

Research on the Intellectual Property Management System of Universities from the Perspective of Big Data

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Abstract: With the rapid development of big data technology, the intellectual property management system in universities is facing new challenges and opportunities. This article explores the current situation, problems, and development trends of the intellectual property management system in universities from the perspective of big data through literature research and empirical analysis, and proposes relevant suggestions and measures to promote the improvement and optimization of the level of intellectual property management in universities.

1. Introduction

Intellectual property is a very important resource, including patents, trademarks, copyrights, domain names, etc. In universities, intellectual property is not only a product of knowledge innovation, but also one of the core competitiveness of universities. Therefore, studying the current situation, problems, and development trends of the intellectual property management system in universities from the perspective of big data is beneficial for improving the level of intellectual property management in universities and further enhancing their core competitiveness.

2. Research background and purpose

Intellectual property management plays an extremely important role in national strategy. In recent years, the country has attached great importance to the protection and management of intellectual property rights, and has successively introduced a series of regulations, policy documents, and implementation plans to promote innovation, protection, and application of intellectual property rights. Among them, the application of big data technology in intellectual property management has received widespread attention and support.[1] In 2015, the State Council of China issued the "National Big Data Development Strategy", which pointed out the need to strengthen intellectual property protection and management, and improve the ability to explore and utilize intellectual property. In 2016, the China National Intellectual Property Administration issued the Outline of Intellectual Property Development (2016-2020), clearly proposing to promote the "Digital transformation" of intellectual property management and strengthen the application of big data technology in intellectual property management.[2]

The research purpose of this article is to:

(1) Understand the current situation and existing problems of the intellectual property management system in universities, and explore the application of big data technology in intellectual property management.

(2) Analyze the development trend of university intellectual property management system in the era of big data, and predict the future development direction of university intellectual property management.

(3) Propose corresponding suggestions and countermeasures to promote the improvement and optimization of intellectual property management in universities, and enhance their core competitiveness.

3. Problems in the intellectual property management system of universities from the perspective of big data

3.1. Insufficient intellectual property literacy among teachers and students

Firstly, many university teachers and students do not understand the concept and value of intellectual property. Intellectual property refers to unique intellectual achievements created in fields such as science, culture, technology, etc., such as patents, trademarks, copyrights, etc. It is not only the main wealth of the knowledge economy era, but also to a certain extent affects the research level and competitiveness of universities. However, many university teachers and students lack awareness and attention to intellectual property rights.

Secondly, the awareness of prevention in intellectual property management among university teachers and students is weak. Although many universities have established corresponding systems and norms in intellectual property management, such as procedures for patent and copyright applications, in practice, many university teachers and students lack basic awareness of intellectual property prevention. For example, when conducting research, one did not pay attention to the search and application of patent literature, or did not report research progress to the college or research unit in a timely manner.

In addition, the lack of awareness of intellectual property protection is also a problem. Graduate students in universities are particularly prone to overlook and overlook the importance of intellectual property protection, and even have the phenomenon of plagiarism and infringement of others' intellectual property rights. This often leads to the inability of university research results to be commercialized and translated into practical applications, thereby affecting the economic interests and reputation of universities.

Finally, there is a lack of understanding and application of intellectual property protection regulations. In the era of big data, intellectual property protection regulations have become increasingly important. However, many university teachers and students still lack understanding and application of intellectual property protection regulations.

3.2. The establishment of intellectual property management institutions and the lack of professional talents

3.2.1. Issues regarding the establishment of intellectual property management institutions

The establishment of intellectual property management institutions in universities plays a crucial role in the entire intellectual property management system. On the one hand, intellectual property management institutions should be responsible for formulating and improving the intellectual property management system of universities, protecting the legitimate rights and interests of intellectual property in schools; On the other hand, it is necessary to be responsible for the overall

management and coordination of intellectual property within the school, ensuring the implementation of relevant policies and laws. However, currently, there are the following issues with the establishment of intellectual property management institutions in universities:

(1) Segmental management: The traditional university intellectual property management system is related to disciplines and majors, which leads to different fields of patent application, trademark registration, copyright registration and other links, which is easy to cause fragmentation management of intellectual property and difficult to achieve efficient integrated management.

