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REVIEW ARTICLE

RESEARCH ON ENTERPRISE PERFORMANCE IMPROVEMENT UNDER THE INNOVATIVE BUSINESS ECOSYSTEM

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ARTICLE DETAILS

ABSTRACT

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In recent years, with the deep transition and adjustment period of the international economy, China's macro economy is undergoing profound changes. After more than 30 years of rapid growth, the Chinese economy has stood at the key point of climbing and upgrading, from factor-driven and investment-driven to innovation-driven. The basic elements of innovation mainly include enterprises, institutions of higher learning, scientific research institutions, Vocational training institutions, etc. They form a commercial ecosystem in the process of dynamic evolution of innovation, and institutions, cultures and infrastructure constitute an innovative ecological environment in a region. To build an innovative business ecosystem, we must fully stimulate the innovation power of enterprises, improve the incentive mechanism for enterprise innovation, give play to the role of the market, strengthen policy guidance, build a platform for public innovation, optimize the environment for innovation, and explore innovation in science and technology and innovation new cultural atmosphere that enhances business performance.

KEYWORDS

Innovative business ecosystem, Enterprise, Performance improvement.

1. INTRODUCTION

In the background of GDP growth entering the new normal, China's manufacturing industry began to be affected by various internal and external factors. Since the outbreak of the manufacturing crisis in 2015, a large number of foreign capital have withdrawn from China. Factories in Beijing, Shanghai, Dongguan and other places have closed down, and workers are facing a serious unemployment crisis. The Chinese economy has experienced a six-year downturn. Enterprises are facing systemic crisis and ecological problems. Under this background, the new ecosystem has gradually attracted the attention of academic circles and the industry. In 2004, the US Competitiveness Commission pointed out in the "Innovative America" research report that there have been some new changes in innovation in the early 21st century.

The relationship between innovation and development is increasingly becoming complementary and even symbiotic. Changes in the nature of innovation and changes in the relationship between innovators require new ideas and new approaches. A new relationship needs to be established between companies, governments, educators and workers to form an innovative business ecosystem. In order to succeed in innovation, modern enterprises must keenly grasp the changes in the modern social innovation environment and eliminate the previous "closed-door" innovation. Close contact with relevant departments of upstream and downstream enterprises, governments, universities, scientific research institutions and vocational training institutions to create a mutually beneficial and win-win innovation model.

The innovative commercial ecosystem integrates the innovation advantages of upstream and downstream enterprises and scientific research units, and jointly realizes the 1 plus 1 greater than 2 effect, while sharing the loss of failure risk. The system unites multiple sub-units and may present short-sighted behavior in individual units. Therefore, it is necessary to further study the operational mechanism and performance of the enterprise's innovative business ecosystem, respond to the call of "mass entrepreneurship and innovation", and seek theoretical support for transforming the economic development mode and improving the level of innovation. From the existing literature, foreign scholars have matured

theoretical research on the field of innovation and ecology, but their research results in enterprises and theoretical research on innovative commercial ecology have not yet made progress.

Domestic scholars have been involved in research in this field for a short period of time. In the early stage, they mainly relied on mature foreign theories. In recent years, more and more scholars in China have begun to engage in research in the field of innovative ecology. We mainly combing and evaluating the research status of the operating mechanism of the enterprise's innovation ecosystem from enterprises, institutions of higher learning, scientific research institutions, vocational training institutions, performance improvement and evaluation, in order to make reasonable plans for Anshan City, Liaoning Province and our country and enterprises. Provide innovative theoretical strategies for optimizing innovation resource allocation.

2. LITERATURE REVIEW

Since the introduction of the concept of innovation by Joseph Schumpeter in the early 20th century, the word innovation has been gradually given new meaning, and its paradigm is constantly changing, from the initial linear innovation model to the innovation system to the innovation ecosystem. The innovation paradigm has now evolved into an innovative model of Industry 4.0 and China Manufacturing 2025. The first official presentation of the concept of the Business ecosystem published in the Harvard Management Review in 1993, Predator and Predator: A New Competitive Ecology. The business ecosystem is defined as a network organization system consisting of enterprises, market intermediaries, consumers, stakeholders, and other organizations in the same value chain. In this network system, resources, information, and products pass through the value chain in each member [1].

Flow and circulation between Moore's definition of a business ecosystem breaks the boundaries between traditional companies, allowing companies to grow in the traditional industry as well as break through traditional industry boundaries. Some researcher defines the business ecosystem from the perspective of enterprise structure dynamics, control mechanism flexibility and remoteness through the analysis of enterprise

product creation and marketing that implements information control. Just as Kandiah and Gossain values the important role of value networks in the business ecosystem also emphasizes that the business ecosystem needs to pay full attention to the organizational structure, business models and governance mechanisms and the overall ecosystem of the company's own strategy. Matching issues, in order to improve business performance [2].

