

# Research on Innovation of Science and Technology Investment and Financing of SMEs in Intellectual Property

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## Abstract

With the development of the knowledge economy, the intellectual property is more and more important. The intellectual property is the core lifeline of an enterprise. High-tech SMEs owe the independent intellectual property rights, but they have financing problems. How to use intellectual property to invest and finance will be the focus of future development of high-tech SMEs. This paper will focus on the characteristics of intellectual property for investment and financing, the development paths and put forward in the course of management and policy innovation of investment and financing.

## Keywords

Intellectual Property Rights, Investment and Financing, High-Tech SMEs, Management Innovation, Policy Coordination

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## 1. Introduction

From 1982 to 2002, the proportion of intangible assets increased from 38% to 87%, and it is gradually dominant. Intellectual property is the most important component of intangible assets, which can help to solve the financing problems for the high-tech SMEs. Intellectual property financing is the link of intellectual property and the social capital, and it is a new initiative to widen the path of realizing the value of intellectual property [1], which has great significance for early-staged high-tech SMEs.

On March 28, 2016, the platform of patent extraction and popular entrepreneurship has established in the Fengtai zone in Beijing. The platform is a creative model of using Interest plus, numerous creation space and intellectual property operation. It supports the information and technology for the SMEs to invest and finance.

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At the same time, China is gradually formed the “1 + 2 + 20 + n” patent operation system. In this context, high-tech SMEs have a good future of development. Therefore, this paper will mainly make this as the background, and start with the characters of the intellectual property rights. It introduces the development path of the intellectual property investment and financing and how to innovate on the management and policies. It aims to provide some reference and samples for high-tech SMEs to invest and finance using the intellectual property rights.

## **2. The Value and Risk of Intellectual Property Investment and Financing of High-Tech SMEs**

### **2.1. The Realization of the Value of Intellectual Property of High-Tech SMEs**

Under the condition of knowledge economy, the resource allocation structure based on knowledge and knowledge capital. The knowledge capital becomes the “third resource” after the finance and labor, which is a key element to create business value. The ownership of knowledge capital and the ability to operate the knowledge capital determines the Enterprise’s life [2]. The intellectual property is the most important symbol of the knowledge economy, knowledge is the most valuable part of the capital. Therefore, an important source of corporate value is the intellectual property.

The intellectual property is intangible as a capital, but it also has value and use value, which is the basis of the enterprise development. Who owns the intellectual property rights of enterprises can dominate the market in the future. Intellectual property includes patents, technologies, and contains information and creative thinking. The science and technology, innovative thinking have great potential to transfer into real productivity, and they can help improve productivity and create more and more good products. The potential benefits are the value of the intellectual property.

### **2.2. Three Problems of Intellectual Property Financing: Value Assessment, Liquidity and Credit Guarantee**

The value assessment of the intellectual property is a big problem of intellectual property investment and financing. First in the view of the features of the intellectual property, intellectual property is different from the tangible assets, which have fixed price and unified of depreciation calculation method. Especially for the high-tech SMEs, the intellectual property they use to invest and finance is “unique”, it’s hard to found the value reference. And now on the market, there is no uniform system of evaluation indicators and index, and lacks optimal assessment method. It’s hard to accurately find the value of the intellectual property. Secondly, from the demand-side perspective, due to the different values and needs, the evaluation of the intellectual property may be extremely different. The valuation of Intellectual property has subjective problem. And there are intermediary assessment agency deliberately suppressed, which hinder the development of intellectual property investment and financing.

In China, the trading market of intellectual property are varied and poor professional. If there are problems, the poor-property disposal channel will lead the liquidity of intellectual property rights to be a new problem. Because intellectual property rights are different from real estate and other collateral which can be transferred quickly, especially in the environment of low protection domestic of the intellectual property, small trading market, and the limited circulation and transaction objects. Also, in credit guarantees aspects intellectual property investment and financing also faced with obstacles, because the value of intellectual property is uncertain and returns are not control. And investment and financing needs the certify of the credit guarantee institutions. But the bank, large financial institutions often can’t guarantee or loan to them because of their small scale and low credit. So the market urgently need emerging specifically guarantee institutions of intellectual property. In the start-up period, the high-tech SMEs lack credit guarantee people and cannot get effective financing.

