Patent Information Service Issues and Countermeasures for College Libraries—Taking Huazhong University of Science and Technology as an Example

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Abstract—**Against the background of the development of patent information service in college libraries, this paper is aimed to discuss the effective measures for libraries to carry out patent information service. Taking Huazhong University of Science and Technology as an example, this paper introduces the current status of the patent information service in the college library and lists out the main issues facing the library thereby, moreover, countermeasures such as personnel training, collaborative cooperation, service contents and mode, incentive mechanism are put forward. The research achievements can provide references for the college libraries to carry out patent information service.**

Keywords—Patent information service; College libraries; Training; Cooperation

I. INTRODUCTION

Along with the policy about revitalizing the country through science and technology and the intellectual property obtaining more and more attentions, the national ministries and commissions and the local institutions have released the relevant political regulations, and the aim is to reasonably protect intellectual property, and validly use intellectual property. Under such background, patent information service has become the industry developed relatively fast. Domestic college libraries have also realized the importance of patent information service, and partial college libraries have also successively attempted to carry out patent information service. In 2015, it was found out through network investigation that, 18% colleges with postgraduate cultivation qualification can provide patent service, which was mainly focused on patent novelty retrieval and reader training; 67% 985 colleges and 43% 211 colleges as well as 11% general colleges can provide patent service, and the main service type was patent novelty retrieval and reading training. In 2010, the Library of Huazhong University of Science and Technology built professional patent information service team, and started to attempt patent information service. Through above ten years of development, the Library of Huazhong University of Science and Technology has obtained certain achievements in patent information service, and meanwhile, has certain shortcomings and places that should be solved. Taking

Huazhong University of Science and Technology as an example, it analyzes the main issues faced by college libraries when carrying out patent information service, and discuss the solutions.

II. CURRENT STATUS OF THE LIBRARY PATENT INFORMATION SERVICE OF HUAZHONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

A. Formulate Regulations and Rules

In order to normalize the service procedures, and reinforce work management, our library has formulated the management methods for the Intellectual Property Information Service Center of Huazhong University of Science and Technology, the Work Responsibilities for the Intellectual Property Information Service Center of Huazhong University of Science and Technology, the Business Regulations for Intellectual Property Information Service Center of Huazhong University of Science and Technology, and other regulations and rules.

B. Personnel Configuration

The patent information service of our library relies on "the Scientific and Technological Novelty Retrieval Work Station of the Ministry of Education" (hereinafter referred to as "the Scientific and Technological Novelty Retrieval Station") to carry out various work. Currently, the Scientific and Technological Novelty Retrieval Station has 12 the scientific and technological novelty retrieval personnel (4 associate research fellows and above, and 4 scientific and technological novelty retrieval auditors), and all of them are equipped with above 5 years of scientific and technological novelty retrieval working experience and have all passed the systematic information intellectual property information training, and there are also 6 personnel engaged in above 3 years of intellectual property information service, of which 2 personnel have obtained the "patent practice talent" qualification of the State Intellectual Property Office. In 2017, "the Scientific and Technological Novelty Retrieval Work Station of the Ministry of Education" in our school was approved as one of the

"intellectual property information service network stations of the State Intellectual Property Office", and then in March, 2018, it established "the intellectual property information service center of Huazhong University of Science and Technology".

Meanwhile, play the advantages of teachers at school, preferentially select 7 experts of intellectual property, high-end technology and other aspects at school, to constitute patent service committee, and provide necessary political, legal and technical supports for the patent information service of our library.

C. Resource Base

Our library has above 500 Chinese and foreign database, and the relevant domestic and overseas reference data, and database related to intellectual property, such as IEEE/IET Electronic Library, Derwent Innovations Index and has purchased the special database for patent analysis Innography, TDA and other resources, and is equipped with the capacity to use resources and tools to carry out intellectual property information service.

D. Existing Achievements

Over the recent 5 years, it has totally completed above 10 patent analysis reports, including the Analysis on the Patent Intelligence of 3D Printing Technology, the Patent Analysis of German OPTIMARE Company, and the Analysis on the CNC Machine Tools of Japanese FANUC Company; there are also above 10 patent retrievals.

III. MAIN Factors HINDERING THE DEVELOPMENT OF LIBRARY PATENT INFORMATION SERVICE IN HUAZHONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

The patent information service of the library was started relatively earlier, but developed relatively slow, and this is one dilemma faced by many college libraries in promoting the patent information service. As can be seen from several years of development in our library, the main factors hindering the development of our library are as follows.

A. Professional Talents Shortage

Currently, the patent information service work of the library is mainly completed by the novelty retrieval personnel. Although many novelty retrieval personnel of the library have the professional background of science and engineering, and have all passed the professional training of novelty retrieval personnel, with rich reference retrieval and analysis working experience, and there are also novelty retrieval personnel participating in short-term patent information service training, but it lacks in professionals engaged in patent analysis, and intellectual property fields. The lack in professionals has weakened the professional degree of service to some extent, and has also restricted the service depth.

