

Research on Spatial Renewal Strategy of Industrial Heritage: A Case Study of Guangzhou T.I.T. Creative Industry Zone

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Abstract

Guangzhou is at the forefront of China's modern industrial reform and holds a significant position in the country's industrial history. The swift advancement of the modern economy has resulted in significant alterations in the industrial framework, leading to the closure and relocation of numerous factories. Guangzhou has preserved various industrial heritage sites that represent its developmental history and collective memory. These industrial spaces lose their original productive activities and pose challenges when it comes to integrating them into the contemporary urban environment. This study utilizes qualitative research methods to examine the T.I.T. Creative Industry Zone as a case sample. The SWOT model is employed to analyze the internal and external factors affecting the transformation of the T.I.T. Creative Industry Zone. The analysis leads to a rationale for the development of a spatial regeneration strategy for the T.I.T. Creative Industry Zone. Emphasize the significance of transforming industrial heritage into creative industry zone.

Keywords: Industrial Heritage, Historical Industrial Space, T.I.T. Creative Industry Zone, Space Renewal, SWOT Analysis.

INTRODUCTION

The historical development of the Guangzhou T.I.T. Creative Industry Zone serves as a representation of China's contemporary industrialization process and is also a multifaceted spatial and temporal phenomenon. Space is the product of social activities, produced in historical development, and with the historical evolution of the structure and transformation, each society, each mode of production will produce a unique space that matches its characteristics. The study of the evolution history of creative industrial districts from the perspective of "space" can reveal the significance of "space", "place," or "landscape" as media of "social expression" in the course of history. This statement further validates the proposition made by the French philosopher and sociologist Lefebvre in his book "The Production of Space" that social space and social production are intricately interconnected and mutually influential. This paper examines the historical transformation of the T.I.T. Creative Industry Zone, exploring the process of converting a historical industrial space into a cultural and creative industry area.

Research Objectives

Objective 1

Comprehend the historical context of the conversion of the Guangzhou Textile Machinery Factory into the T.I.T. Creative Industry Zone.

Objective 2

The SWOT model is employed to assess the challenges and drawbacks encountered by Guangzhou Machinery Factory throughout its transition into the T.I.T. Creative Industry Zone. Additionally, it examines how the T.I.T. Creative Industry Zone may capitalize on possibilities and leverage its strengths to adapt its industrial framework.

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Objective 3

This article elucidates the spatial revitalization approach and societal importance of converting Guangzhou Textile Machinery Factory into T.I.T. Creative Industry Zone.

LITERATURE REVIEW

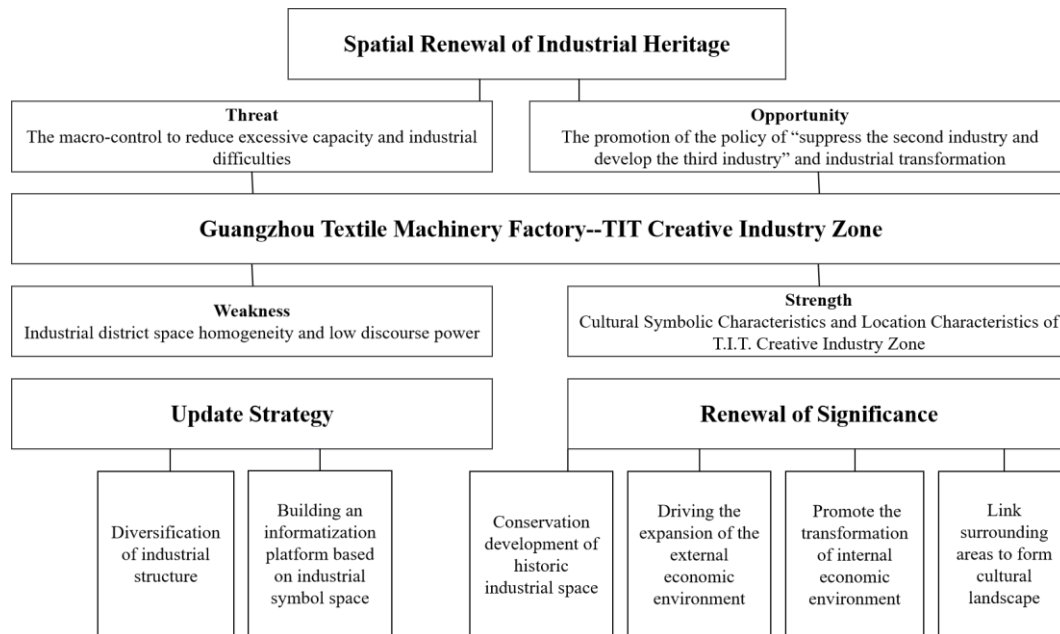
In 1955, Michael Rix from the University of Birmingham introduced the idea of Industrial Archaeology, which focuses on preserving and studying the sites and structures associated with early industrial operations. The preservation of Ironbridge Gorge in 1967 marked the pioneering effort to maintain and safeguard industrial history, serving as a symbol of the Industrial Revolution. The inaugural International Conference on Industrial Monuments (FICCIM) took place in Ironbridge Canyon, England, in 1973, marking the beginning of Western countries' interest in the preservation of industrial heritage. The International Committee for the Protection of Industrial History (TICCIH) was founded in 1978 with the aim of advocating for the preservation of industrial history. The Nizhny Tagil Charter, established in July 2003, provided a precise description of industrial heritage and emphasized the importance of protecting its integrity and unique characteristics. The International Council on Monuments and Sites (ICOMOS) released the Dublin Principles in November 2011. These principles serve as a crucial reference and guideline for governments in safeguarding industrial heritage sites, structures, areas, and landscapes. Extensive research and investigations have been carried out both domestically and internationally on the spatial transformation and repurposing of industrial heritage. The aim is to examine the growth potential of industrial heritage by primarily examining the effects of renewal strategies, industrial adjustments, spatial value, social benefits, and their impact on urban economic development.

