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Analyzing Factors Affecting the Transformation of International Scientific and Technological Achievements and Countermeasures

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Abstract

This paper focuses on the in-depth analysis of the transformation of international scientific and technological achievements. Firstly, it summarizes the connotation, types, and ways of the transformation of international scientific and technological achievements, and then discusses the influencing factors from the maturity, personnel, capital, government, and other dimensions. Finally, it puts forward the transformation countermeasures of improving the maturity, cultivating talents, increasing capital investment, and strengthening government support, aiming to improve the quality of the transformation of international scientific and technological achievements, transform more international advanced scientific and technological achievements into China's real productivity, and promote China's social and economic development.

Keywords

Scientific and technological achievements; Transformation; Government

1. Introduction

In the process of building a strong country in science and technology, it is of great significance to actively learn from international advanced scientific and technological achievements and achieve efficient transformation to enhance China's industrial competitiveness and promote the level of scientific research to a new height. Through the transformation of international scientific and technological achievements, it can effectively promote the deep integration of science and technology and economy, improve productivity efficiency, and inject strong impetus into the country’ s economic and social development.

2. Overview of the Transformation of International Scientific Research Achievements

2.1 Definition

The transformation of international scientific research achievements refers to the large-scale development and application of international advanced scientific research technologies to transform them into new scientific and technological products to enhance the degree of integration of science and technology, economy, and improve productivity efficiency. This process is not only a simple application of technology, but also a comprehensive leap from scientific research to market, involving technology research and development, product design, marketing, and other links.

2.2 Types of Transformation in International Scientific Research

In a broad sense, the transformation of international scientific research achievements covers the application of scientific research achievements, the improvement of scientific research ability, and the improvement of the scientific research process. It not only pays attention to the application of the accomplishments in actual production, but also promotes the improvement of scientific research ability and the optimization of the scientific research system through the transformation process. In a narrow sense, the transformation of scientific research achievements only refers to the application of international science and technology to China's industrial production, emphasizing the landing and practical application of technology in the production link.

2.3 Approach

There are two main ways to transform international scientific research achievements: direct transformation and indirect transformation. Direct transformation includes the self-transformation of enterprises' scientific research institutions and the transformation of industry-university research cooperation. Self-

transformation of enterprise scientific research institutions means that enterprises rely on their own scientific research strength to transform and apply internationally introduced scientific research achievements within the enterprise. This way can enable enterprises to quickly integrate new technologies into production and enhance their competitiveness. The transformation of industry-university research cooperation is that enterprises, universities, and scientific research institutions give full play to their respective advantages, jointly promote the transformation of scientific research achievements, and realize resource sharing and complementary advantages. Indirect transformation includes technology-based transformation, government transformation, and foreign cooperation transformation. The transformation of technology-based relies on the resources and platform of professional technology base to accelerate the transformation and promotion of scientific research achievements; on the other hand, the Government transformation promotes the application of scientific research achievements in relevant fields through government policy guidance, financial support, and other means. The transformation of foreign cooperation relies on cooperation with foreign investors to introduce foreign advanced technology and funds to realize the international transformation of scientific research achievements.

3. Factors Affecting the Transformation of International Scientific and Technological Achievements

3.1 Maturity

The maturity of international scientific and technological achievements involves the technical maturity of each stage, from scientific research achievements to large-scale production. It not only requires the achievements to be advanced and mature, but also requires the market to have a certain demand for the technology and product, including two dimensions of technology maturity and market maturity. If the scientific and technological achievements are not practical, they will bring strategic risks to enterprise investment. At present, there is a gap between the quality of personnel in the international scientific and technological field and the international advanced level, and the market cultivation is relatively lagging. Therefore, when transforming international scientific and technological achievements, it is necessary to carefully select industries with mature technological achievements and a relevant domestic market cultivation. For example, in some emerging technology fields, although the technology is advanced, the transformation process may face many difficulties because the domestic market demand has not been fully developed.

3.2 Personnel Factors

Scientific and technological talents are the key factors for the transformation of international scientific and technological achievements. Their quality and the rationality of resource allocation have a far-reaching impact on the transformation effect. Although the scale of China's scientific and technological talent team continues to expand, the quality improvement is not obvious, and international leaders are scarce. The structure of scientific and technological talents is unreasonable; the proportion of primary scientific and technological talents is relatively large, high-end scientific and technological talents and scientific and technological talents in top industries are scarce, and most scientific and technological talents have extensive knowledge of technology but lack management and operational ability. This is compounding the scarcity of talent in the scientific and technological sector. For example, in some high-end scientific research projects, due to the lack of interdisciplinary talents who understand both technology and management, problems such as poor communication and coordination, and difficulties in market promotion occurred in the process of project transformation.