To be successful in a strategic ecosystem, companies must establish good relationships with other companies or related organizations within the system. A stable and continuous partnership will bring tremendous advantages to corporate information acquisition, resource utilization and competitiveness. However, domestic and foreign scholars' research on corporate cooperation relations clearly has two opposing views: some scholars emphasize that cooperation may have a positive impact on enterprises, for example, mutual trust, technology sharing and risk sharing. Other scholars focus on the unfavorable factors in the partnership that may adversely affect the business relationship and reduce the performance of corporate cooperation, such as free-riding, information leakage and speculation. The relationship between enterprises is not always effective. They refer to the negative behaviors such as relationship conflicts, speculations, and asymmetry in the corporate partnership. The dark side of the relationship is often due to the relationship between enterprises is too tight or too loose, which in turn creates difficulties for corporate relationship management.

A group researchers put forward on the basis of summarizing the previous studies, the reason why the performance of the cooperative relationship is low or even the dissolution of the cooperative alliance lies in the two opposing factors in the cooperative relationship [3]. It is impossible to maintain a balance and believes that this kind of opposition mainly includes three levels of behavior, structure and psychology. The tension between competition and cooperation between enterprises, government departments and other informal organizations in the strategic ecology also manifests as the relationship tension between organizational behavior tension, organizational structure tension and organizational psychological tension. The tension between these three aspects is the strategy. The important content of ecological dynamic tension. Hu Ling puts forward the innovation performance of the narrow core enterprise based on the perspective of ecosystem, while the innovation performance refers to the innovation performance of the core enterprise in the ecosystem, not the innovation performance of the system as a whole or the innovation performance of the member companies. Wu Lei focuses on the research of eco-technical innovation performance evaluation index system, which provides a scientific basis for systematic analysis and scientific evaluation of enterprise eco-innovation performance and improvement of enterprise eco-technical innovation capability.

Dai Ning pays more attention to the consideration of core enterprises and believes that performance evaluation is to evaluate and feedback the operational effects of the enterprise technology innovation ecosystem. Li Jie lin used the conclusions of relevant theories and practices of enterprise ecological innovation, selected appropriate evaluation methods, and established a comprehensive evaluation of the performance of enterprise ecological innovation by establishing the enterprise ecological innovation performance evaluation system according to the basic process of the selected evaluation method [4]. In summary, although the ecosystem of enterprises is increasingly valued by the business community and academia, the current research on corporate performance under the innovative business ecosystem is still insufficient, especially how such enterprises in China can innovate in the ecosystem. And what role to play, how to improve performance, and lack of specific research.

3. THE BASIC COMPOSITION OF THE INNOVATIVE BUSINESS ECOSYSTEM

Similar to the natural ecosystem, the innovative business ecosystem is composed of enterprises, institutions of higher learning and scientific research institutions involved in technological innovation and diffusion within a certain geographical area and forms a market intermediary service organization with extensive involvement and appropriate participation of the government. Innovative network systems that interact with, store and transfer knowledge, skills and new products.

The innovative business ecosystem structure consists of three systems: the core layer, the middle layer and the outer layer. Among them, the core layer is composed of innovative subjects, whose functions are the production, diffusion and utilization of innovative knowledge; the middle layer is composed of supporting institutions, including government, financial institutions, innovative investment institutions, intermediary organizations, etc.; the peripheral layer belongs to the innovation environment layer. Including innovative infrastructure, innovative resources, innovation culture and innovation incentives.

3.1 The core layer of the innovative business ecosystem

The core system of innovative business ecosystems consists of two sub-systems: innovative production and diffusion and innovative applications. Among them, the innovative production and diffusion sub-system is mainly composed of knowledge-based institutions such as universities, research institutes and vocational training centers. Its main functions include the following four aspects: 1 fostering innovative culture and cultivating innovative talents. Higher education institutions and their talents enter the enterprise chain directly. In addition to indirectly participating in the corporate chain, institutions of higher learning and research institutions may also directly enter the corporate chain. Higher education institutions and research institutes provide high-level talents for new technology enterprises in the park, and also provide enterprise support in terms of personnel training; 2 conduct basic research and produce innovative knowledge, that is, institutions of higher learning and scientific research institutions provide enterprises with cooperation and transfer. New knowledge; 3 engaged in applied research, diffusion of innovative knowledge, and promote the transformation of scientific and technological achievements; 4 through training, improve the learning ability of business ecosystem learning subjects, improve learning effects; innovative knowledge application and development sub-system mainly by core enterprises, suppliers, customers, competitors and partners.

The core enterprise forms a vertical collaborative relationship with suppliers and customers and forms a horizontal relationship with competing companies and partners. Among them, the main roles of the core enterprises include: the decision-making body and input subject of innovation activities, the execution subject of innovation, the income subject of innovation and the subject of risk-taking. The main function of the partner is to assist the core company in carrying out innovative activities. The way to assist in cooperation is diverse, such as joint participation in research and development projects, joint use of equipment and laboratories, and so on.

