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Re-Imagining Former Industrial Sites in Europe and China:

Design Cases Study in Turin and Guangzhou

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Abstract

Against the backdrop of global production system restructuring and post-industrial urban transformation, the spatial transformation of industrial heritage has transcended mere architectural design concerns to become a comprehensive urban process deeply embedded within institutional environments and urban governance logic. This paper adopts a comparative architectural perspective, selecting Lingotto in Turin, Italy, and T.I.T Creative Park in Guangzhou, China, as case studies. Employing qualitative case research methods combined with literature analysis, field surveys, and morphological comparisons, it explores how differing governance logics and development rhythms systematically shape industrial heritage transformation pathways. It further analyzes their macroeconomic drivers, spatial strategies, and socioeconomic impacts. The research reveals that Lingotto embodies a high-density, monumental “crisis-response” transformation model aligned with European “spatial transformation” agendas, while T.I.T Creative Park represents a low-intervention, collage-like “urban optimization” path shaped by China’s “compressed modernity” and state-led entrepreneurship. Despite spatial organization differences characterized as “enclosed-permeable,” their outcomes converge to some extent: asset value appreciation often accompanies reconfigured public accessibility, exacerbating socio-spatial exclusivity in practice. This reintegrates industrial heritage transformation into capital accumulation logic, triggering various forms of commercial gentrification that erode its public attributes. This paper does not aim to construct a universally replicable paradigm for industrial heritage spatial transformation. Instead, it emphasizes that sustainable spatial transformation of industrial heritage must transcend the dual imperatives of economic growth and icon-creation. It calls for a shift in focus toward the spatial usage relationships generated during transformation processes and their social distributional consequences, thereby addressing local differences, urban complexity, and spatial justice issues.



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1 Introduction

1.1 Post-Industrial Urbanism

With the change of the global economic landscapes, especially the decline of manufacturing and the expansion of the service sector, technology industries and the knowledge economy, many cities have gradually moved from an industrial stage to a post-industrial stage. This process has changed the economic foundation of urban development, and also affected urban space and social structure. Some cities that used to depend on industrial production now are facing problems such as large areas of underused industrial land, abandoned factories and long-term employment pressure. In this context, how former industrial sites can be effectively transformed and reactivated has become closely connected with architectural and urban design. It has therefore become a key concern in contemporary research and practice.

1.2 Research Questions and Significance

With the post-industrial transformation of many cities, the reuse of industrial heritage has become a key issue on the spatial transformation agenda. Whether in the old industrial cities of Europe under economic transformation pressure, or in the rapidly urbanizing metropolises of China, how to transform industrial heritage from a "burden" into an "asset" not only tests the spatial planning ability of designers, but also reflects the deep differences in institutional logic, governance structure and cultural context. This study focuses on two projects, Lingotto in Turin, Italy and T.I.T Creative Park in Guangzhou, China, chosen because they reflect both a particular wave of industrial buildings in their original use as factories and the historical contexts of their subsequent transformations. On this basis, the study examines how different backgrounds of industrial restructuring have shaped two distinct paths of industrial heritage transformation and produced different spatial, architectural, and socio-economic outcomes. Lingotto represents a European post-industrial approach, where a large and monumental factory was reused as part of urban identity reconstruction. T.I.T Creative Park, by contrast, reflects the Chinese context of rapid urbanization, land pressure, and industrial upgrading, where former factory spaces are reorganized through gradual intervention and functional replacement. By comparing their spatial strategies, forms of architectural adaptation, and subsequent socio-economic effects, the study reflects on how China and Europe have approached the transformation of former industrial heritage, as well as the limitations of each approach.

This Study Primarily Focuses on the Following Issues:

1. Are there any spatial design patterns behind these cases of post-industrial transformation in China and Europe? Do they provide any applicable strategies for the transformation of future industrial heritage?
2. Under different institutional contexts and stages of economic development, how did Turin and Guangzhou respond to deindustrialization, and what transformation paths did they adopt during this process?
3. What specific distinctions can be identified in the design strategies of the two cases, and how do these strategies address historical memory and contemporary expression through architectural language?

Significance of the Study:

This study aims to move beyond an evaluative focus on individual projects and instead adopts a comparative perspective across regions and institutional systems. Through this approach, it examines both the similarities and differences, as well as the adaptive pathways, of industrial heritage transformation strategies operating under different governance logics and different condition. The Lingotto project represents a crisis response model characterized by high density and monumentality, responding to the urban crisis caused by industrial decline through the symbolic reshaping of spatial form. By contrast, the T.I.T Creative Park in Guangzhou reflects an urban optimization approach based on low levels of physical intervention, emphasizing incremental functional restructuring and ecology oriented micro scale interventions. These two cases produce distinct outcomes and reveal different limitations within their respective historical and urban contexts, thereby offering strategic reference points for cities facing varying development conditions. This study conducts a comparative analysis of two representative transformation cases, the Lingotto in Turin and the T.I.T Creative Park in Guangzhou, in order to examine the differentiated pathways of industrial heritage transformation with respect to spatial strategies and operational logics across distinct regional and institutional contexts. Rather than attempting to formulate a universal model, the research positions itself as a framework for observation and critical reflection. It highlights the necessity of avoiding template driven approaches and formulaic imitation when engaging with specific sites shaped by particular historical and social conditions. Against the backdrop of increasingly homogenized spatial transformation practices worldwide, this study calls for transformation attention to locality and complexity. It argues that industrial heritage transformation should be grounded in the urban texture, social structure, and historical memory of the city in which it is embedded. Only by engaging with these contextual dimensions can more responsive design and operational strategies

be developed, thereby enabling forms of sustainable spatial transformation across economic, cultural, and social dimensions.

1.3 Methodology

In the context of globalization and post-industrial transformation, this study adopts a research framework that integrates multiple qualitative methods to examine the typical paths of industrial heritage transformation in different cities. The analysis begins with a review of international experiences, drawing on spatial transformation practices in Manchester in the United Kingdom, the Ruhr Area in Germany, Toronto in Canada, as well as cities such as Singapore and Hong Kong in Asia. On this basis, and informed by relevant theories of spatial transformation, the study selects the Lingotto Factory in Turin and the T.I.T Creative Park in Guangzhou as its primary case studies. Focusing on their evolutionary processes and practical models, the research explores the spatial characteristics manifested through industrial heritage transformation and the critical reflections these processes generate in relation to urban development.

Case Study Method

Using the case study method to analyze the industrial heritage transformation practices in specific contexts, select Lingotto in Turin and T.I.T Creative Park in Guangzhou as the prototype cases. This study examines the design principles, spatial organisation, and governance models that emerge during the transformation of former industrial sites. By analyzing the historical changes, policy backgrounds, functional evolution and renovation strategies of the two cities, and combining with architectural drawings and on-site investigations, spatial design approaches and institutional characteristics of these cities were summarized, providing a basis for subsequent comparative analysis.

Comparative Analysis Method

Based on the case studies of Lingotto and TIT Creative Park, a comparative analysis method was employed to conduct a multi-dimensional analysis of industrial heritage transformation in China and Europe. The research will be conducted from two core dimensions: physical spatial form (covering functional distribution, the symbiotic relationship between the old and the new, typological characteristics, and the integration of natural landscapes) and decision-making implementation mechanism (focusing on transformation strategies and the game among stakeholders). The aim is to conduct differentiated analyses in different contexts, summarize the adaptive spatial transformation paths of industrial heritage in various situations, and thereby extract the general principles for the transformation of industrial heritage.



Image 2 : Guangzhou CBD / Taken by Author

2. Theoretical Basis of Post-industrial Spatial Transformation

2.1 Global Deindustrialization: Shifting Geographies of Production

Deindustrialization in leading cities should not be understood simply as a form of regional economic decline. Instead, it is more accurately rooted in the structural transformation of the global economy in the late twentieth century. This transformation became increasingly visible from the 1970s onward, and it was connected with several changes, including the globalization of capital, the reorganization of the international division of labour, and the rapid development of technology. Therefore, deindustrialization didn't simply mean that industry disappeared. As Bluestone and Harrison (1982) argued, it was more about the reconfiguration of production activities at the global level. At its core, the process involves a structural reordering of the relationship between capital and labour.

From a broader socio-spatial perspective, deindustrialization likewise cannot be reduced to the simple decline of industrial sectors. Patrick Le Galès (2002) pointed out that this process involves not only the disintegration of older industrial structures, but also the emergence of European cities as collective actors that actively respond to the social and economic restructuring brought about by globalization through new forms of governance. At the level of economic geography, Allen J. Scott (2008) has suggested that the traditional Fordist mode of production is increasingly being replaced by what he terms "cognitive-cultural capitalism," a new economic logic that reasserts cities as key sites of innovation and production. A related perspective was provided by Enzo Rullani (2004), who emphasized that value creation has shifted away from physical capital toward a knowledge-based economy and networked relations, resulting in more fluid and intangible connections between capital and labour. This shift, however, does not imply the complete withdrawal of manufacturing from urban environments. As Nina Rappaport (2017) observed, with the development of advanced manufacturing technologies that are "smaller, cleaner, and quieter," industrial activities don't necessarily need in all cases to remain isolated and can re-enter urban centres in the form of so-called hybrid factories. She advocated that this spatial "new hybridity" not only breaks the functional zoning of modernism but also enhances the economic vitality and social resilience of cities by showcasing the production process - that is, "consumption of production".

In essence, the "Fordist" production model characterized by large-scale assembly lines and centralized manufacturing zones has begun to decline in European developed countries. This change is not only reflected in the relocation of manufacturing processes, but also indicates that the stable labor-management relations and large-scale production systems upon which Fordism relied are facing a systemic crisis in the new economic conditions (Harvey, 1989).

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Multinational enterprises, in pursuit of higher profit margins, gradually shifted the most polluting or problematic, and the labour-intensive manufacturing processes to regions with lower labor costs and more lenient regulations; empirical studies using European manufacturing enterprises as samples show that "reducing labor costs" is one of the dominant motivations for enterprises to relocate production to Asia or South America, etc (Dachs et al., 2012). The relocation of production and capital flows further weakened the manufacturing base of the traditional industrial core areas in Western Europe, leaving a large number of factories, production land, and productive land in the city, becoming the spatial stock that subsequent spatial transformation must confront.

At the same time, the rise of the "knowledge economy" and the emergence of the service industry have reshaped the global value chain structure. Economic value has gradually shifted from the manufacturing of physical products to high-value-added links such as research and development, design, marketing, and finance (Miroudot & Cadestin, 2017). During this process, the physical space of cities was forced to be adjusted: large factories, warehouses, and logistics facilities that once constituted the main body of the urban fabric gradually lost their original functions and transformed into "brownfields" that needed to be re-evaluated for their utilization potential. Due to these spaces being typically located in or near the core of the city, the mismatch between their significant location advantages and the original industrial functions gradually exposed the contradiction between spatial utilization efficiency and urban development needs, thereby triggering the post-industrial spatial transformation process (Yang et al., 2022).

2.2 Post-industrial Cities and Spatial Transformation

Due to the shifting of the production functions, the nature of the industrial city has changed: the cities are no longer the centers of material goods production but the entire city complexes where consumption, culture, or information exchange become dominant. spatial transformation, in this context of the so-called Post-Fordism, has slowly become one of the main means of combating the decline of industry and economic slump. The spatial transformation is not only a matter of physical spatial fixes; it can now be interpreted as a spatial competition tool that changes the image of the city in order to bring in mobile capital and customer demand (Harvey, 1989).

Under this logic, the role of industrial heritage has been fundamentally reconfigured. Abandoned factories and warehouses are no longer merely liabilities but are now regarded as scarce "symbolic capital." Amid the crisis of global urban homogenization, industrial history endows places with unique authenticity. This authenticity has become a key resource for post-industrial cities to establish differentiated competitive advantages within the service and experience economies (Canniffe, 2015).

Manchester is one of the cities in the world with the oldest industrial history which experienced severe deindustrialization in the 1970s characterized by drastic urban depopulation and urban hollowing-out. Instead of trying to rescue its irreversibly decaying traditional manufacturing sector, Manchester deliberately reorganized its economic structure and functions in terms of space. Accordingly, since the 1980s, the spatial transformation strategy of Manchester has shifted to an institutionalized stage under a policy direction, investment in resources, and joint efforts of various stakeholders to revive and diversify the previous industrial areas.

The Castlefield area in the southwest of the city center exemplifies these early spatial transformation practices. This area features typical industrial remnants such as canal networks, elevated railway bridges and warehouses. It was designated as a protected area in 1979 and was designated as an "Urban Heritage Park" in 1982. In the subsequent policy in 1983 implementation, its status as a demonstration area for urban heritage renewal was further established (Madgin, 2010). Such institutional acknowledgement enabled supporting the policies associated with conservation and redevelopment of industrial heritage. Its approach of introducing tourism, leisure, and residential functions, which were implemented through public-private partnerships, slowly transformed the neglected industrial zones into cultural hub of cities.

The transformation of the socio-cultural sector Manchester experienced was as significant as the material transformation projects it carried out. The music cultural movement called Madchester, which developed in the 1980s and 1990s, became a key element of the branding of Manchester itself and boosted its visibility around the world in the context of the cultural industry. Such revival in culture was combined synergetically with space transformation that propelled the process of change of Manchester into a traditional industrial city into a diversified post-industrial city. Institutional conservation of industrial heritage, restructuring of space purposes, and also developing of cultural and creative industries have enabled Manchester to evolve a multi-channel, multi-scale industrial renaissance of an industrial city (Williams, 2003). Take the central area of Manchester as an example. It is pointed out that successful spatial transformation mainly depends on establishing appropriate systems and organizational structures to achieve the necessary vision. This not only includes the overall planning, but also requires a large amount of "specificity and initiative" - this practice not only reshapes the urban physical texture, but also enhances the competitiveness of the city at the cultural and symbolic levels. From this, we can further think that the core lesson of the Manchester case is not the success of a specific transformation project, but that it has constructed a "soft-hard combination" spatial transformation ecosystem. If the establishment of the system level is like the delineation of the city heritage park, providing a framework for the physical "hard" texture of the

Castlefield industrial era, In this context, the cultural practices represented by "Madchester" have introduced a form of continuously evolving "soft" vitality into what were once cold and utilitarian industrial spaces. It is through the interaction between spatial form and cultural production that industrial heritage is able to shift from a static historical remnant into an urban resource with contemporary meaning. From this perspective, the experience of Manchester suggests that the city's structural transition from a "centre of production" to a "centre of consumption" can achieve a genuine and lasting social foundation only when institutional frameworks and cultural initiatives operate in a coordinated manner.

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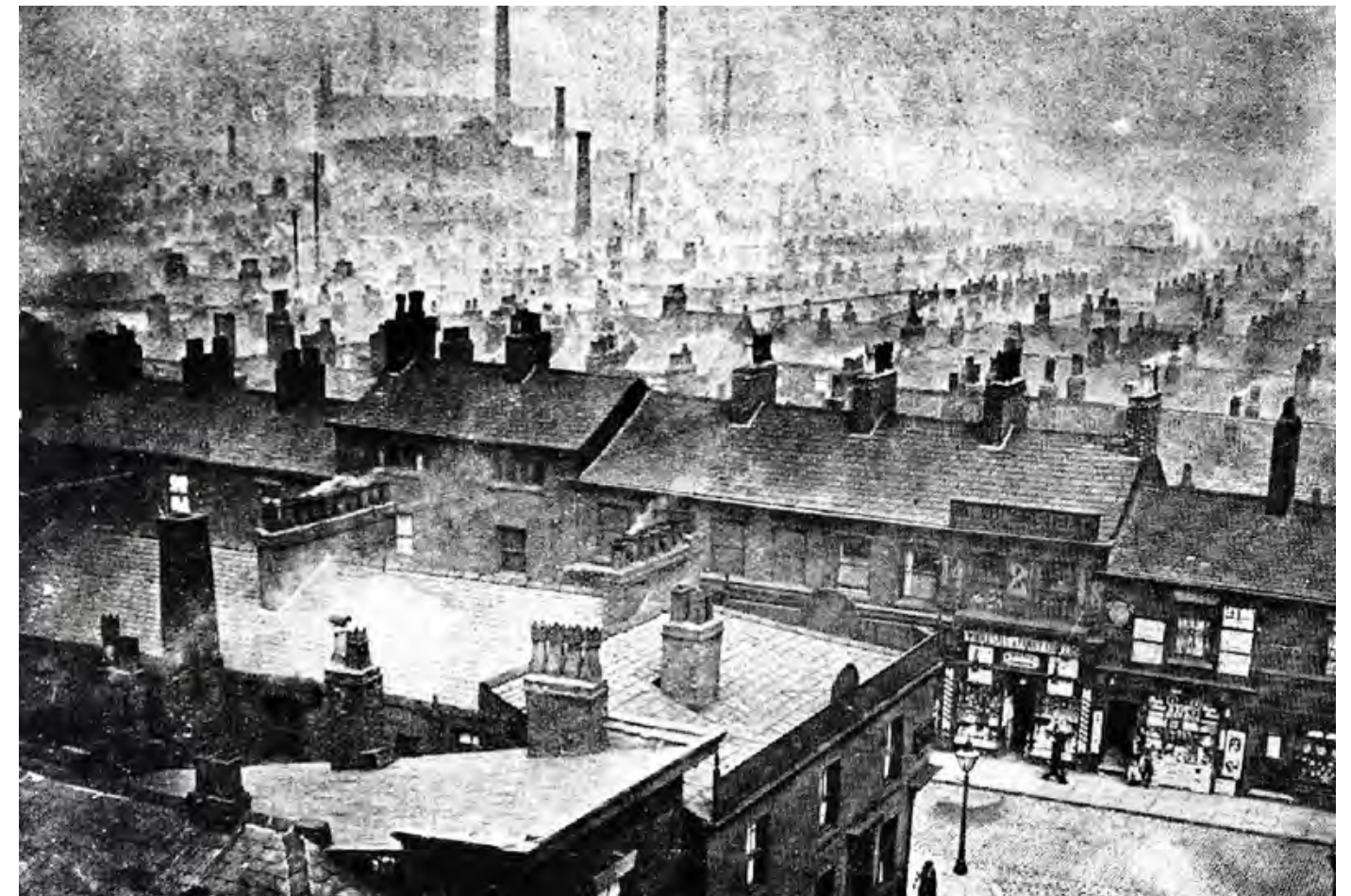


Image 3 : Illustration of a cotton mill in Summerseat, Bury (1850) /Manchester Local Image Collection



Image 4: Manchester Steetscape /by Silvia Ugolotti

2.3 Industrial Heritage Transformation: Adaptive Reuse,

In light of the process wherein cities are getting into the era of stock transformation, the reconstruction of industrial heritage goes beyond the simple renovation of current structures. It is becoming more concerned with the functional reconfiguration and redesign of spaces that no longer serve the purpose they originally did, allowing them to meet the variety of demands and requirements of modern urban development. In such context adaptive reuse has become a widely used method. In contemporary practices of regenerating industrial heritage, adaptive reuse is regarded as one of the most effective strategies for conservation and transformation (Bullen & Love, 2011). The central objective lies in preserving the original structural system and cultural symbols as fully as possible, while at the same time introducing multifunctional elements that correspond to contemporary urban lifestyles. Through this process, space can be transformed from a collection of “legacy assets” into a set of “sustainable resources,” enabling a dual translation of both building functions and cultural meanings (Plevoets & Van, 2011). Therefore, the value of adaptive reuse does not lie only in whether an old building is preserved, but more importantly in how new functions are introduced, and how this functional transformation reshapes architectural space, urban life, and socio-economic relations.

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Adaptive re-use for industrial heritage embraces both projects promoted largely through public initiatives and dominated by cultural uses, and conversions undertaken by private developers motivated more by commercial interests than any altruistic concern. (Stratton, 2000). Regarding cultural uses, industrial heritage is employed as a catalyst for spatial transformation, introducing multiple functions such as culture, creativity, and public activities, to activate abandoned spaces and drive the development of surrounding communities. Numerous practices have shown that transforming old industrial heritage into museums, art centers, creative parks, or other public cultural venues not only gives them new uses and economic vitality, but also provides valuable public spaces and cultural facilities for the city (Veldpaus & Pereira Roders, 2014). Regarding purpose of commercial interests, adaptive reuse is not only a method for preserving historic industrial structures, but also a means of transforming abandoned buildings into economically productive spaces. By attracting private investment, increasing land and property values, creating job opportunities, and stimulating related sectors such as tourism, retail, and catering, commercial adaptive reuse can contribute to urban regeneration. Industrial heritage buildings are often transformed into shopping complexes, offices, hotels, restaurants, co-working spaces, and entertainment venues. In historic urban areas, it is also common to reuse industrial heritage for retail and commercial purposes, as these buildings can offer a distinctive atmosphere and strong branding value for new commercial activities (Plevoets & Van Cleempoel, 2016). In parallel, adaptive reuse is widely regarded as a

practical pathway toward sustainable transformation. By extending the service life of existing buildings, limiting material waste and the hidden energy consumption associated with demolition and reconstruction, this approach allows the existing built environment to be reconceived as a resource base that supports long-term sustainable development (Bullen & Love, 2007).

As Douglas (2006) noted in *Building Adaptation*, adaptive reuse is not merely an engineering method to extend a building's lifespan but a transformation pathway supporting sustainable urban transformation. To this end, he proposes a multidimensional evaluation framework for building transformation, with five core dimensions: Sustainability, Durability, Flexibility, Accessibility, and Continuity. In this framework, the physical performance of existing structures is an important concern, but it is not the only one. The capacity of these structures to adapt to the complex and changing needs of contemporary urban functions is also considered. From this point of view, adaptive reuse can prolong the lifecycle of existing buildings. It also helps reduce the energy and resource consumption associated with demolition and reconstruction. At the same time, it helps existing buildings achieve functional transformation, which makes it a technically and methodologically viable pathway for the repurposing of industrial buildings. Furthermore, recent systematic review studies have also indicated that the "success" of adaptive reuse is not only dependent on technological updates or functional additions, but is also influenced by multiple factors such as historical value, functional compatibility, structural and architectural conditions, economic feasibility, management and regulations, etc. (Vafaie et al., 2023). It should be noted that adaptive reuse always involves a delicate balance between use and conservation. When the emphasis is placed too strongly on use, the practice may easily turn into a commercially driven form of redevelopment. In such cases, the building is sometimes preserved only as a façade or an external "shell", while its internal layout, structural logic, material character, fixed interior elements, and traces of former industrial activities are largely removed. For industrial heritage, this is particularly problematic, because its significance does not lie only in its external image. It is also embedded in the technical knowledge, production processes, spatial organization, and collective memories that the building still carries. For this reason, the choice of a new function becomes a crucial issue in adaptive reuse. A new use cannot simply be inserted into a historic building because it is profitable or spatially convenient. It has to be compatible with the specific character of the building, including its architectural features, historical identity, and cultural meanings. If the chosen function is inappropriate, it may damage the building's original character and weaken its historical value. It may also interrupt the relationship between the building and its past, its surrounding environment, and the social and cultural context to which it belongs. Therefore, adaptive reuse should not be understood as a choice between using a building and preserving it. Its real challenge lies in finding

a workable balance: too much emphasis on use may undermine the aim of conservation, while excessive protection may prevent the building from continuing to have a meaningful role in contemporary life (Ertaş Beşir, 2023).

Overall, adaptive reuse can be understood as one of the most comprehensive approaches to industrial heritage transformation. It is not merely a way of assigning new functions to obsolete industrial buildings. Rather, it works through a continuous negotiation between historical preservation, spatial adaptability, economic activation, and sustainable development. Through both culturally oriented and commercially oriented models, adaptive reuse enables abandoned industrial spaces can be brought back into use in ways that respond to contemporary needs, giving them a revitalized and lasting architectural life. At the same time, these spaces are able to find their place again within the urban fabric, preserving traces of industrial memory while acquiring new social and economic meanings.

2.4 Comparative Urbanism: Europe and East Asian Analytical Frameworks

2.4.1 Europe Context: Transformation as "Urban Renaissance" in Mature Economies

In Europe spatial transformation primarily occurs within the context of mature economies experiencing "post-growth" or low-growth phases. This process is often closely associated with the concept of "Urban Renaissance," describing Europe developed nations' attempts to reshape urban competitiveness through physical environment improvements and social function restructuring following prolonged post-industrial decline. Unlike China's rapid iteration path, European modernization exhibits long-term, incremental, and linear development characteristics (Hall & Pain, 2006).

When European cities are moving into low-growth or post-growth, the priorities of spatial transformation move slowly between redeveloping land and capitalizing it to improving the quality of public space, re-establishing ecological conditions and maintaining historical and cultural integrity. On such a context, several public-interest inspired transformation initiatives that focused on environmental control and social history were introduced. Landschaftspark Duisburg-Nord is located in Germany's Ruhr region and is often seen as an example of a non-commercial approach to industrial transformation. The project was launched in 1991 and places emphasis on social welfare and ecological restoration rather than commercial redevelopment.

