Transforming Industrial Heritage Sites in Major Chinese Cities: Reintegrating Minsheng Wharf into the Life of the City

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ABSTRACT:

China is a nation evolving through post-industrialization towards a cultural and innovation based society. In turn, its urban form is grappling with a number of preserved industrial heritage sites in major urban centers such as Beijing and Shanghai. The People’s Republic of China has implemented policy through a culture-led approach in preservation and reuse, resulting in artist communities, museums, and creative offices. However, these sites have either become artifacts frozen in time or heavily commercialized tourist attractions that threaten to displace the creativity within.

This thesis investigates alternative approaches to preservation and reuse of these sites, especially how to integrate 21st century productive uses as a means of urban regeneration. The spirit of industriousness can be preserved within these sites by allowing new productive activities to occur. There is potential to bring high-tech industries into these sites which can benefit from the existing creative environment while increasing long-term economic viability and promote innovation. Collaboration is needed between the government and private developers to control the development direction of the site while allowing flexibility for innovative solutions. Opportunities exist in industrial heritage sites in major Chinese cities today that can bring them back into the life of the city.

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1.1. Industrial Heritage in China

As a nation in the process of post-industrialization, China has a large stock of historic buildings in previous industrial districts that are no longer in operation. The unique architecture of these spaces retain intrinsic historic and cultural value and recent preservation effort have begun in major cities such as Shanghai and Beijing. However, although the physical spaces have been well-preserved, the use of these spaces have become predominantly for the creative industries or for display in the form of galleries, museums, and studios. Under pressure from urban redevelopment, municipal governments often make the case for preservation by exclusively designating a culture or arts use for the space. The redevelopment of privately owned industrial sites are further complicated by a difficult entitlement process and a lack of regulatory measures on programmatic uses.

Current literature on these industrial heritage sites in China focus on either their transformations into creative artist enclaves or their rapid commercialization into places of tourist consumption. My research attempts to rethink these developments and how they can accommodate 21st century productive activities. The evolution of industry in Chinese cities saw the decentralization of industry starting in the early 1980's and the rise of high-tech industries in the form of tech parks in the 1990's. In the past decade, the tenant makeup of these tech parks on the urban fridges are fragmenting as smaller high-tech startup companies begin to cluster in what used to be dominated by large corporations on the urban fridge. My research questions this type of development model, and looks into the potential in repositioning historic industrial site to accommodate high-tech research and production as an alternative approach to the current method of preservation and reuse.

Current examples of industrial preservation and reuse: 1933 Slaughterhouse (left), The New Factories (mid), Shanghai Fashion Center (right) [photos by author]
1.2 Research Questions

The development of these areas brings up several key research questions:

First, what economic, political, and social forces are involved in shaping the evolution of these sites? The development of historic industrial sites in China began in the private sector but quickly attracted the attention of local governments. Understanding the public/private relationships and interests at work is key to deeper understanding of the process of redevelopment.

Secondly, what opportunities are there for 21st century productive uses to be integrated into these industrial heritages sites? Due to the development of new technologies and rise of the entrepreneurship culture, traditional research institutions and industrial parks are becoming replaced by incubators, accelerators, and smaller-scale workspaces as the new places of high-tech production and innovation. Can these historic industrial sites, which are located in prime central urban locations, become the new centers of innovation as a result of the mixing of creativity and innovation?

Finally, can an alternative preservation and reuse model be developed that initiates a holistic approach which preserves historic authenticity, contribute to the local economy, and promote social accessibility? Oevermann and Mieg in Industrial Heritage Sites in Transformation explore the different values that the three main disciplines: historic preservation, urban planning, and architecture all bring into the subject of redeveloping heritage sites. Although there exist conflicts between the respective values in authenticity, economic development, and design esthetics and innovation, there are “bridging values” such as accessibility, character, and sensitivity that are common to all. These “bridging values” serve to assimilate the three disciplines and create a comprehensive approach to redevelopment.

