

Analysis of the Problems in the Intermediary Service of Science and Technology in the New Energy Industry

Shanshan Pei^{1*}

¹School of Cyberspace Security, Shan Dong University of Political science and Law, Jinan, China

Abstract. In recent years, China's new energy industry has made many important achievements in scientific and technological innovation, independent research and development and patent applications have been developed rapidly, but the disconnection of scientific and technological achievements is still prominent. Science and technology intermediaries can play an important role in promoting the cooperation between innovation subjects and the transformation of scientific and technological achievements. On the basis of summarizing the types and contents of science and technology intermediary services in China, this paper makes a more in-depth analysis on the existing problems of science and technology intermediary services in China's new energy industry. Through the analysis of the problems, we hope to provide some theoretical basis and decision-making reference for the construction of China's science and technology intermediary service system, and further improve the level of scientific and technological achievements transformation of new energy industry.

1 Introduction

Industry university research cooperation is the main body of enterprises, scientific research institutions, colleges and universities, according to the principle of "complementary advantages, common development, benefit sharing, risk sharing", based on the formal contract and relationship contract, and according to the respective resource advantages of innovation subjects, they cooperate to carry out technological innovation activities [1]. In the era of knowledge economy, the core of competition among countries in the world is the competition of science and technology and knowledge, which is not only the competition among technological innovation, but also the competition in the transformation of scientific and technological achievements [2]. In recent years, China's new energy industry has developed rapidly. Although the number of scientific and technological achievements produced by universities and research institutes is large and increasing year by year, the proportion of successful transformation or final industrialization is still low [3].

At present, due to the problems of scattered distribution, single function and weak ability of the existing science and technology intermediaries in the new energy industry, there are few connections among the main bodies, and the knowledge flow is not smooth, which hinders the function of this platform [4-5]. It is necessary to integrate these organizations as a whole, make full use of resources, innovate service mode, accelerate knowledge flow, promote the transformation of scientific and technological achievements in new energy industry and improve innovation efficiency.

2 Types of science and technology intermediary services

At present, there are more than 100000 science and technology intermediary organizations in China's large and medium-sized cities, more than 2700 productivity promotion centers, and more than 1380 science and technology business incubators, including 172 national entrepreneurship service centers, 81 University Science and technology parks, and 43000 incubating enterprises [6-7]. Figure 1 and Figure 2 show the total income and consulting service income of the productivity promotion center from 2015 to 2017, respectively. It can be seen that the overall income of the productivity promotion center has shown a rapid growth trend in recent years.

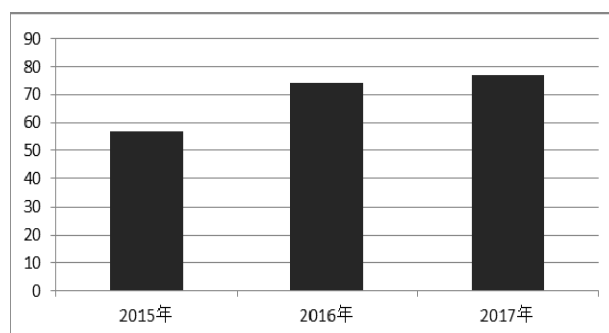


Fig. 1. Total revenue of National Productivity Promotion Center from 2015 to 2017 (billion yuan)

* Corresponding author: shan616@163.com

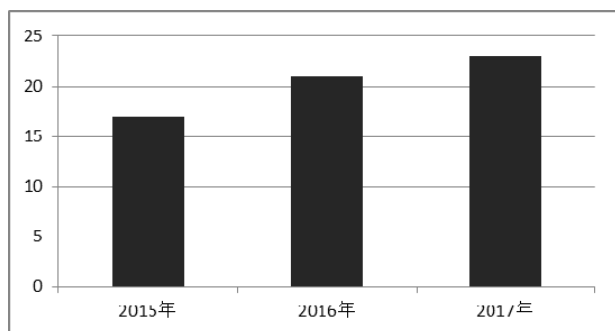


Fig. 2. Consulting service income of National Productivity Promotion Center from 2015 to 2017 (billion yuan)

The intermediary service system of science and technology is composed of a number of scientific and technological intermediary organizations. Although there is no uniform standard for the classification of intermediaries in different places, China's science and technology intermediaries can generally be divided into the following types according to some national standards and the classification methods of different places [8], as shown in Figure 3.

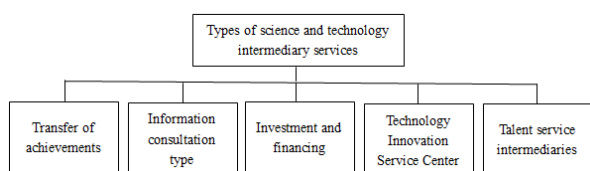


Fig. 3. Types of science and technology intermediary services

2.1. Transfer of achievements

Achievement transfer-oriented science and technology intermediary service institutions can provide targeted services for industry, University and research, and promote the transformation of scientific and technological achievements. Such intermediaries are highly demanding and need to be familiar with the relevant fields [9]. They can conduct a more standardized evaluation of scientific and technological achievements, reduce the risk of achievements transformation, and accelerate the further transformation of achievements. For example, risk assessment, technical evaluation, market promotion and other services. At present, such intermediaries are mainly supported by government or social organizations, and enterprises are invested. Social support and other means of operation.

