

Research on Management Mode of the Scientific and Technological Innovation Platform

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Abstract: The existing research on scientific and technological innovation platform paid little attention to the influences of the game of the government, enterprises, universities and research institutes who construct it. This paper aims to study the management mode of the government-led scientific and technological innovation platform. At first the management characteristics and status are analyzed. Then the existing problems and causes are revealed. At last recommendations to optimize management mode of platform are proposed. Five suggestions are given to optimize the management mode.

Key Words: Scientific and technological innovation platform; Management mode; Game; Optimization; Common technology.

1 Introduction

Scientific and technological innovation platform (hereinafter referred to as innovation platform) emerges as innovation vector to solve the common technology needs of the industries. It is an important component of national innovation system and the element support system to serve the social scientific and technological progress and technological innovation. It will meet the common technologies needs of enterprises to some extent and can play an important role to enhance the competitiveness of national or regional industries. It will play a major role in promoting the development of the regional pillar industries.

Research joint venture (RJV) in Europe and the United States is a form of innovation platform as we concerned which is constructed by the government, universities, research institutes and enterprises (Y Caloghirou, S Ioannides, N S. Vonortas, 2003) collaborative R&D organizations. But most RJV are constructed by the enterprises, the related studies also focused on the form of R&D organization, which is only one type of RJV. Less attention was paid to the government-led innovation platform. The rise in building innovation platforms in China was from the 90s of last century, (mostly government-led), theory began to pay attention in recent years. There were the following two aspects about research on the management mode of innovation platform. First, it was to explore the ways of construction and organizational model of innovation platform based

on common technology of industry from point of view of participants. Secondly, it was to design operating systems of platforms with multiple views. Although the theoretical study on the innovation platforms gradually increases, there is rare study on the influences of the management and development of the innovation platform caused by the game of the participants because of a late start. It's still lagged behind the practice of innovation platforms. This paper reveals the existing problems of innovation platforms based on in-depth analysis of the current status of the management model. Policy recommendations are provided for standardized management and it's helpful for construction and development of the innovation platforms in China.

2 Status, Problems and Causes of Innovation Platform Management Mode

There are diversified forms of organization about innovation platforms, but overall, 'government-enterprise-university-research institution' innovation platforms are a large proportion in all innovation platforms. Co-management by multiple management bodies is the main mode of these innovation platforms (figure 1). The contents about management are different with the main parties to manage. And there are differences in management style, too. Such management mode has its advantages, but there are coordination issues.

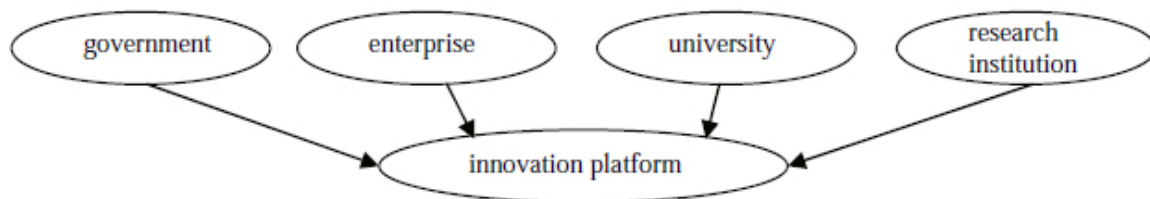


Figure 1 - The management structure of the innovation platform

2.1 Management status of the innovation platform management mode

There are multiple management bodies on one innovation platform, the contents of the management are different. The management styles are different because of different management bodies.

2.1.1 The management contents and ways of the government

The government's main role is to organize and communicate with investors, invest in the platform and create policy environment about the management of innovation platform, such as making the overall strategic plan for the development of innovation platform, designing the annual plan and budget for building innovation platform; managing application and approval, monitoring and inspecting the process of building, evaluating internal management system of innovation platform, coordinating between the leading construction unit with other participants and so on.

The management way of government is as follows. First, the platform is regarded as a public institution, but it is operated as an enterprise. On one hand, public services should be delivered by the innovation platform, on the other hand, it's promoted to establish the market mechanism gradually and is asked to have the ability of self-survival and development. Second, policy environment is provided mostly by science and technology management department. From the practical point of view, the existing policies and regulations about establishing the innovation platform are more confined to science and technology management department. Third, the innovation platform is managed by many government departments. There is hardly cooperation about innovation platforms because of the diversification management of the government.

2.1.2 The management contents and ways of the enterprise

Enterprise is the main investor for the building of an innovation platform. Capital management is enterprises' main job during the construction period of the innovation platform. After the completion of the innovation platform the major management task is the allocation of resources, convergence management of market operation and R&D, transformation of scientific and technological achievements.

