

# Investigation and Countermeasures on the Present Situation of the Industry-University-Research Cooperation in Wenzhou Enterprises

Gaoli Lin

Wenzhou POLYTECHNIC, Wenzhou, Zhejiang, China

## Abstract

The development of modern science and technology must rely on multi-party cooperation, especially among manufacturing enterprises, educational institutions and scientific research institutions. In the process of industry-university-research collaboration, it is more and more important for the government to play a necessary and appropriate role. The government set up cooperation platform for the enterprise, university and research institutions by formulating policies and the corresponding guarantee mechanism, so as to improve the enthusiasm of them to cooperate in carrying out scientific and technological innovation, implementation of science and technology and economy, thus realize the interaction and virtuous circle between science and technology, economy and education. Through the investigation and analysis of the current situation of industry-university-research cooperation in Wenzhou enterprises, this paper puts forward opinions and practical suggestions on the incentive mechanism of industry-university-research cooperation in Wenzhou.

## Keywords

Industry-university-research cooperation, Scientific and technological innovation, Mode.

## 1. THE EMERGENCE OF INDUSTRY-UNIVERSITY-RESEARCH COOPERATION

Government-industry-university-research cooperation means that the government, enterprises, universities and research institutions work together and interact with each other in scientific and technological innovation, research and development of new products and training of scientific and technological personnel, so as to give full play to their respective advantages, realize complementary advantages and jointly promote scientific and technological innovation and progress. There are many types and modes of government-industry-university-research cooperation and people usually pay more attention to industry-university-research cooperation.

Industry-university-research cooperation can be traced back to the 1950s. Founded in 1951 by Stanford University Vice President Frederick Terman, the Stanford Science Park is the product of a combination of the university's intellectual resources and industry's financial resources. China's industry-university-research cooperation began to pilot in the 1980s, while the real promotion of industry-university-research cooperation across the country began in 1992 when the State Economic and Trade Commission, the Ministry of Education and the Chinese Academy of Sciences jointly organized the implementation of the industry-university-research joint development project.

The only way to build an innovative country and improve its technological innovation capacity is to carry out close cooperation between industries, universities and research institutes. The reasons are as follows.

First, industry-university-research cooperation is the inevitable requirement of social division of labor and professional cooperation and the inevitable product of the development of market economy. With the expanding of the scale of production and the deepening of division of labor, the specialization degree is getting higher and higher, and the collaboration relationship between economic entity is becoming more and more tight, thus any economic unit will more or less occur some collaboration relationship with other economic units. This is especially true for science and technology innovation activity, which need much closer cooperation between related institutions. University institutions focus on basic scientific research to achieve breakthroughs in basic theories. Scientific research institutions mainly use scientific theoretical achievements to carry out applied research in order to obtain scientific research achievements that can be directly used for product development. Enterprises could directly apply scientific research achievements to product trial production and finally complete the industrialization of scientific research achievements. Only by division of labor and cooperation between universities, research institutions and enterprises can scientific and technological innovation achievements be achieved effectively. The non-cooperation or functional dislocation among different institutions is obviously not conducive to scientific and technological innovation.

Second, the complexity of modern technology makes it impossible for any economic unit to hold all the advantages, so it is a must for different units to cooperate. Modern technology is developing with each passing day, so in terms of a single technical field, its advanced and sophistication degree is constantly improving. Modern technology is composite, which usually across multiple disciplines. Modern scientific and technological innovation often involves multiple links, that is, breakthroughs in basic fields sometimes need assistance from application fields, and application development also needs further deepening and guidance from basic research fields, and the same is true between application development and industrialization of scientific and technological achievements. Each link cannot be clearly separated, instead, they need to constantly interact and promote. This characteristic of modern technology determines that the relevant scientific research institutions must cooperate to learn from each other and achieve mutual benefit, so as to obtain more effective technological innovation breakthrough and production development path.

