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The Practice of Industry-Education Integration Under the "Government- Industry- University-Research" Model of University Industries

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Abstract: The "government-industry-university-research" model has significant practical significance in promoting the development of industries in colleges and universities and improving the quality of talent cultivation. This paper first provides a brief explanation of the concept and significance of the "government-industry-university-research" model, then conducts an in-depth analysis of the problems faced by the development of university industries, and finally proposes effective solutions to the problems faced by the development of university industries, hoping to provide some references and lessons for promoting the continuous development of university industries and the integration of industry and education.

Keywords: University industry; The "government-industry-university-research" model; Integration of industry and education

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1. Introduction

In the new era, as an important base for cultivating innovative talents in this country, the development of the university industry plays an important role in promoting the integration of industry and education, improving the quality of talent cultivation, and driving regional economic development, and has significant practical significance. The "government-industry-university-research" model is an innovative cooperation model that provides new ideas and directions for the development of university-industry through in-depth cooperation among universities, the government, industries, and research institutions [1]. The integration of industry and education is an important part of the "government-industry-university-research" model, which mainly refers to the close integration of industrial demands with education and teaching to enhance the effectiveness of course teaching, the quality of talent cultivation, and the core competitiveness of the university industry. However, there are many problems in the development of the university industry, such as small scale, incomplete relevant systems, and lagging

concepts, which seriously affect the healthy and sustainable development of the university industry. In the new era, the value of the "government-industry-university-research" model should be fully recognized and applied to the development of the university industry, thereby promoting the quality of talent, the level of science and technology, and the sustainable development of the university industry [2].

2. The connotation and significance of the "government- industry- university-research" model

2.1. Connotation

The "government-industry-university-research" model is an innovative cooperation model, mainly referring to the in-depth cooperation among regional governments, industries, schools, and research institutions, etc., to build a close cooperative relationship, achieve complementary advantages and resource sharing, and jointly promote the continuous development of talent quality, technological level, and university-industry, etc [3]. In this model, the regional government plays an important guiding, coordinating, and policy guaranteeing role, formulating relevant policies and systems to promote the in-depth cooperation of all parties, and coordinating and communicating with schools, industries, and research institutions. Industries also play an important role in providing accurate market demand and industrial platforms in a timely manner. In this model, the school provides strong human and research support for all parties, conducts technology research and development, and promotes the transformation of scientific and technological achievements. It provides a practical platform and technical support for research institutions. Compared with the traditional cooperation model, the "government-industry-university-research" model has distinct characteristics. It breaks through traditional limitations, breaks the situation of each acting independently, and forms a powerful synergy to jointly promote the healthy and sustainable development of the school's industry [4].

2.2. Significance

The application of the "government-industry-university-research" model in the university industry has significant practical significance. This article provides a brief analysis of the following aspects.

2.2.1. Promoting technological innovation

Under the "government-industry-university-research" model, in-depth cooperation among regional governments, industries, schools, and research institutions can be coordinated to achieve the optimal allocation of resources, providing strong support for promoting technological innovation [5]. At the same time, in-depth cooperation between universities and research institutions can promote the transformation of technological achievements, thereby continuously improving the technological level of enterprises and facilitating their smooth technological transformation. At the same time, the feedback and opinions from enterprises in the market also provide a clear and accurate direction for the development of scientific research, further accelerating the development of technological innovation.

2.2.2. Improve the quality of talent

The application of the "government-industry-university-research" model can also effectively improve the quality of talent cultivation. The integration of industry and education is an important part of the "government-industry-university-research" model. Under this model, schools engage in in-depth cooperation with industries to build

good cooperative relationships [6]. On this basis, both sides jointly carry out practical projects and require students to participate in the project practice. This will not only broaden students' horizons and enable them to understand the latest developments in the industry, but also effectively cultivate students' practical ability, innovation ability, and problem-solving ability, further improve the quality of talent cultivation, and provide strong talent support for promoting the development of the industry in colleges and universities.

2.2.3. Enhance the market competitiveness of the industry

Under the "government-industry-university-research" model, through in-depth cooperation among all parties, sufficient human resources, technological support, and policy guarantees can be provided for the development of universities' industries [7]. With the support of all parties, the technological level and management efficiency of the industry can be significantly improved, and policy guarantees can be provided for it, thereby effectively enhancing the market competitiveness of the industry, enabling it to seize the initiative in the increasingly fierce market competition and achieve sustainable development [8].