2.2 Information consultation type

The main function of the information consultation intermediary is to consult and provide information. By means of screening, analyzing, comparing and classifying information resources and data in the society, the intermediary can grasp all kinds of information and data in time, establish a perfect database, provide scientific and technological service information for enterprises and other technological demanders, and solve the main body of innovation. The problem of information communication. Thirdly, it uses its own data

resources and its own professional technology to provide planning, strategic formulation, decision-making reference services for enterprises. Information consulting service providers are relatively flexible and low in investment, and are widely distributed [10].

2.3 Investment and financing

Such intermediaries can provide investment and investment consulting services for emerging technology industries, such as technology venture capital companies, technology venture capital consulting companies, technology investment trust companies. Like other venture capital, high investment and high risk. Because the development of emerging technology industries often requires a lot of financial support, which is a difficult problem for the development of enterprises. The support services provided by such intermediaries can better solve these problems and promote the rapid growth and development of emerging technology industries. For example, Qingdao Science and Technology Venture Capital Co., Ltd. is this type of intermediary, providing better venture capital and guarantee services for Qingdao technology industry, and further providing capital support and risk planning for the development of high-tech industry [11].

2.4 Technology Innovation Service Center

Such intermediary organizations play an important role in the development of new enterprises. For example, providing places for emerging industries, technical support, research and development assistance, effectively improve the hatching and success rate of emerging industries, reduce the risk of entrepreneurship. For the growth of emerging industries, especially small and medium-sized science and technology enterprises, has made a greater contribution to the general weak foundation of emerging enterprises, in terms of funds, venues and other obvious weaknesses, project incubation is difficult, high risk, in order to make these industries grow rapidly, need to further improve this technology service platform. In recent years, China attaches great importance to the incubation of emerging industries, and has set up many incubators, some of which have become state-level entrepreneurship service centers.

2.5 Talent service intermediaries

Different from other intermediaries, which mainly provide technical services, the main purpose of this type of intermediaries is to provide much-needed technical personnel for enterprises and others. These are generally achieved through the talent market, such as the exchange of science and technology talents, the market of science and technology talents, etc. It mainly provides the services of selecting, assessing, evaluating and hiring the required talents for the enterprises, establishes the talent reservoir for the enterprises, provides the needed talents for the enterprises in time, establishes the supervision system to evaluate and supervise the technical talents,

and establishes a more perfect system for the technical talents and enterprises. Information platform. Other training centers, such as technical training centers, talent training centers, mainly in various fields of human resources for professional training, improve the technical level of personnel, so that these personnel more in line with the needs of enterprises. Talent service-oriented intermediaries provide targeted professionals for enterprises and other innovative subjects, and promote the smooth progress of R&D.

3 Problems existing in science and technology intermediaries of new energy industry

3.1 The function of science and technology intermediary is relatively simple

Based on the innovation and strong technology of new energy industry, its scientific and technological intermediary should be a comprehensive system, with a large number of design services, such as law, technology and other aspects, and a perfect database is needed to provide accurate information for all parties. But the existing technology intermediary institutions have a single function and lack of professional talents. For example, some staff lack social work experience and enterprise work experience, do not know the transformation of scientific and technological achievements in place, and they are not familiar with what technical information they need to master; and some people lack professional ethics, which has caused bad social impact, which makes the public have a bias towards science and technology intermediary. In general, the main reasons are the imperfect service of science and technology intermediary, the ineffective function and the disadvantages of human resource management. Only if the technology intermediary can provide high-quality, assured and all-round services for customers, can they be accepted by the market as soon as possible and can they get healthy development.

3.2 Lack of understanding of the importance of technology intermediaries

In developed countries and regions, due to the importance of science and technology intermediary agencies, science and technology intermediary services have developed rapidly, effectively promoting the progress of science and technology and economic development. Compared with the developed countries, China's science and technology intermediary service is still lack of understanding. Many people think that the intermediary function of science and technology is relatively empty and has no substantive significance. Some universities and scientific research institutes think that our basic R & D level is high and our technology and equipment are advanced. As long as we have achievements, we can naturally achieve transformation. Many new energy industry enterprises

also think that most technologies need to be researched and developed by themselves, and some projects that cooperate with other organizations can also find partners by themselves, without the need for science and technology intermediaries. At the same time, he thinks that technology research and development is a kind of secret. If it is made public, he is afraid of being adversely affected. In addition, many organizations and individuals lack in-depth understanding of science and technology intermediary. It is because of the one-sided understanding of science and technology intermediary that the development of science and technology intermediary is hindered. On the other hand, they think that there is no difference between science and technology intermediaries and other intermediaries, and their professional and technical ability is not strong. Some think that they are subordinate units of the government, too much dependent on the government, and lack of independence and initiative. These understandings have hindered the development of science and technology intermediaries in the new energy industry, which are generally small in scale and single in function, so that their role can not be effectively played.