1.3 Data and Case Studies

The research comes mostly in the form of the documentation of quantitative and qualitative on-site observations and qualitative semi-structured interviews with key individuals that are involved in the design/planning, management, and direct users of each site. In addition, original design and planning documents as well as a thorough investigation of the sites’ transformation will be gathered and studied. The study will focus in on three case study sites: Beijing 798 Art District, M-50, and Red Town. A fourth site that is undeveloped on Minsheng Wharf which will be used as the design proposal for industrial heritage regeneration. Beijing 798 is a 50-year old decommissioned factory that has evolved into a flourishing artistic community that has gained international attention and popularity. M-50 was a textile and wool factory that has now been preserved and reused as facilities with artist studios, exhibits, and

workshops. Red Town is a former steel factory in Shanghai that has been reused as office and studio space for artists, sculptors, and other creative industries. Minsheng Wharf was the most advanced port in China during the late 19th century and was home to a number of large granaries before the entire area was abandoned in 2005. Currently, the city is working with a private developer to redevelopment the 25-acre area into a mix-use development.

The research and analysis will serve to identify key issues and opportunities with the current approach to industrial preservation and reuse that will serve as design principles that will guide the design for Minsheng Wharf, culminating in a strategic master plan proposal for the site and a demonstration of an alternative approach to urban regeneration.

1.4 Structure

Chapter 2 provides a historical context of the change in industrial zones within the center of Chinese cities and a brief background on Minsheng Wharf. Chapter 3 details the development of the concept of industrial preservation and reuse in China and the current practices and overall development direction of industrial heritage sites. Chapter 4 looks at 3 case studies of redeveloped industrial sites that have similar contexts to Minsheng Wharf. Chapter 5 illustrates the rapid changes that has happened in China’s high-tech research and production sector and how those transformations can potentially bring new productive activities back into the urban centers. Chapter 6 serves to document the process of designing the strategic planning proposal for Minsheng Wharf as a result of the research and analysis. Chapter 7 makes recommendations and conclusions based on the research, analysis, and demonstrative design proposal, and provides leads for further research and reflection.
2
EVOLUTION OF INDUSTRY IN THE CHINESE CITY

In China’s fairly brief history of industrialization relative to the Western world, there has been an evolution of urban industrial sites in major Chinese cities in the past 50 years in which a significant shift in the value of these places to the citizens’ quality of life and economics of the city has occurred. The Danwei system following the great leap forward in the early 1960’s brought upon an unique experience through the socioeconomic and spatial merger of live and work that lasted well into the 1990’s. Since the large-scale restructuring and privatization of state-owned industries, manufacturing has been decentralized and greater separation has occurred between living and production spaces. Decommissioned industrial zones within urban areas have been either demolished and redeveloped under market pressures, or left vacant as a decaying remnant of a recent past. Minsheng Wharf is an example of the Danwei’s legacy that has been physically preserved. In recent decades, the government and people are beginning to recognize the value of these sites, but it remains to be seen how they can be reintegrated into the life of the city.

2.1 The Danwei Model

Modern industrialization in China under the Communist Party began on a major scale during the 1950’s starting with the Great Leap Forward. The economic goal of the movement from 1958 to 1961 was to transform China from an agrarian economy to an industrialized nation, while politically it was a campaign to transition the country into a socialist society. As a result of the creation of state-owned industrial enterprises, the “danwei” or “work unit” model was born. The danwei is the organization within which the worker is assigned. Whether it is a factory, shop, school, hospital, research institute, cultural troupe or party committee, all Chinese referred to their workplaces generically as “danwei”. Besides providing wages for workers, the social impact of the danwei was that it created a social safety net for the individual worker through the organization’s close-knit community and welfare services. From a spatial perspective, the danwei was where an individual’s work and life occurred. The philosophy of China’s state owned enterprises was to locate workers’ living quarters adjacent to their workplaces. “Wherever property acquisition can accommodate it,
the workplace becomes the principal unit around which domestic and social activities are linked. Danwei has become a term used to signify this spatial integration of work, residence, and social life in cities organized by the Chinese Communist Party. This resulted in an urban form of worker residences located next to or surrounding places of production (factories, warehouses, etc.), blending a dense urban morphology within the large-scale traditional industrial spaces. The entire complex was usually walled off from its surroundings with controlled access points that serves to protect and differentiate the community within. The concept of a walled enclosure in Chinese culture does not have the same negative connotation it does in the west. Walls are not seen as objects that exclude, but things that organize, protect, and give identity. However, as the remnants of the danwei typology, the enclosed design of industrial districts in China pose a challenge in creating a connection to the public realm in the present post-industrial setting.