### **2.3. High-Tech SMEs Can Amplify the Risk of Intellectual Property Investment and Financing**

Because of the invisible and uncertain feature of the intellectual property, intellectual property investment and financing faces enormous risks. For example: the risks about ownership, assessment and security. In addition, there are liquidity and legal risks in the process of the property flowing in the market. And there also exist the

operational risks.

In the early years of high-tech SMEs, under the influence of business environment, the loans are most in liquidity. The demand of loan are emergency and large, but due to the short history of development and small scale, they often lack the physical assets to serve as collateral. Companies do not have or lack of credit history, or have low transparency, and have asymmetry with the investors in information [3]. Therefore the high-tech SMEs' features of "light asset and heavy property" will undoubtedly enlarge the risk of intellectual property investment and financing. If the financing fails, SMEs need to repay their debts, seriously need to sell assets, which increases the risk of financial institutions, and can result in the difficulty of funds recovery.

### 3. The Development History of Intellectual Property Investment and Financing

#### 3.1. The Traditional Way

Intellectual property can be used to invest and finance mainly due to its feature of a kind of property right. It has transactional features naturally. The traditional ways to invest and finance of intellectual property are licence and attorning. Licence refers to permit another person to use it. Attorning refers to make the intellectual property rights use the intellectual property rights as a means of financing, and by granting intellectual property rights as a route of financing, and get the corresponding capital by attorning the intellectual property rights. Since 2001, under the development of the China's technology market, intellectual property licence's and attorning's number has increased a lot. The contracts of technology transference is 11067 in 2012, and it comes up to 11858 in 2013. The technology turnover rise to 91.69 billion yuan from 47.3 billion yuan, which has an increasing of 7.1%. But with the emergence of new ways of investment and financing, licence and attorning grow slowly. The contracts of technology transference are only 1.1797 trillion yuan in 2014, and the technology turnover are 87.85 billion yuan.

There are many successful cases of intellectual property licence and attorning. For example, IBM's and TI's revenue of patent license fees reach about 1 billion yuan each year. In November 2010, the company of Tian Long pharmaceutical in Tianjin signed a transfer agreement of the technology named "Longjia activating meridians' capsule". It received a fund of 50 million yuan.

#### 3.2. The Current Ways

Along with the economy development, as well as market players increased, current financing ways are mainly property investment, price pledge of shares and mortgage loans. Intellectual property investment refers to attract the cooperation to invest through the intellectual property, get the capital by giving them the shares. Pricing shares refers to use the intellectual property to invest after having assessment. The latest *People's Republic of China Corporation law* in 2014 has canceled the limit of the company registered minimum capital, also no longer limit shareholders' or sponsors' first funded proportion and currency funded proportion when the company established. This law will powerfully promote the development of pricing shares. Intellectual property pledge loan is the most widely used method. Many businesses and individuals put the patent, trademark or copy-right of intellectual property pledged to the bank and financial institutions, and aim to receive the necessary funds.

Wang Dong quit and entrepreneurship to do the Chinese educational robot using a property investment, the company of Spring Capital Corporation uses its trademark equivalent to total 4 million yuan investment [4].

It is the typical case of intellectual property pricing shares. At present, the pledge loans have become the most famous way in many provinces and cities. First three quarters of 2011, science and technology enterprises in the demonstration area of Zhong Guancun used IP pledge and loans getting 1.3 billion yuan.

#### 3.3. The Future Trends

##### 3.3.1. Lease Financing

Traditional lease financing has a long history in China, but the object are physical device. Intellectual property is an intangible thing, but it can be used and transferred. It meets the characteristics of the leased property. Therefore, it is feasible to implement the lease financing using the intellectual property, and it may compensate for the high transaction costs in the process of licensing and attorning. United States has the examples, but China's laws do not have special provisions for this now and the practices are rare. Department of Commerce administrative's

measures on foreign-invested leasing and China Banking Regulatory Commissions policy of the company management rules for leasing financing institutions do not make a single IP as a financing object. Successful example of domestic financing lease is Chinese music culture media company in Beijing, its based on the Nasierding Afanti's and the glacier romance's copyrights raising 5 million yuan.

