Original Research Article

Research on the construction of a "government-enterprise-school" ecosystem serving the development of regional industrial economy

Yingzi Xu, Wanjun Jia
The Tourism College of Changchun University, Changchun, Jilin, 130607, China

Abstract: For regional industrial upgrading and high-quality economic development, it is necessary to break through the barriers of isolated operation among the "government, enterprises and schools". This article proposes to create a win-win "government-enterprise-university" ecosystem for all three parties, allowing the government to guide the direction through policies, enterprises to grasp the core based on demands, and universities to provide support with resources. Eventually, a cooperative model featuring complementary resources, shared risks, and shared benefits will be formed. By analyzing the real demands of the three parties in terms of talent supply, technological innovation and industrial services, a complete construction path of "policy pulling - demand matching - resource aggregation - effect feedback" was designed. This ecosystem can address issues such as labor shortages in enterprises, the disconnection between talent cultivation in universities and industries, and the insufficient precision of government services. It can inject innovative vitality into regional industries and provide practical methods for the coordinated development of similar regions.

Keywords: regional industrial economy; collaboration among government, schools and enterprises; ecosystem construction; resource integration; talent cultivation

1. Introduction

At present, China's regional industries are at a critical stage of shifting from relying on resource accumulation to improving quality through innovation. The past separate model of "government in charge of policies, enterprises engaged in production, and universities in charge of teaching" can no longer meet the comprehensive demands of industrial upgrading for talents and technologies. In many places, problems have emerged: enterprises cannot recruit suitable talents, and college graduates cannot find jobs. The government's supportive policies cannot be implemented, and enterprises want to innovate but lack funds. The "government-enterprise-school" ecosystem can bring the three parties into the same development system and ensure that resources are used where they are most needed through reasonable mechanism design. This article, in light of the actual situation of regional industries, explores the logic and methods of building an ecosystem, with the aim of breaking down cooperation barriers and enhancing the efficiency and capacity of regional industrial economies.

2. Theoretical basis for the construction of the "government-enterprise-school" ecosystem

2.1. Ecosystem theory

The core of this theory is "coexistence and mutual dependence among all", which is particularly suitable for explaining the relationship among the government, enterprises and universities. In the ecosystem, the government is responsible for creating a good environment and making cooperation smoother through policy adjustments. Enterprises are the main force in creating value and drive direction with market demand. Colleges and universities are resource suppliers, providing talents and technological achievements to industries. The three parties are like producers, consumers and decomectors in nature. Through the circulation and flow of resources, energy and information, the entire system can play its maximum role [1].

2.2. Triple helix theory

This theory attaches great importance to the interaction among universities, industries and the government in

innovation, and holds that the cross-integration of the three parties can form a continuously rising driving force for innovation. Unlike the simple cooperation in the past, the three parties in the ecosystem do not merely interact on the surface. Instead, they are bound together through methods such as investing in shares, sending people to work for each other, and jointly building platforms, thus becoming a community of shared interests where "you are in me and I am in you". This deep cooperation breaks down the barriers between organizations, allowing various elements needed for innovation to flow freely among the three parties and accelerating the speed at which technology turns into products and talents realize their value.

2.3. Resource dependence theory

For any organization to survive and thrive, it has to rely on external resources. The resource demands of the government, enterprises and universities can complement each other exactly. Enterprises need policy support from the government as well as talents and technologies from universities. Colleges and universities need financial support from the government as well as practical venues from enterprises. The government needs the taxes paid by enterprises and also the wisdom of universities to help promote regional development. An ecosystem can establish a stable way of resource exchange, making it easier for the three parties to obtain resources and more efficient to use them [2].

3. The logical starting point for building the "government-enterprise-school" ecosystem

3.1. The industrial problem of mismatched talents

A survey shows that over 70% of small, medium and micro enterprises feel that "the skills of the recruited people do not meet the job requirements" is an obstacle to their development. However, colleges and universities often fail to keep up with the pace of technological updates in industries when cultivating talents. The curriculum design is disconnected from the actual situation of enterprises, eventually leading to the double trouble of graduates having difficulty finding jobs and enterprises being unable to recruit people. The ecosystem enables enterprises to be fully involved in talent cultivation and carry out "order-based teaching", fundamentally solving the problem of mismatch between talent supply and demand.

3.2. The problem of technology not being transformed into products

Many enterprises, especially small, medium and micro-sized ones, have weak capabilities in conducting their own research and development. However, many scientific research achievements in universities have remained in laboratories due to the lack of intermediate test sites and the inability to find channels to connect with the market. Although the government has supportive policies, due to the lack of information, it is unable to precisely match the demands of both sides. The ecosystem can build a platform for technology transformation. The government provides financial support, universities offer technical solutions, and enterprises are responsible for market application, thus forming a virtuous cycle of "research and development - transformation - making money" [3].

3.3. The problem of policies not being considerate

The policies such as industrial support and talent subsidies issued by the government often fail to involve enterprises and universities in discussions, resulting in a mismatch between the policies and the actual demands. Some policy application procedures are too complicated and the threshold Settings are unreasonable. For enterprises to enjoy the benefits, they have to put in a lot of effort. The ecosystem can establish channels for communication among the three parties, making policy-making more practical and enhancing the efficiency of policy implementation.