2.2.4. Serve the regional economy

Under the "government-industry-university-research" model, universities and industries can engage in in-depth cooperation with local enterprises to jointly promote regional industrial transformation and technological upgrading, thereby promoting the healthy development of the regional economy.

3. Challenges faced in the development of university industries in the past

In the past, there were many problems in the development of the university industry. This article will briefly elaborate on the following aspects.

3.1. Lagging ideas

In the past, some universities focused on and paid attention to the trends of industrial development, and devoted too much time and energy to industrial development, lacking a full understanding of its strategic significance. Some university administrators are lagging behind and lack market thinking. They still use administrative means in the process of developing the university industry, which seriously affects the healthy development of the university industry [9]. In addition, some university teachers' lack of interest in industrial practice and one-sided belief that teaching, research, and other work are their main duties will also cause some hindrance to the development of university industries.

3.2. The scale is small

As an important part of the university industry, university-run enterprises are generally small in scale and have certain deficiencies in terms of capital, talent, and market competitiveness. In terms of funds, compared with ordinary enterprises, township-run enterprises have limited financing channels and are difficult to obtain huge financial support, thus affecting the development of school-run enterprises. In terms of talent, due to the small scale and limited funds of school-run enterprises, they are unable to attract high-quality management and technical talents. In terms of market competition, university-run enterprises often lack strong market competitiveness and have a smaller market share.

3.3. Lack of accurate positioning

At present, some universities are blindly following the trend and actively developing the university industry without conducting an in-depth analysis of their own strengths and characteristics. Due to the lack of accurate positioning and the lack of in-depth research and practice, the phenomenon of industry homogenization is obvious [10]. At the same time, the university industry has not carried out in-depth cooperation with school education, research institutions, etc., resulting in the fact that the advantages of each party in talent cultivation, technological innovation, etc. have not been fully utilized, thus also hindering the development of the university industry.

3.4. Lack of market competitiveness

Weak innovation capacity is one of the main reasons for the lack of market competitiveness of school-run enterprises [11]. The management system of school-run enterprises is rather traditional, and the innovation mechanism is not perfect. At the same time, the lack of necessary economic investment in technological innovation has led to insufficient innovation capacity and difficulty in launching products with core competitiveness, thus putting them at a disadvantage in the market competition.

3.5. Lack of benefit-sharing and risk-sharing mechanisms

In the process of promoting the transformation of scientific and technological achievements, due to the lack of benefit-sharing and risk-sharing mechanisms, the enthusiasm of the government, research institutions, universities, and other parties to participate is not high. Universities and research institutions tend to focus more on professional title evaluation and publication of papers, and lack sufficient motivation for the transformation of scientific and technological achievements. At the same time, enterprises are reluctant to invest a large amount of resources in the process of participating in the transformation of scientific and technological achievements, considering market risks. In addition, there is a certain deficiency in the government's policy guarantee, and scientific and technological achievements cannot be smoothly transformed [12].

3.6. The relevant systems are not perfect

A sound system is an important prerequisite for the sustainable development of the university industry. However, the current system is not perfect, which poses certain obstacles to the development of the university industry. Take the property rights system as an example. There are certain problems with the ownership of school-run enterprises, which leads to an unscientific enterprise structure and low efficiency in management and decision-making.

4. Innovative strategies for university-industry development under the "government-industry-university-research" model

4.1. Innovate concepts and strengthen market awareness

In order to promote the healthy development of the university industry, it is necessary to reform ideas in a timely manner, strengthen market awareness, and innovative thinking. University administrators should conduct in-depth study and research on the laws of the market economy and incorporate the development of university industries into the improvement and development plans of universities. At the same time, efforts should be made to enhance publicity and promotion, and encourage teachers to carry out industrial practice, to effectively promote the transformation of scientific and technological achievements, continuously improve the technological level and core competitiveness of the university industry, and lay the foundation for the healthy development of the

university industry [13].

4.2. Integrate resources and optimize resource allocation

Under the "government-industry-university-research" model, the university industry should carry out in-depth cooperation with regional governments, universities, and research institutions, build stable cooperative relationships, integrate resources from all parties, thereby optimizing resource allocation and achieving resource sharing and complementary advantages. In response to the problem of insufficient financing, universities can introduce social capital to broaden financing channels for their industries.

