

The Construction of the Legal Environment of the Transformation of the Scientific and Technological Achievements in China

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Abstract

The transformation of scientific and technological achievements is a very important way that combines economy with science and technology. A good legal environment can push the transformation of scientific and technological achievements. Based on the normative analysis of the relevant laws issued by the National People’s Congress or State Council, it is found that there are some problems in the legal system of the transformation of scientific and technological achievements in China. The law of promoting the transformation of scientific and technological achievements is too lagged and inflexible; the governmental functions in the transformation of scientific and technological achievements are not clear; The legal protection mechanism on the funds of the transformation of scientific and technological achievements is not perfect; The legal system of scientific and technological intermediary services is not good enough. Through the content analysis, we put forward several suggestions. Amending the law of promoting the transformation of scientific and technological achievements and enhancing the operability of the law; protecting the government to give full play to its functions in the transformation of scientific and technological achievements through legislation; Improving the legal safeguard mechanism on the funds of the transformation of scientific and technological achievements; Clarify the relevant provisions of the scientific and technological

intermediaries and improving the mechanism of legal supervision.

Key words: The transformation of scientific and technological achievements; Legal environment; Construction

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INTRODUCTION

The 18th CPC national congress placed scientific and technological innovation to the core position of the overall situation of national development, stressing to Focus on promoting the innovation of science and technology, putting the innovation drive into practice, transforming the innovative achievements into real economic and social benefits to let science and technology benefit people. The third Plenary Session of the 18th Central Committee of the Communist Party of China put forward comprehensively deepening reform, unleashing all the vitality contained in work, knowledge, technology, management and capital, and making clear requirements for promoting Capitalization and industrialization of scientific and technological achievements. And that a good legal environment will play a positive role in the transformation of scientific and technological achievement. Since the 1990s, China attached great importance to deepening the reform of system of science and technology, made efforts to promote the transformation of scientific and technological achievements, and had promulgated the “law of science and technology progress”, “the promotion of scientific and technological achievements transformation method” to promote the combination of technology and economic laws and regulations. Based

on the normative analysis of the relevant laws issued by the National People's Congress or State Council, it is found that there are some problems in the legal system of the transformation of scientific and technological achievements in China. The law of promoting the transformation of scientific and technological achievements is too lagged and inflexible; the governmental functions in the transformation of scientific and technological achievements are not clear; the legal protection mechanism on the funds of the transformation of scientific and technological achievements is not perfect; the legal system of scientific and technological intermediary services is not good enough. Through the content analysis, we will put forward suggestions accordingly.

1. RELATED LEGISLATION OF CHINA'S TRANSFORMATION OF SCIENTIFIC AND TECHNOLOGICAL ACHIEVEMENTS

Table 1 reflects China's main legislation such as laws, regulations, and rules related to the transformation

of scientific and technological achievements. It takes Anhui province for example, listing corresponding local regulations and local government regulations. From Table 1, we can see that China has legislated to protect intellectual property rights of scientific and technological achievements since the 1980s, and started to formulate laws and regulations for the transformation of scientific and technological achievements in the 1990s. Next, in order to adapt to the rapid development of China's economy and society, the protection of intellectual property of scientific and technological achievements and the practical needs of the transformation of scientific and technological achievements, we not only amend the existing laws, regulations, and rules, but also formulate plenty of more detailed supporting laws, regulations, rules and regulations etc. it further improves the legal system of China's transformation of scientific and technological achievements, and becomes an important driving force for China's transformation of scientific and technological achievements.