(2) The management objects are complex: The intellectual property management objects of universities involve multiple groups such as school teachers and students, research teams, alumni entrepreneurship teams, etc., involve various forms of intellectual property, and make it difficult to manage them uniformly.

(3) Insufficient emphasis: Some universities do not attach enough importance to the establishment of intellectual property management institutions, and do not provide sufficient investment and support, resulting in a lack of resources and motivation for the construction of management institutions.

3.2.2. Lack of professional talents

Intellectual property management in universities requires rich knowledge and skills in legal, economic, and management aspects. However, currently, it is common for intellectual property management institutions in universities to lack professional talents, mainly manifested in the following aspects:

(1) Low teacher engagement: Due to the main responsibilities of university teachers being research and teaching, it is difficult to allocate sufficient time and energy to participate in intellectual property management work.

(2) Lack of professional talents: Currently, the intellectual property management major in domestic universities is not very popular, leading to a lack of relevant professional talents in universities.

(3) Lack of knowledge system: Intellectual property management requires comprehensive application of domain knowledge such as law, economy and management, but there is a lack of connection and coordination between different domain knowledge systems, which makes it difficult to form a complete knowledge system.

3.3. The patent conversion rate is generally low

3.3.1. Lack of innovation awareness

Some university researchers only focus on the publication of papers and the output of research results, and lack sufficient attention and awareness on the protection and transformation of intellectual property rights.

3.3.2. Insufficient professional skills

University administrators lack professional skills and understanding of the intellectual property market in terms of intellectual property management and transformation, as well as effective operational mechanisms and management methods.

3.3.3. Lack of effective intellectual property management and promotion strategies

The transformation of intellectual property rights in universities faces many problems such as insufficient market demand and long patent review time. It is necessary to establish a more effective intellectual property operation model, adopt marketing methods, expand the market, and improve the

patent conversion rate.

3.3.4. Intellectual property resources are relatively scattered

On the one hand, the cooperation relationship between the intellectual property management departments of universities and various colleges and laboratories is relatively loose, lacking effective coordination mechanisms, making it difficult to achieve resource sharing and integration. On the other hand, due to the different ways in which intellectual property rights are generated and the different application needs in different disciplines, the understanding and operation of intellectual property rights vary among colleges and laboratories, resulting in low efficiency in the use of intellectual property resources.

3.3.5. The content of intellectual property information services is relatively single

A. Limitations of service content

The traditional intellectual property information services in universities mainly focus on legal and policy interpretation, guidance on the preparation of intellectual property applications, etc. The service content is relatively single, which is difficult to meet the multi-level and multi-angle needs of universities in intellectual property protection, technological innovation, and other aspects.

B. Insufficient integration of information resources

The intellectual property information service system of universities usually only considers the intellectual property information resources of their own university, without sharing and integrating information resources with other universities or related institutions, which leads to the limitations of service information.

C. Insufficient data analysis ability

The current intellectual property information services in universities mostly focus on the collection, organization, and distribution of information, without delving into the data value behind the information. Therefore, there is a lack of data analysis ability.

Solutions to the problems in the intellectual property management system of universities from the perspective of big data

4. Strengthening the standardization and standardization of intellectual property management work, and establishing a sound intellectual property management system

4.1. Establishing rules and regulations for intellectual property management

Universities can establish rules and regulations for intellectual property management, clarifying the responsibilities, processes, and standards of intellectual property management, such as the time, method, and archive filing of intellectual property declaration, so as to improve the intellectual property management system and make academic innovation and achievements more stable.

4.1.1. Improving intellectual property protection institutions

Universities can establish intellectual property protection centers to centrally manage and protect various types of intellectual property, such as invention patents, utility models, exterior designs, software copyrights, trademarks, and so on.

4.1.2. Promoting classified management of intellectual property rights

Universities can classify intellectual property through classification management, such as patent technology, copyright, trademark, etc. Each type of intellectual property has different management

processes and regulatory standards.