### 3.3.2. Securitization

Patent security is the symbol of securitization of intellectual property, which first started in the United States in the 1990 of the 20th century, as the second most important financial innovation in half of the 20th century's. Securitization of intellectual property rights is a method via floatation of loan to get the profits of the permission fees of using the intellectual property rights in the future, it is a typical product of financial innovation. In securitization, the initiator can retain ownership of the intellectual property rights, and implement the future return of the intellectual property assets in advance. There is no doubt a new approach for intellectual property financing. In March 2014, introduced by the CSRC, the securities company asset securitization regulation explicitly expand the extension of basic assets, it makes sure that intellectual property rights can be incorporated. In 2015, the CBRC issued the guidance on supervision of affiance companies' risk, which specifically "encourage businesses such as securitization, and improve the business added value of the securitization."

### 3.3.3. Crowd-Funding

Crowd-funding is public investment or public funding, which is a new method of raising funds in recent years. It begins on the website "Kickstarter" in United States. It launches preparatory information through the Internet, and the investors can invest through the platform. It has no limit about the investment amount and eligibility, as long as the project is attractive enough to be able to get enough money. The rise of this model breaks constraints of the traditional mode of financing. It allows more people can be investors. Its advantages are low threshold, diversity, relying on public and focusing on creativity. On December 18, 2014, the administrative measures for equity financing (trial) has a guide on intellectual property to crowd-funding. With the "interest plus" coming and the development of China's information industry, crowd-funding will be the next hottest financing way.

According to the statistics, as to June 15, 2015, the platform of crowd-funding in China has reached 165. Which ended on June 15 to raise "WiFi master key", raised 7.7 billion within four days, super raised 237 times. And it's contributions amounted to 65 million yuan. All this underlines the huge strength of crowd-funding.

## 4. The Management Innovation of the Intellectual Property Investment and Financing

### 4.1. Solving the Information Asymmetry

Era of knowledge economy, information is the most important thing. Who have more information can lead the market. However, due to differences in economic monopolies as well as their own resources, the available information that companies can get tends to be asymmetrical. And SMEs have a short history, they have disadvantages in the market. Less access to get effective information seriously affecting their investment and financing. Therefore, asymmetric information is a prerequisite for smooth implementation of intellectual property financing. It needs government, enterprises and intermediary agencies to work together.

First, while the government making the policy measures, they also need to widen the policy released channel, ensure people can get the policies and makes the high-tech SMEs get the policy information; Second, the SMEs also should strengthen themselves internal management, strengthen information collecting and processing, using information advantage to get funds; Last, the intermediary institutions of the intellectual property investment and financing should establish information database. They should make the high-tech SMEs' information and investors' information to be registered and managed. For the qualifying match between the two sides and referrals, it should establish the complete credit information system, clearly store and record the financing situation of the enterprises. And it should make the credit records as important documents of enterprise investment and financing. And, of course, it should notice the protection and confidentiality of the information.

### 4.2. Building a Unified Platform for the Operation of Intellectual Property Rights

The platform should be led by the Intellectual Property Office, and cooperate with universities and research institutes. It should cover the whole processes of the operation of intellectual property, from the value assessment,

risk control, information disclosure, the intellectual property capital transactions to intellectual property protection and rights. It should provide a series of supporting services for the operation of intellectual property, and create a pool of experts library, project library, team library, intermediaries library and other sub projects. It has five plates, including the center of information, evaluation center, center of risk measuring, transferring center and intellectual property protection and assistance center.

At the same time, the Internet era comes. So we should construct the online platform of the operation of intellectual property. Internet has the incomparable convenience and efficient features. Constructing online platform can correspond to the operational platform of intellectual property rights. And it can carry out online review of intellectual property rights, improve the efficiency of patent application; At the same time, it should carry out online Q & A services, which can provide necessary information and personnel support for users, and do a good job in the operation of intellectual property service. Secondly, it can imitate the model of "WTOIP.com" to develop the online sale of intellectual property, online exhibition and crowd-funding. Finally, using the advantage of the university to carry out the network classroom, which can propagate the intellectual property knowledge and train related experts.