At the same time, under the coordination of the government, they can also cooperate with financial institutions to secure more support from inclusive finance [14]. In response to the shortage of talent, the university industry can establish a sound talent introduction system to attract high-quality management and research talents to join, thereby enhancing its own management and innovation capabilities. For example, in 2018, the School Planning and Development Center of the Ministry of Education held a coordination meeting on the professional construction of the counterpart support campus at the main campus of China University of Petroleum (Beijing). The meeting conducted in-depth discussions on key issues such as integrating resources and optimizing resource allocation, and formed a new idea to solve the problem of talent shortage through talent training bases.

In addition, the university industry should conduct extensive and in-depth market research to understand market trends and actual demands, and use this as a reference to formulate effective marketing strategies and enhance brand awareness.

4.3. Make precise positioning and give full play to the advantages of universities

Colleges and universities should precisely define the direction of industrial development based on their own circumstances and characteristics. Closely integrate higher education and teaching with industrial development to create a new situation of mutual promotion and improvement in industry-education integration. In the case of science and engineering universities, they should actively develop industries such as new materials, automation, and intelligent manufacturing based on their own professional characteristics, and constantly adjust their development strategies according to the characteristics of the regional economy, so as to promote the sustainable development of industries in universities.

4.4. Strengthen innovation and enhance market competitiveness

Under the "government-industry-university-research" model, the university industry should engage in in-depth cooperation with regional governments, research institutions and universities, increase investment in the field of innovation, thereby promoting the transformation of scientific research achievements, enhancing its own productivity and market competitiveness, and laying the foundation for the sustainable development of the university industry [15]. To this end, first of all, investment in scientific research should be increased and continuously improve the technological level and innovation ability. Secondly, the innovation mechanism should be established and improved. With market demand as the guide, improve the innovation mechanism and promote the transformation of scientific research achievements. Finally, improve the management level. Actively introduce advanced management models and concepts both at home and abroad to improve the management level of school-run enterprises, thereby enhancing their own operational efficiency and market competitiveness.

4.5. Establish a benefit-sharing and risk-sharing mechanism to promote the transformation of scientific research achievements

In order to give full play to the role of the "government-industry-university-research" model, a mechanism of shared benefits and shared risks should also be established to facilitate the smooth transformation of scientific research achievements. First of all, the proportion of benefit distribution should be determined. In this regard, regional governments can introduce relevant regulations and policies to clarify the proportion of benefits for universities, research institutions, and industries in the process of transforming scientific research achievements, thereby deepening cooperation among all parties and fully mobilizing their enthusiasm.

Secondly, a risk compensation mechanism should be established. To promote deeper cooperation among all parties, the government should also establish a risk-sharing mechanism. A special risk compensation fund for the transformation of scientific and technological achievements could be established to provide certain compensation to enterprises, research institutions, etc. that take risks in the process of the transformation of scientific and technological achievements, to reduce the losses of all parties, promote in-depth cooperation among all parties and promote the transformation of scientific and technological achievements. For example, in 2024, Xi'an Jiaotong University signed a university-enterprise cooperation agreement with China XD Group Co., Ltd. to jointly establish the "XiDIAN - Jiaotong Joint Innovation Center" and accelerate scientific and technological innovation and the precise transformation of scientific and technological achievements through the establishment of a benefit-sharing and risk-sharing mechanism.

4.6. Improve the system and establish a sound guarantee system

First, the property rights system should be improved. Clarify the ownership of school-run enterprises, build a modern enterprise management system, improve the enterprise management structure, and continuously strengthen the construction of the board of directors and shareholders' meeting, so as to lay the foundation for improving the transparency and decision-making efficiency of enterprises. Secondly, the financial system of the enterprise should be improved. Financial management and supervision of school-run enterprises should be strengthened, and digital technology should be fully utilized to improve the efficiency of financial management. Finally, the personnel management system should be improved. Establish and improve the personnel management system based on the actual situation. The system of performance assessment and distribution according to work should be the main approach to fully motivate and motivate employees.

5. Conclusion

In conclusion, the application of the "government-industry-university-research" model in the development of the university industry has significant practical significance. However, there are still many problems in the development of university industries in the past. To address this, the healthy and sustainable development of the university industry should be promoted through innovative concepts, resource integration, and precise positioning, laying a solid foundation for improving the quality of talent cultivation, enhancing the market competitiveness of the university industry, and promoting regional economic development.

Disclosure statement

The author declares no conflict of interest.

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