

Research on the Development and Construction of Modern Science and Technology Park

Peiqin Qi

Shaanxi Provincial Land Engineering Construction Group Co., Ltd., Xi 'an, Shaanxi 710075
China

Abstract

Summarize the theoretical research results and the most advanced planning and development concepts of science and technology parks by combing the historical context of the construction and development of science and technology parks in the world. Study the typical cases of science and technology parks at home and abroad, study and sort out the development path and construction and operation ideas of new science and technology parks in small and medium-sized cities in China in recent years, absorb the experience of the establishment and operation of excellent science and technology parks at home and abroad, and explore the planning and design theory, development and operation ideas of science and technology parks in the context of "mass entrepreneurship and innovation", as well as the exploration of the park profit model based on the overall planning and development status of Qinchuangyuan, Shaanxi Province. To provide theoretical support and future development ideas for the subsequent planning and operation of Qinchuangyuan Western (Xianyang) Science and Technology Venture Bay, and improve its later construction plan and operation plan.

Keywords

Technology Park; Modern Science; Planning and Design Theory.

1. Introduction

Innovation-driven development has become an important development strategy of China. In 2015, the State Council issued the Opinions of the State Council on Several Policies and Measures to Vigorously Promote Mass Entrepreneurship and Innovation, which pointed out that promoting mass entrepreneurship and innovation is an effective way to stimulate the innovation potential and entrepreneurial activities of the whole society. In 2015, the concept of innovation and entrepreneurship in China has not yet taken root, the entrepreneurship education and training system is not perfect, the ability to be good at creation and entrepreneurship is insufficient, and a good environment to encourage innovation and tolerate failure has not yet been formed. To promote mass entrepreneurship and innovation is to carry forward the entrepreneurial spirit of "daring to be the first, pursuing innovation and being indomitable" by strengthening the entrepreneurship education with innovation as the core of the whole society, cultivate the innovation culture, constantly enhance the awareness of entrepreneurship and innovation, and make entrepreneurship and innovation become the common value pursuit and behavior habit of the whole society. In 2016, the CPC Central Committee and the State Council issued the Outline of the National Innovation-driven Development Strategy, putting innovation into the national development strategy for the first time. In the report of the 20th CPC National Congress, it was proposed to improve the scientific and technological innovation system, adhere to the core position of innovation in China's overall modernization drive, and always adhere to the principle that science and technology is the first productive force, talent is the first resource, and innovation is the first power.

2. Domestic Research Status and Existing Problems

In the context of the continuous development of market economy, governments at all levels have significantly increased their attention to modern science and technology parks, which have also been transformed into an important booster of regional economic development. At present, the traditional and simple development model of land, industry and enterprise can no longer meet the current needs, so the modern science and technology park needs to be transformed to realize the transformation from extensive to refined. With the implementation of the national "science and technology innovation-driven development strategy", how to implement the development concept of "making entrepreneurship no longer difficult" in the "new normal" of modern science and technology parks has become an important issue to consider. This requires that it not only needs to innovate in "products" and "models", but also needs to explore the road of business travel alienation, so as to provide a better environment for enterprise development. Modern science and technology park is the gathering place and incubator of growth and innovative science and technology enterprises, which has laid an important foundation for China's development of high-tech industries. Considering the current situation, the development mode of modern science and technology park mainly focuses on the following: first, drive the upgrading of industrial science and technology. Modern science and technology parks promote the development mode of technology-intensive and information-networked by introducing technology-based SME clusters, thus playing a boosting role in regional industrial upgrading and economic development. Second, implement diversified services. With the introduction of small and medium-sized science and technology enterprises, the park resources are gradually developing towards sharing, helping enterprises grow by providing specialized services in technology, resources, markets and other aspects. At the initial stage of enterprise development, the modern science and technology park will provide necessary infrastructure services for it. In the process of subsequent enterprise development, it can further provide corresponding extension services to meet the personalized development needs of enterprises. Third, implement corresponding preferential policies. The mode of promoting the development of the park through preferential policies is mainly applied in the early stage of the park's operation, and the attraction to enterprises is enhanced through tax and incentive incentives, so as to provide a good development environment for science and technology enterprises after the introduction. Fourth, vigorously develop regional city industries. Regional advantages should be fully considered in the development of modern science and technology parks. Drive the development of the park with the help of the existing industrial resources in the region. In this way, not only can the park play a leading role in the industry, but also can make the industry reverse promote the development of the park. In general, the modern science and technology park should fully practice the scientific development model in the development process, optimize the allocation of market resources based on industrial upgrading, encourage the optimization and innovation of science and technology enterprises, and promote the continuous improvement of regional development level.

