

The “Government-Market” Co-construction Innovation Platform of Textile and Garment Industry: Experience from the Mode of Keqiao Walan Design Park in China

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Abstract

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From 1978 to 2018, after 40 years of development, the total output value of China's textile industry has increased by more than 140 times, becoming the core force supporting the operation of the world textile industry system. Zhejiang Keqiao Textile Industry Cluster is the main driving force for the transformation and upgrading of China's textile industry. Therefore, in order to promote the development of the industry, based on the construction experience of KeqiaoWalan design park, this paper proposes the mode of “government-market” co-construction innovation platform for textile and garment industry with reference to the international innovation center. And taken the pattern design industry as the entry point, this research discusses four specific stages of the platform construction and put forward corresponding development suggestions.

Key words: Textile and Apparel Industry; Innovation Platform; Walan Design Park

1. Research background

1.1 Overview of China's textile and garment industry development

The textile and garment industry is the earliest manufacturing industry to achieve globalization. In the past 40 years of reform and opening up, China has become the world's largest textile producer, consumer and exporter. The textile industry cluster in Zhejiang Province is an important force to promote the rapid development of China's textile and garment industry.

Existing theoretical studies have shown that the industrial cluster is an important factor in promoting regional economic development. Through clusters, enterprises have improved the interdependence of resources and improved innovation performance (Tianjiao Xia and Xiaohui Liu, 2017). In the past 20 years, Zhejiang's large and medium-sized textile and garment industry (Figure 1) has developed rapidly, and its product sales rate is above 95% (Figure 2), which has driven the overall development of the country.

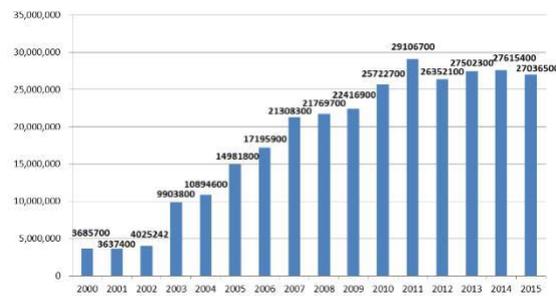


Figure 1: Industrial output value of large and medium-sized textile enterprises in Zhejiang, China from 2000 to 2015

Source: From China Statistical Yearbook.

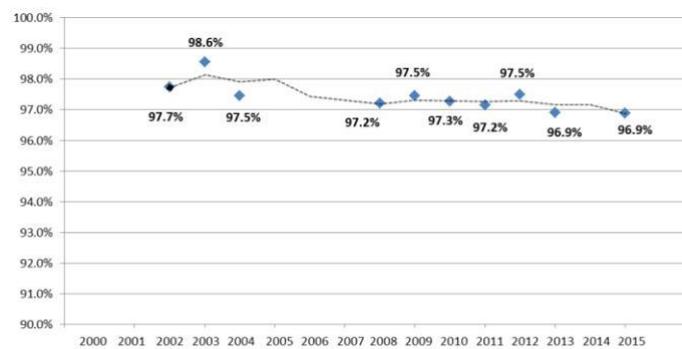


Figure 2: Product sales rate of large and medium-sized textile enterprises in Zhejiang, China from 2000 to 2015

Remarks: Due to the lack of data in 2000,2001,2005-2007and 2014, we replaced them with a moving average trend line.

Source: From China Statistical Yearbook.

However, global economic integration has not only made China's textile industry develop at a high speed, but also brought great impact. On the one hand, China's textile and garment industry has undergone international industrial transfer, combined with domestic factors, and the restructuring of China's textile and garment industry has shown a new situation in its spatial distribution (Xing Wanzhong, Tan Zhiqiang, Wen Hongxian, Zheng Jianke, 2018). On the other hand, the increasing internal and external shocks have brought certain difficulties to the development of textile and apparel SMEs, such as: labor and raw material costs are continue rising, there are no more famous international brands in the industry, and the design and development of clothing does not meet the market demand.

1.2 The “Government-Market” Co-construction Industry Innovation Platform

In recent years, the platform economy has received extensive attention, and the platform connects multiple parties to achieve resource integration and reduce transaction costs. China's e-commerce platform has developed rapidly, for example, online shopping platforms, financial trading platforms, and public service platforms have all promoted the development of the market economy. The establishment of China’s first national-level industrial innovation platform, the National Intelligent Foundry Industry Innovation Center, in December 2016, and the Policy release of “Manufacturing „Double-Creation“ Platform Development Three-Year Action Plan” in 2017 are all promoted the transformation and upgrading of the national manufacturing industry and all-round innovation and development.

Therefore, in this context, it is necessary for textile and garment industry to explore and establish an innovation platform. Through the platform it can gather talents, technology, production equipment and other resource elements, the company can reduce labor costs, strengthen independent innovation, and overcome the core of fashion design to achieve the goal of technology research and development.