In the innovative business ecosystem, downstream companies or customers are those that rely on the innovative resources provided by producers to "consume", such as many large companies, which are constantly evolving through the acquisition of innovations from universities and research institutions or SMEs. The advantage of these large companies is that they have strong resource integration capabilities and systematic development capabilities, so they have the conditions to adopt an integrated and innovative approach to achieve the innovation process faster [5].

But compared with large enterprises, SMEs should be regarded as the main force of innovation. The innovations they generate are not only cheaper, but generally have higher-tech products, and some may lead to a new business area. The "species community" composed of different enterprises, in the innovative business ecosystem, plays a different role in the competitive enterprises, suppliers or partners, customers and core enterprises, resulting in symbiosis and competition, synergy or parasitic complexity relationship [6].

3.2 The middle layer of the innovative business ecosystem

The middle layer of the innovative business ecosystem consists of supporting institutions, including governments, financial institutions, innovative investment institutions and intermediary organizations. The government can create a good and innovative business climate and environment in different ways. For example, improve the system of laws and regulations, improve infrastructure such as transportation and communication, and formulate policies and measures including fiscal, taxation and finance; the important function of financial institutions and innovative investment institutions is to provide financial services for innovative entities; The main functions of science and technology intermediaries are: providing technical information and intelligence; conducting technical consultation, evaluation and dissemination activities; formulating technical norms and standards [7].

3.3 The outer layer of the innovative business ecosystem

The peripheral layer of the innovative business ecosystem refers to the innovation environment, consisting of elements such as innovation infrastructure, innovation resources, innovation culture and innovation incentives. Among them, innovative infrastructure includes information networks, laboratories, libraries, databases, and so on. Innovation resources include talent, capital, patents, and information. Innovative infrastructure and innovative resources are hard conditions and they are the material guarantees of innovative activities. The innovative cultural environment is mainly reflected in the value orientation and innovation will of the innovation subject, the consumer's willingness and demand,

and the social innovation atmosphere. It is the fertile ground for the formation of the innovative business ecosystem. Building an open, inclusive, enterprising and risk-driven innovation culture is a booster and catalyst for the generation, dissemination and application of innovative knowledge. Innovation incentives include policies and regulations, management systems, and market and service elements. Establishing and perfecting the innovation incentive mechanism can fully mobilize the enthusiasm of employees' innovation and stimulate the innovation potential to maximize its performance, thus greatly improving the performance of innovation work.

The innovative business ecosystem shows that many actors, such as enterprises, universities and scientific research institutions, financial institutions and government departments, are involved in innovation activities, and the positioning of different entities in the innovative business ecosystem should be clarified: in the innovative business ecosystem, enterprises are technological innovations. The main body, the financial institution is the main body of financial innovation, the government is the main body of institutional innovation, and the universities and scientific research institutions are the subjects of knowledge innovation. Innovation is the result of the interrelation and interaction of these entities, building a good and innovative business ecosystem, aiming to maximize the effectiveness of each subject. From the outside, the innovative business ecosystem is a complex system consisting of a large number of interconnected, interacting, and proactive (or intelligent) entities. It is composed of the main elements (incubators, institutions of higher learning, research institutions, enterprises) innovative decomposers), functional elements (talents, capital), and environmental factors (enterprise community growth environment, people's living environment) [8].

Based on the above, the innovation and technological atmosphere can be regarded as the atmospheric environment in the science and technology ecosystem, which plays a subtle influence and support for the survival and development of various organizations in the biological chain. The bio-chain is composed of various institutions and their interrelationships in the science parks of higher education institutions, including the management institutions of the science parks of higher education institutions, the offices of various colleges, the key laboratories introduced from universities and colleges, engineering centers and Class companies and the markets (industries) they face. There is an organic connection between them, they have different divisions of labor, and they also play different roles. The interrelationship between them constitutes the biological chain of the scientific and technological ecosystem.

4. RESEARCH RECOMMENDATIONS

4.1 Strengthening the main body of enterprise innovation

Enterprises are the organizers of innovation activities and are the direct promoters of the transformation of scientific research results into market value. As enterprises are close to the market and understand market demand, in order to make them develop better and faster, they must continuously increase R&D investment and accelerate the renewal and breakthrough of technology. At the same time, under the pressure of market competition, entrepreneurs urgently need to enhance their competitiveness through independent innovation, in order to develop and grow enterprises. At the same time, it is necessary to promote various innovative organizations and entities such as universities, scientific research institutions, and intermediary service organizations to provide strong support for enterprise technological innovation and support enterprises to become the mainstay of technological innovation.

