

# The Enlightenment of Israeli Innovation-driven Experience to the Economic Development of Suzhou

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**Abstract:** Israel is a truly technologically powerful country in the world. Israel has accumulated a lot of successful experience, such as sound innovation and development organization, complete policy legal system, high-intensity capital investment, The Magnet Plan of Industry-University-Research, cross-border integration with technology and education system focusing on innovative, etc. All of those have great significance on promoting the economic development of Suzhou.

## 1. Introduction

In the past ten years, Suzhou has driven the industrial upgrading with innovation and has achieved remarkable economic development. In the face of the shrinking demand in international market, the complex and changeable external environment, constrained resources and environment, economic growth with less motivation and other difficulties, how to make Suzhou promote healthy, orderly with sustained economic development by enhancing the ability of independent innovation has become an important and pressing issue at present.

## 2. Israel's Successful Innovation-driven Experience

With its scarce resources and sparse population, Israel has made remarkable achievements in technological innovation. It is a country with the largest number of start-ups per capita in the world and it is a veritable technological innovation powerhouse. Its successful experience in innovation and development is worth learning. The main successful experiences are as follows.

Perfect innovation and development organization. In the 1960s, in order to improve industrial R&D efficiency and strengthen R&D management, the Ministry of Trade and Industry of Israel established office of chief scientist (OCS), which is responsible for approving loans for research and development projects. At present, the Israeli government has 13 OCSs. Within its organization framework, it has also set up a system of chief scientists and a forum of chief scientists. It is used to promote the planning, review, establishment and evaluation of scientific and technological projects in various departments in China and effectively promote the levels of technological development projects.

Complete policy legal system. Thanks to the government's efficient policy, Israeli's economy has achieved rapid development. The policies provide strong institutional guarantee for the continued development of the Israeli economy. Since the founding of Israeli, the government has been adhering to the notion of "providing measures that are conducive to the development of the country's economy" and has made full use of Israel's humanistic and scientific quality, as well as the Jewish natural international business network, so that they can establish an outward-oriented government policy system. The policy system is highly efficient and orderly, involving various fields, such as education, economy, trade, science and technology and population. In addition, Israel has successively introduced policies and regulations, such as Entrepreneurship and Innovation Promotion Law, Industrial Research and Development Promotion Law and Israel National Research and Development Council Law, which have effectively promoted the development of economy and science and technology and provided strong supporting in the establishment of effective innovations.

High-intensity capital investment. Since the implementation of the innovation strategy in the

1960s, the average annual growth rate of R&D spending for the secondary industry has exceeded 14% and it keeps increasing. At present, Israel's investment in science and technology research and development accounts for 4.8% of GDP, ranking the first in the world. In addition to the capital investment in research and development, Israel adopted the incubator project, YOZMA plan and other series of venture capital fund policies. The national government keeps the principle of "sharing risk, benefiting others, supporting others, contract management and timely exit". On one hand, it has provided strong and sustained financial support for the encouragement of scientific and technological innovation of enterprises, the attraction of private capital and the development of innovation and entrepreneurship. On the other hand, it has also provided Israel with circular development funds for its financial.

The Magnet Plan of Industry-University-Research. In 1993, OCS launched the magnet plan (MAGNET), which focuses on the limited resources of the state to jointly develop the public technologies, accelerate the development of innovations and applications in the industry through centralized development and shorten new product development time. Israel encourages the companies to cooperate with research institutes, universities and other academic institutions to form a research and development consortium and develop cooperatively. These consortiums can receive R&D support for many years (usually 3-5 years) with a quota of 66% of the approved R&D budget without repayment. Since 2000, the Little Magnet Plan has been implemented. This project requires that a company and a university can form a small research and development consortium to undertake research on their applied projects. After the project is approved, the maximum period of support is no more than two years. The maximum unpaid funding is up to 800,000 U.S. dollars. Finally, the enterprise needs to develop its own research and development capabilities instead of just taking the research organizations' achievements.

