



Research on the Multi-league System Independent Innovation of Enterprises as the Mainstay

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Abstract

The implementation of multi-league independent innovation, which consists of business, government, research institutes, colleges and universities and intermediary organizations, is basically still in its infancy. According to the relationship between the independent innovation and the alliance, and the researching of the innovative elements, the paper analyses enterprise as the main body of multi-league system of independent innovation, and it offers Materials of technology management decision-making for independent innovation of enterprises and related departments

Keywords: Enterprise Entity, Independent innovation, Multi-league

1. Introduction

With enterprise's development and the changing of the competitive environment, the win-win idea of cooperation in the competition instead the traditional concept of zero-sum competition. The important role of independent innovation is also increasingly apparent. For enterprises, the innovative capacity and technology level more dependent on the degree of inter-firm alliance. Therefore, the research of multi-league independent innovation has become essential.

2. The summary of Enterprises league and independent innovation

2.1 The definition and development of Enterprise Alliance

Enterprise Alliance can be dated back to the early industrialization, and later appeared at a variety of league forms (Wei, Nongjian & Yu, Qin, 2006, pp.5-10). Modern Enterprise league substantially emerge from the early 80's, and league really have become an effective way to make up the strategic gap. However, the practice and theoretical studies of corporate league also are the initial and spontaneous stage.

In this paper, Enterprise Alliance define as corporations and other enterprises, governments, research institutes, colleges and universities as well as the intermediary organization to set up multi-league, in order to achieve resource sharing, the risk and cost sharing, setting up cooperative relations through specific modalities.

2.2 The basic connotation and influencing factors analysis of independent innovation

2.2.1 The basic connotation of independent innovation

Schumpeter first proposed the concept of innovation in "economic development" theory. Many studies from different perspectives by domestic and foreign scholars have been followed. Xie Xiezheng views independent innovation is to master their own intellectual property, so that economic, technological have own characteristics (Xie, Xiezheng, 1995, pp.6-9). Hoskisson, Busenits and Lengnick-Hall and others put forward independent innovation is innovation activity through its own research and technological breakthrough (Hoskisson, R.E. and Busenitz, L.W, 1991, pp.197-227).

In this paper, the concept of independent innovation should be studied from both macro-and micro-level. The former shows that country's industrial technology development should rely on own strength to carry out independent innovation activity. The latter refers to enterprises through its technological breakthroughs to achieve innovative activity.

2.2.2 Independent innovation analysis of the influencing factors

The impact factors of enterprise independent innovation have external factors and internal factors. The internal factors

play a key role.

(1) External factors

① Market demand and market competition. In period of economy rising, innovate power is weak because of expansion of market demand and weak competition. Instead, it will enhance the power of innovation. Setting up Multi-league, the capability of enterprises independent innovation will be enhanced markedly.

② Technology chain and innovation chain. Multiple leagues can be set up perfect technology and innovation chain, so that enterprises significantly improve their capability of independent innovation.

③ National innovation system. National innovation system is the basic environment of the other innovative bodies. Setting up multi-league, will stimulate and guide the country great importance on innovative development, and to provide guidance in the right direction.

(2) Internal factors

① Financial capacity. A low level of enterprise innovation is directly related to lack of investable capacity in technological innovation. Setting up Multi-league, you can raise funds from various aspects for innovation.

② Creative talents and technological capabilities. The table shows China's technological talents mainly concentrated on large and medium-sized enterprises. Setting up enterprises as the mainstay of the multi-innovation league can make up the drawback.

Insert Table 1 Here

③ Entrepreneurial mentality. Entrepreneurs lack of risk-taking and innovative spirit. Setting up alliance multiple can share risk and make entrepreneurs more courage to innovate.

3. The analysis of main elements of independent innovation and Development Status

3.1 The analysis of main elements of independent innovation

3.1.1 Enterprise

The enterprises as the main body of independent innovation, is a key part of national system of innovation., therefore, A country's level of economic development depends largely on the level of enterprise self-innovation technology development.

3.1.2 Government

Government creates a good environment and provides good services for other innovations, promoting the international exchanges and cooperation various components.

3.1.3 Scientific research institutes and Institutions of higher learning

Research institutions and colleges and universities have become an important source of technological innovation and creators of new industries. So it can improve the capability of independent innovation of countries and enterprises.

3.1.4 Intermediary organizations

It plays a coordination role in the country's independent innovation, and it is an important link for setting up league between scientific researches institutions and small and medium-sized enterprises.

We can see from the above, National innovation system is mainly composed of the government, enterprises, research institutes, colleges and universities, as well as intermediaries. In the main body of these innovations, company is the main body of research and development, innovation input and output and income, and plays a key role.