B. Insufficient Superior Support

As can be seen from the internal layer of the library, patent information service is a new service development direction, and on one hand, it is requested to increase the input of manpower and fund; on the other hand, patent information service should be a long-term accumulated process, and is difficult to obtain profits within a short term. Thus, our library doesn't provide clear support within a short term.

As can be seen from the layer of the school, the school pays more attention to the contribution of references, especially ESI thesis for the school, discipline and talent evaluation, and this has neglected the importance of patent in engineering.

C. Awkward Position

Our school has already has several institutions engaged in the relevant research and service of intellectual property. As can be seen from departments, the management school and law school are engaged in academic research; as can be seen from functional departments, there are achievement office and scientific and technical development institute, etc; as can be seen from the service department, there is the patent service center. It is still a problem that should be urgently solved considering the patent information service carried out by the library, how to position, and how to obtain the recognition of relevant departments at school.

D. Inadequate Service Depth

Currently, the patent information service of our library mainly includes patent retrieval, patent novelty retrieval, institution patent analysis, and single technology patent analysis, and the analysis is mainly focused on quantitative analysis, and involves few contents about technical decomposition, technical analysis and other qualitative analysis, and the service depth is insufficient.

E. Deficient Incentive Mechanism

The workload for the novelty retrieval personnel of our library has been saturated, and if you want to carry out in-depth patent information service, the novelty retrieval personnel must input more time and energy. Currently, there are no clear regulations about how to quantify patent information service, how to evaluate and how to stimulate, and this has increased the workload for novelty retrieval personnel, but there hasn't set any good incentive mechanism, and is bad for the long-term development of service.

IV. COUNTERMEASURES FOR IMPROVEMENT

A. Formulate Personnel Training Plan

The professional level of employers has decided the service quality, and the library should emphasize on cultivating the professional quality of librarians, and as per their own development plan, formulate a set of complete and long-term training plan.

The training object should integrate point and sphere. The training objects are not merely restricted to one to two

personnel, and it can be oriented to the entire library or a batch of librarians who have the intention to be engaged in or want to understand patent, and improve the professional quality of the entire library. Meanwhile, it should also select key cultivation objects, and conduct professional and deeper layer of training. Through training, strive to realize more librarians obtaining relevant certificates, such as patent agency, patent consultant, and patent leading talents.

Diversified training modes; it is applicable to hire industrial experts or rely on on-campus resources to hire the experts of professional fields to receive training at the library; it is also applicable to appoint librarians to participate in the training organized by authorities, and strive to obtain more industrial authentication certificate; it is also applicable to organize schools or institutions that have established public praises in the patent analysis field, to conduct exchange and learning, learn experience, and learn from others' strong points to offset its own weakness.

Comprehensive training contents; except for the legal knowledge about patent, and the retrieval skills, the training contents should also include the analysis methods, patent drawing, patent specification composition, patent pre-alarm, patent layout and other relevant knowledge and practical operation capacity.

Except for conducting well personnel training, the library should also establish good talent echelon, so as to ensure that the work will not be influenced by talent transfer and other reasons. Meanwhile, it is also requested to ensure the constant accumulation and inheritance of working experience.

B. Collaborative Innovation and Multi-Party Cooperation

"Collaborative innovation" refers to the valid convergence of innovation resources and elements, and through breaking through the barriers of innovation subjects, it can fully release the vigor of "talent, capital, information, technology" and other innovation elements, and then realize in-depth cooperation. The patent information service of libraries can also follow the concept of collaborative innovation, cooperate with multiple parties, fully play its own advantages, and create more opportunities to promote development.

1) On-Campus Cooperation to Break Barriers

Cooperate with the subject office of the school, the scientific and technical development institute and other institutions, and provide data support for talent evaluation and discipline evaluation. In the past few days, the General Office of the CPC Central Committee and the General Office of the State Council printed and issued the Opinions about Deepening the Project Review, Talent Evaluation, and Mechanism Evaluation Reform, of which it puts forward "regarding the discipline field vitality and influence as well as the important academic organization or journal service, R&D achievement originality, achievement conversion efficiency, scientific and technical service satisfaction degree, etc. as the important evaluation indexes" considering the talent evaluation. It can be seen that, the patent is one of the important indexes in talent evaluation. Libraries can cooperate with the on-campus functional departments, jointly conduct

well the work based on patent talents and institution evaluation, and improve the service influence.