3.3 Funding and Start-up Capital

Capital is an indispensable basic resource for the transformation of international scientific and technological achievements. In recent years, China has increased its investment in science and technology, but it is still insufficient compared with the demand for the transformation of international scientific and technological achievements. China has not yet established a sound mechanism for the use of funds for the transformation of international scientific and technological achievements, and the government has not made clear the regular growth mechanism and rational use mechanism of funds, resulting in the inefficient use of funds and affecting the transformation efficiency. For example, due to the shortage of funds, some scientific research projects are unable to carry out the follow-up pilot test and industrialization promotion, making it difficult for scientific research achievements to be transformed into actual productivity.

3.4 The Role of Government

Government policies have a significant impact on the transformation efficiency of international scientific and technological achievements. Preferential policies and stable support can improve transformation efficiency, promote the sharing of scientific and technological achievements, stimulate scientific research innovation, and enterprise enthusiasm.

However, our government has some problems in the transformation of international scientific and technological achievements, such as unstable policies, a lack of control means, a lack of reform courage, and insufficient guidance on high-tech technology, which restricts the transformation efficiency. For example, the policy support for the transformation of international scientific and technological achievements in some regions fluctuates greatly, resulting in a lack of investment confidence of enterprises in related projects.

4. Countermeasures for the Transformation of International Scientific and Technological Achievements

4.1 Improve maturity

Establish an evaluation mechanism for scientific and technological achievements, with an evaluation team composed of experts, users, and researchers, to comprehensively evaluate the value of international scientific and technological achievements. Experts check from the perspective of scientific and technological value, users' feedback from the perspective of market demand, and researchers supplement from the perspective of technological realization, so as to jointly improve the maturity of international scientific and technological achievements. At the same time, establish a perfect international science and technology incubation system, formulate the incubation system according to China's actual situation, create a good incubation environment, promote the docking mechanism between incubation and market, form an efficient incubation operation mechanism, and improve the maturity of international scientific and technological achievements. For example, we can learn from foreign mature technology incubation modes and carry out localization transformation in combination with China's national conditions.

4.2 Actively Cultivate Talents

Establish the concept that talents are the first resource, and pay attention to talent incentives and quality improvement in scientific research assessment. Establish a sound mechanism for the introduction of foreign talents, create a good environment for the introduction of foreign talents, and solve the shortage of scientific research and technology leaders and compound talents in China. We should improve the school running mechanism, establish a talent running mode of cooperation with foreign universities, build a talent introduction platform, cultivate talent innovation consciousness through the internal school running mechanism, and accelerate the transformation of international scientific research achievements. For example, it carries out joint training projects with well-known foreign universities to attract overseas high-end talents to give lectures and cooperate in research in China.

4.3 Increase Capital Investment

The government should create a steady and strong financial environment for tech companies to harness the best talents, formulate a financial support mechanism for the transformation of international scientific and technological achievements, clarify the use of funds, and improve the efficiency and quality of the use of funds. Optimize the capital structure, establish diversified sources of funds, attract social funds to participate in the transformation of international scientific and technological achievements, and form a multi-factor funding mechanism for scientific research. We will foster a capital market for the transformation of international scientific and technological achievements, improve market access and exit mechanisms, strengthen capital control, and ensure capital liquidity. For example, set up a special fund for the transformation of international scientific and technological achievements to guide social capital to participate in investment.

4.4 Increase Government Support

The government has strengthened the guidance for the transformation of international scientific and technological achievements, introduced the guidance system for the transformation of international scientific and technological achievements, improved the docking mechanism with the market, and vigorously supported the cooperation between enterprises and international scientific research institutions. Establish a national scientific and technological achievements transformation center to select international advanced technologies that can be vigorously transformed in China at the national level, and promote China's industrial development. For example, in some key industrial fields, national demonstration bases for the transformation of international scientific and technological achievements have been established.

5. Conclusion

The transformation of international scientific and technological achievements is crucial to China's scientific and technological progress and economic development. By improving the maturity of scientific and technological achievements, cultivating talents, increasing capital investment, and government support, we can effectively improve the level of transformation of international scientific and technological achievements, transform more international advanced scientific and technological achievements into China's real productivity, and provide a strong driving force for China's sustainable economic and social development.

In future development, it is necessary to continuously improve the relevant mechanisms and policies, and continue to promote the transformation of international scientific and technological achievements to make breakthroughs.

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