

Development Status and Countermeasures of Intellectual Property Information Services in Chinese University Libraries: Postprint

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Abstract

[Purpose/Significance] This study aims to respond to the development needs of national intellectual property strategies, plans, policies, and legal frameworks, and to facilitate the advancement of practice for university library-led intellectual property information service centers in China.

[Method/Process] Through an online investigation of 102 university library websites, this research examines the current development status of intellectual property information services in Chinese university libraries, thereby offering strategies for the future development of university library intellectual property information service centers in China.

[Result/Conclusion] Recommendations are proposed from five dimensions—management policies, institutional configuration, functional roles, collaborative organizations, and service content systems—to promote the establishment of intellectual property information service centers in Chinese university libraries.

Full Text

Abstract

[Purpose/Significance] This study aims to align with national intellectual property strategic planning and policy development, and to promote the practical development of library-led intellectual property information service centers in Chinese universities. [Method/Process] Through web-based investigation of 102 university library websites, this paper explores the current development status of intellectual property information services in Chinese university libraries, providing recommendations for the future development of these centers. [Result/Conclusion] The paper proposes recommendations for advancing the

construction of university library intellectual property information service centers in China from five dimensions: management policies, institutional setup, functional roles, cooperative organizations, and service content systems.

Keywords: university library; intellectual property; information service; development status; countermeasure research; web-based investigation

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In recent years, China has increasingly prioritized intellectual property development, elevating it to a national strategic planning level. To deepen implementation of the intellectual property strategy and accelerate the building of an IP powerhouse, China promulgated the *National Intellectual Property Strategy Outline* in 2008. At the 18th National Congress in 2012, the national innovation-driven development strategy was proposed, clarifying the indispensable role of intellectual property in promoting innovation. In supporting the development of “Double First-Class” university construction, universities serve as the primary front for innovative research and as advanced positions for IP creation, protection, utilization, management, and services. The *Several Opinions of the State Council on Accelerating the Construction of an IP Powerhouse Under New Circumstances* proposed increasing IP information service outlets and improving public IP information services. The *13th Five-Year Plan for National IP Protection and Utilization* required expanding IP information service networks and strengthening the IP information service capacity of public libraries, university libraries, sci-tech information institutions, and industry organizations. The *13th Five-Year Plan for National Education Development* explicitly supported university libraries in building IP information service centers to serve university innovation. In December 2017, the National Intellectual Property Administration and Ministry of Education jointly formulated and issued the *Implementation Measures for the Construction of University Intellectual Property Information Service Centers* (hereinafter referred to as the *Measures*), which established university IP information service centers in batches across the nation. The *Measures* also outlined the positioning, construction principles, work content, selection procedures, and evaluation mechanisms for these centers. Furthermore, Article 5 of Chapter 1 of the *Measures* stipulates that “IP information centers are generally established within university libraries.” Based on this provision, most university IP information services are led by their libraries.

1 Research Status

On February 1, 2019, the author searched the China National Knowledge Infrastructure (CNKI) database using the keywords (“university library” OR “academic library”) AND (“intellectual property information service” OR “patent information service”), retrieving 143 relevant articles. The publication trend is shown in [Figure 1: see original paper]. Chronologically, the earliest relevant lit-

erature dates back to 1999, with overall publications showing an upward trend, particularly accelerating in the last three years, indicating growing attention to this research area.

The thematic distribution of publications is shown in [Figure 2: see original paper]. Beyond the dominant themes of “university library” and “academic library,” literature on “information service” and “patent information service” is also substantial (34 articles each), demonstrating that patent information service constitutes a major component and research hotspot in university IP information services. Specifically, research has focused on the content, practical investigation, model research, development strategies, and trend analysis of patent information services in university libraries, as well as studies from different perspectives such as “innovation and entrepreneurship environment,” “big data environment,” and “collaborative innovation.” Literature on “intellectual achievements rights,” “property rights,” and “intellectual property” primarily discusses IP issues in library services, while another portion focuses on the models and system construction of IP information services. Building on these findings, this study employs web-based investigation and case analysis methods.

2 Investigation and Analysis

2.1 Data Acquisition

At the end of 2018, the author conducted a web-based investigation of 102 universities and their library websites across five dimensions: management policies, institutional setup, functional roles, cooperative organizations, and service content. The university list was derived from the Ministry of Education’s Sci-tech Novelty Retrieval Service Platform (<http://www.chaxin.edu.cn/templates/index.xhtml>). Between 2003 and 2014, the Ministry of Education approved seven batches of workstations, totaling 102 universities. The selection criteria were: (1) meeting the basic application requirements in Article 10 of Chapter 3 of the *Measures*, which stipulates “a team of more than 10 members (including 10), with at least 5 members (including 5) having sci-tech novelty retrieval experience and systematic IP information training,” and Article 11, which gives priority to universities “with sci-tech novelty retrieval institutions or similar institutions recognized by relevant ministries or national industry associations”; and (2) the fact that sci-tech novelty retrieval, as an important foundation for scientific research, product development, and sci-tech management, can provide objective basis for research project establishment and appraisal, evaluation, acceptance, transformation, and rewards of research achievements, thereby promoting IP creation, utilization, protection, management, and services in universities.