4. The construction path of the "government-enterprise-school" ecosystem serving regional industrial economy

4.1. Construction principle: Anchor the core demands of the three parties

The principle of government leadership: The government should act as a "direction leader", providing

institutional guarantees for the operation of the ecosystem by formulating plans, improving policies and building platforms. Clarify the rights and responsibilities of the three parties in the cooperation, establish a cross-departmental coordination mechanism, and avoid fragmented policies and mutual conflicts. For instance, the "Guiding Opinions on the Development of Regional 'Government-Enterprise-School' Cooperation" was issued, incorporating the effectiveness of cooperation into the government's work assessment to guide resources towards the ecosystem.

The principle of enterprise-oriented development: Enterprises are the core of industrial development, and their demands are the starting point and the end point of ecosystem construction. The ecosystem should design the content of cooperation around the core demands of enterprises such as the lack of talents, technological bottlenecks, and the desire to expand the market. Encourage enterprises to deeply participate through methods such as "order-based training" and "joint research and development", and enhance their connection with the ecosystem by means of equity investment and building platforms together [4].

The principle of university service: Universities should abandon the educational approach of "emphasizing theory over practice", take serving regional industries as their goal, and adjust their disciplines, majors and talent cultivation methods. Transform the technical challenges of enterprises into research topics, incorporate cases from the front lines of the industry into classroom teaching, and achieve an integrated transformation of "teaching, research and service" in running schools, making the talents cultivated more relevant to the industry.

4.2. Core architecture: "One core, two wings, and three platforms" system design

One core: Centered on the demands of the region's leading industries. Focus on the competitive leading industries in the region, such as equipment manufacturing, new energy, and modern agriculture. Establish an "Industry Development Expert Committee", involving government officials, business owners, and university teachers. Regularly analyze the development trends of the industries, clarify the standards for talent cultivation and the direction of technological innovation, and ensure that the construction of the ecosystem does not deviate from the actual situation of the industries.

Two wings: policy support and resource integration. Policy support is led by the government, which will introduce policy plans such as talent subsidies, tax reductions and exemptions, and matching research and development funds. Tax preferences will be given to enterprises participating in cooperation, and financial support will be provided for majors in universities that are in line with the industry. Resource integration is responsible for coordinating the resources of the three parties, establishing a "government-enterprise-university" resource database, and incorporating the job demands of enterprises, the teaching and research resources of universities, and the policy information of the government to achieve precise resource matching [5].

Three platforms: talent cultivation, technology transformation, and industrial services. The talent cultivation platform adopts a dual-mentor model of "university + enterprise", where university teachers teach theory, technical experts from enterprises guide practice, and students participate in actual projects during their internships in enterprises, achieving the goal of "being able to start working immediately after graduation". The technology transfer platform is funded by the government to build intermediate test bases, universities provide technical solutions, and enterprises are responsible for turning technologies into products. Profits are shared according to the agreed proportion. The industrial service platform provides enterprises with one-stop services such as policy consultation, talent recruitment, and management training. At the same time, it helps universities conduct industrial research and recommend students for employment.

4.3. Operating mechanism: Closed-loop collaborative guarantee

Demand matching mechanism: Establish a "quarterly supply and demand matching meeting" system. Enterprises list the talents and technologies they need, universities showcase the talents they have cultivated and their research achievements, and the government is responsible for matching and coordinating. In case of urgent needs, a "green channel" will be opened for rapid response. For instance, a manufacturing equipment enterprise urgently needed numerical control technology talents. Through a matchmaking event, it reached a cooperation agreement with a university. Within three months, the university completed customized training and sent 20 skilled talents to the enterprise.

Benefit-sharing mechanism: Clarify the tripartite profit-sharing rules. In terms of talent cultivation,

enterprises pay customized training fees to universities, and the government provides subsidies. In terms of technology transfer, universities and enterprises share the benefits in a 3:7 ratio. The government allocates a portion of its tax revenue to establish a cooperative development fund to support the ecosystem. In terms of employment and entrepreneurship, if universities recommend graduates for employment within the region, the government will offer rewards to the universities. If enterprises hire these graduates, the government will provide social security subsidies.

Risk-sharing mechanism: Establish a cooperative risk fund, with the government, enterprises and universities contributing funds in a 4:4:2 ratio to address issues such as substandard talent cultivation quality and failed technological research and development. If an enterprise suffers losses due to the fact that the talents cultivated by universities do not meet the requirements, it can receive partial compensation from the fund. If the scientific research achievements of universities cannot be transformed, the fund will cover part of the research and development costs. At the same time, a fault-tolerance mechanism should be established to encourage the three parties to boldly try new models of cooperation.

5. Summary

The "government-enterprise-school" ecosystem serving the regional industrial economy is an effective way to break down the barriers to tripartite cooperation and promote high-quality regional economic development. Its core value lies in transforming the policy advantages of the government, the market advantages of enterprises, and the talent and technological advantages of universities into the competitiveness of regional industries through mechanism innovation, achieving a cooperative effect of "1+1+1>3". Compared with the previous cooperation model, the ecosystem binds the three parties together through a community of shared interests. Through the complete operation of "demand matching - resource integration - benefit sharing - risk sharing", it has solved prominent problems such as incompatible talents and inability to turn technology into products.

During the construction process, the principle of "taking industrial demands as the core" must be firmly grasped. The government should do a good job in institutional design and environment creation, enterprises should actively participate in talent cultivation and technological research and development, and universities should actively transform to serve regional industries. The actual situation has proved that the ecosystem can significantly increase the matching rate of regional talents and the speed of technology transformation, adding impetus to industrial upgrading. In the future, the scope of cooperation can be further expanded, with financial institutions and industry associations also included to enrich the functions of the ecosystem and enable it to better serve the regional industrial and economic development.

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