With the introduction of the concept of "mass entrepreneurship and innovation" in 2015, the construction of China's science and technology industrial parks has entered the fast lane, and academic research on science and technology parks has also emerged in large numbers. The research of scholars in relevant fields has provided us with a perspective and basis for regional research of science and technology parks. Foreign research on science and technology parks mainly focuses on the sorting out of its development history and the path analysis of specific successful cases. There is a lack of theoretical research on the development planning of science and technology parks. The existing theories also focus more on the development of large science and technology parks, such as Zhongguancun and Silicon Valley. There are few

theoretical studies on science and technology parks in small and medium-sized cities. Domestic scholars' research on science and technology parks also focuses more on the policy interpretation of the development of science and technology parks and the mutual promotion of science and technology parks on the local economy, and pay less attention to the cultivation and development of entrepreneurship and innovation ecology of science and technology parks. At present, the domestic research on science and technology parks is mainly based on the case analysis of first-tier cities and southeast coastal areas, while the research based on science and technology parks in small and medium-sized cities is less.

3. Basic Overview of the Project Area

Qinchuangyuan Western (Xianyang) Science and Technology Entrepreneurship Bay Project is a major project of Shaanxi Geological Construction Group to fully implement the requirements of the General Secretary's visit to Shaanxi, resolutely implement the provincial party committee and provincial government's decision and deployment, deeply implement the innovation-driven development strategy, accelerate the construction of the "two chain" integration demonstration zone of the Western Science and Technology Innovation Port, deeply integrate into the construction of Xianyang core area of Qinchuangyuan's original new drive platform, and serve the province's innovation-driven high-quality development. The total land scale of the project is about 3150 mu, construction land is about 1000 mu, ecological land is about 1304 mu, and supporting park is about 846 mu. The construction period of the project is five years, and the total investment is about 20 billion yuan. The project introduced 1000 science and technology transformation projects and tens of thousands of high-tech talents through the construction of scientific research workshops, Jiaotong University Habitat College, academician studios, talent housing, landmark high-rise buildings and other ways. At the same time, with the help of the scientific research leading strength of the Western Science and Technology Innovation Port, the park and Xi'an Jiaotong University jointly built the Habitat College to create a new highland for the transformation of scientific and technological achievements of "research drives production, and industry promotes research". There are measures such as occupancy subsidy, housing subsidy, and special fund investment for projects that have passed the examination and approval. With the completion of the first building of the project's scientific research workshop, the time for the first batch of scientific research projects to settle in the park is approaching, and some new challenges are gradually revealed: first, how to help settle in the scientific and technological projects to support them and help them fly out of the "Death Valley" so that the projects can really be put into operation and increase the success rate of the park's incubation; The second is how to create an entrepreneurial ecosystem in the Science and Technology Innovation Bay to attract more high-end talents and add more innovative vitality to Xianyang; Third, how to help the Group to explore ways to make profits from the project for a long time while helping to incubate the project in the operation park, so as to ensure the long-term development and vitality of the project. Based on this, based on the original new driving platform of Qinchuang and the development status of Xianyang High-tech Zone, finding the development path of science and technology parks in small and medium-sized cities, and exploring the long-term development and operation ideas of the Western (Xianyang) Science and Technology Entrepreneurship Bay have multiple practical significance for creating an innovation-driven development system with Shaanxi characteristics.