4.2 Improve fiscal and tax support policies

It is necessary to implement policies that encourage enterprises to innovate in technology, improve and implement inclusive policies, expand policy coverage, and use more post-financial subsidies and indirect inputs to support independent innovation. At the same time, for innovative products, it is necessary to establish fiscal and taxation policies that reflect external cost-effectiveness and promote the internalization of external benefits. Effectively reduce corporate taxes and fees, especially to further reduce the tax burden of small and micro enterprises. The government should actively build a bridge of cooperation between banks and enterprises, promote cooperation between banks and enterprises, expand financing platforms, reduce corporate financing costs, and provide strong support for enterprises to achieve long-term sustainable development. In addition, it is necessary to introduce market mechanisms and play the role of technology intermediaries. Based on R&D activities increase the proportion of government funding and ensure that the statutory growth of fiscal technology investment provides corresponding encouragement and support measures in cultivating enterprises as true innovation

entities. Further increase the proportion of government funds in R&D funds, and continuously consolidate the technological innovation system with enterprises as the mainstay.

4.3 Constantly optimize the market environment

Give full play to the decisive role of the market in the allocation of innovative resources, better play the role of the government, and take measures to improve the market environment and policy environment for enterprise innovation, and clarify the positioning of scientific research institutions, enterprises and governments in the regional innovation business ecosystem. The government should establish new concepts and new paradigms that are oriented to the needs of the client's needs and adopt an integrated approach to develop and implement measures to build an innovative business ecosystem.

The realization of an innovative business ecosystem requires a two-wheel drive of "effective market + pro-government", and the main role of "promising government" should be to eliminate the dysfunction of the innovative business ecosystem, not just as emphasized by traditional theories. Maintaining competition order, protecting (knowledge) property rights and investing in basic or cutting-edge scientific research is not directly interfering with the innovation process. The government should focus on the transition from "innovation policy" to "innovation service". It should pay special attention to the design of top-level systems and actively build multi-sector coordination mechanisms, including eliminating the multi-governance model. At the same time, we must promote the transformation of government functions. We will increase the clean-up, streamlining and adjustment of examination and approval items, and strive to create a transparent, predictable, fair and open investment environment for all market players.

4.4 vigorously develop and innovate the platform

The science and technology innovation platform system is a multi-level technological innovation operation system established under the guidance of the government and jointly participated by enterprises, markets and scientific research institutions. The government should coordinate the layout, integrate resources, optimize the allocation, and accelerate the construction of the basic conditions platform for scientific and technological innovation. Starting from the promotion of innovative service functions, we will build a group of high-level scientific research institutions, a number of new innovation incubation platforms and a number of technology transfer and transformation centers; strengthen the creation of space, incubators and "Xingchuang Tiandi" to promote the resources of colleges and universities. Small and micro enterprises and innovators open to sharing. In addition, it is necessary to upgrade the grades of high-tech innovation service centers to comprehensively promote the improvement of public innovation platforms. Ensure that the business incubator is put into use on time, guarantee the level of hardware facilities in the field, communication, network, office, etc.; comprehensively select the opinions of universities, research institutions, and enterprises to select projects, and focus on supporting high-tech, market prospects and regional representation. Science and technology projects.

4.5 Creating an innovative culture

To build a good and innovative business ecosystem, we should also foster a sense of innovation and promote a culture of innovation in the whole society. Actively advocate a cultural atmosphere that is daring to lead, tolerant failure, and make innovation a value pursuit. Encourage the establishment of informal organizations and build a culture of knowledge sharing. Establish a reason not to find a reason for failure, just to succeed in finding a solution, to be effective and to be effective; to establish a concept of forging ahead, to break the sense of backwardness, and to solve problems in development, instead of Develop after solving the problem. Establish a trial and error tolerance mechanism, formulate a scientific and technological innovation trial and error tolerance mechanism, encourage innovation, and create a relaxed environment conducive to scientific and technological innovation. It is necessary to break the traditional ideas of worshipping authority, allow and tolerate the failure of innovation, and maximize the stimulation and protection of the innovation passion and vitality of the makers, so that the performance of the company can be continuously improved.

5. CONCLUSION

Based on the innovative enterprise ecological model, the growth of an innovative enterprise cannot depend solely on the company's own strength, but also depends on the business ecosystem in which it operates. In order for the innovative enterprise ecosystem to operate successfully

and function, the main elements need to work together. In the entire business ecosystem, institutions, research institutions, vocational training institutions, upstream and downstream enterprises, and related institutions that provide financial support for enterprises work closely together. In order to achieve stability and benefits for the entire business ecosystem. In addition, the two major functional elements of the ecosystem – talent and capital – should be consolidating, and the main elements can continuously acquire innovative energy from them, so that the entire innovative business ecosystem is continuously self-renewing. Finally, a good innovative enterprise ecosystem also requires a good geographical and social environment.

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