2.2 Data Analysis

Five dimensions were selected to reveal the development status of IP information services in Chinese university libraries, as shown in .

2.2.1 Management Policies The assessment of management policies for university library IP information services was based on whether universities published copyright statements or announcements, as well as confidentiality agreements for sci-tech novelty retrieval stations and library user privacy protection policies. As shown in , more than half of the universities have formulated copyright announcements, particularly regarding digital electronic resources, demonstrating certain IP protection awareness. However, during the website investigation, the author found that most copyright announcements had issues such as inconsistent or non-standard names, inconspicuous placement, and varying content lengths.

2.2.2 Institutional Setup Whether a university library has established a “National University Intellectual Property Information Service Center” directly reflects its institutional setup. The national “University Intellectual Property Information Service Center” was selected as the indicator because it represents a physical institution, unlike the virtual institutions commonly established by universities. These physical institutions have relatively complete service teams, personnel support, funding guarantees, and organizational management mechanisms.

On February 3, 2019, the first batch of 23 National University Intellectual Property Information Service Centers was announced: Peking University, Beijing Jiaotong University, Beijing University of Science and Technology, Chongqing University, Dalian University of Technology, University of Electronic Science and Technology, Northeast Forestry University, Northeast Normal University, Guangxi University, Harbin Institute of Technology, Hebei University of Technology, South China University of Technology, Huazhong University of Science and Technology, Nanjing Tech University, Ningbo University, Tsinghua University, Shanghai Jiao Tong University, Tongji University, Xi'an Jiaotong University, Xiangtan University, Zhengzhou University, Ocean University of China, and Sun Yat-sen University. As shown in , among the 102 universities, 21 (excluding Hebei University of Technology and Xiangtan University) have established “National University Intellectual Property Information Service Centers,” accounting for 20.6%—approximately one-fifth of universities are actively enhancing their innovation capacity to support collaborative innovation.

Universities with established centers have relatively clear and rational institutional structures. For example, Peking University established a “Research Support Center” to conduct patent novelty retrieval and IP services, supporting the transformation of research achievements. Tongji University Library adjusted its organizational structure in September 2017, applied to become an IP Service Department, and later merged into the “Discipline and Intellectual Property Service Department.” In February 2018, against the backdrop of the *Measures*, Tongji University established its Intellectual Property Information Service Center, affiliated with the library, focusing on IP information services and talent cultivation.

2.2.3 Functional Roles Functional roles refer to university libraries' responsibilities in strengthening public IP information service construction and promoting the widespread dissemination and effective utilization of patent information beyond serving internal users. The National Intellectual Property Administration's *Notice on Publishing the List of National Patent Document Service Outlets* designated 120 units as national patent document service outlets, including 38 universities. As shown in , 26 universities are "National Patent Document Service Outlets of the National Intellectual Property Administration," accounting for 25.5%—approximately one-quarter of universities not only provide internal IP information services but also actively offer public IP information services to society and innovation entities, contributing to innovation, entrepreneurship, and local economic development.

2.2.4 Cooperative Organizations Beyond joining the University Intellectual Property Information Service Center Alliance, university IP information service centers should actively collaborate with industries, enterprises, research institutions, and governments to form an IP service community, creating communication platforms and building a collaborative innovation service system for industry-academia-research-application synergy to achieve mutual success. By building such platforms, universities and other non-profit institutions can open their IP databases and technical information to other social groups, and also dispatch IP management and operation experts as IP consultants to provide face-to-face services for enterprises. The key to system construction lies in government guidance, with enterprises and research institutions as industry leaders, achieving resource docking, complementary advantages, and collaborative development.