China's practice of renovating its industrial history predates the research on protection. In the 1990s, China's modern architectural survey and research began to include aspects of industrial architectural heritage. The 798 Art Zone in Beijing, which was formerly the North China Radio Union Equipment Factory, underwent industrial heritage transformation in 2001, making it one of the early instances of such transformation in China. The Master Plan of Shanghai Land Use, developed in 1997, suggested the substitution of industrial land inside the central urban region. In 2010, Shanghai capitalized on the preparations for the World Expo to incorporate the industrial heritage along the Huangpu River. This transformation served as a significant endeavor in safeguarding and repurposing industrial heritage. In 2000, domestic scholars started focusing on the theoretical aspects of researching and preserving industrial heritage. In a previous study, Leilei Li (2002) analyzed the experience of protective activation in the Ruhr region. The Wuxi Proposal, adopted by the State Administration of Cultural Heritage on April 18, 2006, explicitly emphasized the need for systematic research and preservation of industrial heritage. The publication of the Notice on Enhancing the Safeguarding of Industrial Heritage in May 2006 has sparked widespread social interest in the preservation of industrial heritage. Subsequently, the scholarly investigation into industrial heritage has progressively intensified. Furthermore, numerous domestic universities, including Tianjin University, Tsinghua University, and Tongji University, have assembled their academic teams under the guidance of experts to undertake theoretical research on the evaluation and preservation of local industrial heritage. These studies have resulted in the establishment of a fundamental theoretical framework for the study of China's industrial heritage.

RESEARCH METHODOLOGY

This study primarily utilizes the qualitative case study approach to examine the spatial revitalization process of industrial legacy in the T.I.T. Creative Industry Zone. The Guangzhou T.I.T. Creative Industry Zone serves as a prime example of effectively preserving and utilizing exceptional industrial history. The purpose and methods employed in its spatial renewal provide valuable insights for the preservation of other industrial heritage sites. Prior research on the spatial renewal of industrial heritage primarily concentrated on examining the alterations in spatial structure and purpose. In contrast, this study aims to observe how heritage space can capitalize on its strengths and exploit opportunities for industrial transformation despite external threats and inherent limitations. This study utilizes the SWOT model to analyze the spatial renewal of industrial heritage. It examines the threat, weakness, opportunity, and strength of the T.I.T. Creative Industry Zone. The study thoroughly investigates both external and internal factors and explores how the industrial heritage space can be transformed

and combined with market competition.