Cross-border integration with technology. Israel encourages a bold innovation that combines quite different technologies and disciplines. It is a cross-border cross-over study. The most common cross-border phenomenon is in the field of medical equipment and biotechnology. In these industries, you will find tunnel engineers and doctors working together to develop a credit card-sized device that eliminates syringes. The Israeli government stipulates that the sale of high-tech products and patents to foreign residents in the country and the provision of services to foreign residents are all zero value-added tax transactions. At the same time, the international venture capital funds and international R&D cooperation funds are used to introduce advanced management. The system and the expansion of a broad international market have enabled Israel's R&D-based innovative companies to eventually realize core technology R&D and international market operations, which contributes to the great international competitiveness in their technical fields and sufficient market share and become the global leader.

Education system focusing on innovation. Successive Israeli governments have placed education in a strategic position of priority development and regard the cultivation of high-quality talent as a fundamental issue that concerns the survival of the nation. Since the middle of the 1970s, the proportion of Israeli education funds in GDP has been maintained at more than 8%. Government investment accounts for 65% of the annual education funding, exceeding the developed countries such as the United States. In the early 1990s, it began implementing a plan for cultivating technology entrepreneurs that enabled any entrepreneur with technological innovative ideas make their ideas become real products. In 2011, the Israeli government launched a new milestone target named Future Creation Project. It invested 1.35 billion shekels (about 360 million U.S. dollars) and created more than 20 cutting-edge research centers to establish a milestone strategic platform for Israel's future education and technological innovation, specializing in research and cutting-edge research projects. Israel strengthens vocational education and amateur education to promote national innovation. Israeli vocational education courses are no longer limited to specific skills. The courses have expanded to various types of general-purpose high-tech training. The government has also spared no effort to develop adult amateur education and encouraged the adult students to take high-tech courses that are urgently needed for economic and social development. The government has broadened its channels to provide free teaching of the latest science and technology courses to the elder employees so that they

can meet the requirements of high-tech jobs.

### **3. The Enlightenment of Israeli Experience**

#### **3.1 To establish an information technology sharing service platform and organically integrate various types of innovation resources**

The Israeli government encourages cross-cutting research, promotes innovation through cross-border integration, builds a shared platform with a variety of innovative resources, especially innovative technologies and implements market operations. Therefore, Suzhou can build a shared technology, information and service platform based on the existing technological innovation resources to form an organic network. First of all, Suzhou should establish and improve the management and service system of scientific research institutions, establish a publishing system of independent innovation achievements, support conditional universities and scientific research institutions, establish a platform for integration and innovation of technology transfer and engineering transformation technologies and actively foster intermediary service systems for the transformation of scientific and technological achievements. Second, Suzhou should improve the market-oriented operation capability of technology transfer agencies, promote cooperation between service providers and enterprises to explore new technology transfer modes and resolve issues such as technology pricing and intellectual property sharing and protection in the process of technology transfer. Third, Suzhou should strengthen the construction of technology transfer information service platform, online registration of technology contracts and information release system, improve the information service capabilities of pricing services and technology property rights transactions and vigorously develop intellectual property consulting, retrieval, training, evaluation, transaction, agency and trusteeship, pledge financing, forensic appraisal and legal aid services. Finally, Suzhou should actively promote international technology transfer services, select regions with conditions to establish international technology transfer centers, or strengthen cooperation with relevant international science and technology organizations and well-known technology transfer agencies to build Suzhou Technology Exchange Center. Suzhou should also improve the sharing system of science and technology resources, optimize the layout of key laboratories, engineering technology (research) centers and other research and development bases and provide specialized services for enterprises to carry out advanced and applicable technology introduction, international technology acquisition and technology and intellectual property rights.

#### **3.2 To create multi-level scientific and technological innovation institutions and promote the cooperation mechanism of production, education and research**

In order to enhance the transformation of scientific and technological achievements, Israel has established research and development institutions that promote the transformation of scientific and technological achievements at different levels, including countries, regions, enterprises and universities. When Suzhou promotes the transformation of its technological innovation achievements into actual productivity, it can also follow the example of Israel and create a multi-level innovation organization. First, Suzhou can design a research center with the characteristics of the development zone and serve the enterprise technology in the relevant industries in the service development zone, starting from the level of various economic and technological development zones, such as the Suzhou Industrial Park and the Kunshan Economic and Technological Development Zone. Second, at the enterprise level, a diversified corporate R&D center can be amassed and the companies' independent innovation activities as the main body can establish a large number of corporate laboratory systems. Third, at the university level, the university R&D institutions or technology transfer companies can be established to encourage universities to establish technology transfer companies, being responsible for the commercial development of applied research and innovation results and to convert the universities' scientific research achievements into industrial products.

