

# Study on Innovation Path for Ineffective Patent Application

Yue Zhao<sup>1</sup> Wei Song \*

School of Public Affairs, University of Science and Technology of China, 96 Jin Zhai road, Hefei, Anhui  
230026, China

\* E-mail of the corresponding author: [wsongustc@163.com](mailto:wsongustc@163.com)

## Abstract

In order to integrating scattered resources of ineffective patents, simultaneously meeting the innovative needs of SMEs. We try to summarize the traditional application path, and point out the drawbacks of both approaches: enterprises search information independently and patent pool. Then we are going to put forward an innovation path of ineffective patent's application that is constructing the ineffective patent service platform.

**Keywords:** ineffective patent, innovation path, platform construction

## 1. Introduction

With the in-depth implementation of China's strategy of innovation-driven development and the acceleration of the building of a powerful intellectual property nation. The creation of intellectual property in China shows a good momentum of development. According to the data statistics of the State Intellectual Property Office of China (SIPO), in 2017, the number of invention patent applications was 1,382,000 which has increased by 14.2% compared with last year. Advantages of invention patent application and authorization continue to expand.

In line with most countries, the invention patent's right duration of China is 20 years. However, data report on China's patent investigation in 2016 shows the duration of patent maintenance in China is relatively low in general. The average duration of the invention patent is only 6 years. Every year a large number of invention patents have been abandoned to maintain for various reasons. These patents are getting into public domain and become ineffective patents, and gradually increase at a rate of about 10%.

The causes of ineffective patents are varied. Loss of legal protection due to patent expiration is easy to understand. Beginning in 2010, the pharmaceutical industry faced one of the biggest waves of drug patent expirations, a phenomenon referred to as the "patent cliff" (Deruiter & Holston 2012). And it is commonly seen that patentee gives up the patent. If a patent holder fails to pay regular maintenance fees, the patent's twenty year term is cut short.

In addition, patent right has been declared invalid is within the scope of the ineffective patent.

Actually, these ineffective patent is one kind of patent which has lost patent rights, but the value of technology and business are not disappear. Invalid patent is the intellectual achievements that belongs to the public and can be freely used (Ying F U 2005). Enterprises can promote self-innovation capability by assimilating and re-innovating the technologies of ineffective patents. It is significant for enterprise especially SMEs which have no financial strength and innovative team.

## 2. General ways of application

As the first chapter shows, the current number of ineffective patents is huge, and most enterprises have application requirements for them. In this section, we review two general ways of applying ineffective patents. In particular, we would like to see what kinds of defects of both application methods.

### 2.1 Enterprises search information independently

Partly powerful enterprises choose to set up a database of ineffective patents, create a tracking mechanism to collect new ineffective patents timely (Zhang Z & Li X 2015). Then they analyse the value and formulate specific utilization strategies according to target market.

For SMEs that lack capital and technology, there is no dedicated IP team to carry out such work. They search query related patents and legal status through the official website, the patent legal status system, ineffective patent disc and some thematic database system and so on (Table1).

Table1: Different Ways of Using Ineffective Patent

Common Search platforms	Retrieving literature	Socialized Patent institutions
State Intellectual Property Office of China (SIPO)	《Patent Specification》	China Patent Information Center (CPIC)
China Patent Index	《China ineffective patent disc》	Social payment platforms such as Baiten , ZhiGuoGuo , Quandashi and so on
Patent Search and Analysis of SIPO	《China Patent Bulletin》	
Various thematic database system		

However, the drawbacks of this method are obvious, and it mainly reflected as follows.

#### 2.1.1 Problems of information acquisition

With the increase of patent applications, the number of ineffective patents has also increased rapidly. Although data storage technology enables organizations to accumulate large amounts of patents, it is a great challenge to extract useful information. The amount of ineffective patents is huge and sparse, and the distribution of category is unevenly distributed. Enterprises retrieval the appropriate technology according to their own needs and view the legal status one by one. Using this method can be time consuming and not comprehensive. Moreover, it is difficult to summarize and refine effective information.