The site originally housed a steel mill that operated from 1901 until its closure in 1985, leaving severe environmental contamination from decades of intensive industrial production. Against the background of the wider decline of the Ruhr industrial system, the site was included in the IBA Emscher Park Initiative between 1989 and 1999. Its transformation was therefore supported by policy guidance and public funding (Lorz, 2015). The redevelopment didn't begin with large-scale demolition. Instead, it placed strong emphasis on preserving as much of the original site as possible. Many industrial structures including blast furnaces, silos and gas holders were kept and later adapted for new uses such as climbing, diving, leisure and cultural activities. In this way, a formerly closed and heavily polluted industrial zone was gradually turned into an open public recreational destination. To deal with soil contamination, the project used phytoremediation and in-situ sealing methods. This allowed the polluted soil to be controlled on site without causing too much additional disturbance. The remaining industrial relics were not simply regarded as obsolete structures. They were gradually given new roles as part of the urban infrastructure, especially in relation to education and ecological experience. Some old ore silos were converted into climbing walls, and the gas tanks were reused as diving centres. In this way, the industrial history of the site was not hidden behind the new programme. It became something that



Image 5 : Landschaftspark Duisburg-Nord Location Map / Drawn by Author



Image 6 : Landschaftspark Duisburg-Nord. / © North Rhine–Westphalia Tourism Association

visitors could still read and experience directly. This allows citizens to engage more directly with industrial structures, thereby understanding the city's productive past (Rappaport, 2017). This project emphasizes "understanding and healing the industrial past rather than erasing it," transforming industrial structures into symbolic landscape landmarks. The preservation of memory and ecological healing jointly form the basis of the reconstruction of the public sphere. It is a model that can be used to show one way of re-establishment of industrial heritage in non-commercial settings, to bring about ecological recovery and preservation of culture, through landscape urbanization. In this sense, the key to the Duisburg North Landscape Park lies not in "transforming heritage into landscape", but in integrating pollution control, public openness and industrial memory into the same spatial system through minimal intervention, shifting the update from "land redevelopment" to the governance proposition of "long-term maintenance and public operation". This case demonstrates that the value of industrial heritage does not need to be achieved through high-intensity functional replacement or commercial strategies. Instead, by transforming the ecological restoration process into a public infrastructure that is accessible and learnable, the "past of industry" can be transformed into a continuously active urban public space.

Unlike Duisburg's publicly funded transformation model, the transformation strategy of the Battersea Power Station in London is a market-capital-driven approach to the revitalization of industrial landmarks that are popular among Western industrial heritages. London Battersea Power Station is one of the representative routes in Western industrial heritage transformation way, namely the landmark redevelopment archetype ruled by market capital. Initially it was an enormous coal fired power station, constructed in the 1930s, which has been dormant since its closure in 1983. The four white chimneys on the power station building, which serve as one of the most famous industrial landmarks in London, were registered as Level II listed buildings in 1980. Due to the limitation of the regulations of heritage preservation, and the collapse of the industry, the ownership of the station changed hand several times over decades after the closure of the station, and many efforts were made to stall the transformation. (Battersea Power Station Development Company, 2022)

The UK government did not use direct public investment to further the transformation within the context of a mature economy and post-growth discourse. Rather, it directed market participation in policy-making and infrastructure construction. According to the London Metropolitan Government, the Nine Elms area, which is home to Battersea, was given the status of an Opportunity Zone. This classification together with investments of the state such as subway extension created a development atmosphere where capital could flow into the area. An international partnership bought the site in 2012 and started developing a comprehensive transformation

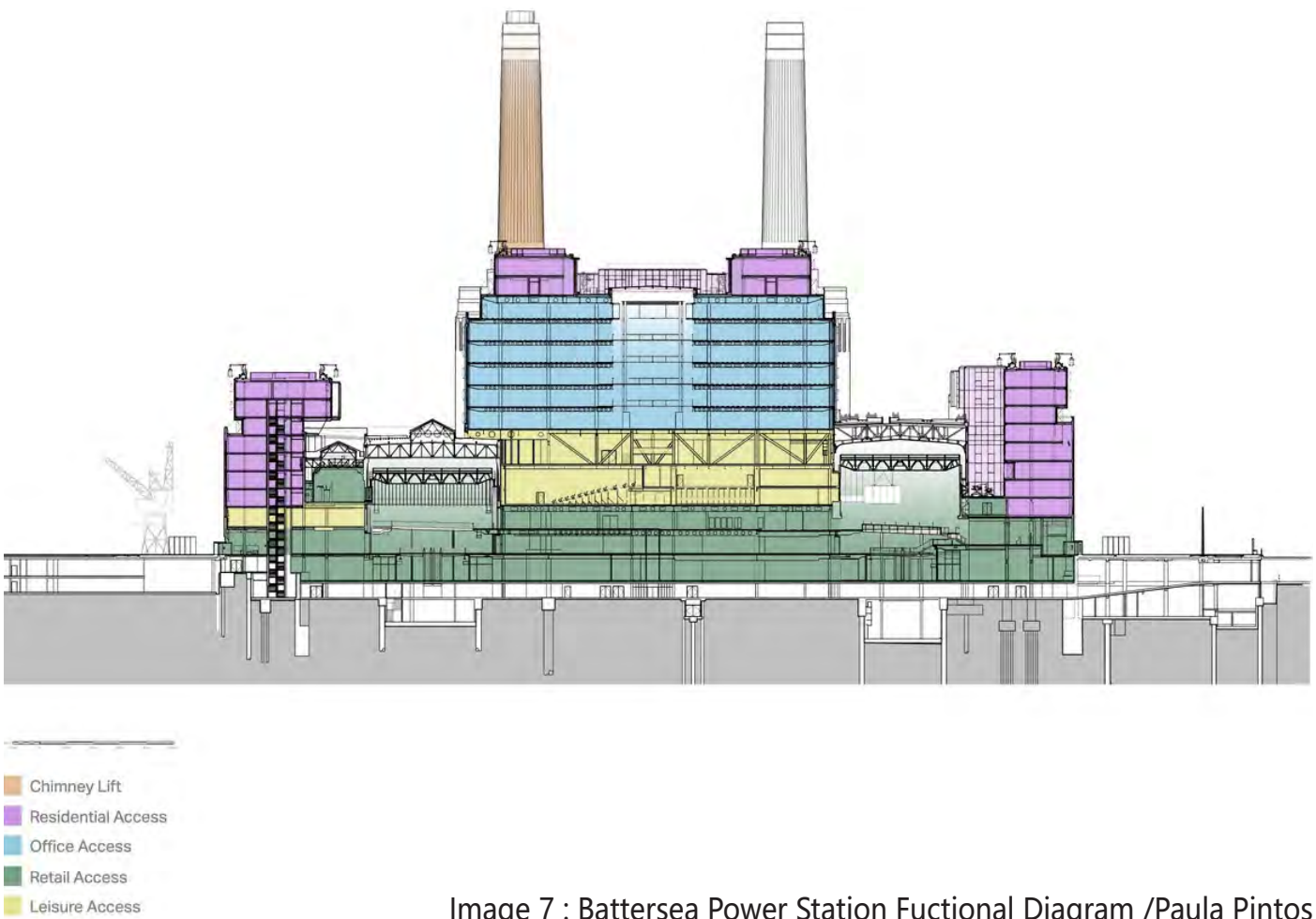


Image 7 : Battersea Power Station Fuctional Diagram /Paula Pintos



Image 8 : Battersea Power Station /Paula Pintos

strategy based on the concept of the preservation of the shell and the reconstruction of the inside out. It meant that the chimneys and external façades remained intact whereas the interior framework underwent deep renovation to provide space to high-end residential, office, and commercial facilities. (Battersea Power Station Development Company, 2022) Phased opening since 2021 and 2022 to the public, the redeveloped Battersea Power Station becomes a mixed-use icon with retail, office, and urban consumption functions and triggers a full transformation process in the area. This case shows that industrial heritage can be reoriented as an engine of urban branding and development under market-capital-based models, but its cultural meaning tends to become more and more commercial stories. The eco-landscape urbanism concept based on the concept of the benefit to the community and restoring the memory, on the contrary, the Battersea project discloses another type of transformation the city of the Western world - the one that is motivated by the capital operation and aims to balance the conservation of the heritage and the high levels of commercialization. In this context, it is demonstrated that industrial heritage transformation within the European context of spatial transformation is not any uniform model, but rather a complex combination of different spatial practices, which are either oriented towards serving the purpose of the general population or operate by the principles of market capital.

Further examination reveals that, as WilkinsonEyre (2022) pointed out, the transformation of Battersea is not merely a transformation of industrial heritage, but rather continues its long-standing structural relationship with energy, capital, and political power. During the transformation process, the industrial remnants were mainly preserved through modified historical imagery, while the original production history related to labor, conflict, and social contradictions was weakened and relegated to the background, thus more effectively integrating into the narrative of commercial consumption and real estate development. Public infrastructure such as the extension of the north line enhanced regional accessibility while also creating conditions for capital entry and high-end development, and objectively reshaped the hierarchical positioning of urban space. Thus, Battersea Power Station was transformed from a public energy facility into an urban landmark, with retail, offices and high-end housing becoming its main functions. In this process, its heritage value was still visible, but it was increasingly used as a symbolic resource for consumption and commercial development. This case shows that, under a transformation model driven by market capital, the preservation of industrial heritage doesn't necessarily mean the continuation of historical memory. It can also change the social meaning of the site under new urban and economic conditions.

Compared to the previous two cases characterized by large-scale industrial heritage and capital-driven redevelopment, Avling Kitchen & Brewery in Toronto, Canada represents a post-industrial building



Image 9: Avling Kitchen & Brewery Section / LAMAS

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Image 10: Avling Kitchen & Brewery Section / LAMAS

reuse path that occurs at the community scale and is based on the existing building conditions. The project is located in the Leslieville community in the eastern part of Toronto. This area was home to light industrial facilities such as brick factories and leather factories in the 20th century and was a typical blue-collar industrial zone. In recent years, with the relocation of industries, it has gradually entered the stage of transformation (Hulchanski, 2010). LAMAS Architecture Studio transformed a concrete structure building built in 1949, which was originally used as an A&P grocery store. Through reorganizing the originally enclosed spatial structure, the project was transformed into a multi-functional production and consumption space integrating beer brewing, catering, and urban agriculture. In the transformation process, the improvement of lighting conditions became an important entry point for reactivating the interior space of the building. The LAMAS team expanded the window size of the street facade, introduced large-sized double-hung wooden windows, and set up horizontal openings on the roof to introduce natural light into the originally deep and dark interior of the building, thereby significantly improving the previously dim and enclosed lighting conditions in the middle part (Francesca Grillo, 2019; María Francisca González, 2019).

In this project, the production space was not hidden but placed at the core of the space with the brewing tanks and rooftop agriculture as showcase production devices, directly connecting the production process with the customer experience. Beer and crops could be directly supplied to the kitchen below, forming a tight closed loop from planting, brewing to catering, and through the "transparency" of the food production cycle, citizens could intuitively perceive the complete process chain. Thus, the transformation of Avling did not rely on the intense commercial narrative to reshape the place image, but focused on the readability and participation of the production system within the building, making post-industrial building reuse not only limited to the retention of form. The building thus no longer remained an isolated consumption place but transformed into a community node with educational and demonstration significance, becoming a kind of sustainable publicity, allowing production activities to truly integrate into the urban environment.

2.4.2 East Asian Context: "Compressed Modernity" and Spatial Scarcity

The most of the spatial transformation initiatives of East Asia are implemented in the distinctive paradigm of the so-called Compressed Modernity. It is a notion offered by a South Korean sociologist Chang Kyung-seop who explains how East Asian states such as China were involved into a very fast-track modernization period that took place under an extreme compression of time. The process of their industrialization, quick urbanization, and post-industrial shift happened in successive waves during few decades only, which differs with the lengthy slow development of modernization observed in European societies (Chang, 2010).

Against this backdrop, social transformation has accelerated rapidly, and different elements of modernity have entered urban life and spatial development within a relatively short period. In many cities, this process has produced an extremely dense urban form, where traditional spaces and modern developments are often placed very close to each other. Land scarcity has also become a major constraint. Together with rapid population growth and economic expansion, land scarcity has made spatial transformation more pragmatic in many cases, and efficiency has often become an important consideration. Under such conditions, transformation is no longer limited to a technical approach for improving the built environment, but increasingly functions as a strategic instrument for national or municipal governments to respond to land constraints and promote industrial upgrading. This transformation logic differs noticeably from that found in many Western contexts, where, under conditions of "slow growth," greater attention is typically given to cultural preservation and the enhancement of spatial quality. In the East Asian context of "compressed modernity," industrial heritage transformation often occurs in cities where land is extremely limited and urban density remains very high. Under these conditions, the reuse of industrial sites is usually shaped by the need for efficiency and more intensive land use during rapid urbanization. Therefore, many projects tend to use vertical space and combine different functions within the same site. The Jockey Club Creative Arts Centre (JCCAC) is a typical example of this kind of heritage transformation. The site was formerly the Shek Kip Mei Factory Building, a nine-storey, H-shaped industrial structure constructed in the 1970s for light industrial production, which gradually became obsolete as manufacturing activities relocated overseas. Against Hong Kong's background of severe land shortages and a long-standing lack of spaces for artistic activities, the project deliberately avoided demolition and land-value-driven redevelopment. Instead, a comprehensive revitalization approach was adopted, transforming the existing industrial structure into a creative arts hub that integrates artistic production, exhibition, and public participation, marking Hong Kong's first instance of full-building revitalization of an industrial structure (Development Bureau, Hong Kong SAR Government, 2010).

The transformation adopted a spatial strategy described as a “vertical art community,” through which previously dispersed artistic functions were concentrated and vertically stacked within a single building. Publicly accessible spaces at ground level accommodate a theatre, exhibition halls, cafés, and retail facilities, while the upper floors are organized to house more than one hundred artist studios and offices for art institutions. In this way, artistic production, exhibition and cultural consumption are combined within a compact spatial structure. In terms of spatial transformation, the project also pays attention to the preservation and adaptive reuse of the building’s original industrial features. Ventilation shafts, terrazzo staircases and heavy-duty freight elevators were retained, rather than being removed during the renovation. Because of these remaining elements, the structural logic and raw material character of the industrial space can still be clearly perceived. This approach establishes a form of symbiosis between contemporary artistic practice and industrial heritage (Wong, 2013). Unlike European transformation models that are often characterized by landscape restoration and the expansion of public open space under conditions of “slow growth,” the JCCAC embeds cultural production spaces within existing structures through vertical organization and high density. It thus illustrates a practical approach for cities to reintroduce cultural functions under extreme land constraints, relying on spatial compression rather than horizontal expansion within the context of compressed modernity.

In Singapore, where land resources are similarly limited. As the city-state continues to develop at a rapid pace, there is a growing trend about the transformation of these historical heritages, integrating them into the commercial real estate market, which is increasingly align with the principle of “Highest and Best Use,” seeking to maximize land potential while maintaining historical value. The Warehouse Hotel at Robertson Quay provides a representative example of this approach. Constructed in 1895, the building originally functioned as a spice warehouse within the colonial trade network of the Strait of Malacca, while also serving as a marginal space associated with coolie labour and secret societies (Wong, D, 2016) As the Singapore River basin shifted from a logistics corridor to a waterfront leisure zone, the site located within the core of the Central Business District that was confronted with the challenge of reconciling heritage preservation with the demand for efficient economic returns (Kong, 1994).

Rather than adopting a museum-oriented conservation strategy that would have required large-scale public investment, the project team followed a transformation approach described by Henderson (2011) as boutique gentrification. In the design process, the intervention was kept relatively limited, and the original structure was not covered by the new design. The building’s original form therefore became the main basis for the renewed spatial expression. Key industrial elements, including the corrugated iron roof, the wide-span truss system and the weathered brick walls, were preserved



Image 11 : JCCAC Interior / By Dan_Lin

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Image 12: JCCAC Entrance / By Dan_Lin

in their entirety. Through these remaining elements, the historical meaning of the former industrial site could still be read. New functional components such as elevators, staircases, and service systems were introduced within the existing structure using a restrained contemporary design language, creating a clear yet controlled dialogue between historical and modern layers. Through this process of spatial translation, the site evolved from an enclosed and utilitarian storage facility into a luxury hotel and social venue oriented toward a global high-end clientele, while industrial features were reinterpreted as marketable visual symbols and cultural assets. By using “industrial nostalgia” as a strategy, the project didn't directly present the full socio-historical complexity of the site. Instead, some layers of industrial history were selectively softened and transformed into a more recognizable image for the market (Goulding, 1999). This made the site easier to consume and more attractive for commercial use. The case shows that, in a high-density urban environment, industrial heritage can continue to operate through a mainly market-driven logic. Its value is connected to the preserved industrial fabric, but new cultural and commercial functions also reshape the way this value is understood. Therefore, the project provides another possible transformation pathway that doesn't mainly depend on public subsidies.

By analyzing the cases of Hong Kong and Singapore, it can be observed that under the dual conditions of "compression of modernity" and extreme land constraints, the transformation of industrial heritage generally presents a spatial translation logic oriented towards maximizing efficiency and value. Whether JCCAC achieves a high degree of compression of cultural production functions through vertical organization, or Robertson Quay warehouse hotel reconfigures the heritage space into a high-quality product through market-oriented methods, industrial buildings have been re-integrated into the contemporary urban operation system. Although different transformation paths differ in their functional orientations, their common point lies in that industrial heritage is no longer regarded as a historical object that requires long-term public investment for maintenance, but is transformed into a sustainable operational space asset. Thus, the historical significance of industrial heritage is more re-encoded through spatial imagery and usage methods rather than being preserved through the continuation of the original production system. This phenomenon reveals the dominant direction formed by the functional reorganization, economic returns, and land efficiency in the transformation of industrial heritage in high-density East Asian cities.

2.4.3 The Differing Logics of Industrial Heritage Transformation in the Europe and East Asia

From a temporal-structural perspective, industrial heritage transformation in European contexts and East Asia reflects different stages of development and contrasting historical rhythms. In mature economies such as Western Europe and North America,



Image 13: The Warehouse Hotel/© The Warehouse Hotel



Image14: The Warehouse Hotel/© The Warehouse Hotel

the transformation of industrial heritage generally takes place after the broader decline of industrial systems, at a moment when cities have already entered periods of slow growth or even what is often described as a “post-growth” condition. Within this context, industrial heritage tends to be understood as a historical outcome of the industrialization process. Transformation practices therefore do not primarily pursue rapid functional substitution or intensive land redevelopment. Instead, they usually proceed through gradual and incremental interventions over extended periods of time. Such approaches respond to the environmental and social consequences left by industrial production, while also reworking the historical narratives associated with the industrial past. In doing so, industrial heritage is situated within a retrospective temporal framework, through which its relationship with industrial legacy is reconsidered and redefined.

Using Duisburg-Nord Landscape Park as an example, it has not been restored in one step, but instead restored in stages that took almost ten years between the beginning of design and the end of the entire process. In the course of this lengthy time, there was a gradual process of preserving and rehabilitating industrial buildings and areas that had been polluted. It enabled industrial fossils to be redefined based on changing public use that progressively turned them into space vessels with urban history and educational meaning to the public. Conversely, Battersea Power Station in London was left idle for a longer time since the end of its operation and eventually moved into a short-term redevelopment stage led by market capital. Its main functional restructuring took place during roughly a ten-year period. In spite of the introduction of very commercialized activities, the project destroyed the old four chimneys following the structural safety and pollution analysis, and rebuilt them in their original size and appearance. This transformation was not meant to wipe out the presence of industry but to keep the image of it as a monument of the city. It preserves the recognizability of industrial heritage against the urban skyline and incorporates industrial history into the urban setting of modern times (WilkinsonEyre, 2022).

However, the transformation of the industrial heritage of East Asia is an integral part of the developmental process of so called compressed modernity. There was a rapid overlap between industrialization, urbanization, and transformation of industries, which occurred within a few decades and achieved what took almost a century to reach in European countries in terms of industrialization and post-industrialization. Hence, industrial heritage tends to be not completely sedimented as merely historical artifacts, but rather re-incorporated into the urban operating system as already present physical spaces with active functionality prospects. It may be that the Hong Kong Jockey Club Creative Arts Centre is adding artistic working areas under the conditions of overall revitalization, or maybe it is Singapore’s Warehouse Hotel with functional

reconfiguration via market-driven measures in dense-core areas, its transformation logic appears to be a form of spatial patching that is facilitated by culture. Existing buildings can be made responsive to modern urban needs in fairly brief periods through functional restructuring and value translation thus allowing effective recovery of values. It can also be concluded at the governance level that industrial heritage transformation in Europe and East Asia has different institutional orientations. Industrial heritage transformation usually takes place in the context of relatively stable institutions in European societies, but there are two types of governance models according to whether they are driven by the public interest or by market capitalism: In one case, as illustrated by the Ruhr region, government-led sectors dominate the transformation process via policy and money-based investment, focusing on ecosystem reclamation and accessibility to the population; In the other case, as illustrated by the Battersea Power Station in London, the process can be more dependent on the developed market systems. Through planning control and infrastructure provision, industrial heritage becomes a critical means of urban branding and economic development.

On the other hand, transformation of East Asian industrial heritage is more closely related to governance features when it is considered under the context of development states. Land allocation, functional guidance, and the speed of renewal are typically dominated by governments, which can incorporate industrial heritage revival into comprehensive urbanization and industry transformation programs. transformation in the case of Hong Kong and Singapore results in effective reorganization of the present spaces on introducing cultural, creative industry or high end services. Such an approach is better aligned with the overall urban efficiency and competitiveness objectives, as well as restructure the presentation of both its public character and historical complexity.

3. Turin's Post-Industrial Transformation

After World War II, Turin suffered a devastating blow. One-third of the buildings were destroyed in the bombings, and large areas of the industrial zone and the city center were severely damaged, leaving the city in ruins. (Power, 2016.) It was not until the late 1940s that economic recovery began to unfold. In October 1945, the city council passed a city reconstruction plan aimed at restoring economic vitality and rebuilding the urban fabric (Torino Urban Lab, n.d.). In 1955, Fiat launched the 600 car model, an event that signaled the onset of a new phase of industrial expansion. The Mirafiori factory, designed by Vittorio Bonadé Bottino, adopted a linear production system inspired by American industrial models and was subsequently expanded into what became known as the Mirafiori Southern Complex. The completion of the Turin Ring Road in 1969, constructed by the ATIVA Company, further marked a shift in the city's spatial organization and development logic (Torino Urban Lab, n.d.). However, this trajectory was later interrupted by the oil crisis of the 1970s. The crisis caused a sharp increase in global energy prices and created serious difficulties for automobile manufacturers. For Fiat, the pressure became more evident as the demand for gasoline-powered vehicles declined and production costs continued to rise. These changes eventually led to large-scale workforce reductions (Power, 2016).

Against the background of industrial decline in the late 20th century, Turin began to launch a series of spatial transformation initiatives as a form of urban "self-rescue." This transformation was not carried out through a single project, but gradually developed through policy frameworks, implementation mechanisms and several catalytic events.

3.1 Early Pilot Phase (1983)

As industry continued to decline, some pioneering transformation practices began to appear in Turin. After FIAT closed the Lingotto plant (completed in 1923) in 1982, Renzo Piano led the redevelopment of the 246,000 m² complex (1983–2003). The project turned the former factory into a multifunctional hub that brought together retail, cultural and research functions. The project preserved the original structure and the iconic rooftop test track. New volumes were also added for hotels and university spaces. Lingotto eventually became a major mixed-use urban complex (MuseoTorino. n.d.). The transformation of Lingotto not only revitalized an industrial heritage site but also symbolized Turin's shift from a Fordist, manufacturing-driven city to a culturally driven post-industrial one. The project pioneered a transformation paradigm across spatial, functional, and governance dimensions, serving as an early model for culture-oriented spatial transformation.