Third, the actual national conditions determine that China's scientific and technological innovation needs more cooperation between government, industry, universities and research institutes. Due to the influence of the traditional planned economy, enterprises have a high degree of dependence on the government, and the government's policies have a significant impact on enterprises. Many enterprises do not have enough understanding of them being the main body of scientific and technological innovation, resulting in their lack of scientific and technological innovation ability. However, universities and scientific research institutions have gathered a large number of scientific research forces, but due to the failure to effectively combine with the industry, many scientific research achievements cannot be transformed into direct productivity, resulting in a waste of resources. Therefore, under the guidance of the government, enterprises, universities and scientific research institutions should be united to realize the government-industry-university-research cooperation, which is a scientific and technological innovation path suitable for China's national conditions.

The formation of the cooperation system and operation mode of industry-university-research institute cannot be separated from the role of market mechanism, but the role of the government and the corresponding supporting policies and measures are crucial to encourage and promote the cooperation. Even the governments of economically developed countries such as the United States and Japan have encouraged cooperation among enterprises, universities and research institutes through relevant laws, the establishment of special funds, tax incentives and direct investment. After decades of practice, the cooperation between universities and

research institutes in foreign countries is not only the unidirectional and individual alliance between universities and enterprises, enterprises and research institutes, but also the multi-directional alliance between enterprises, universities and research institutes. Under the coordination and guidance of the government, the industry-university-research cooperation system has developed into an open and dynamic linkage network system that is interdependent, complementary and interactive. In this system, different subjects participating in the process of industry-university-research integration are driven by interests and form diversified portfolio relations: some portfolio relations are quite loose and their interests are only realized through market trade relations, some portfolios are relatively close, and their interests are based on assets, and some combinatorial relations are intermediate. No matter what form it is, it has promoted the development of industry-university-research cooperation to varying degrees.

## **2. MAIN WAYS OF INDUSTRY-UNIVERSITY-RESEARCH COOPERATION**

### **2.1. Industry-university cooperation**

Industry-university cooperation is the collaboration between enterprises and universities, that is, enterprises provide universities with research funds, instruments and equipment according to their own actual conditions, while universities provide scientific and technological services for personnel training and staff training.

With the establishment and improvement of China's market economic system, on the one hand, there are more and more business operators who have realized that, it is talents and science and technology that they should rely on in order to remain invincible in the competitive market environment, and universities are the very places for technology research and development as well as talent training. On the other hand, colleges and universities also realize that only by actively participating in the main battlefield of national economic construction can they commercialize, industrialize and marketize their R&D achievements, and cultivate applicable high-quality talents. Only in this way can the three goals of universities in cultivating talents, scientific research and serving the society be better realized. So, this consensus drives universities to cooperate with enterprises.

This kind of cooperation is mutually beneficial. Enterprises can obtain necessary science and technology and personnel, overcoming the bottleneck in technology and personnel. Meanwhile, universities can improve the teaching environment, and can directly serve enterprises and society by participating in technological innovation, product development, production management and information services, so as to improve the level of education and discipline development of the university.

### **2.2. Industry-research cooperation**

Industry-research cooperation refers to the cooperation between enterprises and research institutes. The common practice is that both parties jointly establish scientific and technological development institutions. The establishment of this institution has greatly improved the conversion rate of scientific and technological achievements, because it makes scientific and technological research and development activities directly oriented to enterprises, serves enterprises, carries out research and development activities according to the production conditions and needs of enterprises, and timely promotes scientific research achievements to enterprises, so that the achievements can quickly improve the productivity of enterprises or directly convert them into products of enterprises, helping enterprises to obtain greater economic benefits. In addition, the research institute can also undertake various technical contracts entrusted by enterprises, such as technology transfer and technical consultation, to help enterprises solve technical problems and promote technological upgrading of enterprises. At the same time, through cooperation with enterprises, the research institute has obtained

research funds, enhancing the vitality of scientific and technological research and development. This kind of cooperation is the largest and more effective in China's industry-university-research cooperation.