#### 2.1.2 Problems of risk aversion

Generally speaking, most patents will not be protected by law after failure, and the risk of infringement is very low. But with the change of the intellectual property environment and the increasingly fierce competition in the market. Applicant always apply for a number of supporting patents as the defensive patent of core patent. This is a complex "Patent Group"(TaotaoSun et al. 2012), or "Technical Barrier". This has some influence on the R&D of other companies in this field. When the core patent is implemented, some patentees will forfeit the defensive patent and make it an ineffective patent. If enterprises apply such ineffective patents, it is highly probable that this constitutes an infringement of the core patent.

Moreover, applying some special patents still facing the risk of deferred protection. Some countries have set up patent term restoration systems. In order to stimulate product development and innovation, Congress in 1984 enacted Title II of the Drug Price Competition and Patent Term Restoration Act (Public Law 98-417) to extend patent life to compensate patent holders for marketing time lost while developing the product and awaiting government approval. Using these expired drug patents is likely resulting in litigation.

#### 2.1.3 Problems of value analysis

It is generally considered that longer the patent is maintained, the higher the value of the patent (Richard & Sullivan, 1994). Take medical patent for example, even after 20 years of protection, there also a huge market value. But according to the 2014 Patent Statistics Bulletin provided by SIPO, patents which are maintained more than 10 years (Application on or before December 31, 2004) only accounted for 7.6%. But actually there are some loopholes in the bulletin on the validity period statistics of patent application, since the average cycle of an invention patent from application to authorization is 3 years. It means if the censorship period is eliminated, the duration of the patent will be shorter. So how to filter out valuable information in a great deal of patents whose value is not significant will be a difficult problem.

### 2.2 Access to information via patent pool

In chapter2.1, we introduce that the dilemma faced by the enterprise as an independent subject in the use of the ineffective patents. To solve this problem, China tried to build the patent pool to make use of ineffective patents. Beijing Intellectual Property Office ("BJIPO") organized a patent pool focused on the key industries back in 2007. There were many companies in the patent pool, and they collected, analyzed and shared ineffective patent information.

The benefit of this approach is that enterprise were grouped together and based on common needs. It is no longer isolated and scattered to take advantage of ineffective patent. What's more, patent pool can promote knowledge flow and improve innovation. (Delcamp &Leiponen, 2014)Since the achievements of re-innovating based on ineffective patent were easy to be traded.

However, we observe that such collaboration does not survive for a long term. On the one hand, Free rider problem restricts the enthusiasm of the members of the patent pool. Each firm wants other firms to take the initiative to develop a patent pool for a standard. On the other hand, as technology market develops and the number of firms specialized in research increases, the collaborative venture for a standard setting may become more difficult, since a firm specialized in research has the first mover advantage in setting the price of its technology (Aoki & Nagaoka, 2005). And the incentive capacity for the patent pool is limited to the enterprise. Normally the smaller the set of initial contributors, the higher this effect (Versaevel & Dequiedt, 2007). With the

increase of joining the enterprise, the patent pool exists in name only.

We may also point out the fact that there is still a huge gap between China's patent pool and foreign patent pool in aspect of management and operation. Lack of mature mode of operation results in weak vitality of patent pool. And problems like monopoly protruding, interest conflicting, and functional completeness is weak made many patent pools eventually became price alliances.

### 3. Ineffective patent service platform

Chapter 2 have analysed why both methods are not meeting the application needs of enterprise. And in this section, we will put forward an innovation path of ineffective patent's application. That is constructing an ineffective patent service platform, and this platform can bring economic as well as social effects, and make up deficiencies of traditional application path (Figure 1). The platform relies mainly on power of government, attracts social specialized patent agencies. Then these agencies integrate and provide valuable information on ineffective patents that enterprises could pay a subscription for.