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28 Image15: Turin after World War II/ MuseoTorino



Image16 :FIAT 600 automobile/ MuseoTorino



Image17: Aerial View of The Lingotto before Redevelopment/ MuseoTorino

3.2 Establishing the Planning Framework (1994–1997)

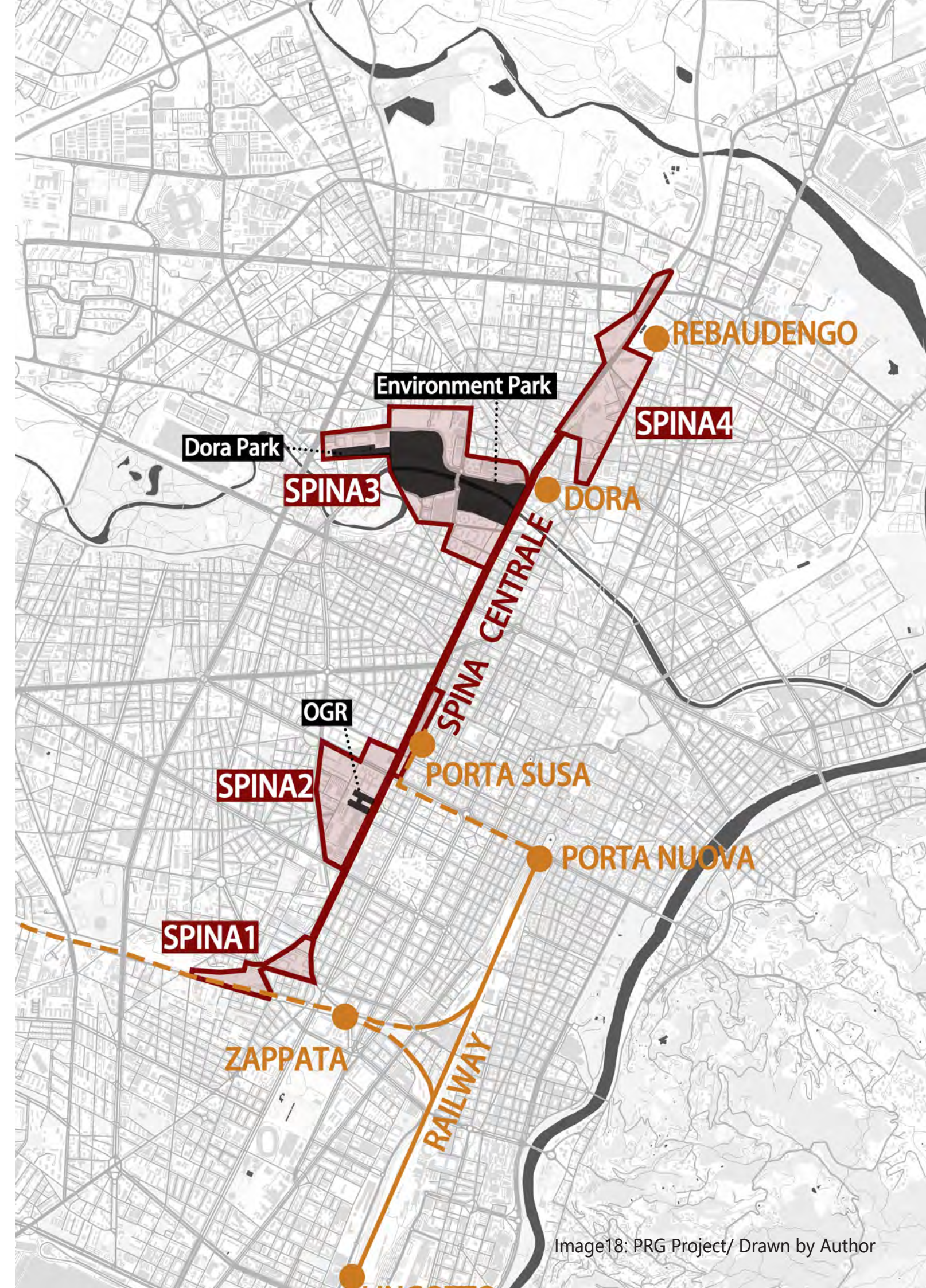
In 1994, the City Council launched the “Turin City” programme, which introduced a structural ecological vision aimed at redefining the city’s relationship with the Po and Dora rivers and converting former riverside industrial land into a continuous green system.

One year later, in 1995, the Piano Regolatore Generale di Torino (PRG) was formally developed under the direction of the Gregotti team. This plan identified the so-called “Central Spine” as the main organizing axis of the urban structure by integrating the railway corridor with four large, abandoned industrial areas located along it, thereby forming a north–south-oriented regeneration system. These areas were designated as Spina 1 to Spina 4. The broader objective of the PRG was to respond to the spatial and functional challenges faced by the city during its transition from an industrial to a post-industrial phase, particularly in relation to “those dilapidated and abandoned areas left over from the seemingly ended industrial era.” To this end, the plan proposed a systematic transformation strategy based on processes of replacement, reorganization, and modernization (Comune di Torino, Ufficio del Piano Regolatore, 1995).

Within this overarching framework, each Spina area was assigned a distinct role in the transformation process, shaped by its specific geographical conditions and historical background. Among them, the Central Spine 3 area (Spina 3) is generally regarded as one of the most challenging and structurally complex transformation sections. Its core task was to convert large-scale industrial land into a new urban area that combined ecological space, public space and new urban functions. Spina Centrale reconfigured the former industrial area into a linear green corridor and a comprehensive redevelopment zone. In this process, it gradually formed a north–south structural green axis of about 13 kilometers, linking different parts of the city and reorganizing extensive industrial areas into a new urban center. In 1997, as part of the urban planning scheme PRG adopted in 1995, the expansion project of the Politecnico di Torino was initiated in the original Ogr park, covering an area of 100,000 square meters (Torino Urban Lab, n.d.).

In 1998, the City of Turin implemented the spatial transformation Program (Programmi di Riqualificazione Urbana, PRIU) and the Integrated Development Program (Programma Integrato, PRIN), enabling a systematic update of the entire Spina 1–4 area. This process, ranging from macro policies to micro-level measures, constituted one of the key mechanisms driving Turin’s post-industrial transformation. Regions such as Mirafiori in the south and Basse di Stura in the north gradually developed into new industrial bases, while the riverbank areas were transformed into continuous public green corridors (Torino Urban Lab, n.d.).

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3.3 Olympic Catalyst and Culture-Driven Transformation (1999–2017)

In 1999, Turin was officially selected as the host city for the 2006 Winter Olympics. This decision was regarded as an important opportunity for the city's image transformation. Local decision-makers used this as a chance to promote a series of public actions oriented towards brand reconstruction, aiming to showcase to the international community that Turin is no longer just a traditional industrial and automobile manufacturing center, but a contemporary city with cultural vitality and international appeal. Many observers believe that the process of bidding for and preparing for the Winter Olympics was widely interpreted as an important measure for Turin to further break away from its single image of an "automobile city" and move towards a diversified urban positioning (Alberto Vanolo, 2015).

At the same time, the Winter Olympics, as a highly time-bound international event, made the need for coordination between infrastructure construction and urban policies even more urgent, and was widely regarded as an opportunity to address Turin's long-standing infrastructure deficiencies (Pinson, 2002). In this context, the expansion of the subway system, the renovation and upgrading of Porta Susa railway station were accelerated, and it also promoted the transformation of the former industrial areas of Lingotto, Spina 3, and Mirafiori into mixed-function urban districts.

Torino Urban Lab was launched in 2005, which is a consortium of organizations like Compagnia di San Paolo in a public-private collaboration framework. Variante 200 continued to promote the vision of the PRG in 2010. This plan was intended to re-purpose over 1 million square meters of abandoned industrial land at both ends of the newly-built green belt for the construction of parks, residential areas, university expansions, and provide funds for the construction of Line 2 of the subway. That same year, the site occupied by Officine Grandi Motori plant was eliminated to give room to the green space and the residence (MuseoTorino. n.d.).

At the same time, The Dora River (Dora River) banks, the Docks Dora (formerly known as Docks Torino Dora), built in 1912, was originally an industrial storage and logistics complex serving the city's cargo circulation, mainly for the storage of food and taxable goods. This building complex is located in the strategic position of the northern industrial area of Turin and is directly connected to the Turin-Milan railway line through a dedicated branch line, forming a highly integrated railway logistics system. The project was constructed by Porcheddu Company and designed by engineer Ernesto Fantini, using a reinforced concrete structure and the Hennebique system, combining the rationality of industrial functions with the form characteristics of the Art Nouveau style (MuseoTorino. n.d.). During the post-industrial transformation process, the Docks Dora was not

completely demolished but was transformed through adaptive reuse methods of structural retention and functional incorporation into a cultural and creative cluster integrating artist studios, exhibition spaces, nightlife venues and creative offices, gradually forming a city-edge cultural district that integrates industrial memories and youth culture.

The opening of the Environment Park in 2000 was among the first programs in Spina 3, the biggest regeneration zone of Turin (1 million m², previously hosting the plants of Ferriere Fiat and Michelin). The project followed a masterplan by the Polytechnic University of Turin and was developed by Emilio Ambasz, Benedetto Camerana, Giovanni Durbiano, and Luca Reinerio; it was a kind of spatial transformation with an emphasis on innovation and environmental sustainability (MuseoTorino, n.d.). Such move showed the political turn of Turin as an industrial city based on heavy industry, into a city founded on knowledge-based industries and industries that can be sustainable; it is part of the larger shift of Fordist to eco-innovative cities.

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Image19 : Environment Park / Bruna Biamino

In 2007, the old Carpano factory building (stabilimento Carpano) located in the Lingrotto area (which had been an important distillery) underwent a re-functionalization renovation within the framework of municipal transformation. On January 27, 2007, Eataly opened its first store in Turin and organized the space and operations in a multi-functional model combining "market, dining, and cultural/educational spaces" (Venturini, 2013). By preserving the original structure while introducing contemporary commercial circulation, the project turned an industrial area into a cultural-consumer center. It reenergized a fading industrial hub and helped spur small local economies and city culture tourism with retail, food instruction, cooking classes and e-commerce. The space solution focused on the contrast between the concepts of the so-called industrial texture and food accessibility through open spaces and open kitchens preserving beams and brick walls among other original features.

Under the overall transformation framework of Spina 3 district, Parco Dora, which was completed in 2011, became a landmark case of transforming industrial heritage into urban open space. The park is located on the former Fiat and Michelin factory land, covering an area of over 45 hectares. It aims to transform the original industrial landscape into a city green space with ecological, cultural and recreational functions (Museo Torino, n.d).

The project did not erase the industrial traces but regarded "retained industrial structures" as the key framework for site organization and use: by reinterpreting and transforming the existing industrial structures and combining water systems (channels, ponds, fountains) and pedestrian systems to enhance accessibility, the physical existence of industrial heritage and contemporary public activities form a coexistence relationship; among them, the large-scale steel structure scaffolding in Vitali area was transformed into a covered space that can accommodate activities, and technical means such as lighting design were introduced to enhance the place experience (Miglietta & Caliumi, 2012). Thus, while preserving the recognizability of industrial heritage, it achieved the integration and symbiosis of industrial history and contemporary urban public life in the same space.

The OGR (Officine Grandi Riparazioni, a large repair workshop) renovation project led by the OGR-CRT Foundation was completed in 2017. It transformed this historic railway repair workshop into a city district that combines creativity and innovation. The workshop was constructed in the late nineteenth century and originally functioned as an industrial facility for the assembly and repair of large railway vehicles. Its spatial scale and structural configuration were closely aligned with the requirements of heavy industrial production (Sasso, 2012). During the restoration process, considerable attention was given to respecting the building's historical characteristics. Key elements such as the red brick façade, cast-iron components, and the large-span roof truss structure were



Image20: Dora Park / Taken by Author



Image21 : Carpano Factory / Fabio Oggero

preserved in their original form. Rather than reconstructing the building, the project focused on the adaptive reuse of the existing space by introducing new functional elements, organizing the overall area into two principal sections: "OGR Tech" and "OGR Cult."

By establishing a new multifunctional platform on the basis of the original spatial framework, this transformation approach has allowed the former railway maintenance facility to retain its material and historical qualities while evolving into an active hub that connects knowledge, creativity, culture, and innovative practices (OGR Torino, 2024). The industrial space thus shifts from a purely technical function to a setting that supports contemporary forms of production and exchange.

Within this structure, OGR Tech operates as an open incubation platform for high-tech enterprises, start-ups, and digital innovation, while OGR Cult is dedicated to cultural production, contemporary art exhibitions, and public performance activities. The transformation of OGR therefore extends beyond spatial transformation alone and carries a broader symbolic dimension. It reflects Turin's ongoing transition from post-war industrial remnants toward an urban development trajectory that emphasizes ecological concerns, places culture at its core, and is characterized by adaptability and a multi-centred structure.

As Sasso pointed out, after being abandoned for a long time, OGR was re-integrated into the city's public and cultural network, and its role changed from a single industrial production node to a cultural and urban activity carrier for the public, becoming an important node for reactivating historical industrial spaces during Turin's post-industrial transformation process (Sasso, 2012).

By examining the history of the post-industrial transformation in Turin, we can observe that the transformation of a city often relies on strategic planning. Strategic planning holds a central position in the process of urban transformation. As a method, strategic planning has constructed an overall development framework for the city and, on this basis, has driven the transformation of a series of post-industrial buildings. From the macro level of policy to the micro level of architectural renovation, it is a continuous exploration process, as Silvia Saccomani stated: "Turin is a city seeking a new identity recognition. It attempts to formulate strategic planning to occupy a new position on the international stage and promote tourism development by leveraging the influence of the Olympic Games." (Silvia Saccomani, 2011). During the transformation process, post-industrial buildings are no longer regarded as historical brownfields but are integrated into the overall transformation logic of the city, becoming important spatial carriers for new functions and identities. This transformation is clearly manifested in specific architectural renovation practices. For example, Parco Dora and

Environment Park have retained the original industrial framework and, through the strategy of stitching with landscapes, transformed the former steel factory into a park for residents' recreation. OGR, by preserving the original building structure and introducing multiple functions, transformed the original railway maintenance factory into a comprehensive innovation park centered on culture and innovation; Lingotto, through the overall renovation of the original automobile factory, injected multiple combined functions, and transformed it into a city complex. New functions and new identities seem to be the necessary characteristics of the transformation of industrial buildings. As Zukin.S pointed out, the reuse of industrial buildings often involves the reconfiguration of functions and social significance. The original production space gains a new urban identity under the introduction of new functions (Zukin, 1982).

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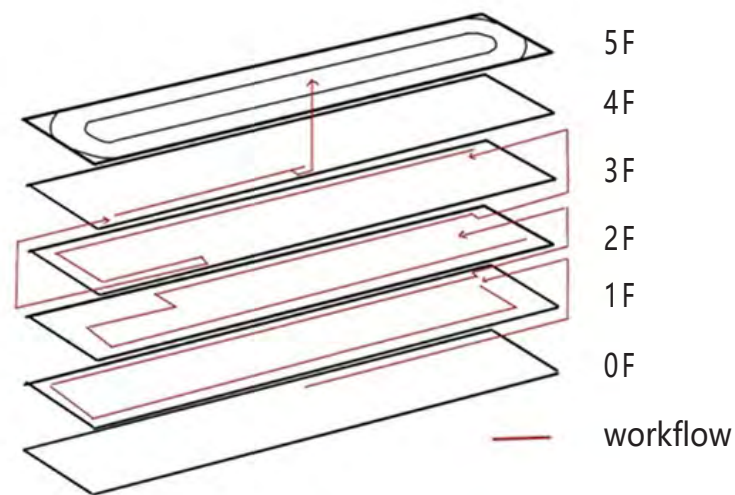


Image 22 : OGR / Teresa Goggia

3.4 Case Study Lingotto

The Lingotto factory is located in Turin, a northern Italian city. It was once one of FIAT's primary production sites and, at the time, the largest and most modern automobile manufacturing plant in Europe (Enrietti et al., 2021). Designed by engineer Giacomo Matte-Trucco and completed in 1923, the factory measured 507 meters in length, 24 meters in width, and 21.3 meters in height, with five floors constructed using a modular reinforced-concrete structural system. Its structure and technical solution were inspired by the Ford automobile factory in Detroit (Bigazzi, 1994); and also one of the most advanced industrial building technologies of its time. At both ends of the building were reinforced-concrete helical ramps, supported by ribbed concrete structures, used for transporting automobiles.

The factory adopted the concept of the "vertical factory": cars were assembled on the lower floors and moved upward as components were added. Its rooftop featured a multi-kilometer test track used to test the vehicles produced in the plant. Le Corbusier once described it as "one of the most impressive sights in the industrial world," and its rooftop concept even inspired the rooftop landscape of his Unité d' Habitation in Marseille (Le Corbusier, 1927). Lingotto is therefore considered historically significant in the context of European industrial development and is listed as one of the major industrial heritage sites by the European Route of Industrial Heritage (ERIH).



(Bottom-up Workflow)

Image 23 : Lingotto Lingotto Circulation Diagram

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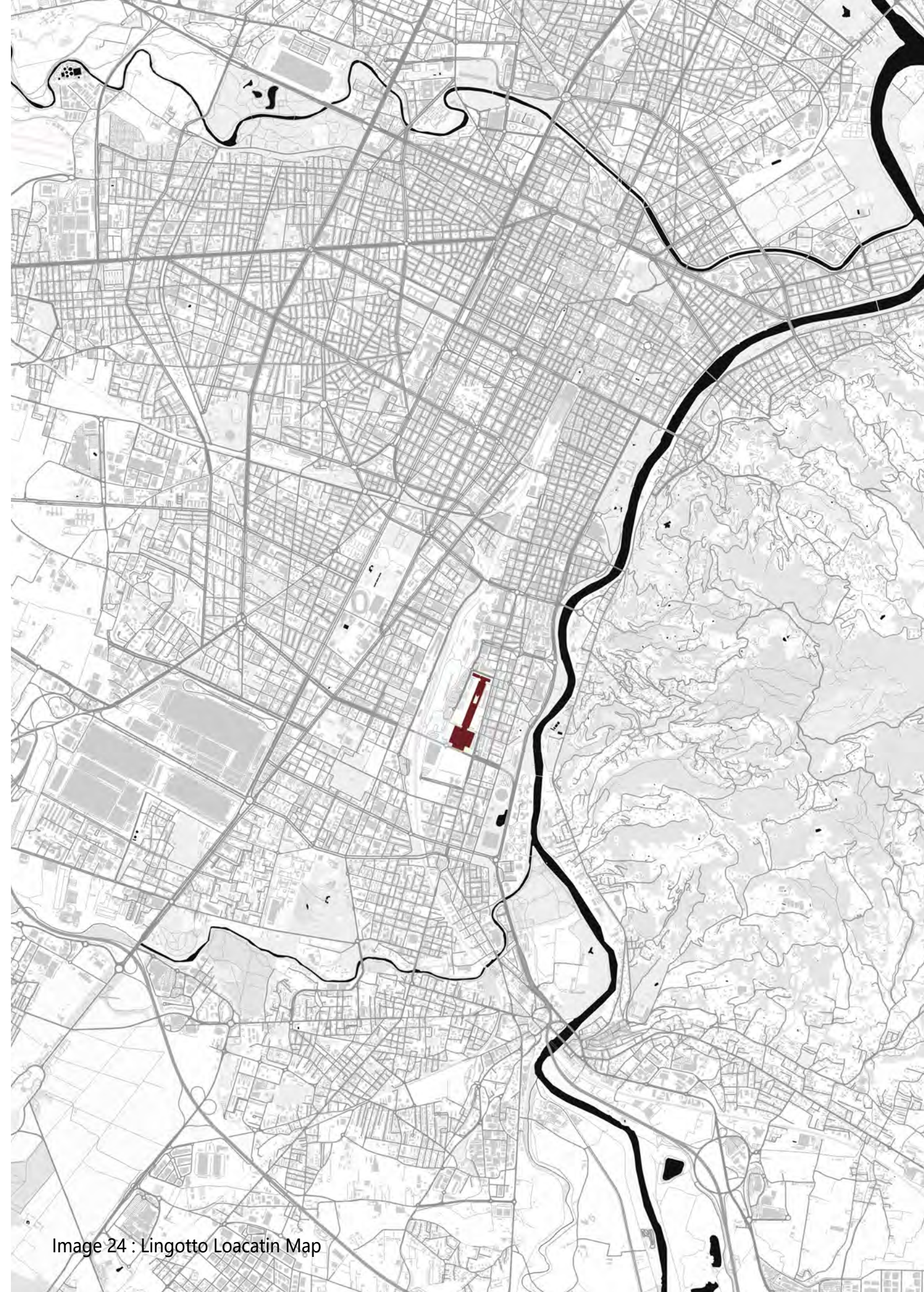


Image 24 : Lingotto Location Map



Image 25 : Lingotto Rooftop Test Track



Image 26 : Lingotto Rooftop Test Track 39



Image 27 : Aerial View of Lingotto



Image 28 : Roof of Lingotto

Due to the downturn of the secondary sector of Turin in the 1970s, the last car that the Lingotto factory produced was the Lancia Delta in the year 1982 and then it was closed down. The transformation of this building was entrusted to the Italian architect Renzo Piano in 1985 (Sasso, 2012). Throughout the redevelopment process, Renzo Piano preserved the original structure while inserting new internal volumes. On the roof, he added the Scrigno art gallery and the Bolla conference room. The Scrigno, a transparent glass volume, now houses the private art gallery Pinacoteca Giovanni e Marella Agnelli. It is connected by a central glass staircase, giving the impression of a levitating object. The Bolla conference room, constructed entirely of spherical glass, floats lightly on the rooftop, evoking strong technological and futuristic qualities.

The original appearance on the facade was preserved to the maximum extent. Long linear interior spaces were converted into an internal commercial street, with an open atrium added to provide commercial and all-season pedestrian access. The railway connected both ends of bridges and provided the northern-southern city network, rejoining the factory into the adjacent urban environment and opening up significantly.

In terms of functionality, the original manufacture of automobiles in the factory was discontinued and substituted by a combination of commercial, hotel, conference, educational, office, and cultural activities turning Lingotto into an integrated cultural-commercial complex (Renzo Piano Building Workshop, n.d.). With a good integration, these programmed volumes were turned into an extremely flexible and interrelated spatial system. The role of public space as a mediatory element between different functions allowed functioning independently and working together.

The process of transformation was undertaken in three steps during twelve years (1991-2003). Every finished part was directly used as soon as they were built but before the whole compound was finished. It started with the opening of the exhibition center in 1992, then the conference center and the auditorium in 1994, the hotel in 1995, the service centre and various office complexes and a total commercial zone in 2002 and another hotel in 2003. The office building was reoccupied by the administration of FIAT in 1997. In the year 2002, the headquarters of the Polytechnic University of Turin automobile engineering department and the art gallery were completed (Renzo Piano Building Workshop, n.d.).

Social and Spatial Impact:

The Lingot factory is not merely an industrial building. In the mid-20th century, approximately one-third of the population of Turin had some direct or indirect connection with Fiat. As the core production base of Fiat, Lingot carries the collective memory and identity of the city (Power, n.d.). The transformation introduced new programmatic



Image 29 : Aerial view of Lingotto



Image 30 : Roof of Lingotto

elements, including conference centers, commercial spaces and educational facilities. Through these new functions, the spatial and functional attributes of Lingotto were gradually updated. Its accessibility and urban connectivity were also improved through metro lines, pedestrian bridges and bus routes. In this process, the reactivation of Lingotto stimulated the development of surrounding areas in some way.

In this context, Lingotto's transformation reveals cultural and social significance that goes beyond physical transformation gradually. Douglas (2006) claims that architectural transformation is not only about formal continuity but must be used as an intervening mechanism of urban identity and urban memory. Lingotto has a dual sustainability in terms of social and space as it enables the presence of old buildings together with the modern uses. This strategy of preserve + transformation ensures that the historical structures remain relevant in the modern-day society, being the carrier of culture and urban memory.

Critical Reflections:

For a building of Lingotto's monumental scale, nearly a century old and embedded with public memory, preserving its original structure and façades is the most appropriate way to respect history. Only by strategically inserting new functional volumes into such massive industrial interiors can the space be activated and its use transformed.

Even though it is well regarded as a symbol of post-industrial spatial transformation, the project of Lingotto is still contentious in terms of social accessibility and spatial inclusiveness. The launch of high-end commercial services, conference spaces, and university amenities has surely boosted regional economic development, however, all its advantages have not reached the population of the locality. Re-development did not involve significant community infrastructure nor development of the space open to the people, but rather capital and consumption was served by urban space instead of the bottom-up socio-cultural demands.

For example, The rooftop garden, which could have served as a public asset, became a paid facility, limiting openness and reinforcing the tension between public interest and market-oriented redevelopment. Turin like a lot of cities, The original factory was once a symbol of working-class collective identity, but the project's "high-consumption scenography" tends to dilute this historical role. The new functions have weak connections to everyday life for ordinary citizens, turning an emotionally significant industrial site into a consumption-oriented space catering to specific social groups.

As Sharon Zukin (1995) argues, The cultural driven process of urban growth can also be used to hide social stratification as the working-class industrial areas are converted into performative consumption landscapes where the middle class users and tourists use them instead of the real shared public spaces.

Moreover, Lingotto has created an almost self-contained enclave-like complex due to its massive building mass and very functional interior. Even when metro lines and pedestrian bridges are used to connect the site to the city, the absence of real open interfaces limits street-level permeability and exchange. Accessibility is diminished because the metro is not well connected to the building, as one example. They have thus been condemned as an island-like development model.

