project funding was 400,000 Yuan), obtained the patent for Live Monitor for Capacitor Voltage Transformer as the third inventor.

Participate in patent information platform construction. We, together with library technology department and related school departments research and develop patent information platform, and provide information support for industry and scientific research through data acquisition, management, storage and analysis. The platform supports patent data retrieval, patent data exchange, intelligent analysis on patent, patent application and so on.

III. INTELLECTUAL PROPERTY INFORMATION SERVICE EXPERIENCE

A. Being down-to-earth

It is difficult for university libraries to provide intellectual property information services due to the backward technology and the lack of talents. Therefore, they should stand firmly at

present while preparing for the future. Indeed, it is impossible for an inexperienced library to make an in-depth and strategic analysis report at the very beginning, especially about the emerging service. Given this, it is necessary to start from the most basic work of patent information, such as patent novelty retrieval, patent search, and gradually go into the special research.

Of course, we should not aim too high or belittle ourselves. It is wrong to attribute the patent information service as the work of professional intellectual property institutions, and or deem it difficult for college libraries to develop. Instead, it should be recognized that university libraries have their own advantages in providing intellectual property information services. For example, they have abundant data resources, and the number of university patent applications is increasing, which fuels the demand for patent transfer and transformation. We should make more efforts to listen, read and study, learn from others' report writing and analytical skills, and build up the confidence that the libraries can do a good job in patent information service.

B. Attaching importance to team building in terms of capacity

Intellectual property information service involves technology, law, retrieval techniques, qualifications and other aspects. Personnel is required to have the ability to obtain information, conduct technical disassemble, analyze and evaluate, utilize information and so on. However, the number of library staff is limited without a rich subject background. Although we have devoted to sci-tech novelty retrieval and information retrieval for many years, there is still great room for improvement for intellectual property information service.

First, we should cultivate the existing personnel, let them to learn off campus, and learn from each other, so as to constantly improve the ability of patent information service. Then, in combination with the manpower of the library and the professional advantages of the university, technical experts can be invited as consultants for the department, which is especially important in the technical disassembly stage of patent information analysis. Only by integrating ourselves and technical experts can we build a strong patent information service team to support patent information service.

C. Working out rules and regulation to strengthen management

Although it is like touching the stones while crossing the river, the university library that carries out the intellectual property information service, should obey necessary rules and regulations and work norms. With the system and norms, the staffs have rules to follow when manage and publicize the work, so as to gain customers' trust. As a matter of fact, relevant government agencies have given some guidance documents on how to develop patent information services in university libraries. We can take this as a guide and formulate relevant norms and systems in combination with the characteristics of universities. For instance, *Administration of Huazhong University of Science and Technology Intellectual Property Information Service Center, Service Specification of Huazhong University of Science and Technology Intellectual*

Property Information Service Center and Staff Training Regulations of the Huazhong University of Science and Technology Intellectual Property Information Service Center are formulated on the basis of relevant documents. These files regulate aspects like information service process, report, behavioral norms, archives administration, purposes and principles of training, training content and form, staff rights and obligations, and so on, which makes management and business proceed in an orderly, normative manner.

D. Actively promoting the service

For university libraries, intellectual property information service is new content. How to improve business ability is the most important part of the service. It is also critical to actively promote, find the service object, and carry out the service. It is viable to publicize by leaflets and push through mailboxes, or find ways to contact key academic teams. For example, on the basis of a comprehensive sorting of patents in HUST, the active creator of the patent application is selected to be analyzed in his individual patent, then is invited to promote the school library service. With all these efforts, the library and "flexible electronic technology" research team of the school of mechanics have established point-to-point cooperation on intellectual property information service, which has been appreciated and supported by the Intellectual Property Administration of Wuhan Science and Technology Bureau.

IV. CONCLUSION AND REFLECTION

At present, the country attaches great importance to intellectual property work. At this point, to enhance the intellectual property awareness of teachers and students and to raise the information service level of colleges and universities are not only the requirements of the national and regional intellectual property strategy, but also the needs of colleges and universities, especially of those in the "Double First-Rate" construction. As an important unit serving teaching and research in university, the university library should do well in intellectual property information service. That is not only the content of the "Double First-Rate" construction but also the way to grow itself. University libraries should implement the policies of the Ministry of Education and the State Intellectual Property Office, overcome difficulties, give full play to their advantages, strengthen exchanges and learning, and start from

the basic things, to gradually improve the intellectual property information service of colleges and universities.

In recent years, the competition between different regions in China is very fierce. Behind the talent war is the competition for economic capacity and scientific and technological strength. The more technologically advanced a region is the greater importance it attaches to technological innovation. The past ten years have witnessed rapid economic development in Wuhan. The number of patents in only the Optical Valley where HUST sits reaches over 20000 every year, which indicates that the development of local economy and science and technology innovation are complementary to each other. Wuhan municipal government attaches great importance to patent application in colleges and universities, allocates nearly hundred million of money every year supporting colleges and universities to apply for patents. For the patent that may generate an industry, it even offers subsidies. Besides universities, enterprises have great demand for patent information service. The mission of a university library is to serve the "Double First-Rate" construction of the university, serve the discipline construction and the teaching and scientific research. At the same time, it should also actively participate in local economic development. But how to better serve local economic development? That is the development orientation and duty of the university library.

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