3.2 The status of independent innovation in our country

With constant reforming of the economy and technology, a good trend of China's independent innovation ability is showing now (Wu, Yongmin, Bai, Yingzi, Ji, Yushan and Zhao Fang, 2006, pp.2-5).

(1) Increasing investment in science and technology

The total of the national technology fund and R & D costs reached 133.391 billion yuan and 245 billion yuan in 2005, growing 17.28% and 19.9% more than last year, and more 10 times and 20 times than 1990 respectively.

(2) Growing number of researchers

The number of scientists and engineers has a smooth growth in technological activities. Compared with 1990, respectively increase 81% and 115% in 2005.

(3) Enhancing the overall level of independent innovation

In recent years, the overall level of China's independent innovation has continually improved. The exports of high-tech products reached 218.248 billion dollars in 2005, more nearly 9 times than in 1999.

However, generally speaking, China's independent innovation capacity is still weak. Mainly manifested in lack of scientific research investment; enterprises as the mainstay, the innovation system have not yet formed; low rate of scientific research, and serious shortage of high-tech personnel.

3.3 Analysis of enterprises' independent innovation advantage

Enterprises as the most important innovative mainstay, its specific advantages as follows.

(1) Having greater flexibility

Because of organizational level clearly, a lot of internal communication, more quickly and effectively convey information, and rapid response to market, so compared with other innovations, there is greater flexibility.

(2) High efficiency of independent innovation

Due to strong market competition, enterprises must product new products in the short term; develop new technologies, so enterprise innovation has higher efficiency than the other innovation.

(3) Independent R & D capability

Most enterprises have R & D department, in particular, large corporations have abundant capital, knowledge and technology stocks, as well as a better risk-bearing capacity, and therefore the capacity of independent R & D is much larger than the other innovations.

4. Setting up multiple leagues' independent innovation system

4.1 Guiding ideology

The scientific outlook on development as the guide, set up multi-league to promote the development of technology innovation, and the leagues' independent innovation driven-leap-forward development of Country's independent innovation.

4.2 Construction principle

(1) The principle of forefront

Independent innovation demands comprehensive and accretive grasp for cutting-edge technology.

(2) Personnel structure optimized principle

The fundamental advantage of enterprises is a high-tech talent. We must firmly grasp talent and make good use of talents, and build qualified personnel of innovative capacity.

(3) Driven principles of informationization

The direction of independent innovation is more explicit for informationization. Through the deep development of information resources and extensive application of information technology, corporate improves the level of independent innovation.

4.3 The form of innovate alliance

The paper integrates Michael • Porter, Bernard • L Simon's theory as well as the independent innovation of China's enterprises, and give the framework of the innovation alliance by enterprises as the mainstay(Xie, Kefan and Tao, Quan, 2005, pp.17-18).

(1) Contract Alliance. The enterprises with other innovation set up the alliance by signing the agreement. The Government takes the leading role; research institutes and colleges provide talents of scientific research, and an intermediary organization plays a coordinating role.

(2) Cooperative Alliance. Enterprise forms a new independent agency with other innovations for common interests. The alliance's ability of innovating product, accessing to information and achieving value are very strong.

(3) The alliance of stock equity participation. Other innovations hold part of stocks to set up the alliance that can achieve complementary advantages, and it has very large flexibility.

(4) Informal cooperation and the international combination. Enterprises and other innovations set up alliance through technology seminars, information exchange, personnel exchange and other cooperation, or through an international unite set up alliance.

Insert Figure 1 Here

4.3.1 Constitution of alliance enterprises independent innovation capacity

According to several forms of business innovation league, in Figure 4.2, league, organization, resources are seen as an input; innovation performance and innovation capability as the output; product innovation, process innovation, technology acquisition and information acquisition constitute the core of the process of innovation. From the overall

look, this is a process of input, action and output.

Insert Figure 2 Here

The model stressed the systematicness and dynamicness of the whole process of innovation. On the systematicness, this model not only reflects its own the innovative composition, but also considers the interaction between it and other elements. About the dynamicness, the innovation process is a learning process of feedback, adjustment and enhancement. Through organizational learning, discover and design innovative program to fit own enterprise.

4.3.2 Enhance the multi-enterprise measures the ability of independent innovation

(1) Government should learn from international experience, quickly make taxable, monetary policy to encourage independent innovation, and create institutional mechanisms and policy environment for independent innovation.

(2) Establish the mainstay status of enterprises as independent innovation, and promote enterprise as the main body of technological innovation. Full play the main role of enterprises in independent innovation.