Table 1
China's Main legislation Time, Legislative Subject, and Name of the Law

Time of legislation	Legislative subject	Name of the law
Passed on December 4, 1982	NPC	<i>The Constitution of PRC</i>
Passed on April 12, 1986	NPC	<i>The General Principles of the Civil Law of PRC</i>
Passed on March 16, 2007	NPC	<i>The Enterprise Income Tax Law of PRC</i>
Passed on August 23, 1982 First amendment on February 22, 1993 Second amendment on October 10, 2001 Third amendment on August 30, 2013	NPC Standing Committee	<i>The Trademark Law of PRC</i>
Passed on March 12, 1984 First amendment on September 4, 1992 Second amendment on August 25, 2000 Third amendment on December 27, 2008	NPC Standing Committee	<i>The Patent Law of PRC</i>
Passed on September 7, 1990 First amendment on October 27, 2001 Second amendment on February 26, 2010	NPC Standing Committee	<i>The Copyright Law of PRC</i>
Passed on July 2, 1993 Amended on December 29, 2007	NPC Standing Committee	<i>Law of PRC on Scientific and Technological Progress</i>
Passed on May 15, 1996	NPC Standing Committee	<i>Law of PRC on Promoting the Transformation of Scientific and Technological Achievements</i>
Published on September 23, 2012	the Central Committee of the Communist Party of China, The State Council	<i>Opinions of The CPC Central Committee, the State Council on Deepening the Reform of System of Science And Technology to Speed Up the Construction of National Innovation System</i>
Published on December 23, 1999	The State Council	<i>Regulation on National Awards for Science and Technology</i>
Published on October 9, 2014	The State Council	<i>Several Opinions of the State Council on Accelerating the Development of Service Industry of Science and Technology</i>
March 5, 2002	Ministry of Science and Technology, Ministry of Finance	<i>Several Provisions on Intellectual Property Management of National Scientific Research Plan Project Research</i>
Published on July 4, 2011	Ministry of Finance, Ministry of Science and Technology	<i>Interim Measures for the Establishment of Venture Capital Sub Fund of the Guidance Fund Management of the Transformation of National Scientific and Technological Achievements</i>

To be continued

Continued

Time of legislation	Legislative subject	Name of the law
Published on December 31, 2013	Ministry of Finance, State Taxation Administration	<i>Notice on Tax Policy of Incubators of Science-and-Technology Enterprise</i>
Passed on July 16, 1994 Amended on February 24, 2011	Standing Committee of Anhui province	<i>Regulations of Anhui province on the Advancement of Science and Technology</i>
Passed on June 20, 1998 Amended on October 21, 2005	Standing Committee of Anhui Province	<i>Regulation of Anhui province on the Protection and Promotion of Patents</i>
Passed on October 24, 2003	Standing Committee of Anhui Province	<i>Regulations of Anhui Province on Promoting the Transformation of Scientific and Technological Achievements</i>
Published on February 26, 2009	People's Government of Anhui Province	<i>Measures of Anhui Province on Science and Technology Prizes</i>

2. PROBLEMS EXISTING IN CHINA'S LEGAL ENVIRONMENT OF THE TRANSFORMATION OF SCIENTIFIC AND TECHNOLOGICAL ACHIEVEMENTS

Although China's legal system of transformation of scientific and technological achievements is improving, and has obtained some achievements in the aspect of construction on the legal system, but there are still many problems to be solved at the same time.

2.1 The Law of Promoting the Transformation of Scientific and Technological Achievements Needs to Be Improved.

2.1.1 The Law of Promoting The Transformation of Scientific and Technological Achievements Is Too Lagged. By 2014, The law of promoting the transformation of scientific and technological achievements has been implemented for 18 years, the supporting law, several provisions on promoting the transformation of scientific and technological achievements has been implemented for 15 years as well. With the rapid development of China's market economy and science and technology, great changes have taken place in China's economical system and technological system, and China's market of scientific and technological achievements is becoming more and more frequent, the environment and situation of the transformation of scientific and technological achievements has changed a lot. This law can no longer to adapt to the transformation of scientific and technological achievements and China's need to build an innovation-oriented country at the current stage, and it also hinders the transformation of scientific and technological achievements to some degree.