The way of an enterprise to manage depends on the company's position in the innovation platform. If the innovation platform is affiliated to the enterprise, the innovation platform will be integrated into the overall development of business plans, and the operators of the innovation platform will be selected, the performance of innovation platform will be monitored, revenue will be accessed and so on. Otherwise, there is a relatively loose contact between the innovation platform and companies. The purpose of the company is the access to common industrial technology.

2.1.3 The management contents and ways of universities and research institutes

There are two main aspects with management of universities and research institutes in innovation platform. One is to manage the inputs of the objects, such as asset management, including the shared use of research and development equipment, transfer and utilization of patents, technology, methods, information and other intangible assets. The second is to manage people who are delegated by universities and research institutes. It's needed to determine standards for selecting talents, ways for personnel station, incentive and allocation mechanism.

The way to manage is relatively simple about universities and research institutes in innovation management platform. They are mainly involved in council decision-making, coordination with the government about development issues of innovation platform, management of intangible assets and tangible assets, assigned the management team to innovation platform and so on.

2.2 Problems and causes with management in the innovation platform

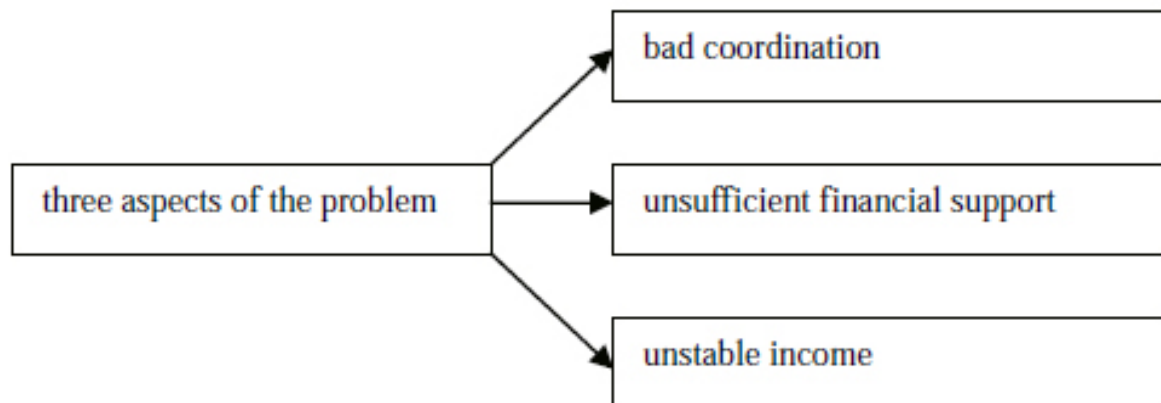


Figure 2 - The management problems of the innovation platform

2.2.1 Problems and causes about coordination

First, the objectives and orientations of multi-management bodies are uncoordinated. As a leader in innovation platform construction, the government tends to make innovation platform provide common technologies for the industry. Although universities and research institutes are public services, they continue to explore the marketization road under the present conditions of

market economy and hope to get more market opportunities and project resources by innovation platform. Enterprises mainly ask for technical support. It can be seen that the objectives and orientations of the three are different. The difference would be reflected in the management mode of the innovation platforms (such as the location, business structure, incentive mechanism and the the distribution of benefits of the innovation platform, etc.). Thus the lack of coordinated management is on innovation platform.

Secondly, the government's multi-management is difficult to coordinate. Construction and development of the innovation platforms is in need of cooperation of financial, planning, land and resource ,fire and building departments. In recent years the innovation platforms developed rapidly. If the management of the government was not in place, it's likely to produce negative phenomenon which is not conducive to the development of scientific and technological progress as well as to the innovation platform, such as repeated construction, vicious competition, and waste of resources.

Again, company affiliated by innovation platform conflicts with other companies in the industry. It should be noticed that there is hidden problems when the innovation platform is affiliated to the dominant firm of the industry. The profitability nature of enterprises contradicts the nature of public service of the innovation platform. In the market economy, the business goal is to maximize profits. In order to achieve this goal it appears fierce competition among enterprises within the industry. Although innovation platform affiliated to company is asked to provide the public technical, technical disclosure of the business and technology fair use issues will inevitably be worried by other companies.

2.2.2. Problems and causes about financial support

Financial support for innovation platform is difficult to meet the needs. Financial funds are invested in the projects of the innovation platform. But the project income is insufficient to cover the research costs. It affected the normal operation and sustainable development of innovation platforms. And R&D in projects is difficult to take into account the sharing of common and forward-looking technology. It is not conducive to industrial generic technology innovation.