The primary source of data for this study was the China National Knowledge Network (CNKI) database (<http://www.cnki.net/>). The search conditions were established as follows: The designated concept for this project is "Industrial heritage". By the year 2024, there will be a total of 9,091 articles that are pertinent to various topics such as protection and reuse, urban renewal, tourism, and other related elements. These articles will cover a wide range of disciplines, including architectural science and engineering, industrial economy, archeology, tourism, cultural economy, and more. This article primarily concentrates on the preservation and repurposing of preexisting industrial history in conjunction with the guidance of urban revitalization. The policies and regulations pertaining to industrial heritage and creative industries discussed on this page primarily originate from the official government website. The data of the T.I.T. Creative Industry Zone is derived from field inquiry, which includes the analysis of building distribution within the creative industry district, categorization of industrial heritage and historic structures, and other relevant factors.

RESULTS

The Historical Background of Guangzhou Textile Machinery Factory

The Development of National Industry and The Construction of Factories

Following the establishment of the People's Republic of China, the light industry and basic industry in Guangzhou gradually recommenced production. The inaugural People's Congress of Guangzhou proposed an urban development strategy with light industry as the primary focus and the transportation industry and commerce as supporting sectors. During that period, the regional industrial and economic development of Guangzhou was characterized by an imbalance. The conventional commercial and economic system of Guangzhou was mostly focused in the Liwan and Yuexiu districts. In contrast, the planning and development of industries were more concentrated in newer urban areas like the Haizhu District. The Chigang neighborhood in Haizhu District has embraced the industrial growth trend and initiated large-scale factory construction. Guangzhou Textile Machinery Factory, the predecessor of T.I.T. Creative Industry Zone, was established during this period.

The Adoption of a Public-Private Joint Venture Structure and the Enlargement of Manufacturing Space

Based on statistics, China implemented the socialist transformation of private industry and commerce in the

1950s and achieved the restructuring of enterprises using the method of "public-private cooperation". Simultaneously, the profits of domestic capitalist firms are allocated through a process known as "dividing the profits of the enterprises into four parts". The institutional transformation of public-private joint ventures is highly significant in advancing the development of China's political economy.

In March 1956, consolidation took place among multiple privately-owned textile machinery factories in Guangzhou, including "Liang Lin Ji", "Leung Lam Kee", "Tin Leung", "Tong Lok", "Chuen Kee", "Lee Chung Kee", "New Universe", "Yip Tai Kee", and "Chi Shing". This merger resulted in the establishment of the "public-private joint venture Liang Lin Ji Machinery Factory". The initial facility comprised four workshops, basic industrial machinery, and a workforce of 108 individuals. In late 1968, the Guangzhou Textile Industry Bureau combined the Guangzhou Textile Machinery Repair Factory, the local state-owned Huajian Knitting Machinery Repair Factory, and the Guangzhou Textile Equipment Factory No. 3. The new factory was relocated to Chigang and officially renamed the "Guangzhou Textile Machinery Factory" in 1969. In the 1980s, Guangzhou Textile Machinery Factory made significant technological innovations, investing in the creation of new goods and achieving a high degree of advancement within the local market.

Analyzing The Spatial Transformation from Guangzhou Textile Machinery Factory to A Creative Zone

Threat - The Macro-Control to Reduce Excessive Capacity and Industrial Difficulties

The surge in investments during the early 1990s resulted in a sustained high level of asset investment, leading to the accumulation of a significant amount of inefficient capacity. Following the external shock of the Asian financial crisis, the severe misallocation of domestic resources and the tightening of monetary policy due to increasing inflation led to a significant decrease in demand. Amidst the current economic conditions, it has become crucial to address the issues arising from the overexpansion of firms in their first stages by implementing measures to reduce excessive capacity. During the 1990s, China's textile sector was facing significant losses due to excessive capacity, excess staff, and outdated equipment. The significant textile industry's contributions to employment, economic growth, and tax revenue have become a formidable obstacle to change.

The production and operation of the Guangzhou Textile Machinery Factory incurred significant losses due to the impact of national macro-control measures and the implementation of a more restrictive monetary policy, which resulted in changes in the market conditions. In August 1998, the first cotton textile mill in Guangzhou was established in accordance with the local government's policy of closing, stopping, and transferring firms that had experienced three consecutive years of losses. After the implementation of the operation responsibility contract between Guangzhou Textile Machinery Factory and Yixin Company in July 1999, the restructured textile machinery factory focused on optimizing its structure through measures such as reducing the organization and streamlining personnel. As a result, it was able to achieve a slight surplus. Guangzhou textile machinery Factory faced a significant challenge due to the need to modify its policy and the decline in the industry.