### **2.3. University-research cooperation**

University-research cooperation is the cooperation between colleges and universities and research institutes, aiming at complementing each other's advantages in technology and talents. Due to the high degree of knowledge intensity and complexity of science technology, it is often not enough to rely solely on the strength of one university or research institute for large-scale and advanced scientific research projects, which require the cooperation of multiple universities and research institutes, the participation of experts and scholars of different disciplines, and joint research through repeated experiments. In fact, many large scientific research projects in Our country have been carried out in this joint way.

### **2.4. Industry-university-research cooperation**

Industry-university-research cooperation is a system of joint research, development and production by colleges and universities, scientific research institutions and enterprises, constituting a one-stop operation system of research, production and marketing. The main feature of this kind of alliance is that it combines the advantages of research and development of scientific research institutions, the advantages of talents of universities, with the advantages of production and operation of enterprises, forming a close-knit industry-university-research consortium with specific projects or products as the carrier.

For enterprises, such cooperation reduces the cost of technology development and enables them to own some core technology or patented technology. For universities and scientific research, it not only clarifies the direction of scientific research, establishes scientific research base, but also brings long-term benefits. The industry-university-research association is the closest and the most perfect one. Generally speaking, it is built on the basis of "geo-location", that is, all parties are in the same geographical area, or "blood relationship", that is, most of the technical personnel of the enterprise are from relevant universities and scientific research institutions. Therefore, the enterprise can have long-term win-win cooperation with the universities and the research institutes, and have deep trust in each other.

Industry-university-research cooperation is a complex systematic project, and the government plays a more or less regulating, guiding and motivating role in each of the above cooperation modes. Therefore, the word 'government' can be added before the above modes. Each kind of cooperation can have different realization mode, for example, the industry-university cooperation can adopt the mode of running colleges and universities inside the enterprise, or the mode of running enterprises inside the university, or take other loose modes. Regardless of the form and mode, as long as the alliance can make all parties benefit, we can boldly try and vigorously promote it.

## **3. INVESTIGATION ON THE CURRENT SITUATION OF THE INDUSTRY-UNIVERSITY-RESEARCH COOPERATION IN WENZHOU ENTERPRISES**

### **3.1. Four modes of industry-university-research cooperation in Wenzhou**

Establishing an industry-university-research cooperation platform jointly. Oriented by the market and led by the government, actively integrating the science and technology, talent and equipment resources of university scientific research institutions to establish an industry-university-research cooperation platform. The establishment of "industry-university-research Cooperation demonstration base" is an important measure of optimal allocation of resources led by the government.

Joint mode of enterprises, universities and scientific research institutions, which allows enterprise cooperates with the scientific research institutions of colleges and universities face-to-face. Through technological achievements transfer, entrusting development, joint development, and cooperative training of talents, the enterprises and the scientific research institutions of universities jointly build different industry-university-research cooperation modes such as laboratories, engineering technology research centers, and high-tech economic entities, so as to realize the benefit drive and promote the direct transformation of the scientific research into productive forces.

Organize and implement the special plan for the development of Industry-University-Research cooperation, give full play to the overall advantages of industry-university-research Institute, concentrate on joint research on common and key technologies urgently needed for industrial structure adjustment, jointly study and formulate new technical standards, so as to achieve technological breakthroughs and promote the research and competitiveness of the city's industrial development.

Promoting the union of industry, university and research institutes through technology innovation intermediary service organizations. Actively use the advantages of the network, through the construction of network platform to provide convenient information services for the industry-university-research union, among which, the construction of "technology supermarket", make the network become an important way of the industry-university-research union, "online display and trading platform" is also one of the important measures of the industry-university-research union.

### **3.2. Problems and suggestions in industry-university-research cooperation**

The organic connection between technological R&D and industrialization in universities and research institutions is not enough. Application-oriented R & D projects in colleges and universities should pay attention to practicality and convertibility as commodities.