4. Development Ideas

First of all, the modern science and technology park should clarify the industrial function orientation of the park, and implement the corresponding regional construction and development plan for a period of time in the future. On the basis of existing industries, we will

vigorously develop electronic information, new energy, new materials and bioengineering industries. At the same time, the park should build characteristic industrial functional zones, lead more scientific and technological enterprises to gather, and provide guarantee for their independent innovation. Secondly, the standards for the introduction and settlement of enterprises should be further improved. Before the establishment of enterprises, it should be ensured that they meet the industrial function orientation of the park. At the same time, it has made clear provisions on the type of attracting enterprises, investment scale, main income, etc. Finally, the construction of modern science and technology park should fully absorb the development experience. Formulate corresponding policies and measures in the fields of finance and taxation, financing, venture capital, industry, education and research. In this process, the park can also learn and learn from the development experience of other parks, effectively realizing the integration of funds and improving the efficiency of use. In short, modern science and technology parks should control the cost of land. A certain proportion of the funds contributed by enterprises at the district level can be used to subsidize the land price. Effectively reduce the pressure of land use cost of relevant industrial enterprises, and then realize the role of controlling land price.

5. Development Countermeasures of Modern Science and Technology Park

5.1. Clear Development Direction and Ideas

In the face of the rapid development of market economy, the contribution of science and technology industry to economic development has been increasing. On the one hand, modern science and technology industrial parks, as the basis of national science and technology development and innovation, have a direct impact on China's independent innovation capacity; On the other hand, scientific and technological innovation can also create new focus and growth space for industrial development. Therefore, in the process of vigorously developing the park economy, we should first clarify the development direction and ideas, and create a characteristic path suitable for our own development by adhering to independent innovation, so as to provide a good basis for the development and construction of science and technology enterprises. From beginning to end, modern science and technology parks should take "making entrepreneurship no longer difficult" as their own development base point, so as to accurately grasp the key links of development. It is the basis for the development of the science park to find its own orientation and development direction. It injects vitality into its own development by giving full play to the advantages of scientific and technological resources gathering and convenient transportation, so as to effectively achieve the development concept of "seeking the best without the largest; seeking the best without all; seeking the only place". At the same time, the modern science and technology park should strengthen the construction of talents, transportation, information, capital and other fields, clarify the reasonable development scale and form the agglomeration effect on this basis, so as to maximize the park's characteristic industrial advantages.

5.2. Explore the Alliance Development Mode

In order to explore the scientific development path, the modern science and technology park can further explore the alliance development mode on the existing basis. The alliance is jointly established by leading enterprises and scientific research institutions in the park, so as to effectively meet the technological innovation needs of the development of relevant industries. Under the influence of science and technology alliance, it is helpful to build a more complete independent innovation and group operation service system, and implement the cooperation mechanism of resource sharing and risk sharing. At the same time, the establishment of the

Science and Technology Alliance can also attract more innovative elements to the industrial cluster, and achieve the improvement of the core competitiveness of the industry. The advantage of promoting the alliance development mode is that the development of industrial alliance can change the situation of insufficient strength of a single enterprise, and improve the overall competitiveness by forming a joint force. At the same time, through cooperation within the alliance, the purpose of risk dispersion can be achieved, and reasonable resource allocation can be achieved in a large range. Moreover, the construction of the technology alliance can guide enterprises to focus more on their advantageous businesses and find the right direction to promote the efficient integration and operation of the overall industrial chain. At the same time, the implementation of inter-enterprise cooperation will help to promote the formation of new product industrial chain and occupy market share in a short time. In addition, the composition of the development model of the alliance can also transfer the development goal from the maximization of interests to the future development of the industry, and put more resources into the innovation of software, hardware, models and other aspects. With the scale advantage brought by the alliance, the output of technology and services of enterprises in the park will also obtain more convenient conditions, better complete the relevant technology upgrading and industrial construction work, truly achieve "efficiency, quality and empowerment", and lay the foundation for the development of the majority of science and technology enterprises.

5.3. Government and Enterprises Cooperate to Implement Innovative Development Policies

If we want to further promote the vigorous development of modern science and technology parks, we should guide them to truly realize the advantages of policies and enjoy the benefits of policies. In view of the development of science and technology parks, government departments at all levels should actively implement the corresponding encouragement and support policies, and take leading the development of technological innovation as an important agenda to carry out the first trial. In this process, enterprises should effectively achieve resource linkage through cooperation with the government and departments. They should timely communicate and contact with various departments by building stable information communication channels, so as to understand the latest science and technology policies. It also ensures that the project funds and other support can be obtained to the maximum extent. In addition, science and technology intermediaries should also act as a bridge between enterprises and government departments in the science and technology park, vigorously promote science and technology cooperation, and cooperate with enterprises and government departments in implementing science and technology policies, actively provide guarantee for the implementation of industrial policies, investment policies, talent policies and other innovative development policies, and drive the sustainable development of the park.