2.1.2 The Law of Promoting the Transformation of Scientific and Technological Achievements Is Too Inflexible

This law is too old to fit China's economic and social development and solve problems on current development of transformation of scientific and technological achievements. As to the content of this law, there are still some problems that some of the regulations are too

inflexible, with less operability which prevents some clauses from being implemented in practice. For example, the law number 21: "A certain proportion of the national budget for funds of science and technology, investment in fixed assets and technological transformation, should be used for the transformation of scientific and technological achievements." But there is no explanation for this proportion. This proportion may be regulated by corresponding laws and regulations published by local governments. The proportion must be different so that it may expend the gap of transforming levels of different regions.

2.2 The Governmental Functions in the Transformation of Scientific and Technological Achievements Are Not Clear

At present, Chinese government can't get in the right functional position in the transformation of scientific and technological achievements, which made the government, fail to fully play its role in the transformation of scientific and technological achievements.

2.2.1 The Government's "Offside"

The law of Scientific and Technological Progress stipulate explicitly that 'establish a technological innovation system which takes enterprises as the main body, takes the market as the guidance, and combines the enterprises with the scientific and technological researching and developing institutions and institutions of higher learning. Guide and support enterprises on technological innovation activities to make enterprises play the main role in technological innovations. Obviously, enterprises should be the implementing subject of the transformation of scientific and technological achievements. However, most of the transformations in China are carried out under the guidance of the government. The scientific and technological achievements are promoted by the government and the docking between the owners of scientific and technological achievements and enterprises or investors are promoted by the government, the government even directly invests and gets in charge of the projects of the transformation. The government has become the implementing subject of the transformation. The case that the government administrates a lot in the transformation, not only hinders the marketization

process of the transformation, which is bad for improving the enthusiasm of enterprises to participate in the transformation, but also increases the administrative burden on the government.

2.2.2 The Government's "Absence"

The transformation of scientific and technological achievements is an organized, planned promotion aimed at promoting the welfare of the society, an application and a commercialized, industrialized process (Xu, 2009). Markets play a decisive role in the transformation, but the current market economy system in China is not perfect, it is not enough to rely solely on market mechanisms to promote the transformation. Therefore, it also requires the government to give full play to its functions in management, guidance, coordination and service in the activities of the transformation. However, the Chinese government does not have made it. China's policies in fiscal, tax, industry, finance, government procurement and other aspects of the transformation are not perfect. There is a big gap between the scientific and technological achievements being transformed to public services and the needs of social development. Some of the functions of government departments in the transformation are in the overlap, which leads to buck passing, not performing duties. It seriously affected the implementation of the transformation.

2.3 The Legal Protection Mechanism on the Funds of the Transformation of Scientific and Technological Achievements Is Not Perfect.

2.3.1 Imperfect Legislations on Guaranteeing Funds

In the law of promoting the transformation of scientific and technological achievements, although it makes provisions of the government financial support for the transformation, there are no provisions on the steady growth of the financial input mechanism of the transformation. In order to implement the national medium and long term scientific and technological development plan, accelerate the transformation and application of scientific and technological achievements, and guide social forces and local governments to increase investment in the transformation, the central finance set up a guidance fund for the transformation of national scientific and technological achievements, which was launched officially on September 26, 2014.

In order to regulate the fund management of the translation, Ministry of finance, Ministry of science and technology developed the Interim Measures for the guidance fund management of the transformation of national scientific and technological achievements, to make provisions on the organizational management and supervision of Venture capital sub fund, loan risk compensation and performance rewards and funds. While the guidance fund for the transformation of national scientific and technological achievements is mainly used to support the achievements transformed by using fiscal

funds, as to the achievements formed by using Non-financial funds, there are no provisions for that.

2.3.2 Risk Investment Mechanism Is Not Sound

The transformation of scientific and technological achievements has properties such as high risk, high investment and long cycles. Some scientific research institutions owing scientific and technological achievements cannot realize self transformation for lack of enough funds, so they need support from commercial finance. But in view of the high risk of the transformation, financial institutions do not want to invest too much money for safety.