Enterprises are not active enough in seeking technical support from universities and scientific research institutions. When building national and provincial technology centers, trial production bases and developing new products, local enterprises often seek domestic and foreign R & D institutions, companies and enterprises to participate in bidding, without actively inviting or contacting universities and scientific research institutions to participate in the construction.

Preservation of human resources in universities and research institutions. Each industry-university-research project has trained a group of technical and managerial talents for universities, research institutions and enterprises, realizing a retraining. However, with the improvement of the professional level of personnel in universities and scientific research institutions, the accelerating flow of talents also causing enterprises to worry about the later service of the project as well as the further expansion and extension of the project. How to achieve the socialization of functions and service industrialization? The key is that in addition to setting up special institutions, universities and scientific research institutions should also have a relatively stable and excellent team of industry-university-research projects. In the cooperation with key large enterprise groups, universities and scientific research institutions should be based on the long-term, invest and retain excellent talents, maintain the continuous line of cooperation projects, and stick to long-term cooperation.

Among the currently implemented industry-university-research projects, the research in the key and forward-looking technology of the industry is insufficient, and the ability of the project level to reach the international advanced level is limited. On the one hand, the technical strength and research and development ability of enterprises are not strong enough. On the other hand, the research and development ability of universities and research institutions also needs to be

improved. Although enterprises have introduced products and technologies, the conversion rate and industrialization rate of achievements are low, and the absorption capacity is weak. Therefore, the improvement of the level of the industry-university-research project is an important aspect of the project work in the future.

#### **4. COUNTERMEASURES AND SUGGESTIONS FOR DEEPENING THE COMBINATION OF INDUSTRY, EDUCATION AND RESEARCH IN WENZHOU ENTERPRISES**

##### **4.1. Fully understand the importance of deepening the work of combining industry, university and research**

Deepening the combination of industry, university and research is an urgent requirement for exploring the path of independent innovation with Chinese characteristics. Industry-University-Research cooperation is fully arouse the masses of staff enthusiasm and creativity of science and technology as a starting point, in order to promote the whole society resource efficient allocation of science and technology and the comprehensive integration as the key point, promote our country to speed up to establish enterprises as the main body, market oriented, the combination of technology innovation system, the effective ways to explore the road of independent innovation with Chinese characteristics.

Deepening the combination of industry, university and research is an urgent requirement to promote the reform of science and technology system and the reform and development of higher education. Industry-University-Research cooperation involves the deep-level reform of higher education and scientific research institutions in China, the adjustment and improvement of college running ideas, and bears the heavy responsibility of accumulating experience for the exploration of the whole country. Universities and research institutions should stand in the height of serving the overall socialist modernization and building a national innovation system, always adhere to the right direction of serving economic and social development and serving the people, and further understand the important role of the combination of industry, university and research in economic and social development and the development of higher education itself.

Deepening the combination of industry, university and research is an urgent requirement to promote the strategic transformation of Wenzhou's economic development mode and speed up the construction of an innovative city. Industry-University-Research cooperation has become an important way to solve the major problems restricting development and an important content to carry out independent innovation comprehensive experiments.

Deepening Industry-University-Research cooperation is conducive to accelerating the gathering of domestic superior innovation resources, accelerating the "double transfer" strategy of industry and labor force, establishing a modern industrial system as soon as possible, and rapidly improving the independent innovation ability of Wenzhou. Wenzhou government and relevant units should earnestly implement the work deployment of accelerating the cooperation between enterprises, universities and research institutes, take the cooperation between enterprises and universities as an opportunity to comprehensively enhance industrial competitiveness and speed up the construction of regional innovation system.