4.2. Improving the informatization level of intellectual property management in universities, and promoting the development of digitalization and networking of intellectual property management in universities

In the context of modern informatization, strengthening the informatization level of intellectual property management in universities and promoting the development of digitalization and networking is an important task at present.

Firstly, universities need to establish an information-based intellectual property management system, including patents, trademarks, copyrights, and other aspects. Each college and local branch should connect with the school's main system, work together, and form a complete intellectual property management network.

Secondly, universities should promote the development of digital intellectual property management. Digitalization is an important component of informatization. Deploying digital intellectual property management platforms and systems enables electronic storage, classification, analysis, and communication of data, thereby improving the efficiency and accuracy of intellectual property management work.

Once again, universities should promote the development of networked intellectual property management. Networked intellectual property management can enable close cooperation between intellectual property management work and multiple stakeholders. Through network platforms, activities such as information sharing, business collaboration, and transaction processing can be carried out, further improving the efficiency of intellectual property management.

In summary, the informatization of intellectual property management in universities has become an important task at present. Universities should strengthen the construction of information systems, promote the development of digitization and networking, and build an information technology talent team, in order to further improve the level and ability of intellectual property management, and provide strong guarantees for the development of higher education.

4.3. Strengthening the publicity of intellectual property laws, regulations and policies, and improve the awareness of intellectual property protection of all teachers and students

4.3.1. Developing relevant policies

Universities should first formulate a series of clear intellectual property related policies, such as intellectual property protection system, intellectual property education outline, and intellectual property infringement punishment regulations. The formulation of these policies can enable students, teachers, and other employees to have a clear understanding of the importance that universities attach to intellectual property protection and how to comply with and maintain intellectual property rights.

4.3.2. Strengthening education

Universities should strengthen the education of laws, regulations, and policies on intellectual property protection for teachers and students, including popularizing the basic concepts, principles, and classification of intellectual property to students in the classroom, and arousing their awareness of intellectual property protection. At the same time, for teachers and other employees, intellectual property training should also be strengthened to enhance their awareness of intellectual property protection and legal literacy.

4.3.3. Organizing special lectures and exchanges

Universities can invite experts and scholars in the field of intellectual property to give lectures and lectures, providing teachers and students with the latest developments and research results on intellectual property protection. In addition, specialized seminars, exchange classes, forums, etc. can be organized to strengthen communication and learning in various aspects of intellectual property protection, and enhance the awareness and legal literacy of teachers and students in intellectual property protection.

4.3.4. Establishing an intellectual property protection center

Colleges and universities can establish a professional intellectual property protection center to provide consultation, guidance, training, popularization of intellectual property laws, regulations and policies and other services for teachers and students, as well as support and assistance for teachers and students in dealing with intellectual property disputes.

4.3.5. Strengthening supervision and punishment

Universities should pay attention to the seriousness of intellectual property violations and establish a sound mechanism for intellectual property supervision and punishment. Through strict disciplinary measures, economic penalties, and legal accountability, we will increase the crackdown on intellectual property infringement and maintain the legitimacy and stability of intellectual property.

In short, the improvement of intellectual property protection awareness and legal literacy in universities requires the joint efforts of all teachers and students. Measures such as formulating relevant policies can strengthen intellectual property education among teachers and students, organize special lectures and exchanges, and establish intellectual property protection centers are needed. Through the implementation of these measures, university teachers and students can better safeguard their intellectual property rights and promote the development of knowledge innovation and technological progress.

5. Conclusion

This article mainly starts from the perspective of big data and explores strategies to address the problems in intellectual property management in universities. Through literature review and case analysis, this article finds that in the era of big data, intellectual property management in universities should shift from traditional management methods to data-based intelligent management, including improving intellectual property information systems, so as to build intellectual property big data platforms, and promote intellectual property openness and sharing. At the same time, intellectual property management in universities should focus on platform construction, information transformation, legal publicity, etc., in order to maximize the value of intellectual property.

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