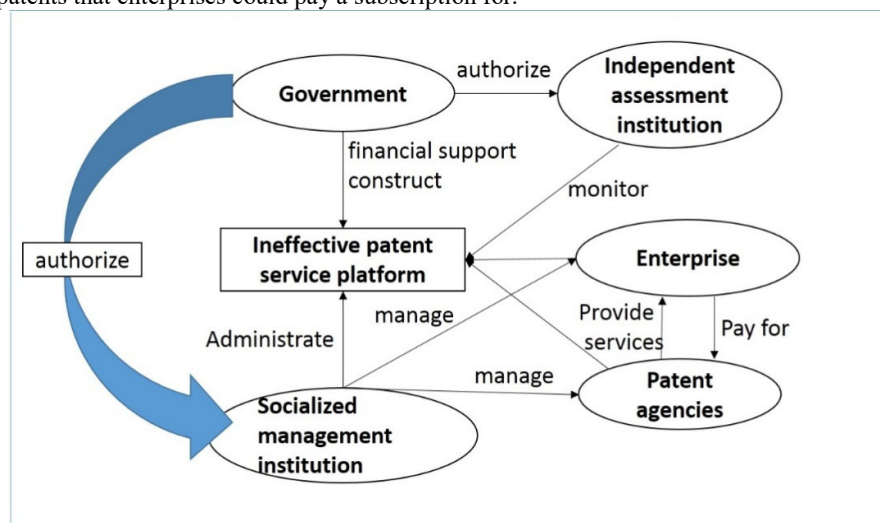


Figure 1. Construction of Ineffective Patent Service Platform

#### 3.1 Feasibility of platform construction

The development of ineffective patent service platform needs the coordination of various subjects. Although the willingness to cooperate among subjects is influenced by many factors, there are two similarities.

##### 3.1.1 Resources dependence

Resource dependence means that when resources are scarce, people will actively seek cooperation with other partners and exchange resources, and ultimately resulting in a multi-body complex. When government has financial and policy resources, the socialized patent institutions have technical resources, and enterprises want to cooperate with them. Three subjects promote the maximization of resources utilization through cooperation.

##### 3.1.2 Scale benefit

Coordination changes fragmented situation, enlarge the scale of original resources. As the marginal benefit of resources expands, the overall scale benefit is enhanced. The ineffective patent service platform brings together government, enterprise and patent agencies, and this pattern is greatly reducing transaction costs and social management costs.

#### 3.2 Participation subject and function

Service platform is led by government and more parts involved in. The first category is the resource requester for ineffective patent services, which includes enterprises and individuals. The second category is service provider such as patent agency or institute of scientific research. The third category is platform manager contains government or other socialized management institutions. All kinds of subjects perform their own functions and play an indispensable role.

##### 3.2.1 Government

The government is a policy maker and a provider of funds. Whether the government is responsible for managing responsibilities, or transfer these responsibilities to socialized management institutions, it is necessary for government to conduct guidance and macro control in whole direction of platform development.

What's more, it is particularly important that the government should formulate the selection criteria for main body of the platform construction and operation. The selection criteria should take three aspects into

consideration, subject qualification, team ability and resource allocation ability. And the specific content is shown in Table 2.

Table 2. Selection criteria for operation main body

Subject Characteristics	The source and composition of investors
	Target customer
	Whether or not to make a profit
Team Ability	The ability of patent portfolio
	Experience of providing professional services for intellectual property
Resource Allocation Ability	The registered capital, operating capital and investment ability of operation main body
	Whether the operation subject has the implementation of policies and laws of intellectual property rights
	expert professionals

### 3.2.2 Enterprise

The enterprises are the resource requesters and the indispensable customers of the platform. They need to abide by the spirit of contract and terms of service. Under the environment of market economy, they should pay for a higher level of service.

### 3.2.3 Socialized management institutions

In management and operation, the government will purchase professional service form social management institutions. They can set up different departments. The coordination department is responsible for the overall planning and promotion of the platform construction; Support department is in charge of hardware construction, database construction, staff training and financial management; Platform business department is responsible for customer service and consultation.

### 3.2.4 Investment institution

The successful operation of the ineffective patent service platform is inseparable from the fund support. But it is not enough to rely solely on government financial subsidies and special funds. Investment institutions can carry out venture capital to maintain the normal operation of the platform.