### 4.3. Optimization of Operation Mechanism

The operation of the intellectual property investment and financing are complex, which involve governments, enterprises, individuals and agencies. Optimizing the operating mechanism, first it should straighten out the relationship between the parties and enable the parties to work together to simplify internal processes, and open up easy access for the intellectual property investment and financing. Secondly, it should pay attention to risk control. In order to effectively prevent and control of the risk of intellectual property in the process of investment and financing, the risk warning and risk compensation mechanism should be established. All SMEs and risk assessment agencies should establish a risk list [5], and estimate the potential risks to make specialized assessments. And integrate and sort by risk category and the degree of difficulty to prepare strategies.

## 5. The Policy Innovation of the Intellectual Property Investment and Financing

### 5.1. Current Policies and Key Points

Intellectual property investment and financing begins late in China, the relevant legislation is not perfect, so there has no uniform standard policy system. At present, the main reference are *Company law*, *Contract law* and other related provisions. The exclusive policy to propose to expand the ways of intellectual property investment and financing is promulgated by the state intellectual property office in 2012 named *The several opinions on strengthening the emerging industries of strategic importance of intellectual property rights*. In 2015, five sectors including the State intellectual property office jointly issued *The Declaration on further strengthening intellectual property use and protection of the power of innovation and entrepreneurship*, which give a strong support to the intellectual property investment and financing for SMEs. In addition, the current laws and policies will focus on intellectual property licence, attorning, pledge loan and the value assessment, such as *The transfer of copyright, permission to apply for registration and receiving methods*, *The interim measures for the administration of registration of patent right pledge contracts*, *Trademark assessment agency interim measures for the management* and *The work on strengthening the management of intellectual property assets assessment notice on several issues* and so on. The policy named *Asset securitization business of securities companies management* clearly points that intellectual property rights can be securitized. In the policy named *The equity financing management procedures (trial implementation)* can find some related paths of crowd-funding of intellectual property. It can be seen from the existing policies that the current modes of investment and financing of China to develop intellectual property is intellectual property pledge loan. Policies at the national level mainly related to the financial support and tax incentives. While they pay attention to the intellectual property assessment. But other financing processes, investment and financing operations are rarely provided.

### 5.2. The Inadequacies of Policy and Perfection

#### 5.2.1. Perfecting the Legal Framework of the Intellectual Property Investment and Financing, and Developing Intellectual Property Policy Support System for SMEs

The policies of intellectual property investment and financing of China are still in the exploratory stage. The ex-

isting policies lack logic and consistency, and have no uniform law system. And there are not special policies for the intellectual property, so it's hard to effectively guidance and regulate the intellectual property investment and financing. So, it should make the construction of enterprises, intellectual property construction to be the core content, continue to perfect the policies of pledge loan and licence as well as attorning. While as soon as introduce policies about securitization, lease financing, crowd-funding and so on. We should strengthen the regulation of the intermediary institutions, and develop assessment mechanism, guarantees mechanism and insurance mechanism, and to make intellectual property investment and financing have law to obey. We also can integrate and announce all kinds of policies by the policy database and gradually perfect the legal framework of intellectual property investment and financing. Also we should combine the characteristics of the intellectual property and investment and financing to strengthen the policy and professional guidance.

### **5.2.2. Refining the Process of Intellectual Property Investment and Financing, and Establishing the Responsibility System for the Preponderance of the Intellectual Property Investment and Financing System**

Current policies' contents are broad and lack the refinement of the financing provisions, it is difficult to play an effective role. Therefore, in future policy formulation, policy development should be focused on team building, and absorb specializes in intellectual property and financial experts into the policy development team to strengthen special legislation and policy making for intellectual property investment and financing. Refining the type of intellectual property which can be used to finance, but it also should be refined by means of financing, seek the financing ways that meet the demand of market as soon as possible, and make policies keep pace with the market trends. In addition, owners of intellectual property rights and the flaws of the investors responsibility system should be identified, establish remedy system, and gradually establish the credit system of the trading market of intellectual property rights.

### **5.2.3. Focusing on the Ownership of Intellectual Property and the Protection of Technical Secrets**

The great value of intellectual property embody in the feature of the "unique", in the event of infringement or theft of secrets will cause failure to raise money. However, current policies lack special regulation about the ownership of intellectual property and the protection of technical secrets. If financing fails the ownership of intellectual property will be uncertain. In order to effectively protect the interests of intellectual property owners and assignees, to protect the value of intellectual property, it should be an overhaul modify of the current policies, and put the regulation of the ownership of intellectual property and the protection of technical secrets into the policies. Encouraging intellectual property application and registration, making detailed compensation measures, combining it with the characteristic of the information age, providing guidance for relevant departments to deal with unexpected situations.