Opportunity - The Promotion of The Policy of "Suppress the Second Industry and Develop the Third Industry" And Industrial Transformation

To facilitate the restructuring of the economy, the policy of "suppress the second industry and develop the third industry" was implemented in the 1990s. This policy aims to incentivize industrial businesses with high pollution levels, excessive energy consumption, and low efficiency to transform. The process of relocation, refurbishment, or closure is implemented in specific, hierarchical, regional, and time-based stages in order to promote the growth of tertiary industries, such as commerce and service sectors. The central city is promoting the transformation and upgrading of the textile industry as a key strategy, in line with the city's general industrial development plan. The most notable outcome of this effort is the revitalization of industrial land.

Furthermore, due to the growing disparity between the availability and demand for land resources, there is a need to execute the Outline of the Plan for Reform and Development in the Pearl River Delta Region [2008-

2020] and the Decision of the Guangdong Provincial Committee of the Communist Party of China and the Guangdong Provincial People's Government on spearheading the implementation of the Scientific Outlook on Development. The outline emphasizes the need to actively promote the upgrading and transformation of industrial parks in order to enhance resource conservation and environmental protection. This should be done in accordance with the principles of industrial agglomeration, rational layout, and intensive land use. Additionally, the outline highlights the importance of implementing the "three old and old" transformation policy to promote economic growth and efficient resource utilization. In July 2007, Guangzhou Textile Machinery Factory ceased production in compliance with the municipal government's regulations. As a result, the transformation and closure of the old factory buildings in the industrial park had a noticeable impact on the city's appearance. Consequently, the old factory buildings are now confronted with the imminent need for demolition and reconstruction. While rough demolition may expedite urban growth, it also leads to significant drawbacks, hindering the preservation and continuation of local culture.

Urban development has switched its focus towards the symbolic economy of the city, which encompasses cultural industries, business services, and real estate development. Consequently, the cultural significance of physical places becomes more evident. Contemporary urban development in China is characterized by the notable fusion of culture and economy in the "post-industrial era". Historical industrial area can be seamlessly integrated into cultural capital to become part of the production cycle as early. As the 1940s in the SoHo, South of Houston Street, New York, United States. The preservation and exploitation of the area south of Houston Street is a novel concept for integrating historic industrial structures with cultural and creative sectors. Empirical evidence has demonstrated that the cultural industry park, following its transition, possesses clear vitality and market competitiveness. The industrial buildings remaining from the Guangzhou Textile Machinery Factory typically exhibit a historical ambiance, industrial design, and ample space. This spatial feature aligns with the traits of downsizing, flatness, and individuality that are typical of the cultural business. With the backing of the "three old transformations" policy, Guangzhou Textiles Holdings Limited and Shenzhen Deyuji Investment Group Co., LTD. collaborated to invest in an 18-month project to convert the old textile machinery factory into the T.I.T creative industrial zone.

Strength - Cultural Symbolic Characteristics and Location Characteristics of T.I.T. Creative Industry Zone

Industrial transformation refers to the process of changing urban values, where the visual image that formerly lacked cultural meaning has now been given new relevance in terms of consumption. T.I.T. Creative Industry Zone spans around 93,400 square meters, with an initial construction area of 34,300 square meters. After refurbishment, the park now encompasses about 75,000 square meters, with a total construction area of approximately 45,000 square meters. T.I.T. Creative Industry Zone preserves the factory buildings at the original location of the Guangzhou Machinery Factory, which has been designated as one of the first industrial heritage sites in Guangzhou. Among the 6 historical buildings, the most important elements are the building facades and the main structures. These buildings have now become valuable historical industrial resources within the park. (Table 1). During the process of spatial transformation, the T.I.T. Creative Industry Zone consistently adheres to the principle of preserving the old while constructing the new. It develops the distinctive characteristics of industrial space, such as the architectural appearance and structure of the factory, protectively. Each tree and historic building is assigned a unique Q.R. code identification card. By analyzing the code, one can gain insight into the historical and current experiences within this context. The T.I.T. Creative Industry Zone's achievement of specific results can be attributed, in part, to its rigorous approach toward history and culture. On August 14, 2011, the then national leader Hu Jintao personally visited the park and fully affirmed the achievements of the Creative Park in planning and construction.