Cooperate with on-campus departments, patent service institutions, and the intellectual property management department of the school, learn from others' strong points to offset its own weakness, and jointly serve for "the double first-rate" construction of the school. The departments have rich theoretical knowledge, the patent service institutions have patent composing, agency and other practical working experience, and the intellectual property management department of the school has patent management experience, while the libraries have resources and tools. Thus, it is requested to break the restrictions of different institutions, implement multi-party collaboration, resource sharing, play the advantages of all parties, and jointly promote the intellectual property work of the entire school. Therefore, for libraries, patent information service can obtain the recognition of more departments and teachers; for the entire school, the theoretical support of patent, the patent information service, patent agency, patent management, and patent operation, etc. will become a fluid integrity, and better promote the "double first-rate" construction" at school.

2) Cooperate With Intellectual Property Bureau and Obtain Its Support

The State Intellectual Property Office pays high attention to the construction of intellectual property service industry, especially the construction of intellectual property information service center at colleges. In 2015, the Intellectual Property Office released the Guidance Opinions about Accelerating the Cultivation and Development of Intellectual property Service Industry, and pointed out that "libraries have become one of the public service systems for intellectual property"; this year, the Ministry of Education and the Intellectual Property Office will select a batch of "national intellectual property information service center at colleges" among colleges nationwide, and make clear the importance of colleges in the intellectual property information service industry.

Through cooperating with the Intellectual Property Office, colleges can obtain all aspects of support. The first one is qualification authentication, such as "the national intellectual property information service network stations", and "the national intellectual property information service center in colleges", which are all "state-named" qualifications. The second one is personnel cultivation, and all levels of intellectual property offices will often have professional training, and some of them are even free of charge. The third one is project support; the State-owned Assets Administration Bureau will annually have projects considering intellectual property, participate in project construction and faster set foot in the industry.

3) Cooperate With the Intellectual Property Service Enterprise and Improve the Capacity

As can be seen from the experience of other colleges in carrying out patent information service, one approach for fast improving the capacity is to cooperate with intellectual property service companies. South China University of Technology cooperated with Ourchem Information Consulting Co., Ltd. in 2016, jointly completed one patent project of

Guangzhou Province, and opened the situation; several colleges in Guangzhou cooperated with Ourchem Information Consulting Co., Ltd. in carrying out patent implementing standard work; Fuzhou University cooperated with enterprises, and has completed several patent navigation projects, and accumulated experiences for patent navigation construction.

College libraries can conduct talent cultivation cooperation and project participation cooperation with enterprises, borrow boats for sailing, and learn the experience of enterprises, participate in the actual work, and avoid the bend roads in development.

C. Individualized Service Contents and Diversified Service Modes

On one hand, individualized service contents refer to providing individualized contents service as per the using demands. One most important index for measuring whether a service is good is the users' satisfaction degree. As for the patent information service, the users' satisfaction degree can be reflected in whether valuable information can be provided, whether professional guidance suggestions can be put forward, and whether their expectations can be met. Thus, the patent information service should be based on the users' demand, and regard users' satisfaction degree as the pursuit and provide valuable intelligence information to users.

On the other hand, individualized service contents refer to institutions which should provide services suitable for their own capacity as per their own characteristics. The patent information service contents have different depths and difficulty degrees, and the service institutions can act according to their capacity as per their development period and capacity, and carry out suitable service contents. Taking our library as an example, our main service contents include publicity, patent retrieval, and patent novelty retrieval at the initial period, and up till present, we have completed several patent analysis reports, and currently, we are now attempting technical decomposition analysis, patent layout, patent navigation and other services.

The service mode is diversified, and the training can combine offline training and online training; the team service can be tracking service, embedded service, and full-course service, etc.; the service presentation mode can be report, and real-time data; and can also be one-to-one service or constitute teams to provide service.

D. Establish Reasonable Incentive Mechanism

Conduct well the division of labor at post, coordinate well the scientific and technological novelty retrieval, thesis collection and reference retrieval, patent information service and other work, realize the stable development of conventional business, pointedly develop patent information service, and encourage the scientific and technological novelty retrieval personnel to participate in patent information service.

Formulate performance evaluation method, quantize patent information service work as per the contents, time, difficulty degree, depth and other indexes, temporarily convert to scientific and technological novelty retrieval quantity as per

certain standard for evaluation, and it is applicable to be continuously engaged in patent information service after obtain the annual evaluation certificate.

Establish incentive mechanism, annually provide certain material or spiritual awards as per the completed amount, and meanwhile, preferentially consider title evaluation, excellence evaluation and advanced worker evaluation.

V. CONCLUSION

Currently, many colleges have set school-level intellectual property service center at libraries, and are now preparing or will prepare to carry out patent information service. They have united efforts of all parties, and boldly innovated in personnel, service, mechanism and other aspects, and the patent information service of college libraries will certainly promote the management and application of the school and even the society for intellectual property.

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