Enterprises lack enthusiasm because of the project's market risk and long payback period (Wang, 2010). Therefore, venture capital investment is needed to support the funds of the transformation. However, the current investment and financing mechanism of the transformation in China are not perfect. A perfect risk investment system has not been built. There is no way to ensure adequate funds for the transformation through the promotion of investments in it.

2.3.3 Preferential Tax Policies of the Government Are Not Good Enough

Tax preference is one of the important means to promote the innovation of science and technology, laws and regulations such as Law of Scientific and Technological Progress, law of promoting the transformation of scientific and technological achievements, the income tax law, and Regulation on the Implementation of the Enterprise Income Tax Law all stipulate that preferential tax policies should be operated on scientific and technological innovations and transformations of scientific and technological achievements (Li, 2005). But the current tax preference for scientific and technological innovations in China is mainly focused on research and development stage, in order to encourage enterprises to input more funds and stuff to carry out scientific and technological innovation. While the tax preference for the transforming stage is less, it cannot encourage the transformation.

2.4 The Legal System of Scientific and Technological Intermediary Services Is Not Good Enough.

The scientific and technological intermediary is an important participant in the transformation and industrialization activities of scientific and technological achievements; it faces the society and carries out technology diffusion, transformation of achievements, technology assessment, allocation of innovation resources, innovation and management consulting and other services (Qin & Song, 2014). Since the 1980s, China's scientific and technological intermediary services have been from scratch. The intermediary got a certain development, formed the scientific and technological intermediary system, represented by productivity promoting center, science and technology business incubators, science and

technology consultation and assessment mechanism, technology trading institutions, risk investment service institutions and so on (Wu & Li, 2007). But at present scientific and technological intermediaries in China has common problems such as imperfect structures, unitary function and lack of standard operation. The result is that the intermediaries cannot fully play its due role. The reason is that China's technology intermediate service system, especially the legal system is not good enough, mainly in:

2.4.1 Laws of Scientific and Technological Intermediary Service Have Not Been Systematically Yet

Among China's law of promoting the transformation of scientific and technological achievements and other related laws, very few of the clauses are related to the scientific and technological intermediary, and the provisions on scientific and technological intermediaries are too inflexible. And there are no clear provisions about the legal status, functions, and business scope and business basic principles of scientific and technological intermediaries. Legal provisions are too simple, and difficult to form a complete legal system (Pan, 2014). They cannot guide, regulate or restricted the establishment and operation of the scientific and technological intermediaries, which frequently cause problems in the actual operation of the process of the organization.

2.4.2 Mechanism of Legal Supervision and Restraint Is Not Sound

Scientific and technological intermediaries are bridges between people who own the achievements and people who carry out the achievements. They play an important role in the transformation of scientific and technological achievements (Zhou, 2013). But at present the market mechanism of China's intermediary service of science and technology is not good enough, and it lacks legal supervision and restraint mechanism. There exist many problems. for example, many intermediaries are separated from the government or subordinate units of government departments, this kind of intermediary have more resources and occupy the dominant position in the market competition, which causes serious phenomena of unfair competition; the scientific and technological intermediary grasp a large amount of information about scientific and technological achievements, the abuse of information in the course of providing intermediary services and requiring high fees are frequent situations that are seen.

3. THE COUNTERMEASURES OF ESTABLISHING CHINA'S LEGAL ENVIRONMENT OF TRANSFORMATIONS OF SCIENTIFIC AND TECHNOLOGICAL ACHIEVEMENTS

The law of promoting the transformation of scientific and technological achievements and other laws that exist to

aim at China's legal environment for the transformation of scientific and technological achievements need to be revised and improved; the functions of the government in the transformation is not clear; legal security mechanism of funds of the transformation is not good enough; the legal system of scientific and technological intermediaries service is not good enough. To solve the problems above, we can use the legislation experience in transformation from the United States, Germany, Japan and other countries for reference, and combine the reality of the China. In order to build China's legal environment for the transformation, we can carry out the following aspects:

3.1 Amending the Law of Promoting the Transformation of Scientific and Technological Achievements

3.1.1 Amending the Law of Promoting the Transformation of Scientific and Technological Achievements

The law of promoting the transformation of scientific and technological achievements can no longer meet the needs of reality of China's transformations of scientific and technological achievements, and it needs to be revised and improved. In 2013 the State Council put the amendment of the law of promoting the transformation of scientific and technological achievements on the agenda, and passed the amendment of Law of PRC on Promoting the Transformation of Scientific and Technological Achievements Needs Amendment and Improvement (Draft) on November 19, 2014. It was decided to be submitted to the NPC Standing Committee. The primary work at present is to pass the new law of promoting the transformation of scientific and technological achievements according to legal procedures.

3.1.2 Enhancing the Operability of the Law of Promoting the Transformation of Scientific and Technological Achievements.

The provisions in China's law of promoting the transformation of scientific and technological achievements are kind of inflexible, lack of refinement and with little operability, which makes some legal provisions cannot be implemented in specific implementations, resulting in the "lawless" phenomenon in the actual process of law enforcement. In this regard, some provisions of the law on promoting the transformation of scientific and technological achievements need further refinement to guide the law enforcement, and we should introduce the corresponding implementation details according to the new law of promoting the transformation of scientific and technological achievements to enhance the operability and give full play to its role in promoting the transformation of scientific and technological achievements.

3.2 Protecting the Government to Give Full Play to Its Functions in the Transformation of Scientific and Technological Achievements Through Legislation

In the transformation of scientific and technological achievements, enterprises are the main body, markets

are the guide. The market plays a decisive role in the transformation. While because of the existing inherent defects of the market itself such as spontaneity, blindness and the hysteretic quality, and the imperfect of the economic system in current China's markets, it must be bad for China's transformations of scientific and technological achievements to completely rely on the market mechanism. Therefore, the government needs to give full play to the transformation in the functions of management, guidance, coordination and service. Through developing policies on promoting the finance, tax, industry, government procurement and other aspects of the transformation and taking various measures of protection, the governments enhance and optimize public services of the transformation and create a good environment for the transformation.

3.2.1 Defining Government Functions Through Legislation

Through legislation, define the functions of the government in the transformation of scientific and technological achievements and highlight the government's functions of guidance, coordination and services. First of all, it's good for standardizing governments' behaviors and it can prevent unauthorized and offside behaviors of the government in the activities of the transformation and give full play to the dominant position of enterprises; secondly, it is beneficial to reduce the burden of the government. It makes the government focusing on formulating and improving policies and measures and it provides good public services to promote the transformation; finally, defining functions of the governments and other departments in the transformation is needed to prevent prevarications.

3.2.2 Clarifying the Relevant Legal Responsibilities Through Legislation

It is not enough to simply define the functions of the governments through legislation. It is also required to define the legal responsibility that shall be borne by the governments and their staff in the process of the transformation, such as dereliction of duty, breach of privilege and other behaviors, through the form of legislation. Give administrative sanctions to government departments and their staff that haven't fully fulfilled the functions they have to in the transformation; staff of government departments, who perform the behaviors such as the breach of privilege, corruption and bribery and other behaviors that against the penal law in the progress of the transformation, should bear the corresponding criminal responsibilities.

3.3 Improving the Legal Safeguard Mechanism on the Funds of the Transformation of Scientific and Technological Achievements

3.3.1 Establishing and Improving the Legal System of Risk Investment

The successful experience of developed countries shows that, the problem of insufficient funds caused by

high risks of the transformation can be solved through establishing and improving the system of risk investment. The foundation of establishing and improving the system of risk investment is to establish and improve the legal system of risk investments. At present, the establishment of risk investment mechanism in China is usually mentioned at the policy level. Laws and regulations on risk investment are only from several opinions on establishing and improving the mechanism of risk investment, jointly issued by Ministry of science and technology and other ministries and commissions of the State Council in 1999, which cannot meet the needs of the development of transformations of scientific and technological achievements in China. In this regard, on the basis of several opinions on establishing and improving the mechanism of risk investment, centralized legislation should be performed on risk investment. Legislate the law of risk investment and make clear definitions on the basic principles, investment subjects, investment objects, exit mechanism, intermediary service institutions, supervision systems and policy supports of risk investment, to provide adequate legal protection on the demand for funds of the transformation of scientific and technological achievements.