5.4. Increase Capital Investment, Resource Inclination and Improve Management System

The implementation of a sound management system is an important basis for promoting the development of modern science and technology parks. The park should actively communicate and win support from all parties so as to gain broader development space. First of all, we should increase the investment in capital and resources for people-based enterprises and related projects, reduce their development costs as much as possible, and achieve the improvement of the economic development level of the park. At the same time, it can also contact with banks and other financial institutions to provide corresponding credit support for the development of enterprises in the park, and is committed to solving the credit problems in the process of enterprise development. This will not only help to expand the development scale of enterprises, but also help the modern science and technology park to establish a brand image. Improve the popularity. Secondly, the park should do a good job of project coordination for enterprises, and

give them more resources. At the same time, unnecessary administrative approval steps are omitted to ensure that the development of enterprises can be promoted through the simplest procedures. Finally, the science and technology park should implement a more perfect management system and mechanism, and vigorously promote the innovative development of the service platform and service system. At the same time, more resources should be allocated to the cultivation of marketization, profitability and incubation service capabilities of the park to further improve its management level.

5.5. Optimize Park Planning Around Functional Orientation

The development of modern science and technology park cannot be separated from reasonable functional area planning. Regional division around different functions helps to improve the concentration of various processes. And provide enterprises with more targeted service content. According to the actual development characteristics of the modern science and technology park, the park planning can be divided into three blocks, namely, the industrial development zone of the innovation cluster and the living function zone. The main functions of the innovation cluster are technology research and development, enterprise incubation and talent introduction. Through the cluster, perfect innovation services are implemented and the radiation effect on the surrounding areas is fully exerted. At the same time, the region also needs to complete instrument and equipment testing and technological innovation to lead the development of science and technology enterprises by creating high-quality public technology service platform. For the industrial development zone. It is mainly responsible for the rational planning of the overall park and vigorously promoting the construction of enterprise production base and achievement transformation base. On the one hand, it provides assistance for the interaction and integration within the industry, on the other hand, it also needs to strengthen the integration of upstream and downstream resources. The main function of the living function zone is to carry the public services of the industrial park and improve the transportation system and power grid supporting facilities according to the development needs of enterprises. At the same time, the living function zone also needs to implement comprehensive park service functions, build a complete public service system based on the concept of "health industry", and do a good job of talent reserve for the development of the science and technology park.

6. Conclusion

To sum up, modern science and technology parks have become an important driving force for the development of China's market economy. We should give full play to its basic advantages and realize the optimal allocation of industrial structure. At present, the construction of modern science and technology park is still facing challenges such as insufficient intensification, inadequate implementation of policies and intensified homogenization competition. Therefore, the development should be based on the actual needs of industrial development. Increase investment. Explore clear development direction and ideas, so as to ensure a good software and hardware facilities and environment for the development of small and medium-sized technology enterprises.

Acknowledgments

Fund project: internal scientific research project of Shaanxi Land Engineering Construction Group Co., Ltd. (DJNY-YB-2023-55).

References

- [1] Wei Jing. Research on the optimization path of system and mechanism for the construction of first-class science and technology park in Nanjing[J]. China Science and Technology Information, 2019 (23): 91-92.
- [2] Wang Hu, Liu Qing, Lu Fengjun. Construction Practice and Innovation Path of Suqian National Agricultural Science and Technology Park in Jiangsu Province[J]. China Rural Science & Technology, 2022 (11): 41-43.
- [3] Liu Zhiyan, Tang Xixian. SWOT Analysis of the Construction of Linxia National Agricultural Science and Technology Park in Gansu Province[J]. Agricultural Science-Technology and Information, 2022 (18): 113-115.
- [4] Yang Chengyin. Analysis on the construction effect and comprehensive benefit of Baiyin National Agricultural Science and Technology Park[J]. Journal of Smart Agriculture, 2022, 2(10): 25-27.