##### **4.2. Deepening the key work of combining education and research**

Strengthen the construction of industry-university-research innovation alliances. Innovation alliance is an effective mode and carrier of industry-university-research cooperation. Wenzhou government should focus on the characteristics and needs of the regional industry, actively guide and organize the backbone enterprises and core enterprises in the region and domestic superior universities and scientific research institutions to jointly establish industry-university-

research innovation alliance, jointly carry out major industrial generic technologies and core technologies, and formulate relevant technical standards. Each alliance should innovate operation mechanism, strengthen communication and contact between member units, and form a virtuous cycle mechanism. We should actively absorb small and medium-sized enterprises in the industry to participate in the alliance, accelerate the promotion and application of generic technological achievements in the industry, improve the influence of the alliance in the industry, and make it become an innovation team supporting and leading the industrial development.

Organize and implement major science and technology projects for industry-university-research cooperation. According to the relevant national and provincial planning outline and requirements, centering on the major needs of regional industrial development, and relying on industry-university-research innovation alliance,

industry-university-research combination demonstration base, innovation platform and key disciplines in universities, we will accelerate the launch and implementation of a number of major science and technology projects, striving to achieve a number of landmark achievements. The special fund for industry-university-research cooperation will be used to support no less than 50 million yuan of major projects every year. The proportion of supporting funds raised by relevant enterprises and special funds for cooperation shall not be less than 3:1, and local governments, where conditions permit, shall provide supporting funds of no less than 1:1 for local enterprises participating in major projects.

Set up relevant special plans to guide and support the vast number of scientific and technological personnel to serve the enterprise. Colleges and universities and research institutions to guide and support the scientific and technological personnel service for the enterprise as an important means to establish a long-term mechanism of "industry-university-institute" cooperation and training have working experiences in a line of young teachers in industry and important way of scientific and technological personnel, draw lessons from the working mechanism of science and technology correspondent to formulate incentive measures, perfecting evaluation system, help enterprises to solve the outstanding technical problems. Enterprises should arrange suitable posts for scientific and technological personnel from universities and research institutions, clarify their responsibilities, provide necessary working and living conditions, make full use of the knowledge of scientific and technological personnel and the innovation resources of relevant universities and research institutions, and accelerate the improvement of their independent innovation capacity.

Strongly support university-local and university-enterprise to jointly construct R&D platforms. Support enterprises in Wenzhou urban area to cooperate with universities and scientific research institutions to build national and provincial key laboratories, engineering (technology) research centers and national engineering laboratories, encourage universities and scientific research institutions to set up research institutes in Wenzhou, and establish branches of national and provincial key laboratories and engineering (technology) research centers. Enterprises are encouraged to contribute to universities and research institutions to build R&D bases with clear industrialization goals. Industry-university cooperation special funds should focus on supporting the construction of relevant R&D platforms, which should be given priority in the framework of Wenzhou science and technology infrastructure platform construction and given relevant policy support.

Strengthen the construction of the demonstration bases. Further promote the construction of demonstration cities (districts and towns) and industrialization demonstration bases combining production, education and research. Every year choose about five regions, specialized towns, high-tech development zones, industrial transfer parks, university science parks with high industrial concentration and obvious characteristics in Wenzhou urban area, to

establish demonstration bases for the combination of industry, education and research, and to guide universities and scientific research institutions to carry out industry university research cooperation with enterprises in the base, focus on optimizing the regional industrial layout, improve the quality of workers, accelerate the "secondary entrepreneurship" of the park, and enhance the industrial competitiveness of Wenzhou, drive the development of Southwest Zhejiang.

Organize and implement the action plan of "Comprehensive Demonstration Enterprise of Industry-University-Research Cooperation". Every year select about 10 scientific and technological enterprises with good foundation of industry university research integration and strong innovation atmosphere in Wenzhou urban area as comprehensive demonstration enterprises of industry university research cooperation. Support the industry-university-research integration activities of demonstration enterprises in various ways, such as free subsidies, loan discount, risk and industrial investment, post subsidy, etc., to help the demonstration enterprises greatly improve their R & D capabilities, create their own brands, and form a demonstration effect.