2.2.3. Problems and causes about obtaining stable income

There are three reasons for the innovation platform to obtain a bad stable income. First, the personnel structure of the innovation platform is irrational. As the management mode has not really been established, there still exists the phenomenon that technical personnel are valued and management talents were ignored in the personnel structure. It will influence the business development and overall operation. Secondly, the business model is difficult for the innovation platform to get stable income. Compared to enterprises who produce and sell products continuously and can get more stable income, research and development is fundamental survival for innovation platform, while the R&D activities are often based on the project and are non-continuous breakpoints state, and received income is not stable, so the development is hard and not smooth. Again, it is the dilemma to make R&D the main business to operate for innovation platform. The innovation platform is essentially a common technology research and development institutions with the public nature. But also it is given an arduous task to get the hematopoietic system by enterprise operation. It is beyond reality, because the public nature determines the inherent problems of unstable income for the innovation platform.

3 Ideas and Policy Recommendations to Optimize Innovation Platform Management Mode

Previous studies stated clear that promotion of the common technologies was impacted not only by market failures, but also by organizational failure. From the analysis of this article it can also be seen that inter-organization failure constrains to promote the development of common technologies. That means that it will make loss because of different objectives of the management bodies building the innovation platform. How to supply the generic technology effectively? That is the problem to be solved with the management mode.

3.1 To establish mechanisms of loose management and free development

We propose that the government and the universities and research institutes should be concerned about the long-term development of the innovation platforms. Specific management functions of the government and the universities and research institutes should be weakened, and functions with supervision, performance appraisal and other services should be strengthened. The focus is on designing and making use of management system of the innovation platform. The innovation platform is operated as an enterprise. So the management of the innovation platform is directly responsible to the council, rather than a particular administration body or a subordinate unit.

3.2 To establish mechanisms of recruitment and incentives of the core staff

The main risks of the innovation platform are financial risk and reputation risk, and the government takes the main responsibility of the risk as an investor. From the sources of risks, the government is not the party to arise risk unless there is improper risk control; the universities and research institutes as parties to build the innovation platform, they will not take the initiative to create risks because of constraints of responsibility and moral. The risks are most likely to take place in the innovation platform itself. It's from the not due diligence team leader. To sum up, the key to improve management mode is the platform leader. The core is to manage the leader with a scientific and effective way. The scientific decision-making way is needed on mechanism of appointment and incentives.

3.3 To establish mechanisms of multiple coordination

First, the relevant government departments perform their duties based on division of labor. The aim is to form a joint force to develop the innovation platform. It's needed to break down the situation of departmental isolation and low efficiency. It's to make plans and manage with a unified method with existing resources. The innovation platforms should be managed, directed and guided to the healthy development road with rational distribution of government resources.

Second, the common technology must benefit the industrial enterprises fairly. The relevant rules about developing and using the common technology must be made. The aim is to benefit the majority of enterprises, rather than being a tool for monopolies for certain corporate.

Again, it is needed to establish coordination mechanisms between the innovation platforms. The purpose is to integrate the distributed innovation platform resources and make them share with the innovation platforms in order to set up better docking for the innovation platforms and the enterprises.

3.4 Financial supports for the innovation platforms should be divided into two stages

At the operational level, according to the principle of "best configuration of limited financial resources" it's suggested that the government change the way to support the innovation platforms in the constructing stage as primarily (or only means) practice in the past. The

method is to adjust the policy orientation. It's to support the innovation platforms with fund from "start-up money" to "development fund". At the start-up stage, the government invests part of the capital into the innovation platform. If the innovation platform was in good working order after two to three years, the government invests will invest more capital into it.

3.5 Try to implement the "one platform, two systems" model

It's suggested that two level institutions should be set up in the innovation platform. The first level is the administrative agent (registered at civil affairs bureau). It's still in the nature of the administrative units. The main task is to construct and operate the innovation platform. The second level is the enterprise institution (registered at bureau of industry and commerce). It is a subordinate enterprises founded by the innovation platform as a public platform. The main task is to construct and operate the venture platform (or transformation of platform). But two platforms are relatively independent, and the enterprise has independent legal person qualification and property rights.

4 Conclusion

There are multiple management bodies on the innovation platform, and the contents of the management bodies are different. The management ways are also not the same with many management bodies. There are some problems with management modes. Such as coordination problem, insufficient financial support for the innovation platform, bad profitability functions and so on. It is needed to establish mechanisms of loose management and free development, to establish mechanisms of recruitment and incentives of core staff, to establish mechanisms of multiple coordination, to divide financial support for the innovation platform into two stages and try to implement the "one platform, two systems" model and so on.

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