Table 1 Spatial Resources of TIT Creative Industry Zone

	Historical Building	Serial Number	Floor Area/m ²	Layers	Type of Structure	Construction Period	Original Functions
Type of space	Assembly plant	1	Unknown	1	Brick and Wood	Unknown	The parts of the machine are connected according to the requirements to form the whole machine.
	Wooden Mold Warehouse	2	229.05	1	Brick and Wood	1950	Production of wood shuttle, wood pipe and other special textile equipment workshop.
	Fabric and Machine Shop	3	1256.17	1	Mixed Structure	1950	Originally a 1950s Soviet-style factory building left over from the sack factory.
	Machining Plant	4	1502.75	1	Mixed Structure	1970	The components are assembled in the machine shop.
	Riveting Plant	5	766.00	1	Mixed Structure	1925	Adjustment of the production use of the plant in line with changes in the product mix.
	Annealing Furnace	6	1663.41	1	Mixed Structure	1970	The annealing furnace is an important facility in the foundry.

Furthermore, alongside the influence and assistance of policy elements, the geographical benefits of the T.I.T. Creative Industry Zone are becoming more evident as Guangzhou continues to grow. In the early 1990s, the Guangzhou Municipal government decided to construct a new city center in the southern region of the Tianhe Sports Center, which serves as the primary stadium for the Sixth National Games and is located near the Pearl River. The T.I.T. Creative Industry Zone is situated in the Haizhu District, precisely at the central axis of Guangzhou New City. It is in close proximity to Pearl River New City, Pazhou Convention and Exhibition Center, Guangzhou Tower, Haizhu New City Center, and other key metropolitan districts. The area benefits from excellent transportation infrastructure, including Guangzhou Avenue, Xinguang Express, and Xingang Middle Road, as well as other major urban roads. The presence of metro Line 3 allows for quick access to important urban transportation facilities such as Guangzhou East Railway Station, South Railway Station, the passenger port, and the airport. These favorable conditions undoubtedly provide a solid foundation for the development of the T.I.T. Creative Industry Zone.

Weakness—Industrial District Space Homogeneity and Low Discourse Power

The creation of cultural and creative industrial zones is currently progressing rapidly due to the execution of programs such as “suppress the second industry and develop the third industry” and urban regeneration. The most typical problem of these new industrial zones is the homogeneity of space. Local governments and corporations are aggressively developing cultural and creative industrial zones due to the significant potential of cultural and creative industries. While efforts have been made to foster the growth of local cultural and creative industries, the proliferation of identical cultural and creative industrial zones has resulted in the curtailment of the advantages enjoyed by the majority of these industrial zones. The T.I.T. Creative Industry Zone must actively confront and resolve these difficulties.

However, The low voice of state-owned enterprises in government decisions making raises concerns for the future development of the T.I.T creative industrial zone. Urban planning and spatial regeneration at the macro level have significantly diminished the significance of industrial history. In 2013, the Guangzhou Municipal government initiated plans to advance the development of new cultural landmarks in Guangzhou, including the Guangzhou Museum, Guangzhou Art Museum, Guangzhou Science Museum, and Guangzhou Cultural Museum. The Guangzhou Science Museum occupies one-third of the TIT Creative Industry District. In order to accommodate the center axis landscape construction, the creative industry zone must establish a management model that aligns with industrial development. The purpose is to attract emerging technologies, creative firms, and capital investment to stimulate innovation productivity, resulting in significant social and economic advantages, in order to uphold its position as an urban landscape.

T.I.T. Creative Industry Zone Spatial Renewal Strategy and Significance

T.I.T. Creative Industry Zone Spatial Renewal Strategy

Diversification of Industrial Structure

T.I.T. Creative Industry Zone was initially established as a specialized creative industry park focused on textile and garment themes. Focus on fostering clothing creativity. An innovative platform that seamlessly combines information dissemination, product showcasing, business correspondence, fashion, and recreation. This project has enticed both local and international firms, apparel brands, and independent designers to enter the industrial zone in search of prospects for growth. Furthermore, T.I.T. Creative Industry Zone has introduced a textile and garment industry association to elevate its reputation and perception. Creative Industrial Zone expands its influence by planning events related to the textile and apparel industry, and strengthens the community's impression of the "textile industry" theme.

Building an Informatization Platform Based on Industrial Symbol Space

Due to the advancement of information technology, the apparel business, as the primary sector, is no longer able to satisfy the market's demand for the cultural industry. The T.I.T. Creative Industry Zone focuses on the apparel fashion industry, technology, and the Internet as its primary sectors. The goal is to establish an industrial cluster ecosystem that combines fashion, creativity, science, and technology. One aspect to consider is the enhancement of both hardware and software in the creative industrial zone. This includes implementing intelligent management systems in the park, which will serve as the foundation for the transformation of the science and technology industry.