This paper will creatively summarize and refine the construction model of China's textile industry innovation platform, "government-market" co-construction platform model (Figure3), combine

with the current situation of the rapid development of China's textile and garment industry and the experience of international industrial innovation center construction.

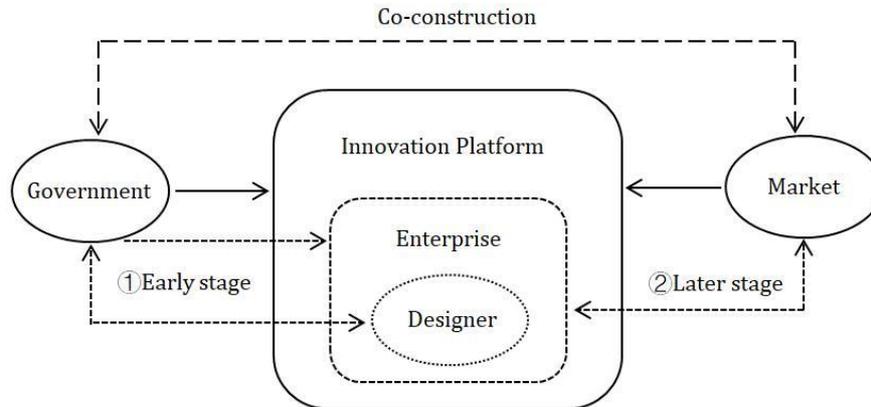


Figure3: The "government-market" co-construction platform model

It means that in order to realize the innovation and development of the regional industry, the government will promote the integration of industrial resources in the first place. Under the effect of resource agglomeration, the dominant role of the medium-term platform development will gradually shift to the market. Later, accompanying technology updates and other factors, the platform will be transformed into a "government-market" co-constructed platform model supported by the government.

The development of the platform has obvious life cycle characteristics, in which the government functions from the leading to the auxiliary, then to the re-dominant, well the market's function is opposite. The leading roles of the two alternately appear to jointly build a dynamic industrial innovation ecological environment.

This paper will draw on the construction experience of the Shaoxing Keqiao Park in China's textile industry cluster, taking the development of the "Walan Design Park", a fashion design platform, as an example to explore how traditional manufacturing can transform into fashion design surrounded by the situation of intelligent manufacturing. And finally makes specific recommendations.

2. Theoretical basis and literature review

2.1 Theoretical basis

a. Two-sided Networks: It is an economic network with two or more independent user groups that

provide network revenues. Rochet and Tirole first gave a rough definition in 2003: Two-sided (more generally multilateral) networks are one or several platforms that allow end-user transactions. And platforms can keep the entities on it by charging the appropriate fees from all parties.

b. Platform economy: Platform Economics refers to a virtual or real trading place. The platform itself does not produce products, but it can promote transactions between two parties or multiple parties, and charge the appropriate fees to obtain revenue. Unlike traditional network externalities, the formation of a platform economy is based on cross-network externalities. According to Armstrong (Armstrong M, 2006), the platform market refers to transactions which several parties made through a platform. The revenue of one party on the platform depends on the number of other parties joining the platform.

c. Resource Dependence Theory: It originated from sociology and was born in the 1940s. Since 1978, Jeffrey Pfeffer and Gerald Salancik published the book "External Control of Organizations - A Resource Dependence View", which laid the foundation of resource dependence theory in the field of strategic management. According to the theory of resource dependence, organizations are composed of resources. The unique resources owned by organizations are the source of core competitiveness and the main factor causing the difference in performance among organizations.

According to the comprehensive literature, the application of resource dependence theory ranges from micro to macro, from individual managers to internal organizations and to enterprises, alliances and joint ventures. The innovation platform is the hub of the government, universities, research institutes, enterprises, venture capital institutions and technology intermediary organizations. Diversified entities have different forms of resource dependence and cooperation in different periods of platform construction, such as cooperation between university research institutes and enterprises, cooperation between government and university research institutes, and cooperation between government and enterprises.

2.2 Literature review

Based on the above relevant theoretical foundations, scholars have also carried out further research on the organizational form of the innovation platform: Kang Philhyun (2015) takes Korean small and medium-sized design enterprises as the research object, and finds the direction for enterprise innovation by exploring the organic organization platform for establishing small and medium-sized design enterprises. He believes that creativity can become a new innovative resource and means for small and medium-sized design companies in Korea, and how the growth and change of SMEs can be related to the enterprise innovation ecosystem and the corresponding structure. Yinyin Wang (2013) discussed the problems in the textile and garment industry in Quanzhou, Fujian Province, China, and proposed that the construction of a public service platform for textiles and clothing testing will facilitate the transformation and upgrading of the textile and garment industry, and promote the formation of textile materials, polymerization and spinning, the weaving, printing and dyeing, clothing complete industrial chain development system, the platform has also played a positive role in the green product manufacturing and product quality control capabilities. The platform follows the market mechanism and is composed of infrastructure, external resources, scientific research organizations and service organizations (Qing-mei Tan and Dandan Li, 2015). With the gradual development and maturity of the innovation platform, the network effect of the innovation platform gradually appears: demand side's demand will gradually expand, and the supply market of the supplier will also expand, and the economies of scale will gradually be

realized. After that, tax incentives and financial subsidies can be gradually reduced until cancelled.