Despite obvious poor physical conditions, the Danwei typology created a sense of belonging for individuals living within its walls. Factory danwei developments were places where live, work, and play occurred. Larger danwei’s were essentially small towns with the necessary physical and social infrastructure and amenities. The mix of workplaces, living quarters, shops, entertainment venues and other support spaces created places with 24-hour activities. The boundary between workplace and home was blurred as spontaneous social interactions related to domestic affairs occurred in factories and vice versa. Public spaces were also in-flux as social activities occurred naturally throughout the danwei.

Diagram of the formal layout of a the Danwei model
[source: Bjorklund 1986]

During its days of operations, Minsheng Wharf was an example of a danwei. Originally a British port owned by the Blue Funnel Shipping Line, Minsheng Wharf was used as a port in 1910, nearing the end of the imperial China. During its initial years of operations, it was one of the largest ports in Asia. During WWII, it came under the control of the Japanese and was renamed Eighth Continental Wharf. After the war, it came back into British control and was once again called the Blue Funnel Wharf until the 1954,
when its ownership was transferred to the People’s Republic of China and renamed Minsheng Wharf. The oldest buildings on the site are warehouses dating from 1915-1920 while the smaller and larger silos were built in 1974 and 1995 respectively. However, just 10 years after the larger silo was built, the silo was decommissioned in 2005. It is evident from past aerial photos that the original Minsheng Wharf had the typical spatial organization of a danwei, with residential quarters located very closely to where the same individuals worked. But also like most urban industries that were decommissioned, the residential activities as well as the industrial activities were removed from the site.

Satellite photos show the site in 2000 (top) with a substantial amount of informal residential units behind the industrial waterfront and busy shipping activity. Most of that was lost after the site was decommissioned in 2005 (bottom) [source: Google Earth]
2.2 Industrial Decentralization

A series of incremental economic reforms after the Cultural Revolution following Chairman Mao’s death (1976) was enacted in order to increase industrial efficiency. However, the reforms were largely ineffective due to the “iron rice bowl”- jobs at large-scale government controlled plants with life tenure and guaranteed but fixed benefits, which diminished any incentive to increase productivity. Despite these inefficiencies, China’s SOE’s produced 70 percent of the national industrial output by value, held 75 percent of fixed industrial assets, and employed 46 percent of the industrial labor force in 1985.2

However, the performance of China’s SOEs deteriorated steadily during the 1990s. According to the Economist report in 2005, “profits of state-owned industrial firms fell from almost 7% of GDP in 1987 to just 2% in 1994.” Simultaneously, the proportion of SOE’s registering losses increased significantly, and by 1996, losses by the SOE’s exceeded profits for the first time. The late 90’s to the year 2000’s saw the gradual privatization of a number of SOE’s under President Jiang Zemin as an effort to increase profitability. According to government statistics, between 1998 and the end of 2004, and estimated 30 million people were laid off from SOEs in China. In 2001, Chinese officials claimed that the reformed SOE’s were profitable again, producing gains of 240.8 billion RMB (29 billion USD) in 2000, up by more than 140% from the last year. Despite alleged growth in profits, the gross industrial output value of state-owned and state-holding enterprises had shrunk to 37.5% of national output, and fully state-owned companies represented 13% of national industrial output.3