T.I.T. Creative Industry Zone integrates conventional industries with Internet-based strategies to establish a viable ecosystem for industrial clustering. In 2013, Zhang Xiaolong, the individual credited with creating WeChat, relocated Tencent's Guangzhou Research and Development team to the creative industry zone. Furthermore, the T.I.T. Creative Industry Zone has attracted approximately 100 enterprises, including Love Fan's headquarters and three publicly traded e-Car companies. Industry Zone now consists of over 70% of science and technology enterprises, resulting in a positive industrial agglomeration impact. The park received the titles of "National Textile and Garment Creative Design Pilot Park," "Fengyun Creative Park in Guangdong-Hong Kong-Macao Greater Bay Area," and "Internet + Creative" Town in Guangdong Province.

The Significance of Spatial Renewal of Industrial Heritage

Conservation Development of Historic Industrial Space

To convert the historical industrial area into a creative industry environment, the transition should prioritize preserving the existing factory structure and architectural form as much as possible. As the primary governing entity, the original enterprise plays a crucial role in designing and executing the factory's protection and renovation plan. This involvement allows professionals with knowledge of the factory's history and processes to develop more precise protection strategies. The aim is to maximize the preservation and exhibition of the historical, social, scientific, technological, and aesthetic value of the industrial space.

Driving the Expansion of The External Economic Environment

The conversion of historical industrial space into creative industry space serves as a tangible representation of urban historical context and economic innovation and growth. This transformation aims to achieve a harmonious equilibrium between these two aspects through spatial reconfiguration and functional substitution. Positioning itself as the focal point can stimulate economic development in the surrounding area. This interaction is centered around the geographical setting of the urban core area and the impact it has on the surrounding land development. The process of spatial renewal generates external effects that lead to an increase in property value and the creation of more job opportunities for society.

Promote the Transformation of Internal Economic Environment

The historical industrial area possesses a dual nature of encompassing both physical and intangible elements. During the development of the creative industry zone, new industrial groups relocated to the area, resulting in a transformation of the original space. Simultaneously, it effectively incorporates industrial culture, creative culture, and citizen culture, thereby significantly enhancing the city's industrial structure.

Link Surrounding Areas to Form Cultural Landscape

The historical industrial space can influence the local identity through cultural strategy by creating a distinctive area with cultural significance and integrating it with the surrounding landscape. The revitalization of space is intricately linked to the tourism industry's supply chain, which not only stimulates external economic growth but also generates a ripple effect within the neighborhood, benefiting the local population.

DISCUSSION

This study examines the significant influence of the evolution of industrial history and shifts in social relationships on the growth of urban industry. Previous studies have mainly focused on the spatial design and industrial model analysis of TIT creative industrial districts, and lacked attention to the transformation motives of industrial districts. The transformation of the T.I.T. creative industry zone serves as a representative example of urban industrial development. Through a study of policy documents and press literature, this paper finds that the transformation of the T.I.T Creative Industries District is largely attributable to the decline of the city's industrial economy and the restructuring of industry, while the success of the spatial transformation relies on the strengths of the industrial heritage space itself. As a result of economic growth and regulatory adjustments, the development of urban industry will follow a new set of development principles. Therefore, this study has specific time constraints.

CONCLUSION

The transition from Guangzhou Textile Machinery Factory to T.I.T. Creative Industry Zone signifies the merging of the old industrial park with the new city, reflecting the progress of national and urban development as well as social and economic growth. Industrial sites possess significant historical, scientific, technological, social, cultural, and artistic value. The ongoing enhancement and implementation of the nation's industrial heritage value assessment system will gradually demonstrate the significant importance of this type of transformation design, which incorporates the concept of "self-preservation" and involves the participation of original enterprises in safeguarding industrial heritage. Amidst the decline of the textile industry, Guangzhou Textile Machinery Factory has effectively capitalized on the opportunity for industrial transformation. It has actively pursued policy support, identified the path for transformation, converted the drawback of spatial uniformity into the advantage of flexibility and autonomy, and utilized resources and block advantages to successfully renovate the outdated industrial space into the T.I.T. Creative Industry Zone. It holds significant reference value for the transformation and development of other comparable industrial parks and industrial sites.

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