Analysis of dilemma and countermeasures of patent transformation in colleges and universities in Shaanxi Province

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Abstract: To explore and implement the diversification of intellectual property ownership and benefit distribution is the main theme of the era of knowledge economy. In recent years, Shaanxi colleges and universities have done a lot of work in improving the intellectual property system and promoting the transformation of scientific and technological achievements, and have achieved positive results, but there is still a big gap compared with many colleges and universities in advanced areas in China. This paper starts from the current situation of patent transformation in colleges and universities in Shaanxi, analyzes the main problems in patent transformation, namely the difficulties faced, and puts forward targeted suggestions to improve the patent transformation mechanism in colleges and universities in Shaanxi, and provides reference for promoting the patent transformation work in colleges and universities in Shaanxi by formulating effective countermeasures.

Key words: Shaanxi colleges and universities; Patent transformation; Dilemma; Countermeasure

As an important carrier of knowledge creation and technology transfer, colleges and universities play an irreplaceable role in the national innovation system. For a long time, the insufficient ability and efficiency of the transformation of scientific and technological achievements in colleges and universities have been an important obstacle to the implementation of China's innovation-driven development strategy and the construction of a powerful country in science and technology. In order to accelerate the implementation of the innovation-driven development strategy and strengthen the national strategic scientific and technological strength, colleges and universities need to vigorously improve their own patent transformation capabilities. From the perspective of patent application and authorization of colleges and universities in Shaanxi Province in recent years, although the total number of patent applications in colleges and universities has increased year by year, the conversion rate still needs to be improved.

In recent years, the Shaanxi Provincial government has issued a series of policy documents such as the "14th Five-Year Plan for Intellectual Property Development of Shaanxi Province" and the Outline for the Construction of Shaanxi Province with Strong Intellectual Property Rights (2021-2035), which have played an important role in promoting the transformation, upgrading and innovative development of Shaanxi's economy. Therefore, this paper puts forward reasonable and effective suggestions on the problems existing in the patent transformation of colleges and universities in Shaanxi Province, hoping to greatly enhance the creativity of scientific research institutions in China and contribute to the realization of the goal of an innovation-oriented country.

1. Analysis of the dilemma of patent transformation in Shaanxi colleges and universities

1.1 The degree of emphasis on patent transformation is not enough

Both universities and governments in Shaanxi Province have a common problem, that is, they do not pay enough attention to patent transformation. Although the government invests a large amount of funds in granting patent awards to support applications every year, they themselves lack a deep understanding of the importance of patent implementation, and may only take the number of patent applications and grants as one of the important indicators to measure the government's intellectual property protection. In addition, from the perspective of university researchers, they are easily affected by the traditional scientific research management evaluation system and other factors, and lack a deep and comprehensive understanding of the significance and function of patent transformation and even its own connotation. In fact, fundamentally speaking, only when patents are transformed can they realize their value and highlight their important role. However, a small number of researchers pay more attention to individual patents and are reluctant to be transformed by others, which ultimately affects the quality and efficiency of patent transformation in universities and colleges, making the progress of this work particularly slow.

1.2 The patent transformation policy is not sound

In recent years, from the state to local governments, there is no doubt that many guiding policies have been issued in succession to facilitate the transformation of patented technology. These policies have effectively provided great convenience for enterprises' investment and financing and patent mortgage loans. At the same time, the value of patents in the development, production and operation of enterprises' technology has also been fully reflected. However, these policies do not have a strong role in promoting the patent transformation of colleges and universities in Shaanxi Province, and their guidance is weak. In particular, most of the policies are biased to the macro level, and the feasibility of actual operation is insufficient. In addition, although a number of policies clearly stipulate that the inventor will get the corresponding reward amount after the patent transfer is implemented, there is no relative provision on the consequences if the unit does not perform the reward. At the same time, the current regulatory measures are not in place, which makes many inventors do not get the corresponding reward. Ultimately affecting the enthusiasm and initiative of scientific researchers in patent research and development.