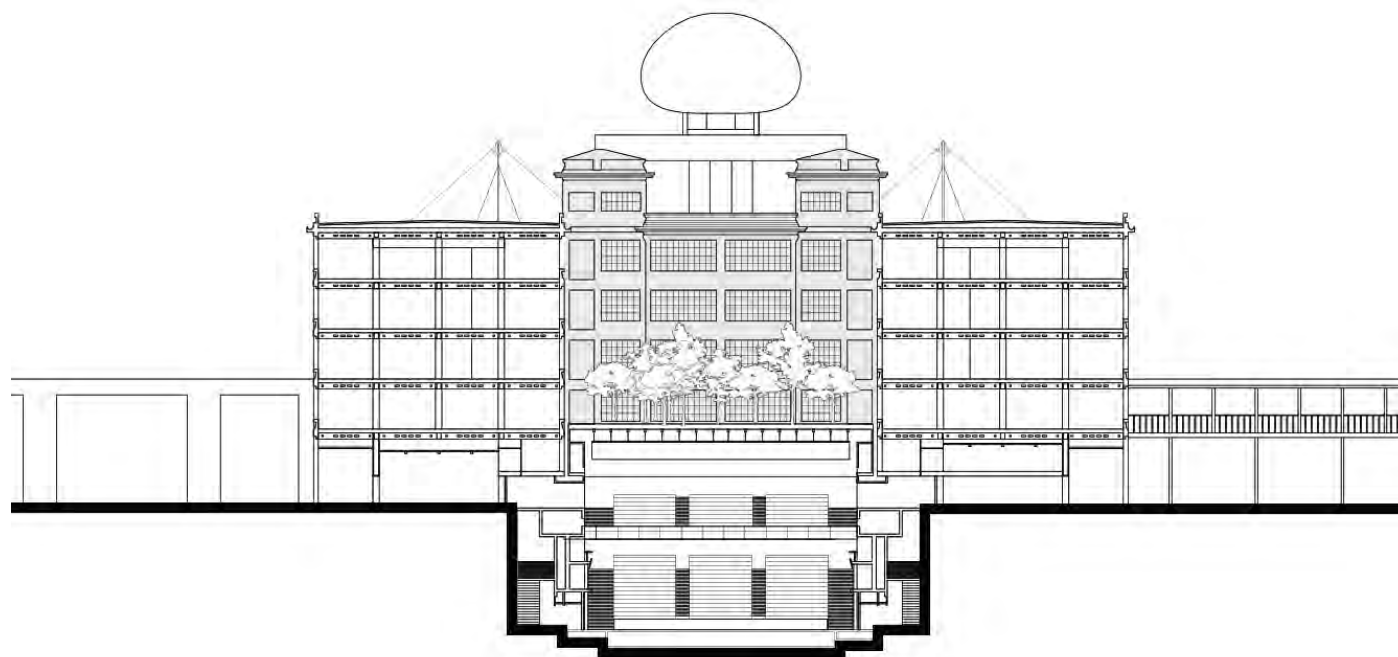


Image 31 : Lingotto Section/ Redrawn by Author

4. Guangzhou's Post-Industrial Transformation

The post-industrial transformation in Guangzhou is not a simple linear stage evolution, but rather a complex spatial practice embedded within the unique land system changes and the rapid urbanization process in China. Before entering the post-industrial transformation, the urban spatial evolution in Guangzhou followed a institutional path that gradually transitioned from "state directives" to "market mix". From 1949 to 1978, under the industrialization strategy led by the state, the urban spatial logic was deeply shaped into a unit-based structure (danwei-based structure) prioritizing production (Lu & McCarthy, 2008). Large-scale heavy industrial facilities such as the Guangzhou Paper Mill (1953) and the Guangzhou Iron and Steel Factory (1958) not only occupied the core waterfront areas of the city but also formed a social spatial texture with a high degree of integration of production and life, and a strong inward orientation, through an integrated organizational model of "factory - dormitory".

With the opening of reform and opening up in 1978, Guangzhou, as an important experimental field for opening up to the outside world, its industrialization process entered the second stage characterized by the introduction of foreign capital and technological upgrading. The establishment of the Pearl River Beer Factory (1985) marked the transformation of the urban industrial space from a "unit society" to a "functional rationalism" oriented by efficiency and standardization: the emergence of standardized production processes and large-span factories gradually separated industrial production from daily life and embedded Guangzhou into the logistics and division system of global manufacturing, while reshaping the physical landscape along the Pearl River. However, after the 1990s, with the acceleration of the urbanization process, the rapid increase in differential land rent in the central urban area and the intense industrial production between 1990 and 2000 increasingly highlighted the structural contradiction between them, and the traditional industrial waterfront gradually became a spatial barrier restricting the upgrading of urban functions (Xu et al., 2005).

Against this backdrop, the industrial transformation in Guangzhou began to shift from a simple industrial adjustment to a stage of spatial redevelopment guided by spatial transformation. From the early days of reform and opening up when the industrial belt along the Pearl River was formed based on the river system and industrial development drove urban expansion, to the relocation of industries in the central urban area and the restructuring of the industrial structure, and then to the institutionalization of the "three old renovation" policy, Guangzhou gradually completed a structural transformation from "the withdrawal of production functions" to "the rediscovery of spatial value" (Fu et al., 2017). This transformation process not only promoted the revitalization and reuse of existing urban spaces, but also redefined the role of



Image 32 : Guangzhou Historial photo / Guangzhou Museum



Image 33 : Guangzhou Historial Photo / Guangzhou Museum



Image 34 : Guangzhou Historial Photo / Guangzhou Museum

industrial heritage in contemporary urban economy, laying the institutional and spatial foundation for subsequent "retirement of secondary industries and entry of tertiary industries" industrial substitution and the spatial transformation oriented towards culture and creativity in the post-industrial era.

4.1 Early Spontaneous Transformation under Market Mechanisms (1992-2009)

In 1992, Guangzhou formally proposed the development of "Guangzhou's New City Center—Zhujiang New Town," gradually shifting the city's development axis eastward. This phase saw the emergence of early spontaneous cases of old factory transformation. Xinyi International Club stands as a quintessential example of Guangzhou's early industrial renewal practices. Originally the Guangdong Water Conservancy and Hydropower Plant built in the 1960s, the project commenced its transformation around 2003. Driven by market forces and spearheaded by a group of local architects, it was not a government-led planned transformation initiative. Instead, it evolved as a spontaneous transformation practice grounded in a design ethic of "respecting the relics" (Bai & Zhang, 2010). The design team rejected the then-prevalent "tear-down-and-rebuild" approach. While preserving the Soviet-style red brick structure, original industrial components, and existing spatial dimensions, they prioritized the conservation of ancient banyan trees that had coexisted with the buildings for decades. This integration of industrial relics and natural elements collectively defines the site's identity.

In terms of space, the structural reinforcing of the steel and the addition of floor-to-ceiling expansive glass were the interventions made, which turned the old-fashioned and heavy shell of an industrial building into an open and clear modern environment of creativity. In terms of function, the project transformed the former one-function production area into a multifunctional area serving creative industries and a high-quality service. It managed to reuse and operate sustainably the industrial building by providing it with different uses such as offices, exhibitions, cultural facilities, and commercial facilities (Bai & Zhang, 2010). On the whole, Xinyi Hall proves that industrial architecture can serve as a landscape element and as a business opportunity when subjected to careful design intervention. It is also a landmark in the history of industrial site transformation in the city of Guangzhou, and it illustrates the early development of industry heritage conservation consciousness there.

Similarly driven by market forces, Redtory emerged as a spontaneous transformation practice shaped by artistic communities and clusters of the creative industry. Its predecessor, the Eagle Gold Canned Food Factory built in the 1950s, once operated as one of China's largest canned food production bases. Around 2009,



Image 35 : Guangzhou Historical Photo / Guangzhou Museum

following the cessation of industrial production and shifts in land-use orientation, market mechanisms initiated the site' s transformation, gradually transforming it into a cultural district centred on contemporary art and creative industries. Unlike transformation models primarily oriented toward functional replacement or commercial redevelopment, Redtory' s transformation path is distinctly characterized by "artistic intervention." At the spatial level, the project maximized the preservation of industrial relics, including rusted pipelines, abandoned machinery, exposed concrete structures, and remaining political slogans. Through this approach, original production spaces were re-coded into narrative-based "industrial landscapes" with a museum-like spatial expression (Fan & Xu, 2015). In terms of function, the project is mainly organized around galleries, art studios, design brand showrooms and cultural events. Redtory also creates an immersive historical atmosphere, which helps attract artistic communities and fashion-related industries. In this process, the former industrial space is gradually turned from a site of production into a place for cultural consumption. Industrial memory is no longer only preserved as a historical trace. It is also transformed into a visible and consumable form of urban cultural symbolism.

4.2 The Institutional Turn of Urban Transformation under Government-Led Mechanisms (2010–present) (Wu, 2015)

Entering the twenty-first century, and under the national strategy of "replacing secondary industries with tertiary industries," Guangzhou accelerated the functional restructuring of former industrial zones and port areas. During this period, spatial transformation gradually shifted from earlier case-by-case experimentation toward a more institutionalized framework. In 2008, the China Import and Export Fair Complex was fully relocated to its new site in Pazhou, along the eastward expansion axis of Guangzhou. This relocation changed the spatial distribution of national level exhibition and convention functions in the city. In practice, it also helped Guangzhou' s service sector space move away from a single center structure and gradually develop toward a multi core pattern. The 2010 Asian Games further accelerated the city' s broader industrial transition. In February of the same year, Guangzhou formally established the Office for the Transformation of Old Urban Areas, Old Factories, and Old Villages. Through this institution, the transformation of these urban spaces began to be coordinated in a more systematic and institutionalized way. This development marked Guangzhou' s entry into a policy-driven and sustained phase of spatial transformation (Shin, 2014).

Following the establishment of this institutional framework, the transformation of industrial heritage gradually moved away from earlier spontaneous practices driven primarily by market forces or artistic communities, and toward an implementation pathway guided by policy-oriented industrial restructuring and functional



Image 36 : Xinyi Hall / Guangzhou Official Wechat Account



Image 37 : Redtory / Guangzhou Official Wechat Account

optimization. T.I.T Creative Park stands as a representative case of this institutional shift under the strategy of “Retreat from Secondary Industry, Advance into Tertiary Industry” policy. Preserving the original spatial structure and industrial texture of the former Guangzhou Textile Machinery Factory, the project employed a micro-renovation strategy of “restoring old structures to their original state and constructing new ones in keeping with the past.” This approach revitalized underutilized industrial land while simultaneously transforming the space and industry through the introduction of high-value-added sectors (Xie & Chu, 2014). Through the reimagining of traditional factory spaces, the park has progressively upgraded from manufacturing to clusters of creative industries and technological innovation, forming a composite industrial ecosystem characterized by “fashion + technology.” This model transcends mere preservation of industrial heritage, instead pursuing the maximization of land value and output efficiency within the institutional framework.

The Taikoo Wharf project, launched in 2008, is an alternate transformation route of port industrial heritage into institutionalized spatial transformation. The wharf was built in 1904 by the Swire Steamship Company, a British company, being a key center of storage and logistics of the old Guangzhou Port. In a sense of the reconstruction policy of the Three Olds, the project was based on a concept of total functional replacement. On the basis of the Guangzhou Municipal Government, with the involvement of market forces, the once-private space of port production has been systematically converted into publicly-oriented commercial, cultural, and entertainment facilities. During the transformation process, eight red brick warehouses were classified under a strategy of one warehouse, one function incorporating cinemas, dining and specialty retails. At the same time, the port artifacts such as cranes, wharves and the waterfront shoreline were kept intact, which produced uniform public waterfront interface (Chen, 2011). Hence, Taikoo Hui completed its transformation as a logistic centre into a consumer point. It took advantage of its riverfront setting and industrial heritage attributes to reinvigorate the night economy in the western part of Haizhu District. The transformation of Taikoo Wharf is mainly based on complete functional replacement and an approach oriented toward consumption. The industrial heritage of the port is mostly kept in the form of landscapes and symbolic elements. Its original production system and spatial logic were not really continued. Instead, the site was reorganized around commercial and leisure functions. This model helps increase public accessibility and regional vitality. It also shows a common tendency in institutionalized spatial transformation, in which industrial heritage is preserved visually but gradually loses its original productive function.

Launched the same year, the Yangcheng Creative Industry Park exemplifies another approach in Guangzhou's institutionalized



52 Image 38 : Taikoo Wharf / Guangzhou Official

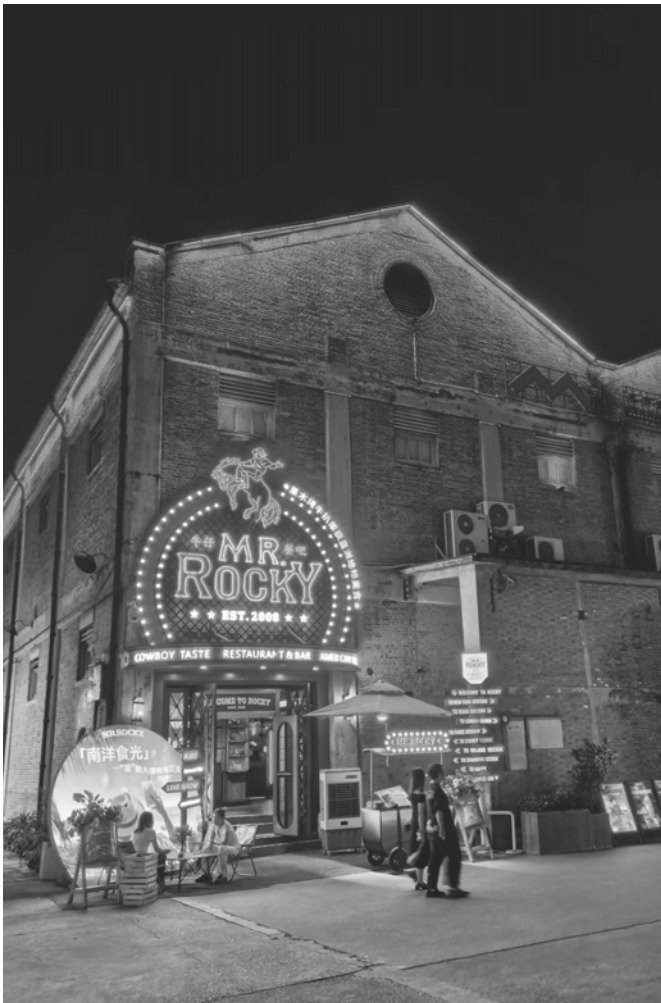


Image 39 : Taikoo Wharf /Guangzhou Official



Image 40 : Yangcheng Creative Industry Park
Guangzhou Official Wechat Account

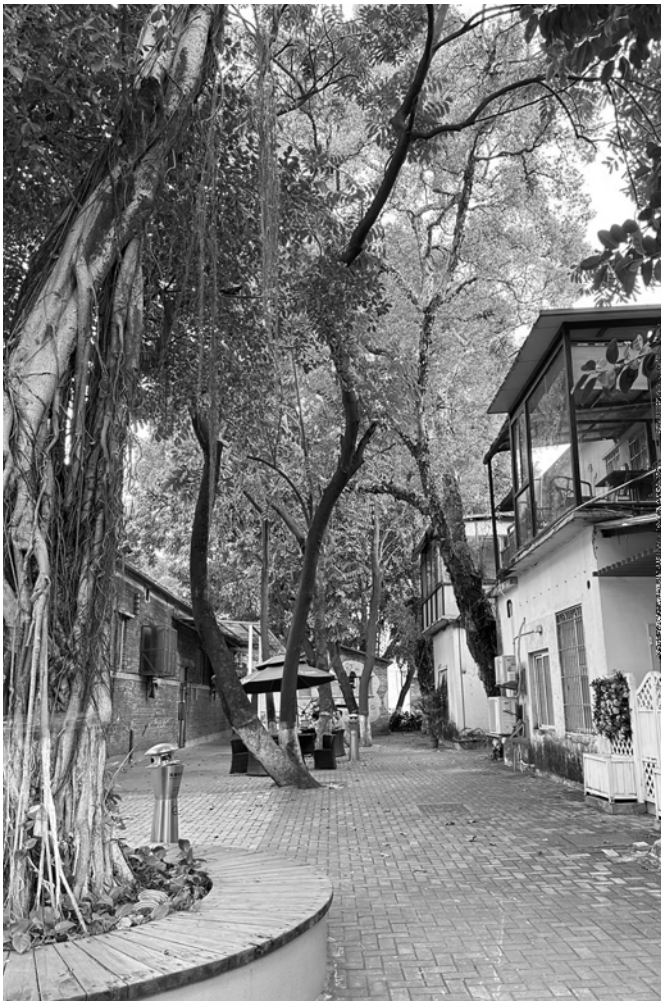


Image41 : Yangcheng Creative Industry Park
Guangzhou Official Wechat Account

spatial transformation phase, driving the transformation of traditional industrial land into creative and service industries. Originally built in the mid-20th century as the Guangzhou Chemical Fiber Factory, it once served as a vital production base within Guangzhou's light industrial system. Under the "Three Olds" renovation policy framework, the project achieved a functional shift from industrial production space to a creative and service-oriented industrial park through the combined forces of government planning guidance and market operations. During the transformation, the park preserved the original factory layout while systematically transforming the previously scattered and inefficient industrial buildings into an industrial space dominated by cultural creativity, design services, and media offices through functional reorganization and business model introduction(Chen, 2016). Large-scale factory buildings were gradually converted into office and exhibition spaces, which provided space for new business models such as digital audio, live streaming and cross-media operations. In this way, Yangcheng Creative Industrial Park moved from traditional manufacturing land toward a high-value-added service hub. This case reflects a typical pathway of industrial land reuse under institutionalized transformation. Its transformation was mainly achieved through functional replacement and industry-driven revitalization. Compared with the transformation of port-type industrial heritage that mainly focuses on consumption and leisure functions, Yangcheng Creative Industrial Park places greater emphasis on industrial capacity and functional efficiency. The users of the space in this park exhibit a distinct internalization characteristic. On the basis of continuing the original organizational logic of industrial land, the park has mainly transformed industrial buildings into industrial carriers for creativity and service industries. This model effectively improves land utilization efficiency and the level of industrial agglomeration.

In the industrial heritage transformation practices of Guangzhou, the Xinyi Guild Hall, Hongzhuan Factory, T.I.T Creative Park, Taikoo Cang Wharf and Yangcheng Creative Industrial Park jointly constitute a diversified industrial heritage transformation path from spontaneous exploration to institutional dominance. Although each case has differences in the transformation motivation, functional orientation and spatial strategy, their common feature lies in that the original industrial buildings no longer exist as single production facilities but are re-integrated into the logic of urban development, becoming important spatial carriers that carry new functions and new identities. Whether in early practices centered on design intervention and the spirit of place, or in later institutionalized transformation processes dominated by industrial or consumption-oriented logics under the framework of "Three Olds" redevelopment, industrial heritage has consistently undergone a reconfiguration of social meaning through functional reorganization, thereby being re-integrated into the urban system.



Image 42 : Aerial View of Guangzhou

4.3 Case Study

TIT Creative Park

Guangzhou T.I.T Creative Park is located at No. 397 Xingang Middle Road, Haizhu District, Guangzhou. Situated in the core area of the southern section of the city's central axis, linking the Tianhe Sports Center, the Guangzhou CBD, and the Canton Tower. It occupies a land area of approximately 75,000 square meters with a total floor area of about 45,000 square meters (Hu, 2010). Originally established in 1956 as the "Guangzhou Textile Machinery Factory," the park traces its origins to the merger of seven private machinery factories. It served as an important light industrial production base in South China and its historical output value reached 44.72 million yuan in 1993. The factory can be seen as one of Guangzhou's representative industrial sites from the period of industrialization-driven development. During the planned economy era, it made significant contributions to the development of China's textile industry and also became a landmark spatial carrier of Guangzhou's industrialization process.

In the early 1990s, textile machinery factory began to experience operational problems as a result of globalization of manufacturing operations. The annual output value was reduced to a little over 10 million yuan and the industry finally ceased to produce in 2000. Since its introduction in 2007, Guangzhou has led the implementation of the policy pilot known as the Secondary Industry Exit and Tertiary Industry Entry, which aimed at setting strategic objectives to speed up the process of withdrawing secondary industries out of the central city and encourage tertiary industries, especially high-value-added services (Xie & Chu, 2014). In these initiatives, the The T.I.T Creative Park is a quintessential case study in the implementation of this policy framework.

In 2007, Guangzhou Light Industry Group initiated an spatial transformation plan. Its subsidiary, Xinshicheng Company, invested over 200 million yuan to redevelop the original factory site through industrial restructuring and building micro-renovation. This aimed to revitalize underutilized urban land by "preserving through use." While preserving the industrial memory, the project adopts a micro-reconstruction renewal strategy centered on "restoring as it was, building anew as it was". Among this, "restoring as it was" emphasizes the selection of new materials with similar physical properties to the original ones during the transformation process, in order to maximize the historical authenticity and overall appearance of the building (Zhong et al., 2024).

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Image 43 : Guangzhou Location Map



Image 44 : TIT Creative Park



Image 45 : TIT Creative Park 57

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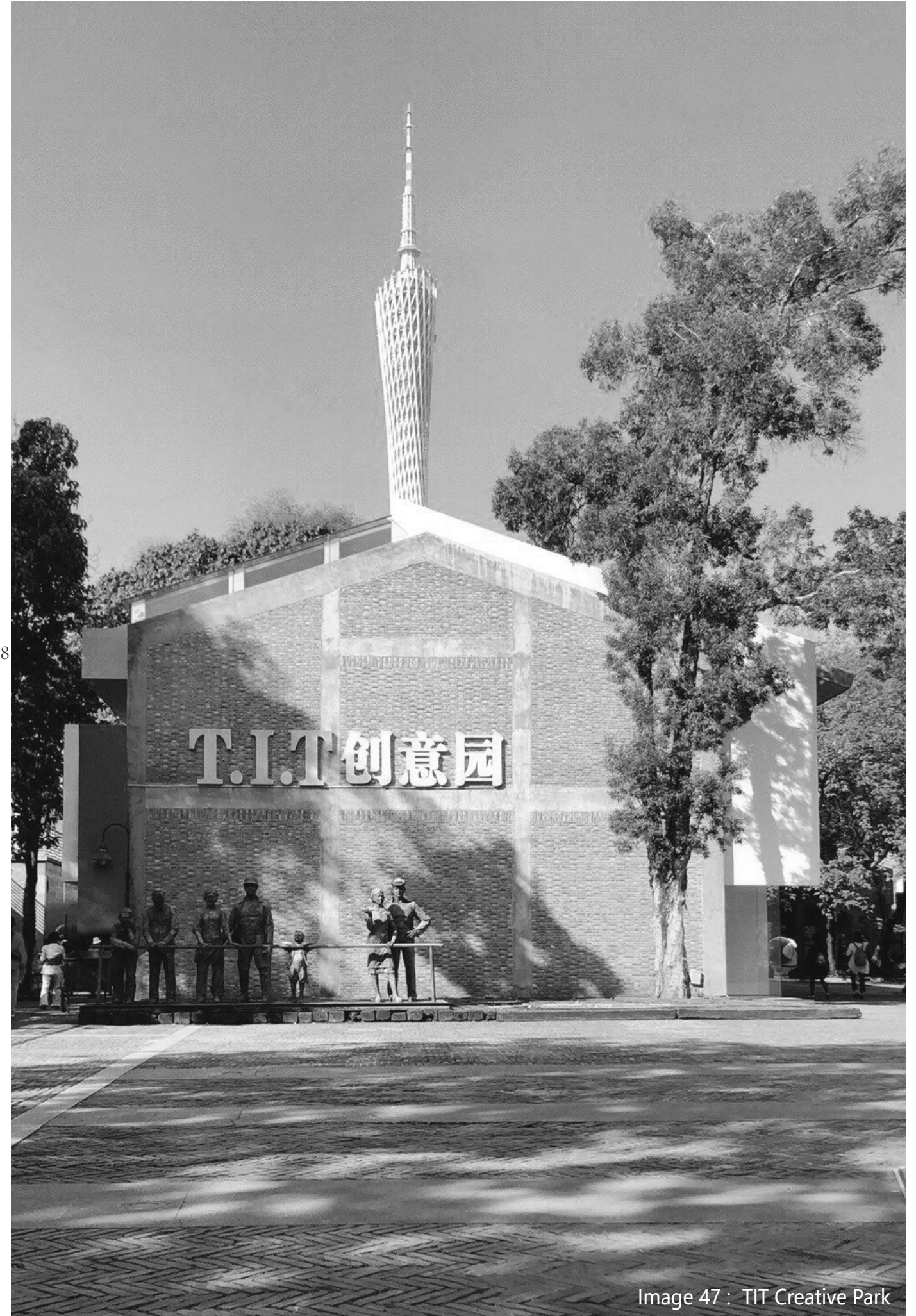