On March 30, 2018, the first University Library IP Information Service Seminar and the founding ceremony of the University Intellectual Property Information Service Center Alliance were held at the Sino-French Center of Tongji University. The alliance was formally established, with its first council consisting of 22 units: Tongji University, Peking University, Tsinghua University, Shanghai Jiao Tong University, Zhejiang University, Wuhan University, Huazhong University of Science and Technology, Jilin University, Sun Yat-sen University, South China University of Technology, Dalian University of Technology, Chongqing University, Lanzhou University, Zhengzhou University, University of Electronic Science and Technology, Beijing University of Science and Technology, Beijing Jiaotong University, Nanjing Tech University, Shenzhen University, Guangxi University, Taiyuan University of Technology, and Shanghai Maritime University. Tongji University serves as the first chair unit, with Peking University, Tsinghua University, and Shanghai Jiao Tong University as vice-chair units. The alliance operates under the business guidance of the Ministry of Education's Science and Technology Development Center and the National Intellectual Property Administration's Planning and Development Department. It was voluntarily formed by university libraries committed to building IP information service centers, aiming to further implement the *Measures* and promote

the construction and business development of university IP information service centers. As shown in , among the first 22 council units, all except Shenzhen University are included in the 102 universities investigated, with the same proportion as the “National University Intellectual Property Information Service Centers”—approximately one-fifth of universities actively joining IP industry associations and organizations to seek development and cooperation. This marks the transition of university library IP information services from fragmentation to clustering and specialization, greatly promoting the transfer and transformation of university research achievements and further enhancing “Double First-Class” construction.

2.2.5 Service Content The author employed content analysis to elaborate on university library IP information service content. Among the 102 universities, 73 provided corresponding IP information service content introductions on their websites, while the remaining 29 either did not display service content or only provided basic contact information. Therefore, the sample size for content analysis was 73 university websites. Through preliminary coding of the content analysis, a coding table was formed (see), which is divided into three levels: the first level includes “service content” and “service target”; the second level has four categories each; and the third level contains specific items.

Service content primarily consists of patent services, IP evaluation, IP consultation, and IP training. As shown in [Figure 3: see original paper], patent services account for 96%, occupying a dominant position, while IP evaluation, consultation, and training account for minimal proportions. In fact, the various components of patent services are inseparable and run through all aspects of IP information services, forming a benign IP information service content system.

As shown in [Figure 4: see original paper], the main patent information service items include patent novelty retrieval, patent search, patent training/lectures, patent analysis, and patent consultation, followed by patent early warning and tracking, patent layout, patent talent cultivation, patent resource navigation/indexing, patent agency, patent examination, and patent service month/patent promotion activities.

First, patent novelty retrieval accounts for the largest proportion. According to the requirements of the *Patent Law of the People's Republic of China*, its implementation rules, and relevant regulations issued by the National Intellectual Property Administration, patent novelty retrieval is conducted based on the patent novelty retrieval commission form provided by the client, relying on available literature resources, rich experience accumulated through long-term patent retrieval, and high-quality retrieval personnel. Through multiple retrieval approaches and comprehensive analysis and comparison methods, it focuses on examining the novelty and inventiveness of the technology, evaluates the “patentability” of research achievements and inventions, and provides literature verification results to help clients better conduct patent applications. Although both sci-tech novelty retrieval and patent novelty retrieval fall under

the novelty retrieval category, they differ in specific definitions, procedures, report formats, and retrieval results. Therefore, university libraries should better conduct patent-related services according to the characteristics of patent novelty retrieval.

Second, following patent novelty retrieval are patent search, patent analysis, and patent consultation. Patent search services specifically include patent literature pre-searching, patent topical search, patent legal status search, novelty search, authorized patent search, and tracking search. University libraries' patent databases and professional patent retrieval platforms and websites can play significant roles in helping users retrieve needed content. Patent analysis is equally important, including patent competitiveness analysis for universities or industries, topical patent analysis, patent technology analysis, patent trend analysis, patent retrieval analysis, core patent mining, patent intelligence analysis, patent early warning and infringement analysis, inventor topical patent analysis, and patent analysis services for national major sci-tech special projects. Patent consultation involves basic patent knowledge consultation, patent information retrieval consultation, and patent legal status consultation. These multi-level services are primarily demand-driven, with some embedded into individual users and teams, and others embedded into disciplines and professional fields, providing embedded research services.

Third, patent training/lectures slightly outweigh patent talent cultivation. Training/lecture topics include basic patent information and retrieval analysis practice, introduction to basic patent knowledge and commonly used retrieval tools, domestic and foreign patent retrieval and analysis based on the National Intellectual Property Administration's patent retrieval system, and patent retrieval and intelligence application, focusing on professional IP basics and patent retrieval systems, methods, and analysis. Patent talent cultivation is primarily conducted through teaching activities offering IP-related courses, without other practical activities or base cooperation. Notably, two universities have launched "Patent Service Month" activities, providing on-site patent knowledge consultation for faculty and students regarding patent application processes, electronic applications, drafting and responses, and holding IP thematic lectures to build brand activities for patent promotion, continuously deepening IP information services. Other services such as patent early warning and tracking, patent layout, patent resource navigation/indexing, patent agency, and patent examination are only provided by a few universities. Except for patent resource navigation/indexing, the other services require considerable professional expertise and difficulty and can only be provided as advanced services after establishing basic IP information services.