(3) Continue to promote the scientific research institutes reform, to strengthen the construction of Key Laboratory, to set up enterprises as the mainstay, and full play the backbone's role of the scientific research institutes and universities in independent innovation.

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Table1. The R & D input of large and medium-sized industrial enterprises (2002-2005)

Indicator	Year			
	2002	2003	2004	2005
R & D personnel (ten thousand people)	60.0	66.3	65.4	76.0
R & D expenditure (million)	560.2	720.8	954.4	1250.3
The percent of R & D personnel in the total R & D staff (%)	57.97	60.56	56.74	55.67
The ratio of R & D funding and the country's total investment in R & D (%)	43.51	46.82	48.54	51.03

Source: National Statistical Bureau, statistical data

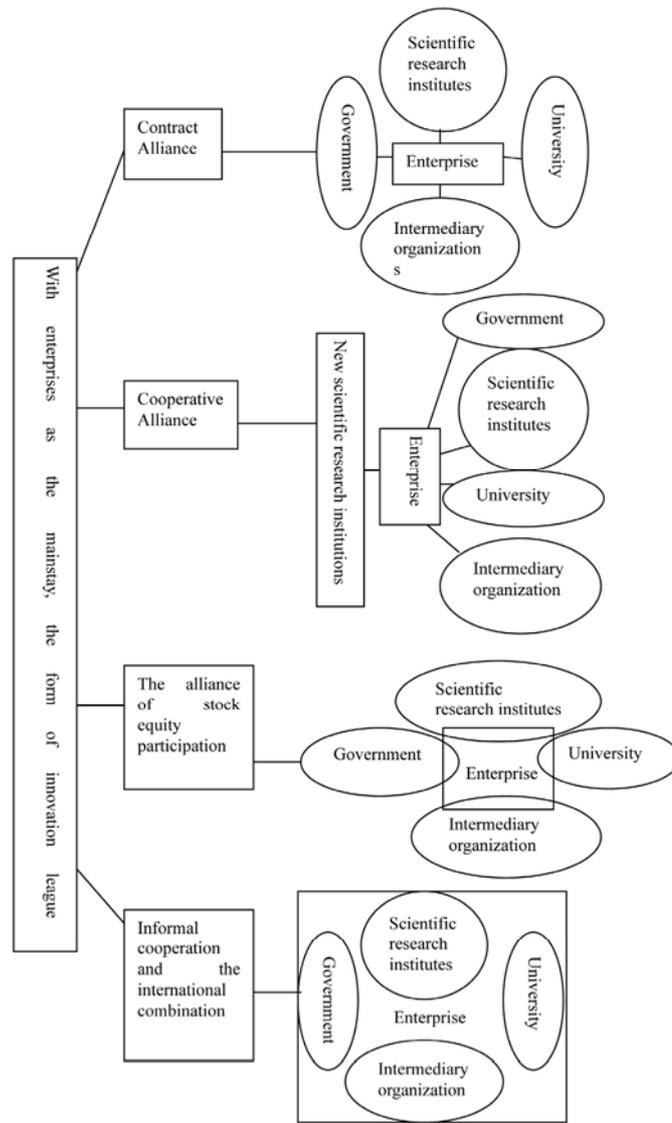


Figure 1. the icon form of Innovation Alliance

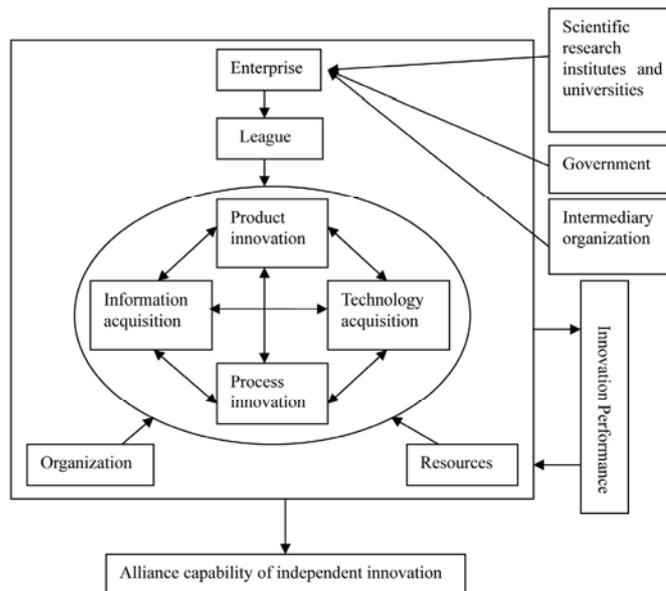


Figure 2. the positioning capability of enterprise's independent innovation theoretical model