Meanwhile, a broader shift in the economy occurred as the proportion of traditional industry (primary and secondary sectors) decreased while the proportion of the tertiary sector (finance, information, culture, etc.) increased in China’s urban areas. Industrial decentralization was initiated in the early 1990’s by increasing industrial output in agricultural areas as local governments encouraged the development of town and village enterprises (TVE’s). In effect, local agricultural surpluses were invested in manufacturing, often in small, low-technology and labor-intensive processes. By 2002, TVE’s employed 132.9 million workers.4 Decentralization was further accelerated by the recent policy of “Withdrawing the secondary industry entering the tertiary industry” in major metropolises such as Beijing and Shanghai. As a result, many older traditional industrial buildings and districts have become decommissioned and obsolete.

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3 Ibid. 33
4 Ibid. 48
5 Ibid. 48
2.3 Separation of live and work

The economic reforms during the early 1980’s also introduced new planning regulations that broke away from the previous Maoist form of socialist development to a more market-oriented one to promote economic development. The first of these new guidelines came about in 1984 through the Urban Planning Regulation, but a more comprehensive outline was issued through the 1989 Urban Planning Act. The 1989 Urban Planning Act delegated planning powers to municipalities to control developments. A two-tiered planning system was created for Chinese cities composing of an overall master plan and specific detailed plans. The master plan is a long-term strategic planning a city with a 20-year time frame, while the detailed plans are what are actually used by municipalities to control the types of developments that occur on certain parcels, including land use, boundaries, floor-to-area ratios, density and height. Land-use policies are set out in detailed plans that define the boundaries of each construction project within the planned plot, control indices such as floor-area ratio, building density and building height. Thus a rudimentary land use zoning system was introduced to Chinese planning. Land zoning led to urban renewal of old districts with single-use zoning and industrial decentralization a shift away from the danwei typology of locating residential adjacent to production spaces. This separation was further strengthened by the introduction of High-tech Industrial Development Zones (HIDZ’s) by the central government that created the model of high-tech parks in China. These high-tech parks on the urban fringes became the new places for high-tech research and production in China, and will be explored further in detail in chapter 5.

2.4. Rapid urbanization and loss of heritage

China’s urban development in the past two decades came about with terrifying speed. The rapid growth of new infrastructure and urban redevelopment came at the cost of massive demolition of historical buildings and even entire communities. Industrial sites were some of the first to be redeveloped as newly privatized firms with consolidated site ownership took advantage of their urban central locations and sold off these industrial properties to developers looking to introduce high value program. Major cities Shanghai or Beijing experienced a swift transformation from a manufacturing-based to service-based economy and most of old state-owned factories within the city had to either relocate or face bankruptcy due to the sweeping reforms in the late 1980’s. In Shanghai, 1,007 industrial sites in the urban core were decommissioned from 1992–1999, with total land area of 6.8 million square meters. Much of the industrial sites in the city center was abandoned during the last decade of the 20th century.

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The government and the public have recently recognized the value within these urban industrial districts not only because of the physically unique architecture but also their inherent culture and social significance. Not only is the monumentality of the physical presence valuable as an attraction in the city, but more so the character and identity in an urban fabric that is becoming increasingly homogenous due to rapid urbanization. Industrial heritage sites are powerful in their place-making abilities as well as providing a level of authenticity that is severely lacking in the contemporary Chinese urban context.

However, the current practice of preservation and reuse faces a number of problems. In addition to a general lack of documentation and technical standards for preservation and lack of regulatory structure for industrial site remediation and cleanup, current preservation efforts are quite myopic in nature, focusing on specific buildings without a holistic approach that can potentially lead to neighborhood regeneration. Some of the current government policies toward preservation are actually counterproductive; given an almost one-dimensional emphasis on arts and culture as the sole reason for preservation and an entitlement process that discourages rezoning. As a result, these preserved industrial heritage sites are disconnected from their 21st century context. Due to limitations to art and cultural uses, these sites have become severely underutilized when other uses such as production and housing are discouraged. A new model of development is needed to reposition these sites for productive 21st century uses that retain the authenticity of the past, which is essential to their cultural and economic survival.