3.3.2 Improving the Tax Preferential Legal System of the Transformation of Scientific and Technological Achievements

Aiming at the existing problems of tax preference legislation of scientific and technological innovations in current China, experience from many other countries can be learnt from to revise and improve the laws and regulations of the preferential tax of the transformation of scientific and technological achievements. Increasing the preferential tax in the stage of transformations of scientific and technological achievements and encouraging enterprises to invest more funds in the implementation of the transformation of scientific and technological achievements is needed. Provide the same preferential tax on the small and medium enterprises, private enterprises and large enterprises, state-owned enterprises that implement the transformation of scientific and technological achievements and stimulate the enthusiasm of performing the transformation of scientific and technological achievements. Implement the reinvestment tax refund system. When enterprises invest scientific and technological developments and transformations of achievements using retained profits, all or part of the corporate income tax will be returned, in order to promote the development of science and technology and achievements' transformation.

3.4 Improving the Legal System of Scientific and Technological Intermediary Services

3.4.1 Clarify the Relevant Provisions of the Scientific and Technological Intermediaries

We should improve the existing law of promoting

the transformation of scientific and technological achievements and relevant laws and regulations of intermediaries of science and technology. When the time is ripe, we should also introduce the specialized laws and regulations on intermediaries of science and technology. Through the form of legislation, we should further clarify the legal status of the scientific and technological intermediaries and define the functions of scientific and technological intermediaries. We should also establish the systematic management system of intermediaries and strict operational standards. Guide the scientific and technological intermediary service institutions to the development of professional services, social functions, organization networks, operational standardizations. At the same time, in order to improve the enthusiasm of scientific and technological intermediaries, we should legislate to implement tax preference and other supporting and encouraging measures on the scientific and technological intermediaries.

3.4.2 Improving the Mechanism of Legal Supervision

Through legislation, we should clearly relevant departments' supervision responsibilities on the scientific and technological intermediaries strengthen law enforcement and the judicial powers, the illegal behaviors of scientific and technological intermediaries in the process of service should be seriously treated to purify the market environment of the transformation of scientific and technological achievements. Meanwhile, we should also clearly supervision functions of the industry associations of scientific and technological intermediaries through legislation to strengthen the supervision on scientific and technological intermediaries through industries' self-regulation management, promoting the transformation of scientific and technological achievements smoothly. we should explore and establish the credit evaluation examination index system of the scientific and technological intermediaries to make comprehensive examinations and evaluations on intermediaries of their service qualities, services, reputations, growing speed, abilities to integrate and transform scientific and technological resources, abilities to attract and use venture capital, social influence produced by factors above and so on , and build the system of credit evaluations, the information publishing system and the query system of the intermediaries, to vigorously promote the socialization of credit supervision and management.

CONCLUSION

Based on the normative analysis of the relevant laws issued by the National People's Congress or State

Council, it is found that there are some problems in the legal system of the transformation of scientific and technological achievements in China The law of promoting the transformation of scientific and technological achievements is too lagged and inflexible; the governmental functions in the transformation of scientific and technological achievements are not clear; the legal protection mechanism on the funds of the transformation of scientific and technological achievements is not perfect; the legal system of scientific and technological intermediary services is not good enough. Through the content analysis, we put forward several suggestions. Amending the law of promoting the transformation of scientific and technological achievements and enhancing the operability of the law; Protecting the government to give full play to its functions in the transformation of scientific and technological achievements through legislation; improving the legal safeguard mechanism on the funds of the transformation of scientific and technological achievements; Clarify the relevant provisions of the scientific and technological intermediaries and improving the mechanism of legal supervision.

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