As shown in [Figure 5: see original paper], 89% of university libraries serve internal users, though some also serve enterprises, government agencies, and institutions. This data deviates from the 25.5% of universities with "National Patent Document Service Outlets" because some universities, while possessing the function and role of serving the public, do not clearly specify their service

scope or have not yet developed in-depth services.

3 Countermeasures and Recommendations

Based on the above web-based investigation and content analysis revealing the development status of university library IP information services, recommendations are proposed according to the five dimensions:

3.1 Management Policies—Dual Approach of Policy and Standards

For university libraries, awareness must first be prioritized, with copyright statements established promptly to protect the IP rights and interests of both the library and its users. Additionally, dedicated IP management institutions and systems should be established to help users apply for patents, determine and evaluate the value of research achievements, and facilitate timely and efficient transfer and transformation of managed IP. For government authorities, the author calls on the National Intellectual Property Administration, Ministry of Education, and China National Institute of Standardization to update and improve the national standard *Intellectual Property Management Standards for Higher Education Institutions*, establish standard norms for copyright announcements, and strengthen copyright promotion in libraries. Relevant government departments should continuously monitor the development status of university IP information services, introduce supportive policies for steady improvement, improve supervision mechanisms for IP information services, and create a favorable development environment.

3.2 Institutional Setup—Scientific and Rational Center Structure

Universities that have not yet established IP information service centers should actively improve their software and hardware conditions for IP information services according to the *Measures* and accelerate the establishment of service centers to provide professional services for more users. Universities with established centers should adhere to scientific and rational principles, setting up center structures according to the construction principles and functional roles outlined in the *Measures*. Regarding talent cultivation, IP schools should be established to cultivate comprehensive IP talent and reserve IP experts and scholars. From the perspective of IP achievements, IP achievement transfer and transformation studios could be set up, with complete and rigorous transformation procedures to facilitate timely and effective transformation and application of IP achievements in coordination with relevant university departments.

3.3 Functional Roles—Indispensable Combination of Talent and Services

Institutional setup is an important manifestation of functional role performance and should consider two principles: talent cultivation and IP achievement transfer and transformation—the two major functions of university library IP infor-

mation service centers as part of public IP information service construction. First, talent cultivation is reflected in three aspects: establishing and improving IP information service talent cultivation models, composite talent reserve mechanisms, and evaluation mechanisms. The cultivation model could adopt a dual-track approach combining teaching theory and practice with internal schools and external institutions, while composite talent reserve and evaluation mechanisms can promote the continuous professional development of IP service specialists. Second, beyond patent services, IP achievement transfer and transformation services should be emphasized. This can be achieved by establishing transfer and transformation studios within the center to realize the ultimate purpose of IP services—enabling timely utilization of IP achievements.

3.4 Cooperative Organizations—Win-Win Collaboration Among Industry, Academia, Research, and Application

In addition to joining the University Intellectual Property Information Service Center Alliance, university IP information service centers should actively collaborate with industries, enterprises, research institutions, and governments to form an IP service community, creating communication platforms and building a collaborative innovation service system for industry-academia-research-application synergy to achieve mutual success. Through such platforms, universities and other non-profit institutions can open their IP databases and technical information to other social groups and dispatch IP management and operation experts as IP consultants to provide face-to-face services for enterprises. The key to system construction lies in government guidance, with enterprises and research institutions as industry leaders to achieve resource docking, complementary advantages, and collaborative development.

3.5 Service Content—Building a System Through Embedded and Progressive Approaches

The investigation reveals that many universities currently focus primarily on patent services. However, subsequent development should emphasize systematic growth, gradually incorporating other service content such as copyright and trademark to build a service content system through “embedded and progressive approaches.” Specifically, this means advancing from basic services to customized, embedded services, forming an continuously upgrading three-dimensional IP information service system. Based on the current development status and the *Measures*, the work content of university IP information service centers can be summarized into six aspects: basic IP information services (IP information consultation, patent services, etc.); IP talent cultivation; development of IP information service resource platforms and analysis tools; embedded research team IP information services; decision-support IP services; and university IP achievement transfer and transformation services.

4 Conclusion

Researching the development status of university library IP information service centers in China can not only provide references for the practical development of these centers but also continuously enhance universities' capacity for transferring and transforming their own innovative achievements, aligning with the national trend of building "Double First-Class" universities. Through web-based investigation of IP information services in 102 university libraries, this study summarizes five aspects requiring attention for future development: management policies, institutional setup, functional roles, cooperative organizations, and service content. It is hoped that university library IP information service centers will combine their actual development conditions and needs, continuously improve in these five areas, and fulfill their proper value.

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Note: Figure translations are in progress. See original paper for figures.

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