3 CULTURE-LED URBAN REGENERATION OF INDUSTRIAL HERITAGE AND ITS SHORTCOMINGS

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3.1 The definition of industrial heritage in China

China’s tumultuous history throughout the 20th century saw the transition from a feudal to a socialist society and an agrarian to and industrialized economy. A large number of historically and culturally significant artifacts and architecture was destroyed during this time. The Cultural Revolution (1966-1976) destroyed countless items and places of historic value. It comes as no surprise that the Law of the People’s Republic of China on Protection of Cultural Relics was created soon after in 1982 as the initial list of principles for heritage preservation in China. However, this was strongly based on a Cultural Heritage Protection System with an emphasis on the idea of a relic - something that should be perfectly preserved in its original form without adjustments for adaptation or reuse. Although this can be applied to historic items and architectural landmarks, this definition proved problematic for industrial heritage. As this chapter will later demonstrate, the “cultural relic” approach to preservation dominated the early efforts of industrial preservation in China, and led to the demolition of many industrial sites that were not considered “cultural relics”. For the sites that were preserved, this approach significantly limited their new uses. For the People’s Republic of China, an official definition of industrial heritage did not come until the Wuxi Proposal in 2006 which states: “the industrial cultural heritages is tangible and intangible industrial relics with the historical, sociological, architectural, technological and the aesthetic values, including factories, workshops, mills, warehouses, shops and other industrial buildings; mines, processing and smelting sites, energy production sites, transmission and usage sites, transportation facilities, social activities sites with industrial production, industrial equipment, production technology, data records, enterprise culture.”

More recently, the Taipei Declaration for Asian Industrial Heritage in 2012 by The International Committee for the Conservation of the Industrial Heritage (TICCIH)- a list of principles of industrial heritage conservation that better applies to Asian countries as an alternative to the Nizhny Tagil Charter. This declaration emphasized the key differences between industrial development in Asia relative to the West and that would change the definition of industrial heritage. This led to the inclusion of technology, production facilities, equipment, as well as workers’ residential quarters of pre-industrial revolution and post-industrial revolution periods. It also placed an emphasis on industrial heritage as part of a cultural landscape and encourages the engagement of the local public in the preservation process.

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4 “Taipei Declaration for Asian Industrial Heritage”.
3.2 Evolution of Industrial Preservation and Reuse

Although a relatively recent practice, industrial heritage preservation in China had already transitioned from the extreme of pure reuse without preservation and pure preservation without reuse, to cases of preservation and adaptive reuse. This thesis will focus on Beijing and Shanghai, and in the succeeding chapter focus on 3 cases of industrial heritage reuse that have similar urban contexts as Minsheng Wharf.

3.2.2. Shanghai

Shanghai has a very rich industrial history because of its prime location as a port city. By the 1930s, the number of factories in Shanghai had exceeded 50% of the total in China. In 1949, there were over 10,000 factories in Shanghai, making it the largest industrial city in China. However, the period of urban deindustrialization beginning in the 1980’s had a huge impact on the industrial nature of the city. According to the Shanghai Statistical Yearbook, there were 1,835 industrial enterprises in central Shanghai in 2005, a decrease of 67% from 1995. The main clusters of industrial zones were located along the Huangpu River and Suzhou Creek. While the heavier industries such as shipbuilding and power plants were located along the Huangpu River, lighter manufacturing such as breweries and cotton mills were located along Suzhou Creek.

Transition from Preservation to Reuse

Shanghai did not have specific laws or regulations regarding industrial preservation until in recent years. The earliest industrial preservation efforts after deindustrialization began was 1988 with the Yangshupu Water Plant and the New Chinese Post Office, which were the two industrial buildings recommended as Major Sites Protected for their Historical and Cultural Value at the National Level. These two buildings were able to become listed under industrial heritage protection because of their unique architectural features (as cultural relics).