Image 47 : TIT Creative Park

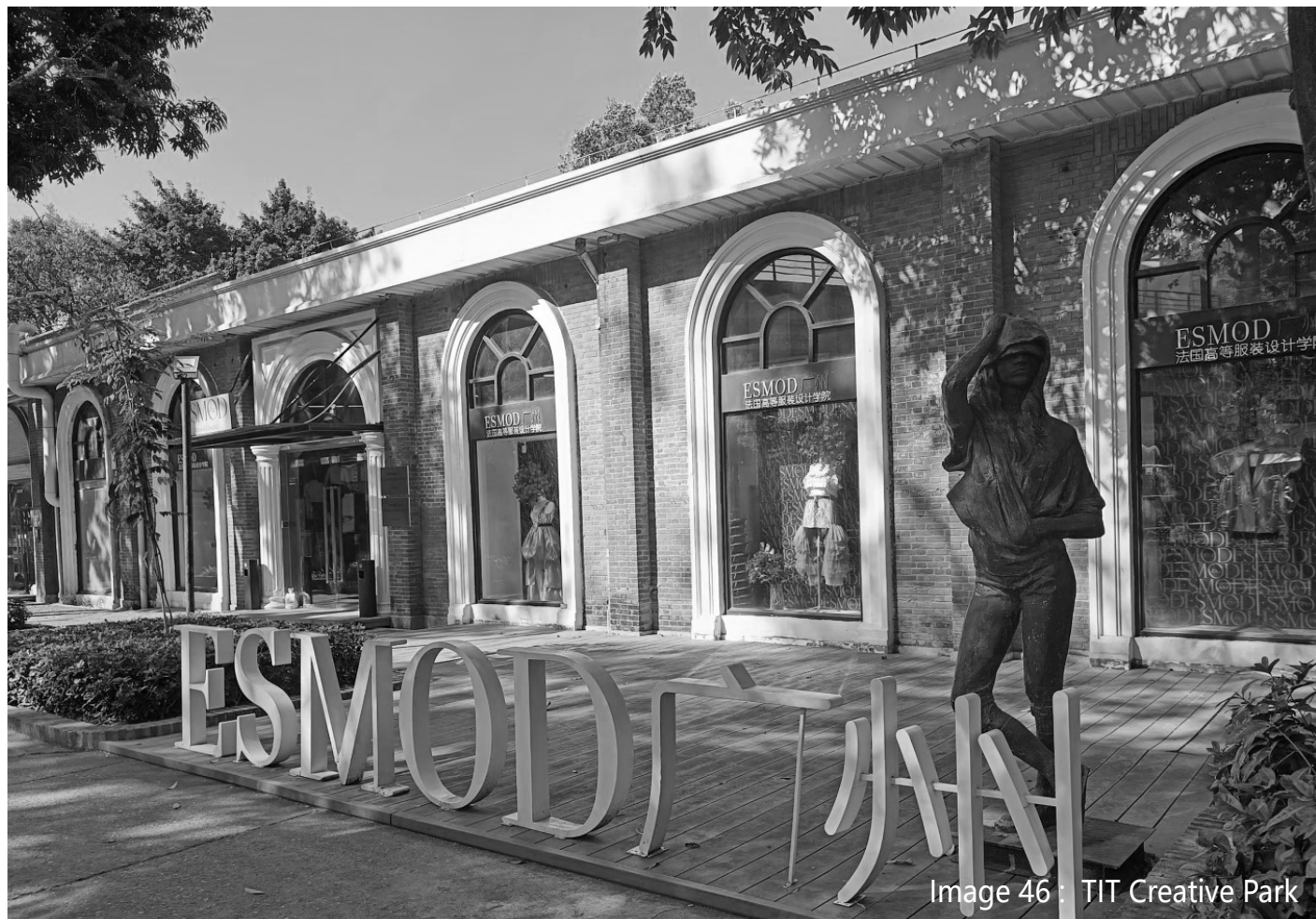


Image 46 : TIT Creative Park

The project preserved approximately 80% of the original buildings, including six structures listed in Guangzhou's seventh batch of historic buildings and one traditional architectural landmark. During the renovation, the team Atelier cnS adhered to the principle of "minimal intervention and limited demolition," trying to reduce disturbance to the existing structures as much as possible. Structural reinforcement and functional reorganization were used to improve the safety and usability of the buildings. At the same time, the historical fabric of the site was largely maintained. This approach helped avoid the cultural rupture that could be caused by large-scale demolition and reconstruction. It also allowed the historical legacy of the site to continue within the transformed spatial setting.

Actually, the renovation team had not utilized an identical plan. The different restoration schemes were formulated depending on the structural state and historical worth of every building. Different industrial items (red brick buildings, Suzhou- style buildings, old metal trusses, and skylights) were carefully restored and preserved. Cleaning, patching and reinforcing the exterior walls had little renovation done as the original look was restored maintaining the temporal feel of the walls and visual memory of the structures. At the same time, the project incorporated contemporary construction methods that included embedded steel support system and new floor slabs to improve load bearing capacity and space flexibility. Such a solution brought about organic integration between the historic fabric of a building and the new functional demands placed upon it.

Additionally, to preserve the spirit of the site and its industrial history, the park has intentionally maintained and repurposed equipment of the initial textile mill. These are now turned into landscape art pieces or points of exhibitions not just because they are landmarks but also bear bearers of historical messages. In some of the roofing rehabilitation works undertaken, this project would go at great lengths to procure similar style old roof tiles elsewhere within the country so as to match the results of restoration with those of the old appearance. The total renovation cost was more than 200 million RMB, which is extremely high compared with new constructed facilities of the same scale. In the course of refurbishment, the project did not alter any of the tree resources on the site itself but rather allocated some of the open spaces as recreation areas and other access points to green spaces. It did not only enhance the general office ambiance but also allowed the conversion of what used to be a closed industrial park to an open space which can be accessed by the general population thereby creating a garden type creative office setting which suits the climate characteristics in Lingnan. There are currently more than 40 large trees and 39 Huanghuali trees preserved in the park, and each has been registered into individual 1 tree 1 folder files with money designated to take care of the tree. Ancient tree records may be managed digitally thanks to digital QR code identity

TIT Creative Park Development

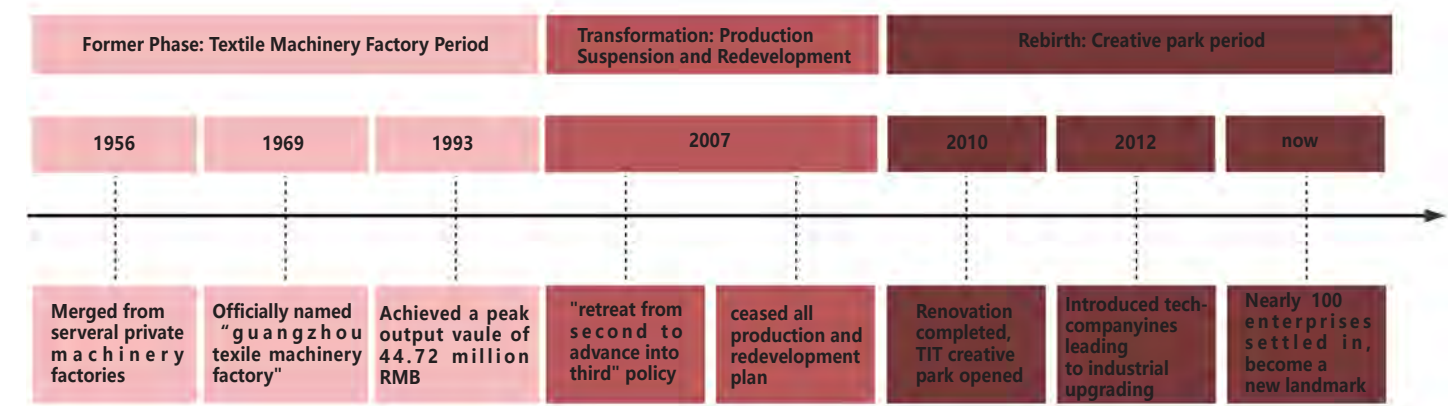


Image 48 : TIT Creative Park Development



59 60 Image 49 : TIT Before Redevelopment / Guangzhou Government



Image 50 : TIT After Redevelopment

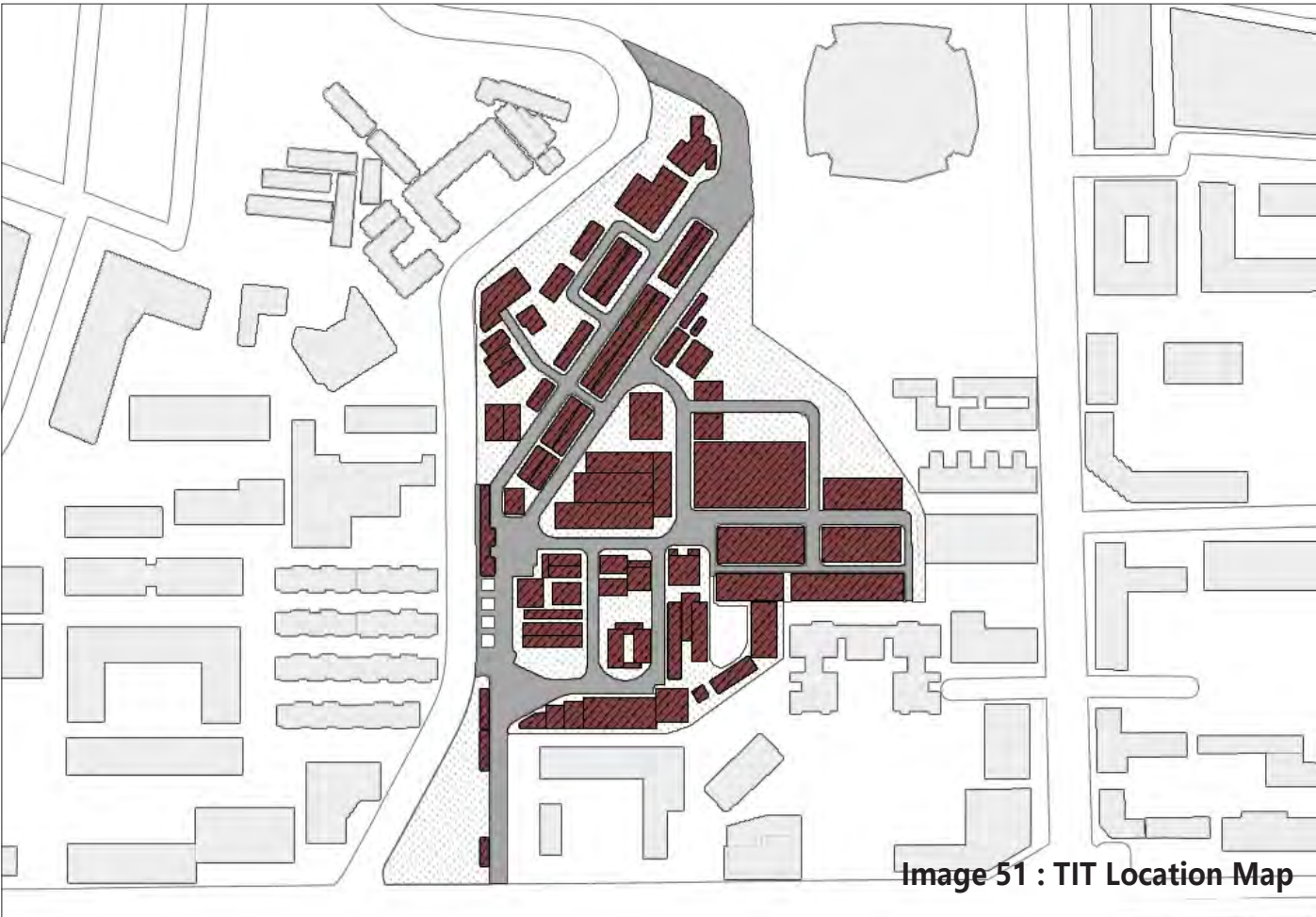


Image 51 : TIT Location Map

cards (Guangzhou Municipal People' s Government, 2019) After the renovation, the site has a floor area ratio of about 0.5 and 80 per cent greening, which shows that the ecological value and the redevelopment of industry are well integrated in terms of practice. In terms of functional layout and spatial reorganization, T.I.T Creative Park systematically restructured the spatial framework and property uses while respecting the original industrial texture. The entire area is divided into six functional zones: Creative District, Design District, Fashion Presentation Zone, Brand Headquarters, Fashion Leisure District, and Service Support Area. Through this process, the site gradually developed into a composite creative industry platform centered on apparel innovation. It integrates functions such as information dissemination, product display, business networking and leisure experiences. In the design process, the arrangement of functions was related to the specific conditions of each building. Some buildings had larger scales, while others had better natural lighting. Based on these differences, offices, exhibition spaces, cultural event venues and dining facilities were organized into different spatial modules. Through this strategy, traditional factory spaces underwent a process of functional "reprogramming." Former machinery workshops were converted into open-plan offices and exhibition halls, supplemented by low-impact design interventions such as glass curtain walls and courtyard greenery. In this way, the industrial aesthetic was retained while spatial vitality and functional flexibility were effectively enhanced.

Following the completion of functional restructuring and spatial transformation, the industrial ecosystem of the park gradually expanded from a single creative service orientation into a more diversified and composite business structure, revealing a clearly traceable development trajectory. The current multifaceted industrial ecosystem of T.I.T Creative Park did not emerge instantaneously, but rather evolved through a series of successive stages. During the initial renovation phase, which culminated in the park' s official opening in 2010, "fashion and creativity" were established as the core development theme. The operational team strategically drew upon the textile industry heritage embedded in the former factory buildings, directing investment along a "textiles–apparel–creativity" pathway. This approach attracted fashion-oriented enterprises, especially those related to apparel design and brand incubation. A relatively complete textile and apparel industry chain formed around these activities gradually. The transformation also increased industrial value-added and supported the upgrading of Guangzhou' s traditional textile and apparel sector. Some local designer brands, such as Deng Zhaoping, were incubated through this process. The park later became a venue for several high-profile fashion launches and exhibitions, including the T-Force International Original Design Master Competition. By inviting French designers and fashion professionals to participate, these events facilitated the integration of Guangzhou' s fashion design industry into international networks and supported its increasing global

orientation (Xie & Chu, 2014). Building on this foundation, the park further expanded into high-end service sectors including creative design, R&D education, exhibition trade, and modern logistics, forming a multi-dimensional Building upon this initial foundation, the park subsequently extended its development toward high-end service sectors, including creative design, research and development education, exhibition trade, and modern logistics, thereby forming a multidimensional industrial network structured around the fashion industry. With the continued implementation of the "Science and Technology Powerhouse" strategy, the park has, since 2012, attracted a range of internet and technology-innovation enterprises, including Tencent WeChat Headquarters, YaoShiBang, iFanr, and Nitrogen Space. This influx has accelerated the integration of fashion creativity with digital technology, gradually giving rise to a composite and sustainable innovation cluster characterized by the combination of "fashion + technology." In this sense, T.I.T Creative Park exemplifies an spatial transformation paradigm in which "old factories" are endowed with transformation vitality.

Social and Spatial Impact

From a socio-economic perspective, T.I.T Creative Park has moved beyond the conventional approach of revitalizing land primarily through real estate development and has explored alternative and innovative pathways for the transformation of former industrial areas (Lai, 2010). Through this process, the site has successfully transformed from a traditional textile machinery factory into a high-end creative industry cluster. Since its redevelopment, the park has attracted more than one hundred technology-oriented and creative enterprises, including the Tencent WeChat Headquarters and YaoshiBang, forming a composite industrial ecosystem structured around the integration of "fashion + technology." At present, the park generates an annual output value reaching tens of billions of yuan and has created substantial new employment opportunities, making it a representative case of inefficient land reuse and industrial restructuring under Guangzhou' s policy of "retreat from secondary industry, advance into tertiary industry."

At the same time, by drawing on its historical foundations in the textile industry, the park has developed a multidimensional platform for the dissemination of fashion culture. Through the organization of events such as Guangdong Fashion Week and the Fashion Innovation Forum, it has strengthened collaboration among enterprises within the park while extending its cultural influence beyond the site itself. In this way, T.I.T Creative Park has positioned itself as a benchmark exchange hub for the creative apparel industry within the Guangdong–Hong Kong–Macao Greater Bay Area and at the national scale. From the perspective of industrial transformation, the project has not only realized the revitalization of physical space, but has also demonstrated significant socio-spatial impacts in terms of cultural identity formation, industrial upgrading, and the enhancement of urban social vitality.

Critical Reflections:

The representation of memory can be seen as an embodiment of the collective psyche and as a physical location where memories are preserved. Besides retaining memories it also resonates emotionally to people in society and identifies with past history. Such representations of industrial heritage revitalization may be accomplished by the organic incorporation of the original elements, including tangible and intangible ones: apart from the building structure, they can be the remnants of production, the scenes of work, industrial objects, and symbolical items, such as slogans and icons. The reworked and new presented elements have new cultural meaning that brings up an association of particular time period of history.

One example would be the transformation of the Guangzhou TIT Creative Park. It has not demolished all the old structures in the course of its renovation. On the contrary, when re-planning the area it consciously retained some of its visual symbols and industrial language of the times, like the previous production motto. The park maintained revolutionary posters, production slogans, and old machinery on original factory facades. With the addition of the worker sculptures and landscaping, it formed a historical and cultural space that is commemorative and immersive. (figure48) Although theses components do not necessarily refer to the existing exhibition or office functionality of the park, they provide a very distinct sense of history in the location and enable the visitors to feel the special spirit and cultural environment of the industrial period, and evoke associations and memories of the industrial age (Xie & Chu, 2014). Therefore, architecture does not only transformation physically; it becomes a container of urban memory and a place of its replication, emphasizing the special worth of the industrial heritage as one of the cultural resources in spatial transformation.

With the arrival of Tencent WeChat Headquarters, T.I.T Creative Park's brand value effect rapidly manifested, attracting more technology and creative enterprises. This not only elevated the park's overall industrial capacity but also strengthened its strategic position within Guangzhou's innovation development landscape. From the outset, the park established "fashion and creativity" as its central development orientation, a positioning that closely corresponded to its historical foundations in the textile industry. By following a development pathway defined by the integration of "apparel and creativity," it facilitated a shift from traditional manufacturing toward higher value-added service-oriented activities. More importantly, in its subsequent stages of development, T.I.T Creative Park demonstrated a capacity for continuous adjustment in response to changing industrial dynamics. Through the deliberate introduction of emerging sectors such as internet-based and digital technologies, the park promoted a deeper convergence between

its original apparel-focused creative industries and new forms of technological innovation. Building on this foundation, the park has progressively expanded toward "smart manufacturing." The park has continued to attract emerging enterprises in digital creativity and e-commerce live streaming. These new activities have further expanded the existing industrial chain. Smart infrastructure has also been introduced in the park, including a digital management platform that helps improve daily operation and service management. At present, the park generates 75 million yuan in annual rental income, and its output value has exceeded 10 billion yuan. Because of this, it has become an important example of old factory renovation in Guangzhou. The park also pays attention to intellectual property protection and cooperation among industry, universities and research institutions. These efforts have strengthened its technological innovation capacity. Gradually, the park has formed a composite and sustainable industrial ecosystem, with "fashion as the foundation, technology as the core, and creativity as the driver." This transformation shows that old industrial spaces can continue to adapt to new industrial demands. It also offers a useful reference for the functional reconstruction of urban old industrial bases.



Image 52 : TIT Landscape Sculpture



Image 53 : TIT Landscape Sculpture



Image 54 : TIT Landscape Sculpture



Image 55 : TIT Landscape Sculpture

5. Comparative Analysis: Convergence, Divergence and Lessons Learned

5.1 Comparison of Design Strategies

Spatial transformation in the post-industrial era should not be understood as a linear process following a single developmental trajectory. Rather, it involves a profound reconfiguration of the relationships among historical memory, spatial resources, and emerging functions within specific socio-economic contexts. The Lingotto Factory in Turin, Italy, and the T.I.T Creative Park in Guangzhou, China, exemplify two distinctly different paradigms of industrial heritage transformation shaped by their respective historical conditions. The transformation of Lingotto unfolded against the backdrop of Italy's industrial restructuring in the late 20th century, reflecting a transformation process closely tied to broader economic and social change. This former Fiat automobile manufacturing base was reborn through re-construction after its closure; while the rise of T.I.T was rooted in the "retreat of secondary industries and advancement of tertiary industries" wave in Guangzhou in the early 21st century.

This narrative traces a clear logical thread from the evolution of collective memory to the utilization of brand value, and to the spatial justice dilemma. The transformation of Lingotto occurred during the Italian industrial transition in the late 20th century. This former Fiat automobile manufacturing base was transformed into a huge "historical exhibition hall", converting the production memory of the industrial era into the backdrop of modern business; while T.I.T's rise precisely continued the original "textile" attribute, seamlessly transforming it into the brand gene of "fashion", achieving a transformation from a textile manufacturing base to a fashion design and exhibition center, and realizing the third industrial upgrade by accommodating Tencent Technology Company. Both cases have endowed industrial heritage with new vitality through the translation of the original brand image and the ingenious utilization of historical resources, achieving the re-creation of contemporary value.

This section will break through the superficial form comparison and start from six dimensions: morphological logic, the relationship between the old and the new, the exploration of boundaries, the reconstruction of natural landscapes, the influence of stakeholders on decision-making, and the evolution of functions. It will deeply analyze the hidden strategic core differences between the two in the specific urban environment and time context. And through this, it will explore the spatial justice dilemma faced by post-industrial buildings transformation from the dual perspectives of economic indicators and social effects.



Image 56 : Lingotto Chronological Line

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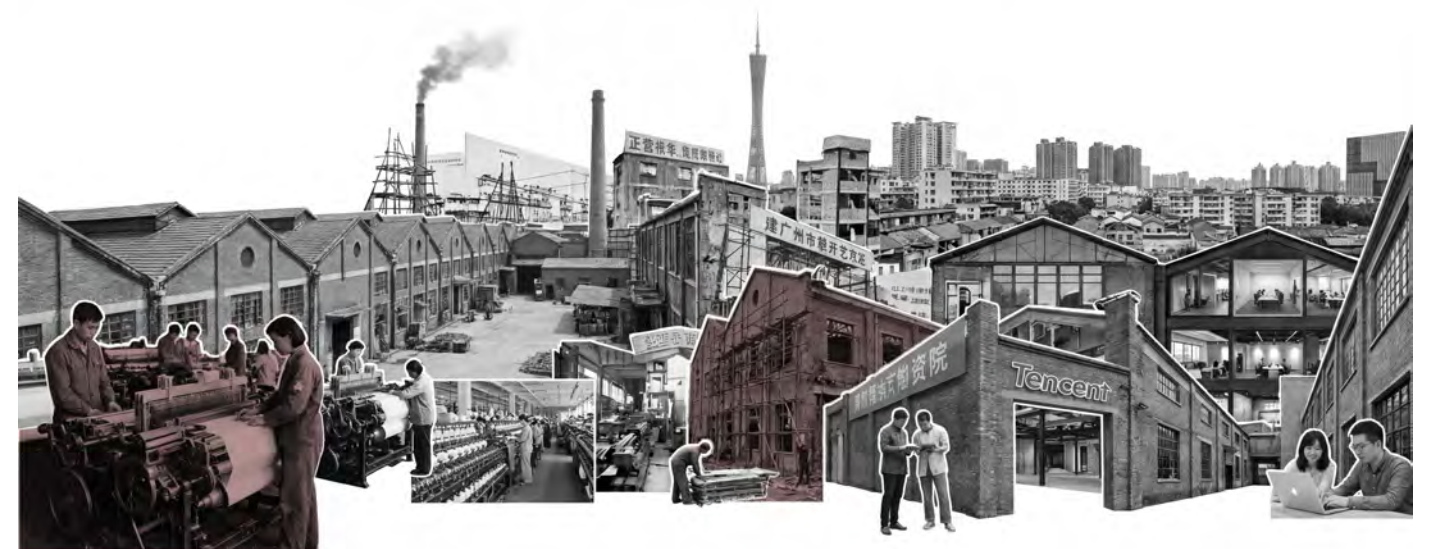


Image 57 : TIT Chronological Line

5.1.1 Morphology: Closed Megastructure vs. Open Community

Lingotto:

Renzo Piano preserved the integrity of the original factory as a unity of space and maintained it as an object of monumental character due to the large volume and linear arrangement. This serves as an "Urban Artifact" in the manner of Aldo Rossi- beyond time, to resist urban chaos with an eternal, towering attitude (Rossi, 1982). While the building as a whole was preserved, the original extremely linear spatial structure was not disrupted due to the functional update. The users were placed in a highly stretched linear space, with their walking direction largely confined to a single axis. The space hardly provided the possibility of lateral expansion or free branching, making it difficult for the users to turn and explore side roads as they would in a traditional street. Instead, the long corridor-style commercial layout continuously guides the movement path through continuous window interfaces and spatial rhythms, allowing people to complete the consumption process from viewing, generating interest, to entering the store along the preset flow line. This spatial organization method weakens exploration and transforms the walking behavior into a circulation path jointly set by architectural design and commercial logic. Previously, this factory was for extracting labor, while the current design is for extracting purchasing power.