The construction of China's National Innovation Platform (NIP) originated in March 2008 and was released to strengthen the construction of science and technology infrastructure. Since then, organizations with the nature of the innovative platform have begun to transform to the real platform. China's innovation platform includes three parts: innovation subject, user and government (J. Li, Q. Deng and O. J. Sorensen, 2009). At present, innovative platform-based organizational forms have involved many industries such as biomedicine, integrated circuits, and intelligent manufacturing.

3. Overview and basic introduction of Walan Design Park

Walan Design Park is the first industrial textile printing and design Industry Park in China, with a large collection of textile fabric designers and studios. It is an offline creation space in the context of the fashion Keqiao concept.

In terms of government support: For all Keqiao designers who are stationed in the Walan Design Park, Keqiao District Government will offer a full range of preferential policies and facility benefits. The park has been cultivated and settled in more than 10 domestic and foreign studios, including Caimi+Milano (Italy), GRIM Studio (Korea), Lu Xun Academy of Fine Arts, etc. By cultivating and gathering a group of outstanding designers and design studios, Walan Design Park has become a benchmark park for domestic textile printing design, and promotes the transformation and upgrading of the textile industry through the textile printing industry.

In terms of market economy development: Walan Design Park relies on the construction of the Walan website (www.walanwalan.com). It is a shared economic platform for flower designers, and established in 2012. By the end of 2017, the number of domestic and foreign customers registered on the platform was nearly 50,000, and there were nearly 5,000 studios, including nearly 300 contracted studios and nearly 50 gold design studios. The flower trades between January and August in 2017 exceeded Ten million yuan, and this has driven the output value of printed fabrics exceeding 1 billion, which has played a positive role in the development of Keqiao fashion industry.

Under the joint action of government policy support and market economy, Walan has made active practice in the transformation and upgrading of garment manufacturing in the textile fabric industry. In the past year or so, with the support of Keqiao District Government, the park held 2018 Keqiao Fashion Week, 2018 First World Cloth Conference, and 2018 China Shaoxing Keqiao International Textile Expo. It has gradually become a big platform for cultivating the development of the fashion industry.

4. International experience in the construction of industrial innovation platform

In recent years, in order to maintain the leading edge of science and technology, Europe and the United States have launched (or gradually formed) a series of technology platforms for technological development, innovation and entrepreneurship, providing strong support and services for technological innovation, and achieved remarkable results.

Including:

US Big Data R&D Platform: The development of the platform can collect, store, maintain, manage, analyze and share the most advanced core technologies for a large amount of data. Strengthen national defense security and increase the supply of talents needed for the development and application of big data technology.

CERN: It is a model of international cooperation in science, creating a precedent for international cooperation in science, and has made many valuable scientific contributions in the nearly 60 years since its creation.

Belgian Microelectronics Research Center: It focuses on semiconductor manufacturing

processes, integrated circuit design, new materials and devices, solar cells, wireless communications, and bioelectronics. Through more than 30 years of development, these areas have achieved remarkable results.

Germany Shitaibai International Technology

Transfer Center: It develops its own technology and cultivates practical talents and technology transfer messengers who are proficient in technology and economy in fields such as information and communication, life sciences, optoelectronics, new materials, energy conservation and environmental protection, and industrial sensors.

5. Construction stage and principle of “government-market” co-construction platform

Looking at the construction of international innovation platform and looking back at the current situation of China Keqiao, Walan Park has attracted 60% of customers in the printing industry through government support for building a designer sharing platform. Through the “Internet + Design” model, Walan has gathered global graphic design ideas to help customers accelerate fabric development efficiency and help designers achieve free design, and also drive product innovation in the textile industry and improve production efficiency.

With the development of big data, intelligence and cloud computing, the textile industry has shifted from traditional manufacturing to government-led construction. Therefore, combined with life cycle theory and international experience, this paper divides the “government-market” co-construction innovation platform into the following four stages (Gu Xiaomi, 2018).

Table 1 : Stages of innovation platform construction

Development stage	Construction subject	Main feature
Budding period	Government-led	Government construction is the dominant, business types are focused, and online business is the main way to develop.
Development period	Government promotion in common with market	The government and the market are pushing together, and the surrounding business categories are increasing, the online and offline development is synchronized.