3.3 Information consultation type

Because of the special nature of science and technology intermediaries, which were mainly set up by the government or separated from the government in the early days, the attribution of science and technology intermediaries was more complicated. Some of them belonged to public institutions and trade associations, which made it relatively easy for some science and technology intermediaries to obtain the support of funds and other resources, but some of them were more difficult. Most of them belong to the type of projects that are difficult to obtain funds, which makes the space for the development of science and technology intermediaries smaller. Although our country gradually simplifies the government and decentralizes the power, but the reform still needs time, at the same time, there are still some problems in the project evaluation. Therefore, in order to ensure the development of science and technology intermediaries and broaden the development space, the government needs to further tilt its support in some policies.

3.4 Information development

In today's information society, the science and technology intermediary service institutions rely more and more on information data resources. The perfection of information resources has become the inevitable requirement of the development of science and technology intermediary. It is often that the resources of science and technology intermediary are few and the ability is weak. It is difficult to bear the funds needed for the development of information resources simply by its own strength, and needs the support and help of the government. At the same time, we should avoid repeated construction and low-level construction, and avoid waste

of resources. There are still problems in the construction of information network, such as unreasonable layout and insufficient systematic planning, which leads to the lack of data information resources and prominent monopoly, the difficulty of information sharing, the impact on the development of science and technology intermediary service capacity of new energy industry, hindering the effective communication and exchange among the innovation subjects, resulting in low conversion rate of scientific and technological achievements of new energy industry, and serious repetitive construction .

3.5 Lack of effective coordination and management

In recent years, the technology intermediary agencies of new energy industry have improved greatly in quantity, but generally speaking, they are still at a lower level, lack of effective market positioning, weak service awareness, extensive operation and lack of effective management. The technical level provided is low and the business scope is relatively narrow. At the same time, the lack of coordination and management, science and technology intermediary is generally a multi-head management, the qualification standards are not unified, and it is easy to have problems of self-government. For example, the scientific and technological intermediary organizations have several types, such as enterprise legal person, association legal person, enterprise legal person, etc., which belong to different departments and have disordered management. Lack of unified planning and perfect system guarantee makes the development direction of science and technology intermediary of new energy industry unclear, which affects the function.

4 Conclusion

Based on the analysis of the types and contents of science and technology intermediary service in China, this paper puts forward the problems of science and technology intermediary service in China's new energy industry. Science and technology intermediaries can not only build a bridge for cooperation between innovation subjects of new energy industry, but also provide science and technology consulting services for innovation subjects. It is precisely because science and technology intermediaries have more advantages in market information and resource integration ability that they can play an important role in promoting the cooperation among innovation subjects and the transformation of scientific and technological achievements in the new energy industry. Through the analysis of the problems, it is expected to provide some theoretical basis and decision-making reference for the construction of science and technology intermediary service system of China's new energy industry, and further improve the transformation level of science and technology achievements of new energy industry.

Acknowledgments

This research was financially supported by the Scientific research project of Shandong University of political science and law (No. 2020Z05B).

References

1. Methe. D. T. The influence of technology and demand factors on firm size and industrial structure in the DRAM market [J]. *Research Policy*, 1992(21):13-25.
2. Damanpour. F. The adoption of technological, administrative, and ancillary innovations: Impact of organizational factors [J].*Journal of Management*, 1987(13): 675-688.
3. Farrell J. Integration and independent innovation on a network[J].*American Economic Review*, 1993(2):420-424.
4. Li Yuan, Liu Heng, and Fang Runsheng. The Influence of External Factors on Enterprise Independent Innovation [J]. *Statistics and Decision-making*. 2007 (20): 46-48.
5. Wu Guisheng, Xu Jianguo, Wei Shouhua. Ten relations in the development of regional science and technology [J].*China Soft Science*. 2004 (6): 96-102.
6. Guo Yanfang, Fu Zhenghua. Research on legal norms of technology intermediary in China [J]. *Scientific management research*, 2014,32 (01): 113-116.
7. Xu Chaojun, Wang Yaxin, Chen Sihui, Hu Wu. Discussion on the development strategy of science and technology intermediary service industry in Guangdong Province -- Based on the perspective of "accelerating transformation and upgrading" [J]. *Research on science and technology management*, 2013,33 (11): 48-51, 55.
8. Cai Qixiang, Chen Yanfeng, Chen Xia. Some thoughts on the development of science and technology service industry and major science and technology issues in Guangdong Province [J]. *Research on science and technology management*, 2012,32 (18): 14-22, 35.
9. Lu Shengqin. Problems and Countermeasures of the operation mechanism of science and Technology Intermediary Institutions [J]. *Journal of Central Institute of socialism*, 2009 (03): 89-92.
10. Chai Chunfeng, Wang Fengkun. The development trend of science and Technology Intermediary Institutions [J]. *Theoretical exploration*, 2005 (04): 102-103.
11. Rothwell, Successful Industrial Innovation: Critical Factors for the 1900s [J].*R&D Management*, 1992.22 (3): 221-239.