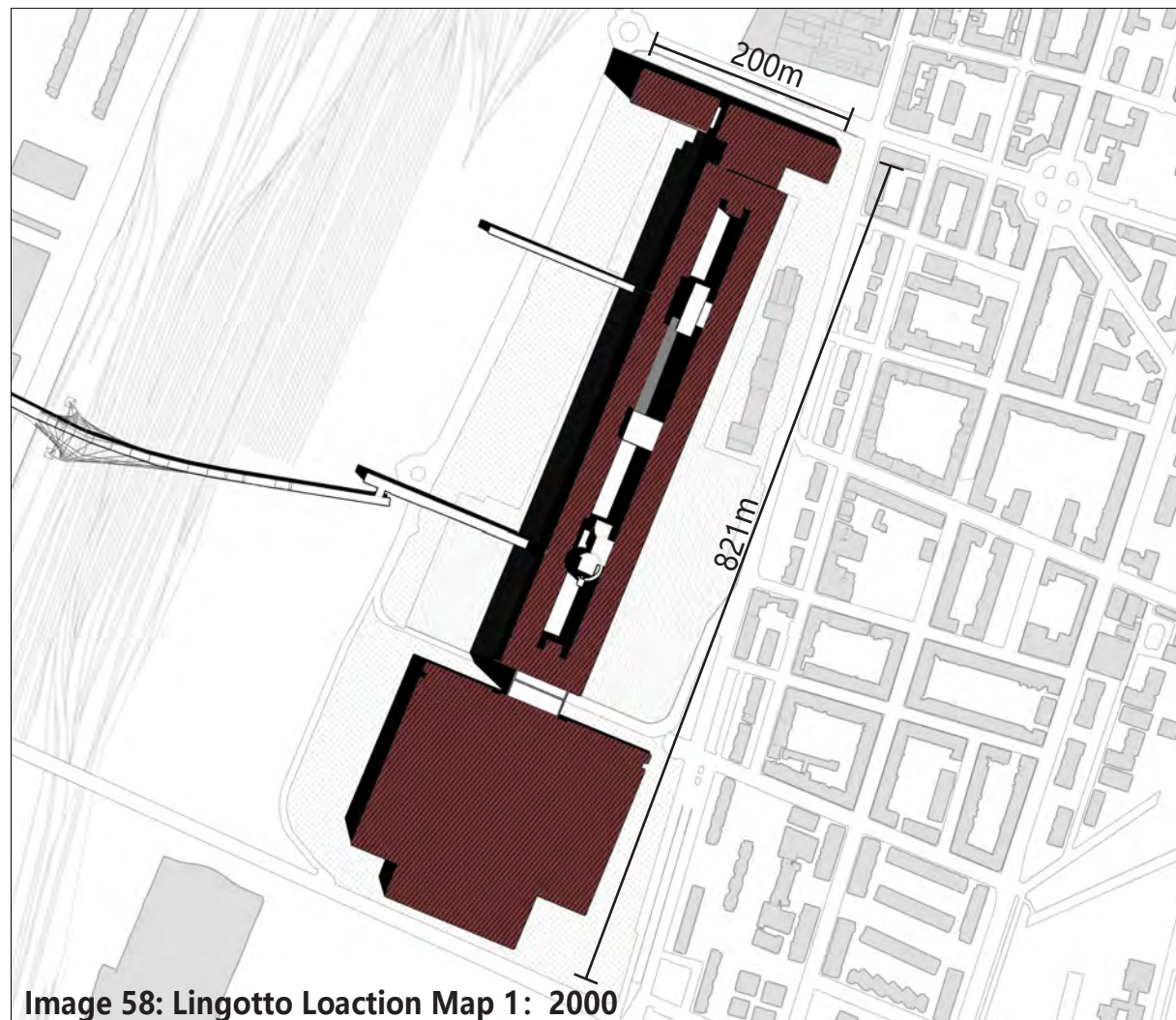


Image 58: Lingotto Location Map 1: 2000

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T.I.T Creative Park:

The renovation of T.I.T Creative Park adopts a collage-style strategy in terms of spatial form. Facing the scattered workshops and warehouses, the project did not attempt to establish a unified spatial order through an integrated design. Instead, it followed the village-like texture formed by the original industrial land and continued it as the basic structure for the renovation. Through minor interventions and low-density methods, the original fences were removed and internal space passages were connected, gradually transforming the originally enclosed factory area into a porous, horizontally expanding wandering network.

From a morphological perspective, this renovation does not rely on volume integration or scale expansion to shape the overall image. Instead, it adopts a disassembling approach to architectural volumes. By demolishing the dangerous factories and continuing the scale and volume of the surrounding buildings in the new part, the updated space maintains good continuity. The buildings are interconnected through open spaces, pedestrian paths, and landscape nodes, forming a non-linear, non-centered spatial structure. The park lacks a clear main axis or visual center. Instead, it adopts a multi-path, multi-node spatial organization method, guiding users to continuously enter new spatial scenes during their walking.

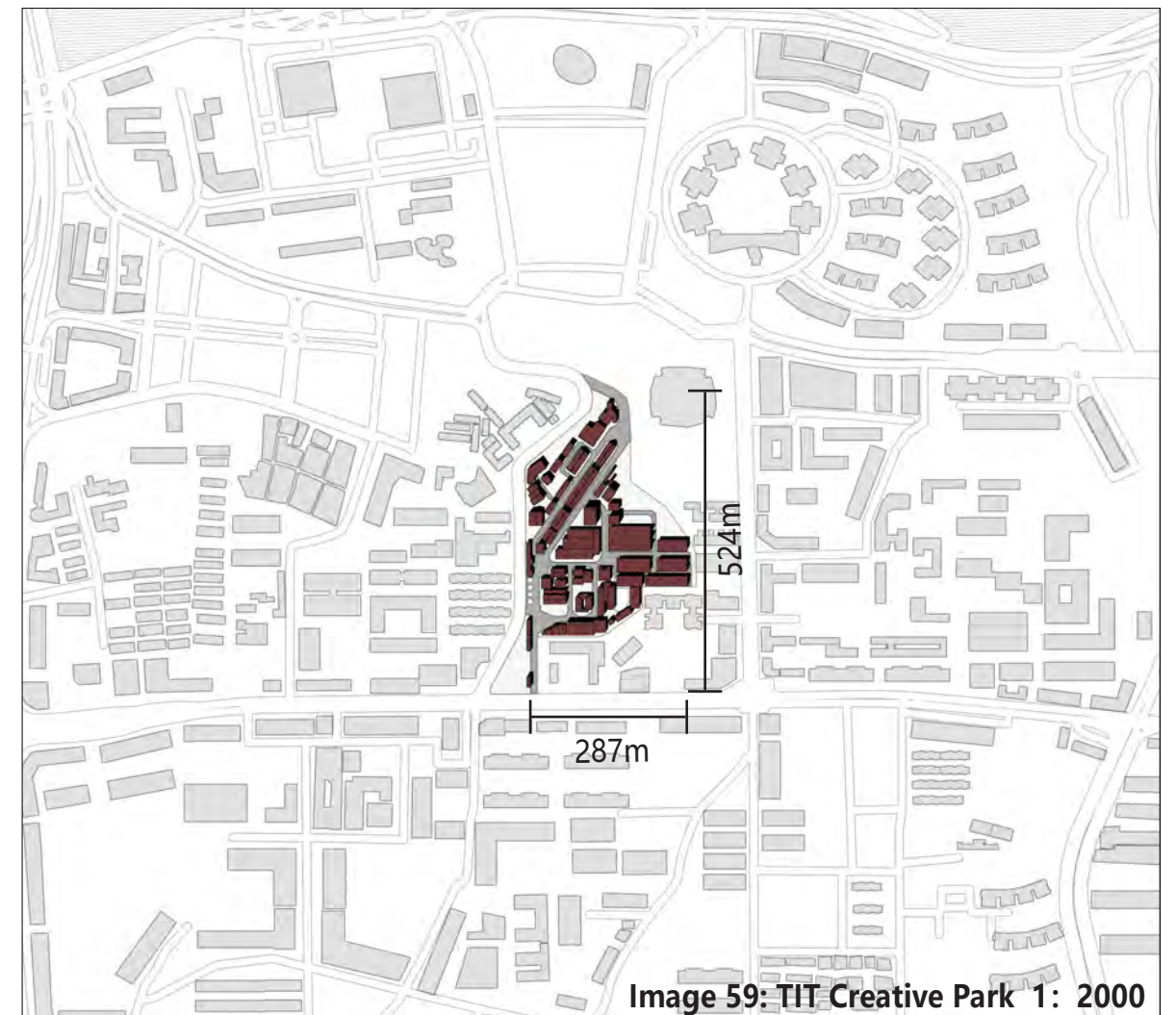


Image 59: TIT Creative Park 1: 2000

5.1.2 Boundaries and Permeability:
Defensive Fortress vs. Permeable Sponge
Lingotto:

Due to its massive scale, Lingotto functions more like a “wall” at the urban level. Despite its open internal atrium, its connection to surrounding neighborhoods exhibits pronounced physical closure to create a fragmented urban boundary, which make lingotto more like a castle on the border. The complete preservation of the facade reinforces this sense of enclosure; rather than weakening the boundary, its scale and facade continuity further solidify it. The bridge at the back of lingotto is an attempt to have a large scale reconnections with the city on the other side of the railway (The issue isn’ t just about lingotto itselfs ,the railway tracks have also been separated the city into two pieces, and this separation has lasted for more than a century.) Aside from the scale itself, although lingotto is open to the public,those high-end businesses inside have implicitly set up a threshold based on consumption capacity. For the surrounding residents and the original workers, this threshold is not due to economic insufficiency, but rather because the spatial functions and leisure methods are more inclined towards purposeful consumption, lacking the usage scenarios for daily relaxation, making the rooftop running tracks and sky gardens more serving tourists, and in terms of experience, becoming a "visible but difficult to integrate" public space.

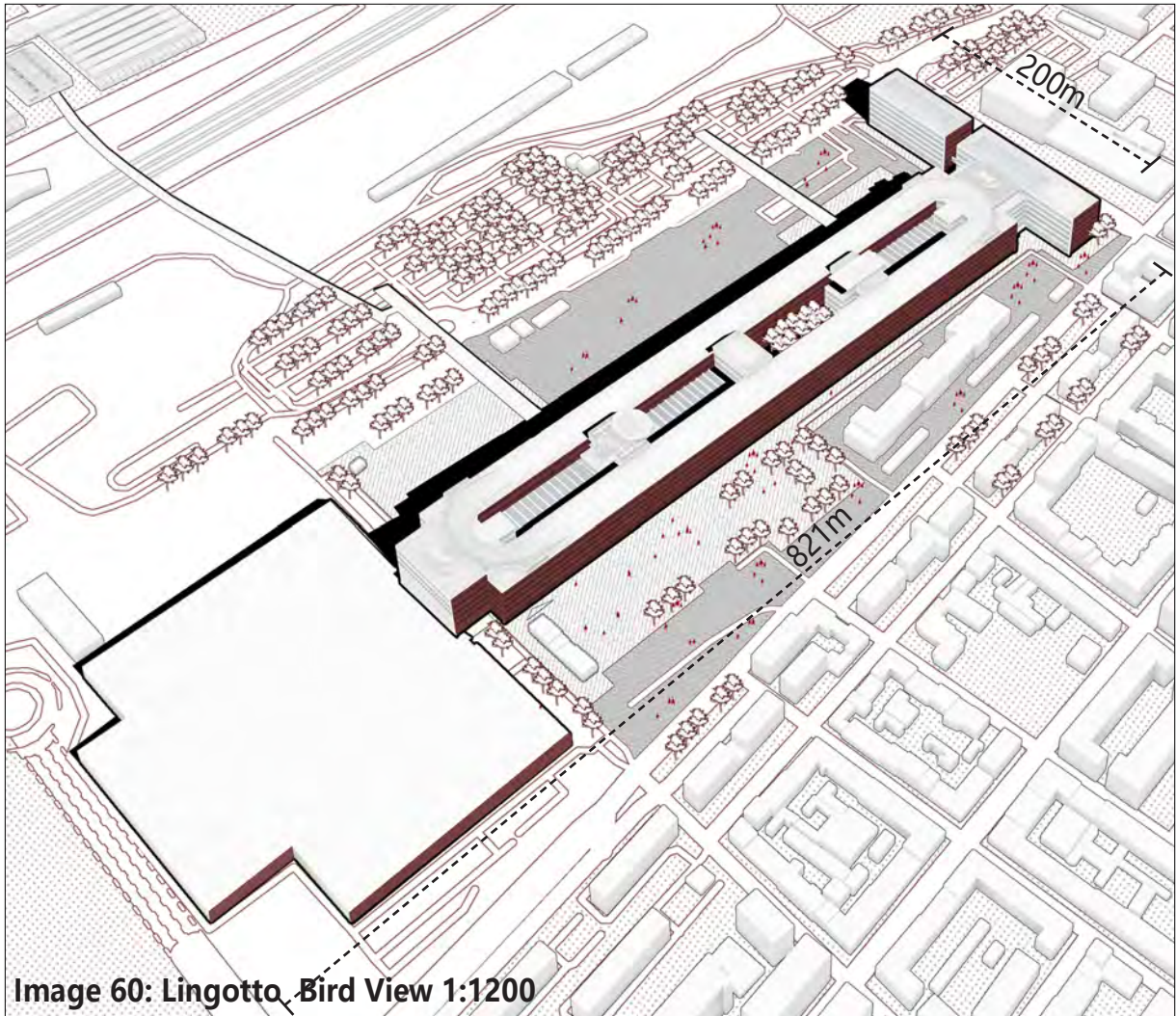


Image 60: Lingotto Bird View 1:1200

T.I.T Creative Park:

As part of the external transformation of the project, the core approach was to dissolve the borders. Original factory perimeter walls were removed and park avenues are smoothly integrated into municipal thoroughfares to gain spatial access. Greenery functions as a sponge, absorbing surrounding sights and pedestrian flow. Such a strategy is quite efficient in opening up the industrial site and at the same time bringing it into the functional system of public green areas of the city. The de-bureaucratization of Tit is not merely the physical opening up of space; it can also be understood as a redistribution of spatial usage rights. That is, the sites originally belonging to production units gradually became part of the urban public domain and were returned to the urban public domain. Nearby residents can walk their dogs and dance here. This "daily" infiltration weakens the exclusivity characteristic of the creative park as an "elite enclave". Although TIT also has commercialization issues, its underlying spatial logic benefits the surrounding community rather than being irrelevant. The theory of urban rights holds that urban space should not belong to power or capital; rather, it should be jointly shaped and managed by the citizens living within it (Lefebvre, 1968). "The Daily Infiltration of the T.I.T Creative Park Space", precisely reflects the active participation of residents in the use of urban space rights.

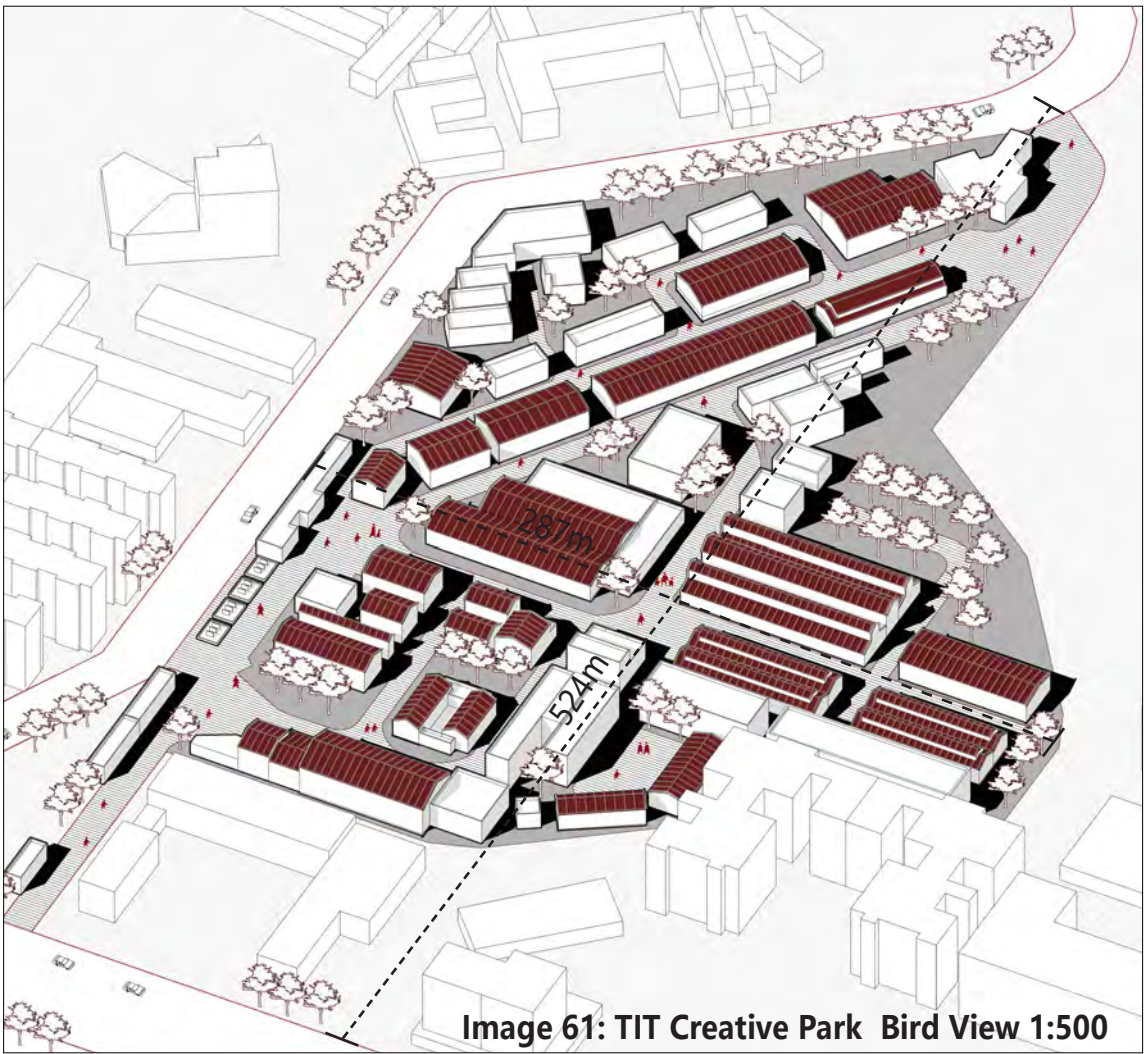


Image 61: TIT Creative Park Bird View 1:500

5.1.3 Reconstructing the View of Nature:
Museumified Nature vs. Nature as Foundation

Lingotto:

In Renzo Piano's initial transformation, the internal plant atrium was covered with a closed glass roof, adopting a greenhouse-style spatial treatment. However, during subsequent operational adjustments or maintenance, this glass roof was removed. Plants were then concentrated in the central atrium, subject to explicit boundary and circulation controls. This "greenhouse" logic of intervening in nature severed the plants from the openness of an ecosystem, transforming them into a landscape installation framed by architecture. In this way, nature was transformed into an "exhibit" embedded within the industrial heritage setting, functioning largely as an object of visual appreciation and spatial consumption. At the same time, access to the planted atrium is restricted to guests of the high-end hotel and restaurant, whereas ordinary visitors to the shopping mall are limited to viewing it indirectly through windows on the upper levels.

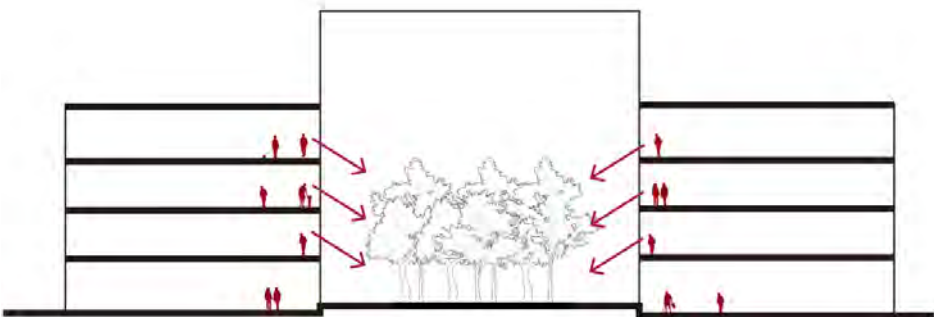


Image 62: Lingotto
Plant Analysis 1:1000

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T.I.T Creative Park:

Building on this initial foundation, the park gradually expanded its development toward a range of high-end service sectors, including creative design, research and development education, exhibition trade, and modern logistics, thereby forming a multidimensional industrial network organized around the fashion industry. With the ongoing advancement of the "Science and Technology Powerhouse" strategy, the park has, since 2012, attracted a number of internet-based and technology-innovation enterprises, such as Tencent WeChat Headquarters, YaoShiBang, iFanr, and Nitrogen Space. The presence of these actors has accelerated the integration of fashion creativity with digital technologies, leading over time to the emergence of a composite and sustainable innovation cluster characterized by the convergence of "fashion + technology." Viewed in this light, T.I.T Creative Park represents an industrial heritage transformation paradigm in which former industrial factories are successfully reactivated with new forms of vitality.

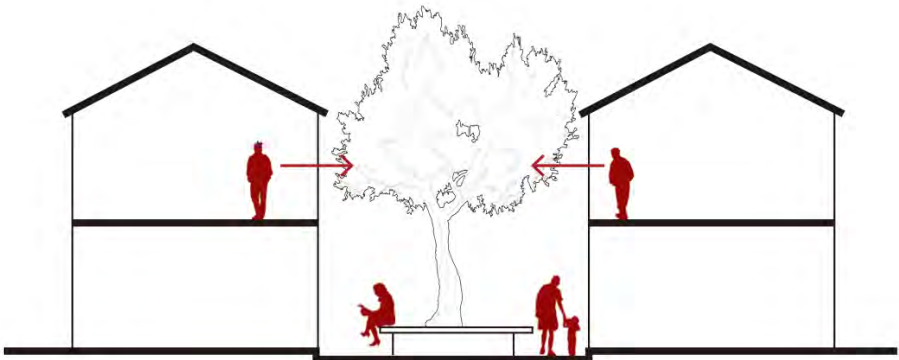


Image 63: TIT Creative Park
Plant Analysis 1: 300

5.1.4 New-Old Relationship:
High-Tech Confrontation vs. Micro-Renovation
Symbiosis

Lingotto:

Whether the rooftop “Bubble” or the “Scrigno,” newly introduced elements employ high-purity glass and steel, creating a stark contrast with the old building's reinforced concrete. This “high-tech” approach does not seek to blend with history but rather to assert the occupation and domestication of the old industrial shell by new functions (conferences, art, technology), emphasizing the active reshaping and control of industrial heritage by the discourse of the new era. Furthermore, in contemporary architectural practice, this approach of deliberately highlighting the contrast between old and new is common at present. By introducing modern elements while retaining key historical features, such projects can produce visually striking landmarks that relate the past to the present; not only enriching the urban landscape but also reinforcing a sense of historical continuity (Bullen & Love, 2011).