### **5.2.4. Perfecting the Intellectual Property Registration and Approval System**

Intellectual property office is the statutory body for registration. Making the monopolies for an example, first using the patent to finance needs to submit the patent application to the State Intellectual Property Office. After the approval, the applicant need to jointly apply to the Patent Administration Department to assign, license or pledge. The pattern of the two sides to apply is not good to protest the interests of the pledge and the registration process is very complex. Transaction costs increase, and it is also not conducive to protection of commercial secrets, impacts on the enthusiasm for intellectual property investment and financing. Therefore, it should encourage unilateral application model, simplify registration and approval process. And it should strengthen the obligation of review bodies, reduce the failure rate of investment and financing. And it should gradually unified the rules for the registration of intellectual property investment and financing in China, improve the public system, and reduce the phenomenon of infringement.

## **5.3. Construction of Policy Coordination Mechanism**

Policy coordination can effectively solute the problems of policy mixed and unclear responsibilities of the department. This paper hereby set up intellectual property rights policy coordination mechanism of investment and financing. First, government should be the maker of the macro policy, the National Intellectual Property Office should be in the leading and coordination role of the system of policy making of the intellectual property in-

vestment and financing. On the basis of the statistics of all provinces and cities of basic information of the intellectual property, establishing intellectual property policy system database, making the policies for entry and classification. All kinds of intellectual property department should work together. In the lead of the State Intellectual Property Office to make relevant policies for intellectual property investment and financing, and avoid jumbled, repeat, mutual conflict policies to appear. While, it can also be convenient for public for policy to query policies. Second, intermediaries and trading platforms should be guided by policies to develop appropriate evaluation criteria and trading schemes. While banks and other financial institutions should cooperate with relevant departments and policies to make some financial innovations, introduce intellectual property financing-related financial products, and improve service awareness. Moreover, two sides of investment and financing should be strictly in accordance with the relevant provisions regulating their own behavior. IPR unified trading platform provides a database to get the information they need. And being responsive to the requirements of "Internet +" times, it vigorously carry out Internet-centers to develop large data which bases on investment and financing aspects of intellectual property rights. Finally, the collaborative evaluation tracking system must be created. It should collect related information of intellectual property investment and financing, arousing public to supervise the process of intellectual property investment and financing. And it can make comprehensive monitoring and evaluation, get feedback for the policy coordination, find errors and correct, which can accelerate the goals of synergy to be achieved.

## 6. Conclusion

Facing of the technology patented, standardization of patent, standard monopoly and fierce market competitions, intellectual property investment and financing increasingly becomes the corner stone of the development of SMEs. From licence, attorning to price shares, property investment, mortgage loan, and then to the future leasing, securitization and the crowd-funding, the main body expands from both sides to three sides, and the operation is more easy and standard. But, in China, current intellectual property investment and financing development are also behind other countries; the ways of investment financing have limitations; and the operation processes are not specific. To speed up China's intellectual property investment and financing development, and solve the financing problems of high-tech SMEs, this paper starts with the particularity of intellectual property investment and financing of high-tech SMEs, analyzes the development path of intellectual property investment and financing and the problems in the process of development in system, and then gives some salutations in the view of management and policy.

## References

- [1] Ma, W.Y. (2011) Thinking and Analysis on Several Problems of Intellectual Property Rights. *Asset Evaluation in China*, **1**, 14-16.
- [2] Zhang, T. (2008) Study on the Value of Intellectual Capital of Enterprises and Its Management. *Science and Technology Research*, **10**, 251-253.
- [3] Huo, Z. (2009) Pledge, Pricing of Intellectual Property Stake in Corporate Finance Opened New Paths. *Journal of Taiyuan*, 09-29007.
- [4] Ren, F.Z. (2008) The Preconditions and Modalities Selected of the Intellectual Property Transaction. *Business Times*, **33**, 75+63.
- [5] Xia, Y. and Gu, X. (2012) The Risk Management of the Intellectual Property Investment and Financing of the High-Tech SMEs. *Science of Science and Management of Science and Technology*, **9**, 98-104.