2. Shaanxi university patent transformation countermeasures and suggestions

1.1 Attach importance to patent transformation

The "Several Opinions on Improving Patent Quality in Universities and Colleges and Promoting Patent Transformation and Application" was officially promulgated and implemented on February 3, 2020. The opinions put forward new requirements for patent work in universities and colleges from the basic principles, main goals, important tasks, guiding ideology and other aspects, and also emphasized the idea that non-transformation is the biggest loss. This kind of thinking forces Shaanxi colleges and universities to continuously optimize and improve their intellectual property management work. Under this background, colleges and universities should change the past academic research concept to market-oriented, and at the same time, patent conversion indicators should be incorporated into the evaluation system. Specifically speaking, on the one hand, colleges and universities should attach importance to the cooperation between industry, university and research, establish long-term and stable cooperative relations with enterprises, strengthen school-enterprise cooperation in patent research and development, based on the latest concept of "research and development of what the market needs", improve the quality of patents, and cultivate the industry's truly leading technology. At the same time, colleges and universities should also start from their own professional advantages, actively join the industry alliance, through patent transfer or patent licensing and other ways to promote the further development of college patents toward industrialization and commercialization. On the other hand, from a macro point of view, colleges and universities should run patent operation strategy through every link of research project selection, project establishment, implementation to results and results transformation, and strive to establish a complete and one-stop management service system.

In the past five years, Shaanxi University of Science and Technology has signed more than 5,400 horizontal contracts, granted more than 3,500 patents and converted more than 350 patents. The amount of horizontal projects to the books increased by 495 percent, and the amount of patent conversion increased by 440 percent. The university's efforts in the transformation of scientific and technological achievements and innovative services have been reported many times by media such as Shaanxi Daily and Qidian News.

1.2 Building a transformation platform

First of all, accelerate the construction of patent conversion service platform. The Shaanxi Qinchuangyuan innovation-driven platform, which was unveiled in 2021, has also been highly valued by the province. Universities should take this opportunity to strengthen the construction of Qinchuangyuan patent transformation service platform, aiming to realize real-time interaction between the supply side and the demand side of patent achievements. Specifically, colleges and universities in Shaanxi can introduce intellectual property intermediary service agencies to establish close contact with enterprises in need on the basis of understanding the basic situation of patent held by teachers in colleges and universities and provide them with timely and accurate information, so as to facilitate accurate docking between teachers and enterprises, open up the road of patent transformation, and greatly improve the quality and efficiency of patent transformation. In addition to the above functions, intellectual property intermediary service agencies can also promote the barrier-free connection between supply and demand, maintain long-term cooperation between universities and enterprises, and then promote school-enterprise collaborative innovation.

Second, accelerate the construction of scientific and technological achievements information platform. The scientific and technological achievements information platform can effectively integrate and share intellectual property information among universities, enterprises and research institutes. At the same time, through the analysis and collation of these information, it can provide enterprises with more targeted technical information, and timely release the transformation of relevant patent technology, successful cases and other content. At present, Shaanxi colleges and universities have initially built a scientific and technological achievements information platform for colleges and enterprises in the province. For example, Northwestern Polytechnical University, Shaanxi University of Science and Technology and other colleges and universities have established scientific and technological achievements display websites and service websites for the whole society. At the same time, colleges and universities have also set up their own scientific research platforms and achievement transformation service institutions to help teachers bring scientific research achievements to the market.

1.3 Building professional teams

Patent transformation requires a professional team of talents, on the one hand, they need to be familiar with laws and regulations, master policies, on the other hand, they also need to be familiar with patent technology and market environment. From the current practice of patent transformation in colleges and universities in Shaanxi, the professional background of intellectual property management personnel in colleges and universities can not meet the actual needs, especially when there are many problems to be solved in the process of technology transfer. At the same time, due to the lack of intellectual property management personnel in some colleges and universities, patent application and licensing, patent evaluation and other work lack scientific guidance and norms. Therefore, it is suggested that colleges and universities should strengthen the training of patent administrators and improve the professional ability and level of intellectual property administrators. In terms of training content, colleges and universities should formulate personalized training programs according to the actual situation. In the form of training, colleges and universities can strengthen the training of relevant professional knowledge and skills by inviting professionals to give special lectures, case analysis and other forms. In addition, colleges and universities can also carry out enterprise visit and exchange activities, visit incubators, and hold patent transformation talks, so that relevant professionals can deeply understand the actual needs of enterprises for patent technology transformation.