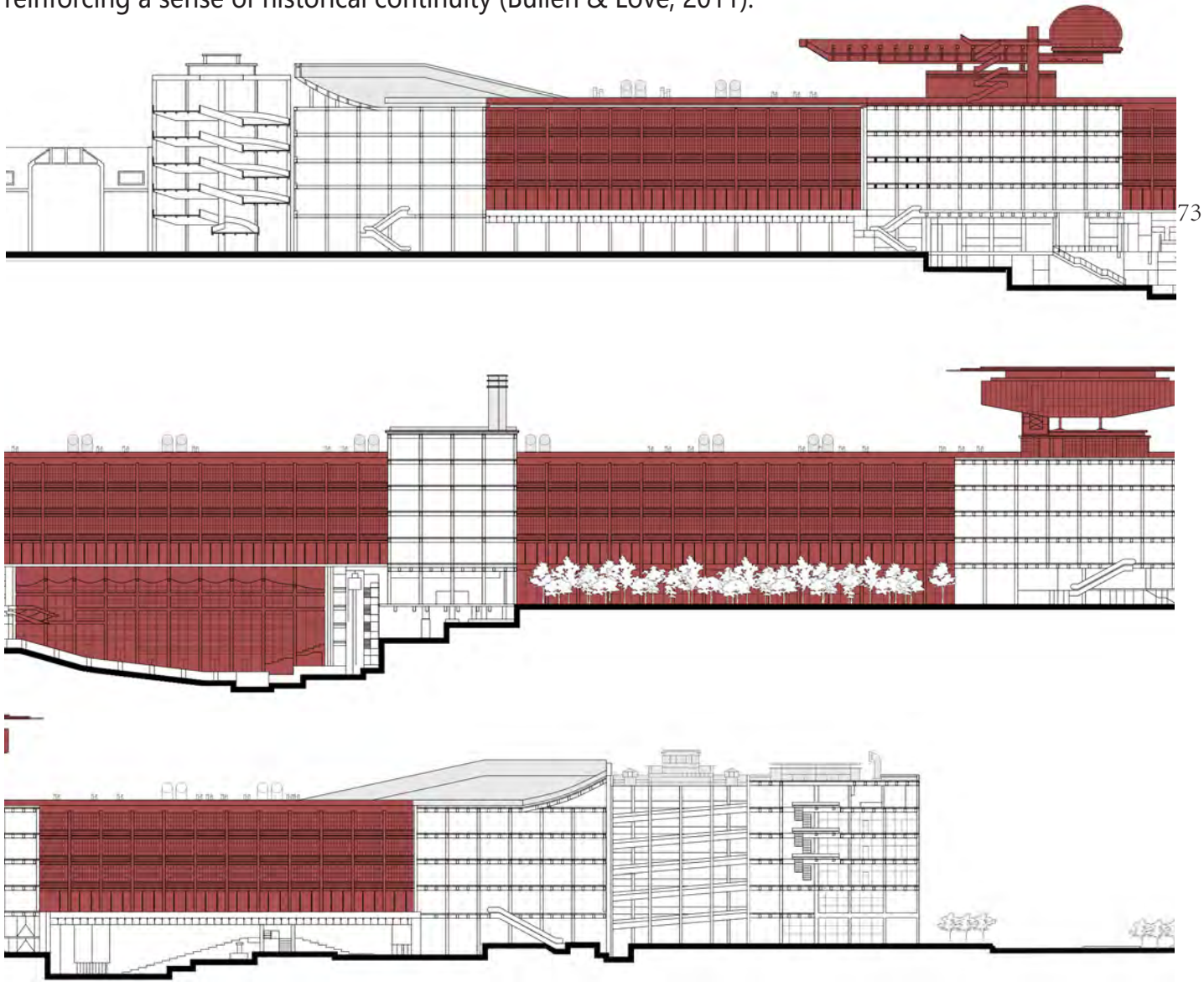


Image 64:Lingotto
Section 1:1000

T.I.T Creative Park:

The renovation adopted the strategies of "restoring as it was" or even "reconstructing as it was". While retaining most of the existing buildings, the newly constructed buildings extensively used materials such as weathering steel, red bricks, and wood to attempt to visually imitate or continue the sense of the industrial era's grandeur, creating an atmosphere of time standing still and allowing the new buildings to gradually fade into the shadows of old trees and walls. From a sustainable perspective, this strategy is not only a visual or narrative choice but also has a clear energy logic. The embodied energy stored in the existing buildings themselves is an important resource. If it is wasted through demolition and reconstruction, it will result in additional and irreversible energy consumption throughout the building's life cycle (Guidetti & Ferrara, 2023). The T.I.T Creative Park has maximized the retention of the original structure and materials, avoiding the high-energy-consuming new construction process, thus being beneficial to the sustainability of building transformation on the level of life cycle energy consumption.

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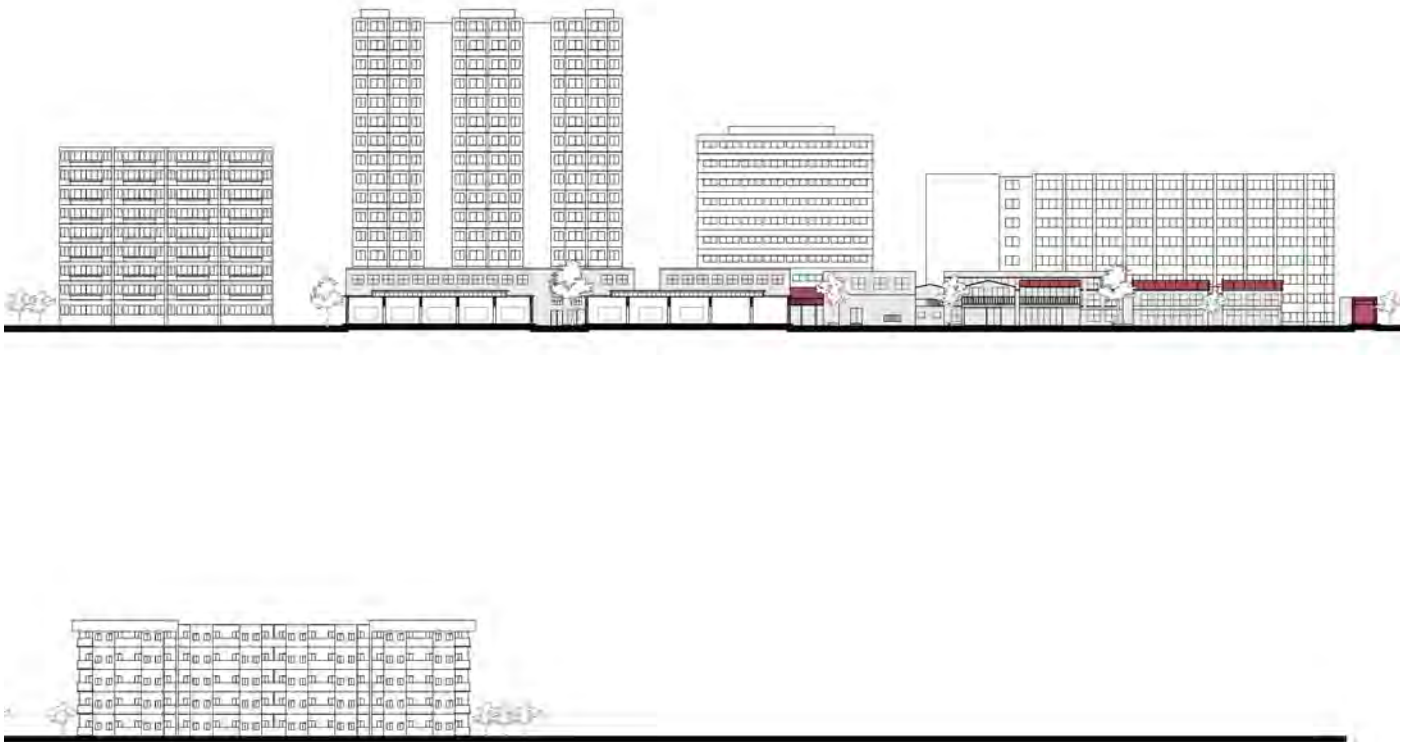


Image 65 :T.I.T Creative Park
Section 1:1000

5.1.5 Functional Logic :Consumption Machine vs. Visible Production

Lingotto:

Lingotto was the first project by RPBW to systematically addressed the theme of urban space. Renzo Piano made bold and innovative renovations to the interior space of the building. The interior space of the building was divided into multiple functional spaces: commercial spaces (cinema, shopping center, conference hall), residences and hotels, with cultural (university, gallery, auditorium) uses given priority. Although the building's exterior remained unchanged, its internal structure was completely renovated to meet these new demands (RPBW, nd). Lingotto transformed from a production space into a consumption space. The original industrial production traces no longer existed, replaced by the visual consumption of industrial ruins by tourists. It became a huge, inward-looking consumption machine, but on the other hand, the complex diversity of Lingotto's functions contributed to its success, not only supporting the continuous operation of the project, but also providing different levels of jobs for the local area. This functional diversity to some extent responded to the "urban diversity" logic emphasized by Rappaport, that is, maintaining urban vitality and social interaction through the juxtaposition of diverse activities (Rappaport, 2017).

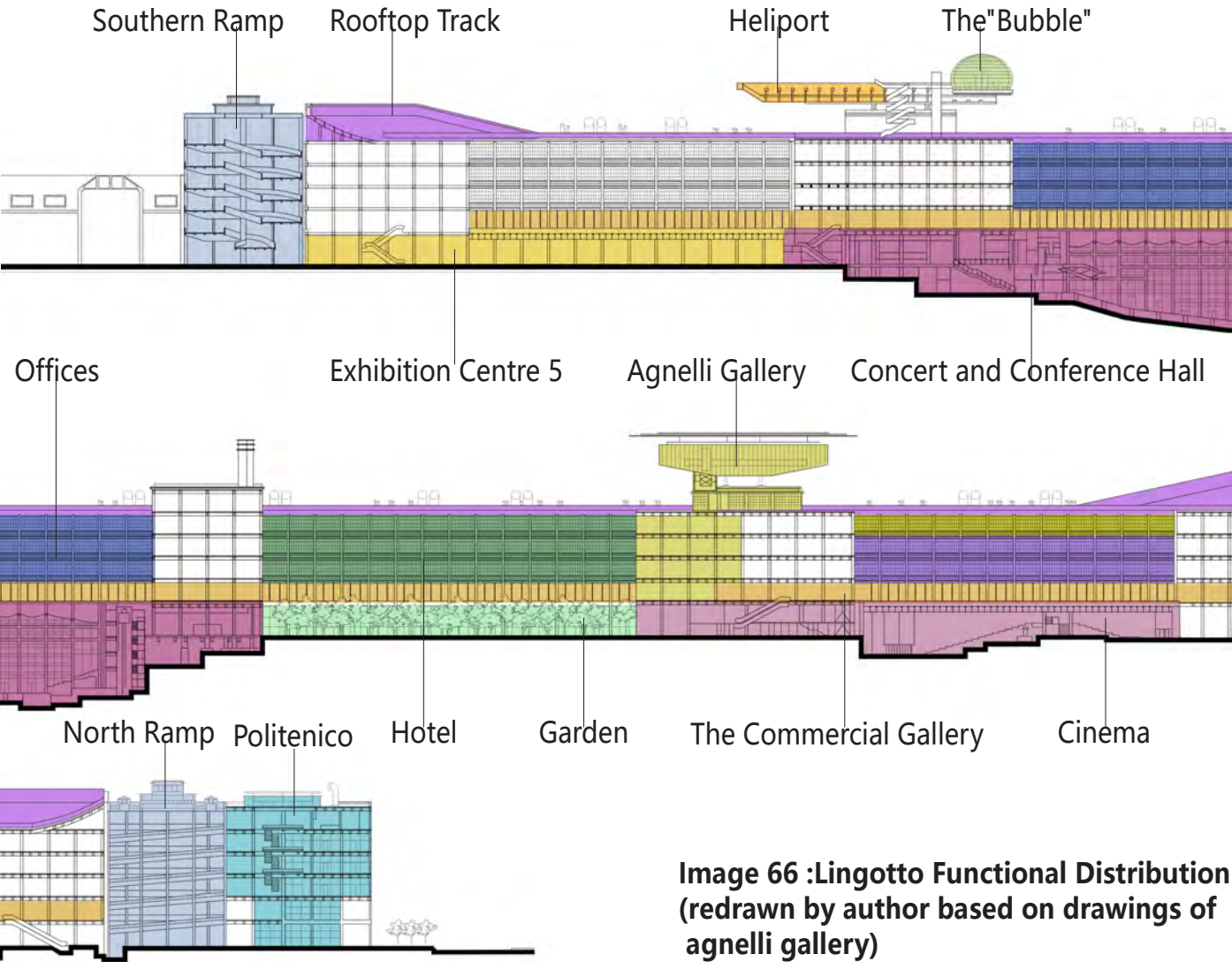


Image 66 :Lingotto Functional Distribution (redrawn by author based on drawings of agnelli gallery)

T.I.T Creative Park:

Unlike Lingotto's complex that focuses on consumption and display, T.I.T creative park retains the "productive nature" of the original site, but the content of production has changed from "textile machinery" to "internet technology" (WeChat company) and "fashion design". Here, production no longer relies on large-scale, closed factory systems, but is embedded in the urban space in a small-scale, relatively clean, technology and creativity-intensive manner (Rappaport, 2017). Here, there are not only the offices of the WeChat headquarters (for production), but also numerous cafes, runway shows, and open green spaces (for leisure/consumption). This spatial structure makes the park both a workplace and a used and experienced urban space. More importantly, this production is "visible" - tourists can see the designers' studios or the activities of internet companies as they wander through the park. Therefore, production no longer completely retreats behind the scenes and becomes a part of the urban experience, embodying a spatial logic that values the production process itself. This reflects what Rappaport emphasizes as "the consumption of production" (Rappaport, 2017).

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Image 67 :TIT Creative Park Functional Distribution (redrawn by author based on bruno,E.(2018))



5.1.6 How Stakeholder Impact The Lingotto Project and TIT Creative Park

Lingotto:

During the transformation of Lingotto, multiple stakeholders were involved, influencing the entire design in varying degrees. The Fiat Group and the Turin City Government held the core decision-making power. The Fiat Group initiated and commissioned the project (organizing a competition/entrusting the design), while the public sector of the Turin City Government provided urban planning support, policy coordination, and infrastructure construction (such as the metro), ensuring the implementation of the project at the city level. In 1983, the city government, together with Fiat, Sanpaolo, National Railway Company, etc., jointly established a mixed-capital joint venture with a total investment of 440 million euros (Comoglio, 2002). As the architect of the renovation project, Renzo Piano Architecture Studio (RPBW) played a key role throughout the process, coordinating between the city government and the Fiat Group. Renzo Piano overturned his initial plan (developed for the Fiat competition) and planned a west-east "central avenue" running through the factory area with Lingotto as the center, from west to across the railway, from east to across the po river. In contrast to the massive scale of Lingotto, a new bridge is introduced to span the Po River to link two banks. By bringing the large sports facilities on the right bank into connection with the diverse public amenities (universities, public offices, and hospitals) on the left. it establishes a new and significant urban point. This plan provide a new planning scheme for the Turin City Government (Marco, 2023). Although this plan was not implemented later, it demonstrated that the designer responded to the city's development goals of the government and further changed the design. Lingotto' s functional configuration also shows that different interests were involved in the transformation. Some spaces were used to provide cultural and public services for the city. Commercial areas, on the other hand, were introduced to support the economic demands of enterprises.

Fiat remained the owner, and the government was also involved in the redevelopment process. This condition made the division of functions an important part of the project' s design logic. Lingotto therefore gradually developed into a hybrid urban complex. Piano responded to this situation by reorganizing space and function together. In this way, the project could address the city' s public needs, while Fiat' s economic interests were also maintained. Subsequently, in 1983, new stakeholders: Fondazione Agnelli, Fiat Group, Fiat Financial Companies entered this project. (Comoglio, 2002). Among them, Piano designed a delicate " The Scrigno " on the roof, which was also designed to meet the exhibition needs of Pinacoteca Agnelli. With the addition of more investors, these investors focused on the commercial returns of the project, promoting the inclusion of shopping centers, hotels, office rentals,etc. in the renovation plan to increase revenue and returns.

The transformation process was carried out in three stages from 1991 to 2003: each completed area was put into use immediately without waiting for the final completion of the entire project, through a rolling development approach to generate cash flow (BPBW, nd). Subsequently, the hosting of the 2006 Winter Olympics promoted the construction of the Olympic pedestrian bridge and the metro, promoting infrastructure construction, and strengthening the refinement of Lingotto's design. Lingotto is a model of public-private partnership, truly achieving $1 + 1 > 2$, achieving mutual benefit. The public sector is responsible for the allocation of heritage resources and the construction of the institutional framework, providing conditions for project implementation through planning control and policy guidance; the private entity mainly uses capital investment as a means to enhance the efficiency and commercial feasibility of the project transformation. And for large-scale industrial heritage reuse projects like Lingotto, they usually accompany high-intensity investment and multiple goals, which is difficult to be supported solely by public finance (Dalla Longa, 2011). At this stage, to facilitate the smooth implementation of the renovation project, diversified capital must be introduced to make up for the lack of funds. However, the diversification of capital structure can also have an impact on design decisions, transforming the role of architects from sole designers to comprehensive participants who need to coordinate among various interests.

TIT Creative Park :

The initial formation of TIT Creative Park benefited from the support of the "retreat from secondary industries and advance to tertiary industries" policy, and also met the requirements of the industrial adjustment policies of Guangdong Province. It was jointly established by Guangzhou Textile Company and Shenzhen Dealsky Company as Xinshicheng Company (where the Dealsky Company held 65% and Guangzhou Textile Company held 35%). The factory area was renovated by Xinshicheng Company. Guangzhou Textile Company had the land ownership, and Dealsky had the management rights (Peng et al., 2014; Bruno, 2018).

In China, all land resources are state-owned. Private enterprises can only rent land from the municipal government and pay rent. This constitutes the entire system as an upward-oriented approach, with the government having land control rights and all approvals having to go through the government. Due to the hosting of the 2010 Guangzhou Asian Games, the city faced an important spatial transformation. In the development of Tit Creative Park, it received the guarantee of the urban planning bureau, which could maximize the floor area ratio of the site. Finally, Shenzhen Shendi Architectural Design Planning Ltd conducted the overall planning of the project, trying to retain the overall layout of the original factory and protect the trees in the original site. It was ultimately submitted to the urban planning department for review and approval (Bruno, 2018). After the private investment companies that moved in wanted to modify the structure and shape of the buildings, they had to apply to the

park management department and obtain approval from the government authorities. In terms of design, architect Song Gang stated that some projects, due to limited construction time and lack of exploration of the site, were unable to conduct deeper cultural exploration. This was mainly because of the commercial goal of promoting low-density buildings and stimulating high rents to create a unique business environment. In contrast, the Lingotto transformation took 7 years and allowed architects to have ample time to refine the strategies and functions in detail. In contrast, the T.I.T Creative Park was in a highly compressed "Chinese speed" time and space dimension. With only a 3-year "event-driven" construction period (to accommodate the 2010 Asian Games), architects were forced to struggle to complete a deep exploration of the site's culture within a short period of time. They could only fill the gap in cultural exploration with more pragmatic commercial goals and respond quickly to the urgent demands of spatial transformation through low-density intervention strategies.

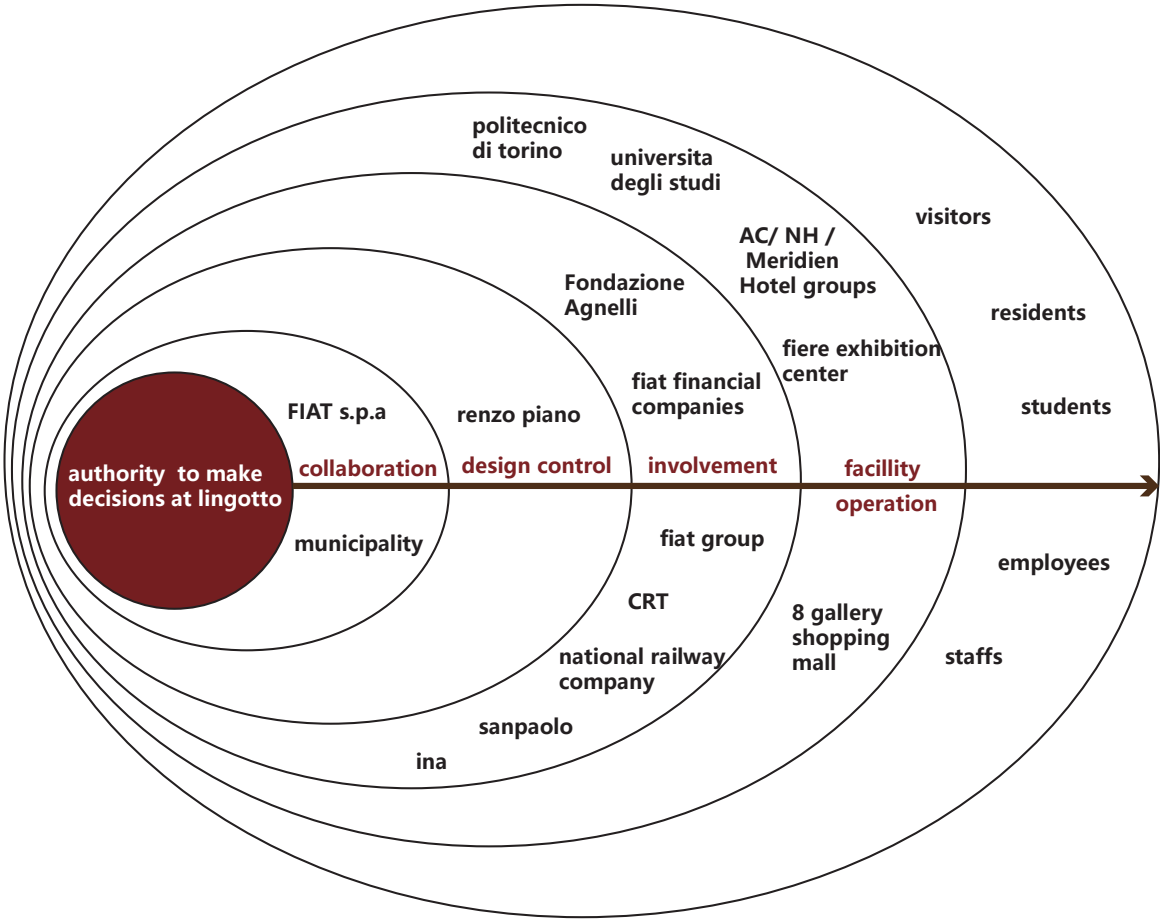


Image 68 :Lingotto Stakeholders

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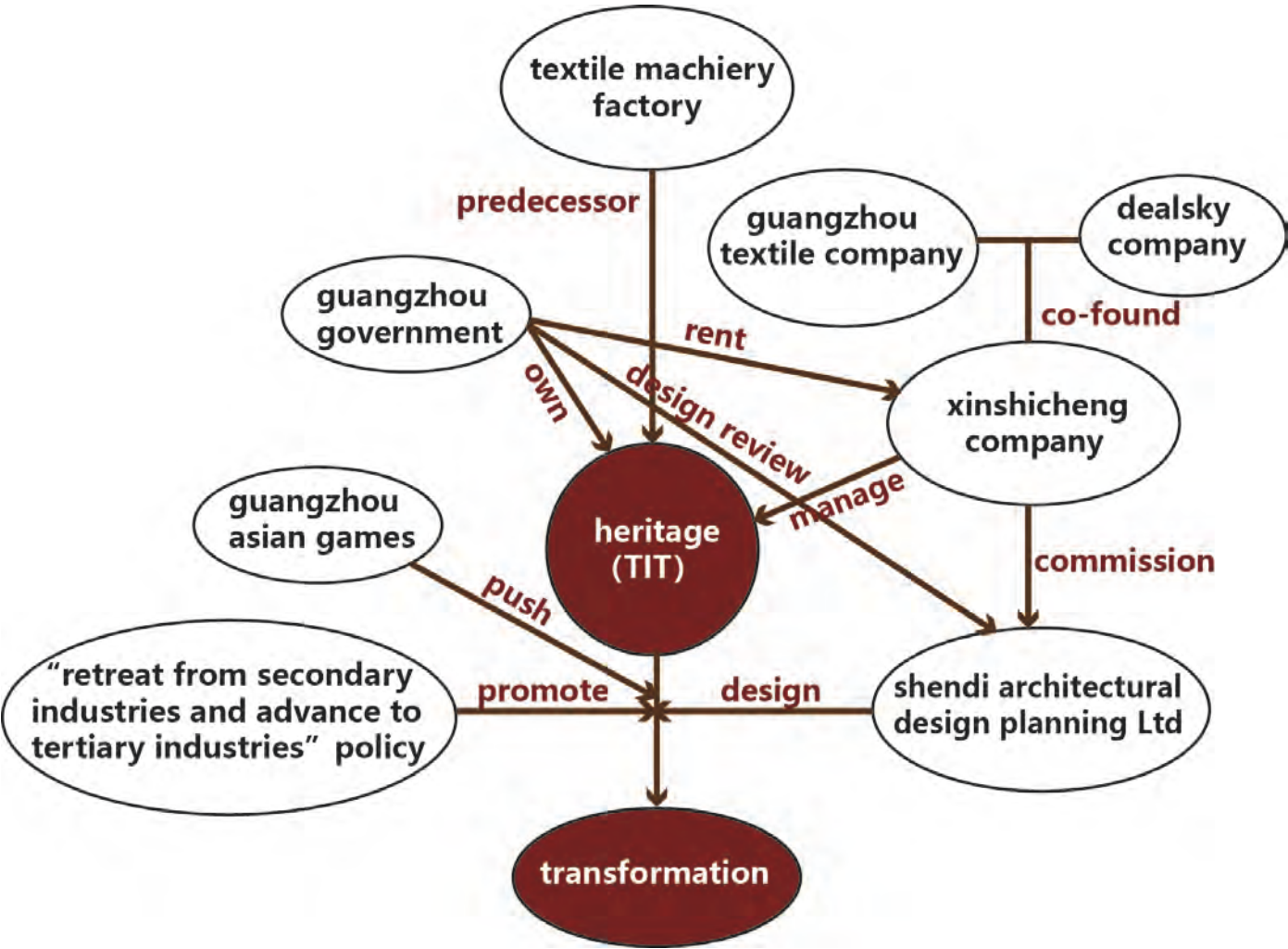


Image 69 :TIT Creative Park stakeholders

5.2 Comparison of Deindustrialization Background and Urban Response Strategies

With a comparable context of deindustrialization, the cities with disparate development histories have shown the presence of two separate response courses which are economic survival and urban optimization. The very different macroeconomic situations they occupy have direct implications on their different design strategies. Turin's Lingotto project emerged during the post-Fordist crisis of the 1980s. With the collapse of its single industrial pillar, Turin faced severe "urban shrinkage" and an identity crisis. This redevelopment initiative was essentially a "rescue operation" to counteract urban decline and economic stagnation. Its primary objective was to compensate for the economic vacuum created by the collapse of manufacturing. As David Harvey has argued in his discussion of "flexible accumulation," cities operating under post-Fordist conditions are increasingly compelled to engage in continual self-reinvention in order to remain competitive within global circuits of capital (Harvey, 1989). Within this context, spatial transformation no longer functions as a proactive and long-term planning exercise, but rather takes the form of a strategic response to economic crisis. Under the combined pressures of urban revival and capital restructuring, fragmented and traditionally incremental transformation approaches prove insufficient to address the vast spatial voids left by industrial retreat.