In addition to multi-level development of various types of research institutions, the Suzhou municipal government should also accelerate the promotion of the cooperation mechanism of

production, education and research in local universities, enterprises, and industries. Israel's Magnet Plan aims to promote the cooperation between companies and academic institutions. Therefore, the Suzhou Municipal Government can learn from the Magnet Plan and learn from the cooperation of production, education and research, intellectual property protection, technology platform sharing, commercial R&D taxation and the application of university research results, etc. With the education department, the science and technology department, the commission of economy and information technology and other organizations, the operating cooperation mechanism of production, education and research can be jointly established.

### **3.3 To increase the government financial support and apply the leverage of financial funds**

The financial support for technological innovations treated of the Israeli government is enormous. The government's support for scientific and technological innovation is not short-term and temporary. The government has an attitude of tolerance for failure and keeps long-term financial support for the targeted various scientific and technological research and development projects. Therefore, Suzhou must improve its financial system for science and technology. First, the government must increase the investment of special funds, set up special funds and well guide the planning of the fund. Second, the government must actively play a role of multi-level capital market financing, broaden the financing channels and strengthen the role of government investment in capital guidance. On one hand, the social capital should be directly invested in high-tech industries; on the other hand, the eligible companies should be encouraged to use capital market financing, carry out mergers and acquisitions and actively promote the development of technological property rights and intellectual property transaction markets. At the same time, it is necessary to promote the construction of the securities trading market in order to meet the needs of high-tech companies at different stages of development and to promote their domestic and overseas listing process. Third, the government should speed up the development of innovative financial products such as intellectual property pledge loans and technology insurance. The government will expand the scale of science and technology guarantees, further improve the multi-level financing guarantee system, promote the linkage of insurance loans, encourage the development of microfinance and M&A loans, increase the risk compensation for science and technology loans and increase the amount of science and technology loans for knowledge-intensive service industries in order to generate world-class high-tech service leaders. Finally, the government should actively improve the venture capital investment support system for high-tech enterprises and accelerate the development of venture capital investment guidance funds. Through staged participation in shares, follow-up investment, financing guarantees, investment protection and risk subsidies, the government can mobilize the enthusiasm of private capital, foreign investment, insurance, banks and so on, which will full make the best use of leverage of financial funds, investment-oriented effects and risk compensation.

### **3.4 To construct the innovative talents training system and optimize the development strategy of scientific and technological talents**

The core element of innovation is the talents. The Israeli government attaches great importance to the training of scientific and technological personnel and innovative education. Suzhou pay much attention to talent introduction. However, the competition for talent depends on the fact that it does not have the competitiveness for long-term development. The Suzhou municipal government must study Israel's talent strategy and actively build a training system for innovative talents. The focus of talent work has shifted to reserve talents. At present, the focus of Suzhou is to closely focus on innovation and vigorously promote the adjustment of the talent structure, intensify vocational education reform and establish a personnel training system that is compatible with the modern economic development of Suzhou. The government should encourage the enterprises to enter the campus and implement various forms of cooperation such as “joint education, orientation (ordering) training and continuing education”, promote cooperation between production, education and research and vigorously cultivate high-tech talent for innovation and entrepreneurship. At the same time, it is necessary to encourage high-tech and innovative enterprises to increase their investment in employee training, increase the proportion of employee training costs included in the cost of enterprises or other

preferential measures to encourage companies to actively train their own employees.

In summary, the innovation-driven strategy has become the core strategy for many countries to seek competitive advantage in the context of a new round of global technological revolution and industrial restructuring. Suzhou should selectively use Israel's advanced experience to explore the construction of an innovation-driven system that meets its own characteristics so as to win the initiative for development.

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