Accelerate the training and gathering of high-quality innovative personnel. To attract outstanding innovative talents at home and abroad to participate in Wenzhou's economic and social development and scientific and technological innovation in various forms. Promote the in-depth cooperation between national key construction universities and national scientific research institutions and Zhejiang's universities, enterprises and research institutes, play the role of "supporting" and accelerate the cultivation of a number of high-quality innovative talent. Encourage scientific and technological personnel and college students from universities and research institutions to take part-time jobs or internships in relevant enterprises in Guangdong, and encourage senior management personnel and technical personnel of Guangdong enterprises to give part-time lectures in colleges and universities to form positive interactions. Establish an incentive mechanism, and give priority to recommend the units and individuals who actively participate in the combination of industry-university-research and make outstanding contributions to the selection of relevant commendations and awards. Enterprises are encouraged to set up grants and scholarships in colleges and universities, encourage enterprises and colleges to jointly train talents of various types, and speed up the cultivation and introduction of talents in enterprises.

Give priority to recommending major industry-university-research cooperation projects to apply for national major science and technology programs. Enterprises are encouraged to cooperate with universities and research institutions to undertake major scientific and technological projects in the fields of renewable energy, energy conservation and emission reduction, marine industry, electronic information, and new drug development, including the National Science and Technology Support Program, the 863 Program, the 973 Program, the National Natural Science Foundation of China, and the Construction of the National Science and Technology Infrastructure Platform.

Improve the expert decision-making consultation mechanism combining industry, university and research. Focusing on the development needs of Wenzhou's pillar industries and emerging industries, well-known experts and scholars from universities, scientific research institutions and enterprises at home and abroad are invited to form a professional advisory committee to carry out development strategy research of related industries, consultation on major project initiation, and submit advisory reports from time to time. The term of employment of each member of the Industry-University-Research Cooperation Expert Advisory Committee is 5 years.

Strengthen communication and exchanges among all parties involved in industry-university-research cooperation. Further strengthen the collection, analysis and collation of scientific and

technological achievements of universities and technological needs of enterprises, improve the information network of provincial and ministerial industry-university-research cooperation, and strengthen the docking service between universities, scientific research institutions and enterprises. While accelerating the transformation and industrialization of scientific and technological achievements in stock, further support universities, scientific research institutions and enterprises in Wenzhou urban area to research and develop new products, new technologies and new processes according to market demands. Encourage enterprises to set up cooperation offices in colleges and universities, and establish efficient school-local and school-enterprise cooperation mechanisms.

#### **4.3. Creating an environment conducive to deepening the combination of industry, university and research**

Fully implement an open strategy for science and technology development, and build a barrier-free channel for domestic and foreign science and technology innovation resources to enter Wenzhou. Wenzhou is planning to gradually open up to domestic and foreign innovation teams, and encourage qualified domestic and foreign innovation teams to actively participate in Wenzhou's scientific and technological innovation. Wenzhou government should provide effective organizational guarantee for the combination of industry-university-research. Local governments with conditions can set up special funds, formulate incentive measures, provide convenient conditions, and actively create an environment conducive to the combination of industry-university-research. The special fund for industry-university-research cooperation shall give priority support to the major (key) projects listed in the special fund for industry-university-research cooperation at the local level.

Increase financial input and accelerate the establishment of a diversified investment system. Further increase government funding at all levels. Give full play to the guiding and amplifying role of government funds, and encourage banking, insurance, venture capital and other private capital to increase input in projects integrating industry, education and research. Make full use of innovative financial instruments such as industrial investment funds and guidance funds, and increase investment in industrialization projects with independent intellectual property rights, good industrialization prospects and close integration of industry, education and research. Give full play to the role of risk reserves for loan guarantees for small and medium-sized technology-based enterprises, and promote the combination of industry, university and research institutes to improve the financing capacity of loans for technology-based enterprises and projects. Encourage and assist relevant science and technology enterprises with mature conditions to go public for financing.