Making full use of its scientific research advantages, Shaanxi University of Science and Technology has set up 11 achievement transformation innovation teams around 24 key industries in Shaanxi, including new display, dairy products, aviation, solar photovoltaic and biomedicine. These teams take the initiative to establish links with key industries and promote the industrial chain to "supplement, extend and strengthen the chain".

1.4 Improving transformation policies

In order to further optimize the patent transformation policy of colleges and universities in Shaanxi, based on the experience of other

provinces and cities, the following suggestions are put forward:

First of all, strengthen policy guidance and actively promote the special plan of patent transformation. On the basis of full research, strengthen the policy guidance for patent transformation, give full play to the guiding role of financial funds in the process of patent transformation, and promote the smooth progress of patent transformation in colleges and universities in Shaanxi. To encourage and guide colleges and universities to set up special funds for patent conversion, and increase financial support for patent conversion projects. At the same time, it will actively coordinate the relevant departments of finance and other departments to formulate corresponding policies and formulate implementation rules, and encourage and guide social capital to participate in the patent transformation work of colleges and universities.

Secondly, the performance of university researchers participating in patent conversion should be set as an optional index for professional title evaluation, and the evaluation weight can even be appropriately increased according to the actual situation. For example, if a patent led by XX teachers in a certain university achieves a certain degree of economic value after conversion, XX teachers can not only obtain conversion benefits according to the agreement, but also reduce the impact of other evaluation indicators during the evaluation of professional titles. In this way, teachers with outstanding contributions in the field of patent work can gain fame and fortune. I believe that this is a great encouragement and incentive for all teachers.

1.5 Improve the management mechanism

In the patent transformation work of colleges and universities, strengthening management is the basis for improving the efficiency of patent transformation. However, according to the survey, some colleges and universities in Shaanxi often only pay attention to patent application and authorization, but lack of necessary attention to its subsequent implementation process, protection and management. At the same time, the university patent conversion work involves many departments, the relevant management system is not perfect, the function is not clear, and the coordination among departments is insufficient, which is one of the main reasons leading to the low efficiency of patent conversion work.

First of all, improve the system construction and enhance the patent management ability of colleges and universities. Colleges and universities should establish and improve the internal management system and incentive mechanism according to their own characteristics and actual needs. On the one hand, strengthen the cultivation and introduction of talents specializing in the transformation of achievements; on the other hand, establish a scientific and reasonable patent evaluation system and system. At the same time, the relevant management system should be continuously revised and improved according to the actual situation, and the process and operational requirements of patent application, examination, authorization, licensing and transfer, price investment and other links should be standardized.

In addition, universities should establish and improve the scientific and technological achievements management system as soon as possible, and clarify the patent achievements management institutions and their responsibilities; Establish an intellectual property management system with the transfer and transformation of achievements as the core, and strengthen the cooperation among various functional departments in the process of patent transformation; A system for implementing and maintaining patents after authorization has been established and put in place. Through the improvement of the relevant management system, the patent conversion work has been institutionalized, standardized and scientific.

Epilogue

Colleges and universities are important carriers of national intellectual property rights, and strengthening the protection and management of intellectual property rights in colleges and universities is an inevitable requirement to promote the national innovation-driven development strategy. Patent protection and management is an important part of the national intellectual property strategy. Therefore, colleges and universities in Shaanxi Province should base on the reality, draw on and absorb the advantages and strengths of patent protection work in other colleges and universities, and cooperate with the government, universities and society to give scientific guidance to the patent transfer work in colleges and universities, vigorously support and strictly supervise, and further stimulate the vitality and potential of patent transfer in colleges and universities. Improve the quality and efficiency of university patent transfer in an all-round way, and give full play to the leading role of universities in the innovation-driven process.

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