## 3.3 Working mechanisms of service platform

### 3.3.1 Organization and management model

At present, there are two organizational patterns in the patent service platform in China: One is a government-oriented institution, and the other is commercial service institution. With the development of market economy, commercial service institutions are becoming main body of the domestic patent service institutions. In order to integrate the advantages of the two organizational patterns, the article suggests that the platform adopts the model of the government-led establishment and the operation of the commercial service organization.

In the meanwhile, it is necessary for each user to carry out the real name system authentication using the experience of management model implemented by commercial patent service institutions. Then, the platform department examines user's information, and classifies the categories according to the user's situation.

### 3.3.2 Selection of units in the platform

The service platform can play a role in the bridge of gathering information, docking resources and concentrating the supply of services. It is important to choose appropriate units include supply side, demand side, agencies and capital parties. The details are as follows:

- Patent service institutions with registered capital and quality of service in the region
- Universities and scientific research institutes in the region
- The patent operation fund in the region

In selection process, the platform need to check agency's qualification carefully, take the demand as the guidance through full practice research. And arrange to fill in the basic information table for record when these institutions signed agreement with government.

### 3.3.3 Sub platforms construction

(1) Public platform for government affairs.

The platform can release authoritative patent and intellectual property information for public viewing. Such as service flow, supervision and evaluation report and policies and regulations.

(2) Patent analysis service platform.

Patent analysis service contains technical analysis, strategic analysis, and legal analysis. In this part, high levels of service need to be charged.

### (3) Platform for interaction between government and enterprise

Building a platform for communication between the government and the government, includes the module of leadership mailbox, information collection, on-line questions and so on. What's more, the questionnaire was released regularly in order to accept the ideas and suggestions of enterprises on ineffective patent analysis.

### (4) Technical support platform

The patent analysis service platform strives for the detailed analysis of key technologies, core technologies and the most cited technologies in existing technology and the latest technology abroad, and provides support for the future technology trend in the field.

## 4. Conclusion

There are various problems in the traditional path of ineffective patent utilization, which is not meeting the needs of enterprises. Constructing ineffective patent service platform, using government purchase service and introducing social professional organization to manage service platform is an effective attempt to improve ineffective patent application service. The following conclusions are drawn through the study in this paper.

Firstly, playing the leading role of the government. In order to stimulate the initiative of enterprise innovation, government should set up a resource sharing mechanism and building a service platform. On the one hand, increase financial support and encourage private capital to enter. The government finance has the characteristics of stability, sustainability and security, and sufficient funds are the necessary guarantee for the development of the ineffective patent service platform. The funds are divided into two parts: Resource purchasing funds and service management funds. Resource purchasing funds are mainly used to purchase patent database and other resources; service management funds mainly consist of the operation and management fund of the platform. Division of funds is clarifying the requirements for the use of funds, as well as standardizes the flow of funds. It is helpful to improve the management efficiency and service quality of the ineffective patent service platform.

On the other hand, government need to integrate existing platforms and improving the level of information service. On the basis of the government website of the China Intellectual Property Office and the network of intellectual property rights, platform releases ineffective patent information, early warning information and application training information regularly. Finally, it should become an information platform which is intelligent, informational, large-scale and professional.

Secondly, playing the supervisory role of the independent assessment institutions. Independent assessment institutions is the important content of public service evaluation system. And it can protect the rights and interests of the various subjects. The supervision implemented by institutions is mainly to strengthen the evaluation and monitoring of various agencies and their service activities, as well as the operation of the platform itself. The institutions carry out the evaluation irregularly and forms the evaluation report to the manager, and finally the manager publishes the report on the platform website.

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## Author

Yue Zhao (Anhui, 1994.7-), Master Degree Candidate. The main research direction is intellectual property management.

Wei Song (Hefei, 1962.8-), Professor, Doctoral Supervisor, Ph. D, Management Science, University of Science and Technology of China, Hefei, Anhui, China, 1998. The main research direction is intellectual property management, innovation management.