As a result, redevelopment demanded a highly visible and explicitly "monumental" intervention strategy. By preserving the existing 500-metre-long megastructure and strengthening its visual presence, the project made Lingotto a strong urban symbol. It suggested that Turin still had the capacity to move beyond industrial decline and to receive large-scale investment. This was also related to the city's attempt to rebuild market confidence after the crisis of its industrial economy. At the same time, the symbolic role of Lingotto had to be supported by actual functions. For this reason, the design adopted the model of a self-contained "micro-city." The complex was relatively separated from the surrounding neighbourhoods, many of which had already been affected by decline and disorder. Inside Lingotto, space was arranged in a highly controlled way, giving the project a certain quasi-utopian character. Functionally, the project exhibits clear characteristics of "supersaturation," as diverse and heterogeneous programmes—commercial, exhibition, artistic, hospitality, office, and educational uses—are compressed within a single, unified structural system. This concentration of functions also underpins the project's capacity for sustained economic activity. In this sense, the transformation of Lingotto operates less as a conventional transformation scheme than as an iconic spatial transformation project, marking a critical moment in Turin's broader process of self-transformation.

In contrast to Turin's crisis-driven response to industrial hollowing-out, Guangzhou's spatial transformation logic is more closely aligned with a state-led strategy of "urban optimization" under conditions of rapid urbanization. The emergence of T.I.T Creative Park must be understood within this broader trajectory of urban growth and economic expansion. Shaped by the national policy of "retreat from secondary industry and advance into tertiary industry," the project was not intended to rescue a declining economic base, but rather to enhance spatial efficiency and modernize the city's industrial structure. This form of "optimization" closely corresponds to what Wu Fulong conceptualizes as "state entrepreneurialism," whereby local governments actively intervene to bridge the "rent gap" between a site's latent potential and its existing revenue through the strategic reclamation and functional transformation of industrial land (Wu, 2018). Situated within an already mature and highly developed urban district, the project capitalizes on the scarcity of open space in an intensely dense metropolitan environment.

Along the highly compact Pearl River New City axis and its surrounding areas, T.I.T Creative Park deliberately avoided high-intensity demolition and reconstruction, instead preserving existing green open spaces as a scarce and valuable resource. This decision effectively represents a strategy of "location benefit conversion." By retaining historical fabric, the project generates distinctive forms of "symbolic capital" capable of attracting high-value, knowledge-intensive enterprises such as the Tencent WeChat Headquarters. The design approach focuses on low-density interweaving and ecologically permeable spatial arrangements. On the site, green landscapes, public interfaces and industrial structures are brought together in a layered way. This gradually turns the former industrial area into a composite creative-industry environment, rather than a conventional industrial zone. The strategy of "landscape suturing" also changes the role of industrial heritage. It is no longer an isolated urban enclave, but becomes a more permeable spatial mediator within the broader city. Through micro-scale interventions, it achieves a dual transformation: from outdated production workshops to urban green lungs and innovation incubators.



Image 70 :Lingotto Location Map



Image 71 :TIT Creative Park Location Map

5.3 Socio-Economic and Environmental Outcomes: Successes and Ongoing Challenges

If design strategies determine the physical form of industrial heritage reuse, then subsequent operational performance tests the effectiveness of this spatial production within real urban mechanisms. Based on the preceding analysis, Lingotto and T.I.T., despite differing macro-contexts, exhibit striking convergence in socioeconomic outcomes: both achieved dramatic asset appreciation while simultaneously triggering significant spatial segregation. This section will delve into the economic sustainability and social exclusion mechanisms underlying these two models, drawing on concrete operational data and empirical research from relevant scholars.

Lingotto: From “Monument to Production” to “Cathedral of Consumption”

As the flagship of Turin's post-industrial transformation, Lingotto has undoubtedly fulfilled its original vision in economic metrics. According to official Turin data, the renovated Lingotto complex has become a city landmark: for instance, the 8Gallery spans approximately 23,000 square meters and attracts around 7 million visitors annually; The Lingotto Fiere exhibition center is projected to host around 1 million visitors by 2025, generating annual revenue of € 14.8 million with a 12.8% year-on-year increase in staff; the Pinacoteca Agnelli art gallery atop the complex welcomed 103,451 visitors in 2022. The successful transformation of a closed factory into a commercial complex at the heart of southern Turin. Yet this macro-level success obscures micro-level social fractures and the dissolution of historical significance.

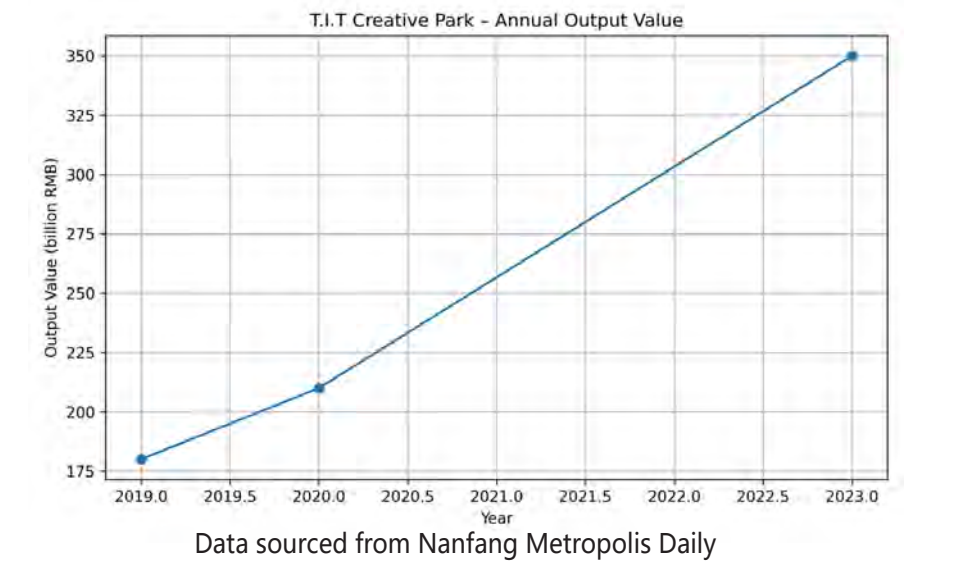
Urban geographer Alberto Vanolo of the University of Turin makes an insightful remark about the redeveloped Lingotto: The concept of redevelopment can be seen as a rewriting of the image of the city. He criticizes such projects because they always attempt to create an appealing and secure environment of the middle-class consumer, whereas in the course of this process, memories of conflict, labor strife, and class misery of industrial history are being consciously sanitized (Vanolo, 2008). This is supported by operational fact: the rooftop test track, which has historically been the apex of Fordism productivity, has since become largely a tourist destination with paid access only without the socio-political meaning of its past. To visitors, it is an industrial aesthetic sight; but for former Fiat workers who used to live in the nearby Mirafiori area and lost their jobs back in 1983, by 2026 most are either retired or passed away unfortunately. Those who suffered more of unemployment have generally ended up living further south. This ostentatious metamorphosis of a part of a city into a city within a city has brought nothing of tangible employment rewards. Even though Piano originally wanted the public to participate in it, Lingotto is a

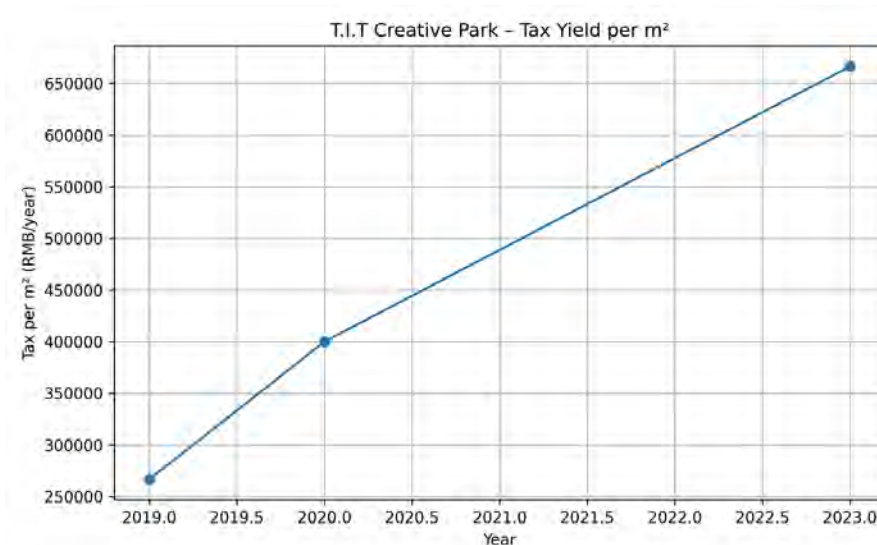
case of extreme enclave urbanism. There is a great difference between the level of high-end consumption in Lingotto and the steady decay of the peripheral areas making the rent gap significantly evident. It looks like an elite capsule that is planted in barren land acting inside but not able to positively influence the rejuvenation of the neighborhood by capillary action. It is as noted by M. Santangelo: Lingotto has done Turin on the world map and established new frontiers on the local one (Santangelo, 2014).

T.I.T Creative Park: “Replacing Old Industries with New” and Gentrification Under State-Led Entrepreneurship

Unlike the physical enclosure embodied by Lingotto, the transformation practice of Guangzhou's T.I.T Creative Park reflects a logic defined by Wu Fulong as “state-led entrepreneurship” where China's urbanization is neither purely market-driven nor strictly planned, but rather a model where governments intervene in urban spatial production with an entrepreneurial mindset (Wu, 2018). Through policy instruments (such as the “retreat from secondary industry, advance into tertiary industry” initiative), planning controls, and land operations, local governments explore how to leverage ‘soft’ cultural strategies to drive deeper capital accumulation while achieving fiscal revenue growth and urban image enhancement. T.I.T is not the result of natural market selection but a strategic industrial upgrade by the Guangzhou government acting as an “entrepreneurial government” to capture land premium in the Pazhou area by utilizing state-owned land resources. T.I.T's “urban optimization” delivers exceptionally strong economic returns. Official statistics reveal that after attracting Tencent's WeChat headquarters and surrounding high-tech enterprises, the park's annual output value surged from tens of millions of yuan during the initial redevelopment phase to approximately 21 billion yuan in 2020. Annual tax revenue per square meter reached a staggering 400,000 yuan, making it one of Guangzhou's most productive industrial zones. This remarkable economic return directly stems from the government's “retreat from secondary industry, advance into tertiary industry” policy, which effectively bridged the “land rent differential.”

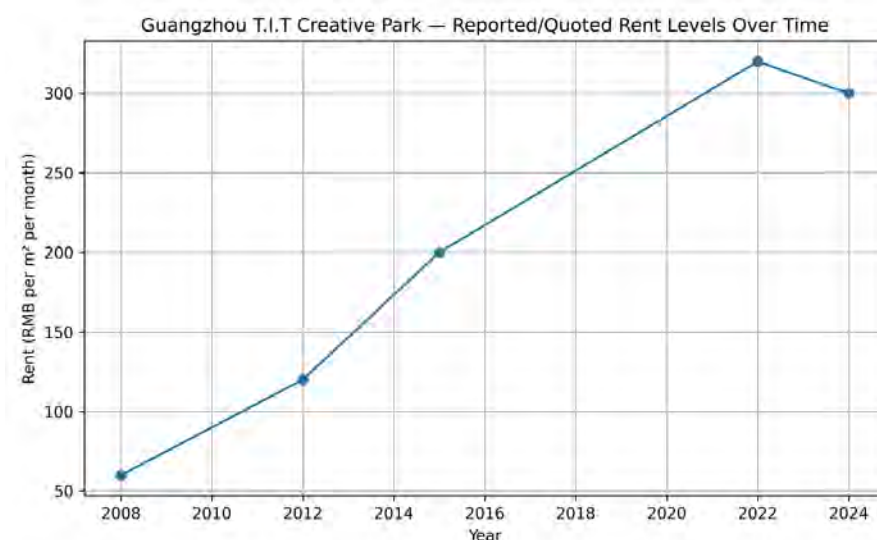
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Data sourced from Nanfang Metropolis Daily

However, behind this glossy set of figures lies intense commercial gentrification. Scholar He Shenjing incisively points out in his research on China's creative industrial parks that many such zones serve not only as spaces for artistic production but also as tools for spatial fixation in capital accumulation. Culture and creativity are not the ultimate goals of spatial transformation but are mobilized as a “soft strategy” to reshape spatial value and unlock land's latent profits. As He Shenjing (2019) has observed, creative industrial parks operate through the recoding of former industrial spaces, reinserting previously inefficient or idle areas into circuits of capital accumulation in order to achieve a spatial “fixation” of capital. In the case of T.I.T Creative Park, this process displays a strongly commercialized orientation and has rapidly developed into a form of commercial gentrification. The transformation of the park is largely driven by headquarters economies and high-technology enterprises, a dynamic that has substantially increased land values and rental thresholds, while simultaneously producing the systematic displacement of small-scale creative actors and non-profit cultural practices. From this perspective, the transformation model of T.I.T Creative Park appears less as a spontaneous agglomeration of creative industries or an alternative to dominant capital logics, and more as the instrumental use of cultural resources under the guidance of local governmental agendas.



Data sourced from Guangzhou Cyberspace Administration

The evolution of T.I.T Creative Park can be read through this logic. This trajectory is also related to broader processes of urban redevelopment and gentrification discussed in existing studies on Chinese urban transformation (He, 2012). In the first phase, roughly between 2007 and 2010, the site functioned as a relatively low-cost space for creative incubation. Low rents attracted local fashion designers, small studios, and avant-garde artists, who reactivated the abandoned factory through modest, low-cost renovations. In the second phase, as the cultural image of T.I.T became more established and major companies such as WeChat entered the site, the logic of transformation shifted. Market data shows that average rents increased from around 60 RMB/sqm/month at the beginning to more than 300 RMB/sqm/month.

This process has produced severe displacement effects. The small creative studios that initially animated the district and gave it cultural vitality were gradually forced out as rental costs rose to prohibitive levels, ultimately being replaced by capital-intensive internet firms and high-end fashion brands. As in broader processes of spatial transformation, community gentrification can advance rapidly to a stage at which working-class groups are entirely displaced, bringing about a fundamental restructuring of the area's social composition (Dalla Longa, 2011). As Sharon Zukin has noted in *Loft Living*, “art is ultimately devoured by the real estate boom it helped to create.” T.I.T has followed a similar trajectory: transforming from a grassroots habitat for creative practices into a “gated community without walls” catering to the technological elite. Ordinary citizens are left on the margins as visual consumers, mostly participating through photography and symbolic presence, while the real control over space is handed over to large-scale capital.

When comparing Lingotto and T.I.T, we encounter a common dilemma that goes beyond the China and Europe context. According to Henri Lefebvre (1991) in *The Production of Space*, “Space is not merely a container for social relations (Lefebvre, 1991); it is the very instrument for their reproduction.” Lingotto, as a “monumental megastructure,” became a spatial response to economic decline that eventually became a defensive space that caters to consumers. T.I.T made use of the concept of scenic suturing in order to address the needs of the city's growing population and hence produced a selective, high-end industry-serving exclusive space. Regardless of how different the design strategies were (enclosure vs. permeability), they eventually worked as channels of capital appreciation. In this procedure, the fundamental principle of industrial heritage, its accessibility to general mass, inclusiveness, and the fact that it is an industrial monument of work history was gradually eliminated. This offers profound lessons for future industrial heritage transformation: genuine “urban optimization” should not merely prioritize doubling tax revenues or boosting tourist numbers, but must focus on “who uses this space” and “who benefits from the transformation.” When design is reduced to architectural aesthetics

and lacks institutional support for social equity, such as rent control or community benefit mechanisms, even a highly refined architectural strategy can end up reinforcing unequal social relations.

6. Conclusion:

This study examines the architectural meaning of industrial heritage transformation through a comparison between Lingotto in Turin and T.I.T Creative Park in Guangzhou. From the perspective of design, transforming industrial heritage is not simply a matter of giving an industrial heritage a new function. Nor should it be reduced to keeping an industrial building as a shell or as a visual sign of the past. It is better understood as a process of reading, selecting, and reorganizing an existing industrial space. The architect has to decide which parts of the original building still matter. These may include its structure, materials, circulation, scale and the spatial memories left by former production. At the same time, new functions have to be introduced carefully so that a space once shaped by production can respond to temporary use.

This process is also influenced by different historical conditions and stages of urban development. In Europe, many industrial sites began to be revalued after manufacturing declined and cities gradually moved toward a post-industrial economy. Former factories often became carriers of industrial history, city memory, and local identity. In China, the situation is different. Industrial heritage is more often caught between rapid urbanization, land pressure, and industrial upgrading. Old factories are therefore frequently treated as spatial resources that can be reorganized and reused. Lingotto and T.I.T Creative Park reflect these two different conditions. Lingotto is closer to a European post-industrial model, where a monumental industrial building is used to support a new urban identity through functional reorganization. T.I.T Creative Park, by contrast, is closer to the Chinese high-density urban context, where low intervention, gradual adjustment, and functional replacement respond more directly to changing development needs.

For this reason, the architectural value of industrial heritage cannot be found only in its external image. It also exists in its spatial logic, structural order, material character, and production memory. For architects, the question is not simply how to preserve an industrial building, or how to insert new uses into it. What matters more is how to build an effective relationship between the existing architectural conditions and new patterns of use. If an old industrial building is treated only as a visible historical symbol, or rapidly converted into a commercial space, its original structure, scale, and production memory may be weakened. When the existing structure, material qualities, and spatial atmosphere are taken into the logic of new use, however, the building is no longer just a preserved object from the past. It becomes a long-lasting

architectural resource, one that can continue to be used, adjusted, and reinterpreted over time (Douglas, 2006).

From an architectural point of view, industrial heritage needs to be understood within a longer time frame. Industrial buildings often outlive both their original production functions and their first users. Machines, workers, engineers, and managers may disappear as industries change. Later, consumers, tourists, office workers, students, creative professionals, or technology companies may enter the same building. The building remains, but its users, functions, and spatial requirements keep changing. Therefore, the transformation of industrial heritage should not only solve the immediate problem of functional replacement. It also has to deal with a deeper architectural issue: the long term for design and the short term for user.

Lingotto clearly shows this change of users. It was first built as a modern automobile factory, with its organization shaped by production, assembly lines, ramps, and rooftop testing. Its main users were workers, engineers, machines, and industrial managers. After the decline of Fiat's production system, the same building was transformed into a mixed-use complex with retail, hotel, office, exhibition, conference, and educational functions. Its users changed as well. Consumers, students, tourists, office workers, conference visitors, and hotel guests replaced the industrial users of the past. This shift shows that industrial heritage can remain active only when it is able to respond to contemporary needs. Seen from the perspective of conservation and functional change, the transformation of Lingotto is successful. It did not erase the past through demolition. Instead, the insertion of new functions allowed the former factory to regain use value.

At the same time, the limitations of Lingotto also appear through this process of reuse. Although the building was successfully converted from a closed automobile factory into a complex for retail, offices, hotels, conferences, exhibitions, and cultural activities, the original space was not designed for these contemporary functions. Lingotto was originally designed for car production. Its spatial logic came from large-scale manufacturing, including linear assembly, ramp circulation and rooftop testing. The reinforced concrete structure, hard surfaces and large open spaces give the building a strong industrial character and a sense of monumental clarity. These qualities are important for understanding Lingotto as an industrial building. However, they can also become problematic when the building is used for bookstores, reading areas or certain exhibition rooms. Reading spaces need quietness and concentration, but concrete floors, hard walls and large volumes may lead to acoustic reflection. Exhibition spaces can benefit from the large spans and openness of the factory, but exhibitions that require careful lighting, a quieter atmosphere, or smaller rooms may be constrained by the original building. T.I.T Creative Park works in a different way. It does

not depend on a monumental architectural volume. Although the transformation involved structural repair and roof restoration, its design value does not come from producing a strong landmark. Instead, its value is more related to the continuation of a loose and open spatial system. Low rise factory buildings, courtyards, pedestrian routes, trees and semi open spaces create an environment closer to daily use. Small architectural units also make the site more flexible. Over time, the space can be adjusted according to different functions and users. Design studios, exhibition spaces, cafés, offices, brand showrooms and commercial activities can be inserted at different stages, and they can also be recombined when new needs appear. In the past, the site served textile production. Later, it served creative industries, offices, exhibitions, and commercial activities. With further industrial upgrading, it may continue to absorb new office and service functions. The users have changed, but the spatial system has not failed. It was not transformed into a single-function machine. It works more like an architectural framework that can be reused and adjusted again and again.

Avling Kitchen & Brewery in Toronto offers a useful additional reference. Its significance is not simply about keeping the shell of an old building. It is also different from a common commercial reuse of post-industrial space. What makes this case more meaningful is that production is brought back into the site in another form. Brewing equipment, rooftop agriculture and dining are placed within the same spatial system. Together, they create a cycle that connects growing, brewing, cooking and consumption. This case therefore suggests another possible direction for the reuse of industrial heritage. Transformation does not always have to choose between preserving a historical image and inserting commercial functions. It can also ask whether an old industrial building may still keep some form of productive capacity under new social and technical conditions. This production does not have to be the same as the original industrial manufacturing. It may become food production, creative production, knowledge production, or everyday production at the community scale. In this way, industrial heritage is not only something to be viewed, consumed, or commemorated. It can still take part in contemporary forms of production.

These cases lead to a broader reflection. The central issue of industrial heritage transformation is not only how to preserve old buildings, or how to insert new functions into industrial spaces. The more important question is how old industrial buildings can continue to maintain use value, spatial flexibility, and a certain productive capacity under new conditions. Lingotto, T.I.T Creative Park, and Avling Kitchen & Brewery each point to a different aspect of this problem. Lingotto shows that new functions should be compatible with the material, scale, and spatial conditions of the existing building. T.I.T Creative Park shows that a loose, open, and adjustable spatial structure can help an old industrial site absorb different users over time. Avling Kitchen & Brewery goes further by

showing that industrial heritage can rebuild a relationship between architecture and production through new forms of productive activity.

For architects, industrial heritage transformation should not be treated as a one-time functional replacement. If an old industrial building is simply converted into a commercial complex, or if its industrial memory is presented only as a historical scene, the project may create short-term value. But this can also reduce the building' s capacity to respond to future change. A more durable approach should begin with the existing structure, spatial scale, material character and site atmosphere. These elements can support continued use, while also leaving more room for later adaptation. At the same time, it should keep space open for future functional adjustment, changing users, and new forms of production.

Based on this understanding, future industrial heritage transformation should move beyond the simple logic of “preserving old buildings” or “adding new functions” . It should be approached as an architectural strategy oriented toward long-term change. Such a strategy needs to preserve the structural memory and spatial identity left by the industrial age, while allowing new ways of living, working, and producing to enter the existing building. For architects, the key task is not to give an old industrial building a fixed final image. It is more important to create a spatial framework that can be used, adjusted and reinterpreted over time. An old industrial space should be able to carry the past and respond to present needs. At the same time, it also needs to remain open to future functions, users and possible forms of production. In this condition, transformation is no longer only a change of use. It becomes an architectural practice with long-term adaptive capacity.

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