Maturity	Market-led	Market-oriented, forming a specialized development of specific modules, shaping brand influence.
Update period	government-led	Government-led, exploring more cutting-edge design techniques in the future industry.

a. Budding period

When the platform is still in its infancy, the elements of the platform are still not perfect. This period is characterized by the government's efforts to promote the construction and operation of the platform. The government needs to help the platform from the aspects of policy formulation, financial support, internal and external resource integration and innovative services. At the same time, it is necessary to understand market demand, prevent supply and demand from being disconnected, which will hinder the platform's development. At this stage, with the help of network communication, the platform is mainly based on online business.

b. Development period

When the platform is in the development stage, the connection between design companies, designers and manufacturers continuous strengthening, the strength of the platform and innovation system has been enhanced, and the speed of textile technology transformation has accelerated. The construction of the innovation platform at this stage began to be gradually transformed by the government to be promoted by the market, multi-agents such as the government, enterprises, research institutions and producers. The main purpose at this time is to have a good atmosphere suitable for innovation, attract more design companies and designers to join the innovation platform. At this stage, the platform business category has gradually increased, and the online and offline development has been synchronized.

c. Maturity

When the platform enters the mature stage, the industrialization and commercialization level of the platform basically keeps up with the social demand. The market plays a leading role in the platform, and the innovation platform gradually matures. At this time, the government needs to gradually transfer its functions to intermediaries and third-party NGOs. During this period, the platform needs to focus on shaping the brand's professional image and further enhance its competitiveness.

d. Update period

When the platform moved to the update stage, it has experienced long-term development. The loss of innovation vitality and the weakening of technology spillover effects led to the decline of the platform. At this time, it is necessary for government to fully participate in the optimization and upgrading of the platform to help it through the bottleneck and enter the next new cycle. This period is characterized by the optimization and upgrading of the government-led platform.

At the same time, it is also necessary to strengthen the management and performance appraisal of the platform: the establishment of the indicator evaluation system should be promoted; the third-party evaluation and the comparative evaluation of the international innovative functional platform should be carried out, and the textile technology R&D innovation, the cultivation of the upstream and downstream enterprises in the park should also be carried out.

6. Suggestions for innovation platform construction

Based on the construction experience of KeqiaoWalan Design Park and combined with the international innovation platform experience, the platform of textile and garment industry should be strengthened in the following aspects:

a. Use regional advantages to build innovative network relationships across the country

The development of Keqiao Textile City is inseparable from the location advantage of the Yangtze River Delta Economic Belt (WU Ai-zhi LI Guo-ping MA Xiao-tian, 2017). The Walan Design Park combines the advantages of the textile industry in the area which has enabled it to develop rapidly in the fashion design industry. Therefore, the textile industry platform should also look for its own geographical location advantages, and use the innovative network relationship in the region to jointly expand the industry development in the region and improve the overall level of the national textile and apparel industry.

b. Utilize technological advantages, with applications such as big data and artificial intelligence

The transformation of various industries is inseparable from the support of technology, especially in the textile and apparel industry. With the help of big data, Walan has built hundreds of thousands of online database to lay the foundation for future application scenarios. It also uses the Internet to form the “3D dressing clothes” function, and uses artificial intelligence to solve the creative design and the pain point of the industry. Therefore, we should actively seek the combination of industry and technology application, and use technology to promote high-efficiency development.

c. Diversified design studios

At present, the Walan Design Park has attracted more than 10 domestic and foreign studios from Italy and South Korea to enter the platform. By enriching the design enterprise types and related resources that the platform gathers, it is possible to integrate and drive the technological innovation of the surrounding enterprises. In the future, the platform should expand more international excellent brand enterprises to settle in, to improve design globalization and the fashion globalization.

d. Strengthen cooperation with textile colleges

Universities are one of the main sources of basic research and design innovation, and technical cooperation between platforms and universities should be encouraged. Relying on colleges and universities, we can deliver counterpart textile innovation talents to the platform, strengthen the professionalism of textile and design talents training, and rely on the complementary research and development technology of universities and platforms to realize the uniqueness of fabric pattern design patent technology.

e. Strengthen cooperation and innovation

While improving its own development, the platform should also coordinate the cooperation between the government and scientific research institutions, and rely on policy advantages to focus on the development of high-end design talents and international enterprise project cooperation. In the design and development of textile products, we should strengthen cooperation with foreign patent R&D teams and promote the application of cutting-

edge production technologies with cooperative innovation.

7. Conclusion

International experience and the construction of Walan Design Park all indicate that the transformation and upgrading of the textile and garment industry needs to rely on the construction of an industrial innovation platform. This paper proposes the construction stage and suggestions of the “government-market” co-construction innovation platform of the textile and garment industry by analyzing the development of the representative Walan Design Park in China's textile industry. We hope that it will bring thoughts to scholars in related fields.

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