

Evaluation Index System Construction of IPR Process Management on SMEs in China Based on the Life Cycle Theory

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Abstract. The SMEs are important forces in China's technology innovation, and it is the key to enhancing technology innovations of the SMEs' to strengthen the process management of IPR. This paper constructs a set of evaluation index system for the IPR management process performance of SMEs with the 5 primary indexes and 20 secondary indexes from five dimensionalities including the Basic Resources, IPR Creation, IPR Application, IPR Protection, IPR Management based on the Life Cycle Theory, which is helpful to provide theoretical reference to the academia and practice of quantitative research on IPR management performance of the SMEs.

1. Introduction

SMEs are the important force for technological innovation. It is as high as nearly 70% of technical innovation and patents are created by SMEs in Germany and the USA. In China, with the full implementation of the innovation driven strategy, technical innovation strength of SMEs is more prominent, and it is necessary for SMEs to realize the value of knowledge innovation results through the process management of IPR. However, it has not formed a scientific evaluation index system of IPR process management for SMEs in existing theory. This paper tries to establish a set of evaluation index system for the IPR process management of SMEs through discussing the its core connotation based on the Life Cycle Theory.

In the 1970s, scholars in Europe and America became the pioneer in the field of IPR management. Hisamitsu Arai (2006) found that the performance of IPR management is related to decision-making in law and technology through the study of Japanese enterprises [1]. James G.Cullem (2010) pointed out that it takes a lot of time and capital to generate enough investment returns [2]. In China, Shouzhong Mo (2012) put forward the strategy construction of IPR management of SMEs in China based on the experiences of Japan and the United States [3]. Qinling Zhou (2014) believed strengthening IPR management is necessary for SMEs to survive in the increasingly fierce knowledge competition [4]. To sum up, it is important and necessary for academia and practice to research IPR process management of SMEs in China considering the research status at home and abroad.

2. The Connotation of IPR Process Management

According to the capital axis, IPR process management can be divided into IPR preparation period, IPR formation period, IPR maintenance period and IPR management period by using the Life Cycle Theory. A complete set of processes must be clear, and the corresponding link of capital input and profit output are corresponding. During the research and development period, IPR process management realize various disputes minimization and asset return maximization through various systems and means. Figure 1 shows the patent development process and the corresponding IPR management process based on the Life Cycle Theory.

3. Construction of Evaluation Index System for IPR Process Management in SMEs

3.1 The Dimensions of Basic Resources

These are the basis resources of the organization, human, material and finance for enterprise to carry out the IPR strategy, which make up the first-dimension index.

3.2 The Dimensions of IPR Creation

The IPR creation is results obtained through the combination of intelligence and technology, and legal protection effect of the IPR only can be obtained through the application and authorization process.

3.3 The Dimension of IPR Application

The IPR application reflects the performance of IPR, including the implementation of the patent rate of authorized patent through pilot production after forming the product into the market as well as the situation in the new corporate profits in the contribution of IPR.

3.4 The Dimension of IPR Protection

The IPR protection is the process of preventing IPR infringement by various means. The filing rate of IPR disputes, which is the quantitative index of the consciousness and ability of human rights protection, can reflect the litigation ability of enterprises in IPR protection.

3.5 The Dimension of IPR Management

Combined with the increasing openness of the market in the technology market, it is of great significance for SEMS to realize the maximization of corporate interests to vitalize existing IPR through flexible mode of operation and enhance the efficiency of resource utilization.

4. Summary

This paper builds a set of performance evaluation index system of IPR management process for SMEs from five dimensions consist of the Basic Resource, IPR Creation, IPR Application, IPR Protection, IPR Management based on the Life Cycle Theory (as shown in Table 1). And we will improve the evaluation index system through empirical analysis and application.