Promote enterprises to become the investment subjects of the industry- university-research cooperation. Through preferential fiscal and tax policies, guide and encourage enterprises to gradually increase the proportion of research and development expenses in sales revenue, increase investment in the industry-university-research cooperation, and encourage enterprises to become the main body of investment in the industry-university-research cooperation. Priority will be given to supporting enterprises that have self-raised R&D funds to apply for projects combining industry, university and research at the provincial and ministry levels.

Further implement various policies. Further implement the pretax plus Deduction Policy for R&D expenses on the Industry- university-research cooperation project, the government procurement and first set of policies which is conducive to independent innovation, and preferential policies on income tax and value-added tax for high-tech enterprises and products, to encourage investment and development of high-tech products with independent intellectual property rights and upgrading of technical equipment, and to create a good policy environment conducive to technological innovation.

Promote the formation of synergy of various scientific and technological resources. Enterprises actively engaged in industry-university-research cooperation will be fully supported in the application of high-tech enterprises and innovative enterprises, application of engineering technology research and development centers, construction of enterprise laboratories and research institutes of large enterprises, etc. Provide continuous support for major and key projects of industry-university-research cooperation by combining funds from various regional scientific and technological plans for industrial, social and agricultural development, promotion of achievements, and innovation projects in various industrial parks.

Improve the intermediary service system of industry- university-research cooperation. Study and formulate a mechanism to protect the interests of intermediary institutions for industry-university-research cooperation, encourage intermediary institutions of science and technology to actively provide services for universities, research institutions and enterprises in carrying out industry- university-research cooperation, and accelerate the promotion of science and technology intermediary institutions to bring the work of promoting the cooperation of industry, university and research into the scope of their own key work. Support the establishment of industry-university-research cooperation centers in high-tech zones, specialized towns, software parks and characteristic industrial parks in counties (county-level cities and municipal districts), and provide comprehensive services for enterprises in the zones to carry out industry-university-research cooperation with universities and research institutions at home and abroad.

Encourage colleges and universities to formulate incentive measures to promote industry-university-research cooperation. Universities and colleges should incorporate industry-university-research cooperation into their scientific and technological work priorities, formulate policies and measures to promote industry- university-research cooperation, and actively promote personnel training, discipline construction and the application of scientific and technological achievements through such cooperation. Encourage colleges and universities to formulate incentive measures, give due attention and equal treatment to school-enterprise cooperation projects, and give corresponding commendations and rewards to advanced collectives and individuals engaged in industry-university-research cooperation with enterprises. The departments in charge of science and technology in colleges and universities should strengthen the management and service of special funds for industry-university cooperation.

Improve the system of registering and awarding scientific and technological achievements. The scientific and technological achievements of industry-university-research cooperation projects should be registered, evaluated and industrialized, and preferentially recommended to participate in the national evaluation. The units and personnel who complete the achievements should be ranked according to their actual contributions. National key construction universities and national scientific research institutions can be regarded as the first achievement completion units to register and award achievements in Wenzhou.

Improve the mechanism for the ownership of intellectual property rights and the distribution of benefits of the achievements of industry-university-research cooperation. Give full play to the enthusiasm and creativity of all parties and strengthen the protection and utilization of intellectual property rights. All parties to the industry-university-research cooperation shall, in the form of a written contract, specify the contents of cooperation, the distribution of intellectual property rights, the distribution of benefits of achievements, the assumption of risks and the confidentiality of technologies. Encourage enterprises to reward researchers from universities and research institutions who make important contributions in the form of bonus shares, stock options and other forms, and encourage researchers from universities and research institutions to invest and buy shares at the price of intellectual property rights, so as

to produce more market-oriented research achievements. On the basis of full investigation and evidence collection, enterprises, universities, scientific research institutions and individuals that deliberately violate industry-university-research cooperation agreements will be criticized, and their funding will be recovered.

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