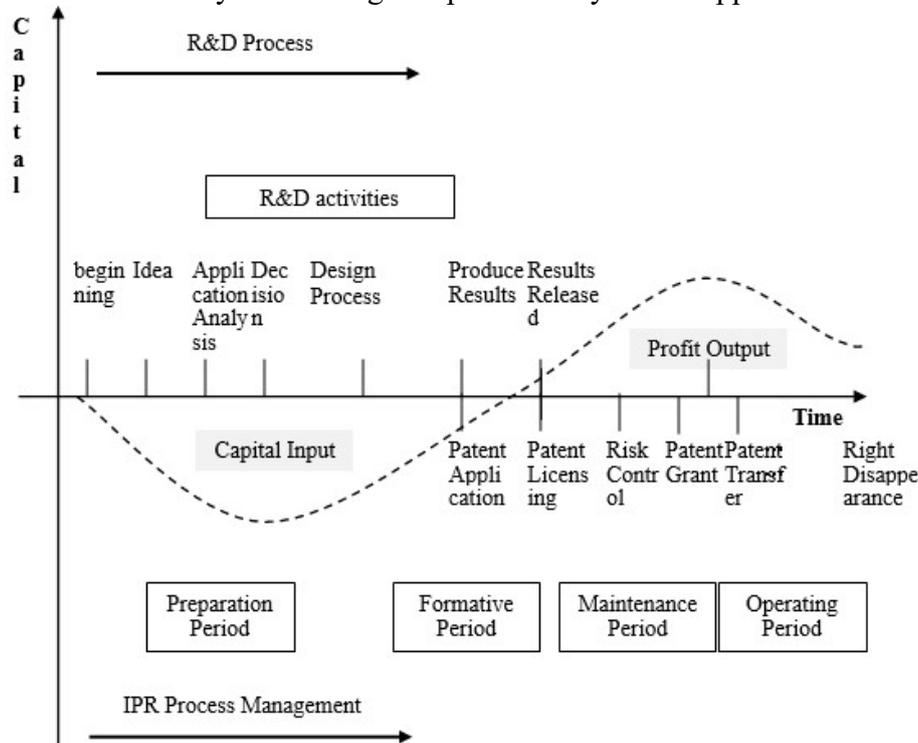


Fig. 1 The framework of IPR process management based on the life cycle.

Table 1. The SMEs IPR management evaluation index system

Grade I indexes	Grade II indexes	The calculation formula and explain
Basic Resource	Institutional Settings for IPR management	The number of full-time personnel, the division of responsibilities and the rationality of the agency's functions and powers
	Special funds for IPR	Each year the enterprise used for the appropriation of IPR management.
	IPR management information platform	The construction and application of information platform analysis
	IPR management system and the work plan	Integrity, rationality and execution
IPR Creation	Research objectives and strategies	Goals align with corporate strategy and forward-looking
	The investment intensity of R&D	Annual enterprise R&D investment / prime operating revenue
	Number of R&D personnel	Enterprise R&D personnel quantity
	The number of patent applications growth rate	The average growth rate of enterprise patents in the last three years
IPR Application	The application rate of patent	The number of enterprise patent products / The number of enterprise patents
	Contribution rate of IPR for new profit	New contribution of enterprise IPR / new profits
	The use of standardized procedure	Specification of enterprise IPR applications
	The effectiveness of the competition strategy	The effectiveness of enterprise IPR competition strategy in market competition
IPR Protection	Awareness and ability of rights protection	Corporate personnel awareness of rights protection and corporate rights protection
	the rate of criminal cases registered of annual IPR disputes	The average rate of annual dispute resolution of enterprises' IPR in the past three years
	Contract management	The procedure standardization and backup of enterprise related contract management
	The early warning mechanism of long-term	The rationality and effectiveness of the early warning mechanism of enterprise's IPR
IPR Management	Annual income and expenditure plan of IPR	Forward-looking of annual income and expenditure plan of enterprise IPR
	IPR licensing rate and transfer rate	The transaction of IPR in the technology market
	Investment in the introduction of IPR	The investment quota for the introduction and transformation of enterprise IPR
	Profit contribution rate of industrialization of IPR	The profit of the IPR of the effective industrialization of the enterprise / Annual operating profit

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