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The Yangshupu water plant, built in 1883, had the history and the unique architecture to be considered a cultural relic. As a result, it is one of the earliest example of industrial preservation without reuse in China (1988) [source: http://bbs.zol.com.cn/dcbbs/d167_228440.html]
Because no specific definition of industrial heritage preservation or approach existed that differentiated them from the other 59 listed sites, the same type of restrictions according to Law of the People’s Republic of China on Protection of Cultural Relics, limiting their reuse possibilities while restoring them to their original state with the original equipment and machines inside preserved. As a result, part of the first and second floors in New Chinese Post-office was transformed as postal museum, while the rest was retained for office uses. And while parts of the Yangshupu Water Plant were repurposed as a museum, the remaining areas continue the previous function for water treatment.

A similar approach was used on the Shanghai Brewery Building, which was one of the first industrial preservation cases along Suzhou Creek was the Shanghai Brewery Building listed as a historic building in 1999. Although in this case, major demolition occurred in which only the office building, while the bottling workshop and wine-making workshop of Shanghai Brewery remained. Even the wine-making building had been demolished from 5th to 9th floor. However, despite the amount of demolition, the final use of the spaces stayed relatively close to its original functions. The building became a bottling workshop and an exhibition center and beer bar was introduced in part of the wine-making workshop.

However, during the period in which the strict cultural relic preservation of the New Chinese Post Office and Yangshupu Water Plant occurred, a spontaneous grassroots artist-initiated industrial preservation and reuse was also happening. The artist movement into historic industrial buildings began in 1998, when Taiwanese designer Deng Kunyan first entered the warehouses along Suzhou Creek in Shanghai and began converting them into studio spaces. He was followed by many artists, to which raw aesthetics of industrial buildings, large uninterrupted volume of space, and cheap rents were the main attractors. Despite the initial success of individual

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conversion by artists, these reuses of industrial buildings were limited to utilizing the spaces with little to no physical modifications. Due to the lack of policy guidance and specifications, these conversions did not have appropriate measures of protecting the physical structures or methods for ensuring its safety. Furthermore, these spontaneous reuse projects were piecemeal within individual buildings and did not form into a coherent urban fabric but rather savaged buildings within dilapidated de-industrialized zones. The municipal government was quick to notice the potential of these artist enclaves, and regulations were soon enacted to guide the reuse process.

**Evolution of Regulations on Industrial Preservation**

Shanghai is first Chinese city to create the concept of “modern building protection” through the Administrative Measures for Shanghai Excellent Modern Buildings Protection in 1992. This protection policy recognized “excellent modern buildings” as constructions (including building groups) with historical, artistic and scientific value in Shanghai from 1840 to 1949. The protection of Excellent Modern Buildings is divided into three levels: (1) Major Sites Protected for their Historical and Cultural Value at the National Level (2) Major Sites Protected for their Historical and Cultural Value at the Shanghai Level (3) Shanghai Architecture Protection Unit. The first two levels are protected according to the cultural relic preservation laws, while the third type is determined by the city itself on a case-by-case basis. These were the protection measures enacted on Yangshupu Water Plant and the Shanghai Brewery Building.

In 2003, Shanghai began to expand the range of industrial preservation to buildings constructed after 1949. Shanghai issued the Regulations of Shanghai Municipality on The Protection of The Areas with Historical Cultural Features and the Excellent Historical Buildings. The “Excellent Modern Buildings” was replaced by “Excellent Historical Buildings”. A structure qualified as an “Excellent Historical Building” in Shanghai if it was over 30 years old and at least one of the following qualities:

1. The architectural styles, construction techniques and construction technologies contain features of architectural art and value of scientific research
2. The building reflects historical and cultural features of Shanghai’s regional architecture
3. The building is designed by a renowned architect
4. The building is a workshop, store, factory building or warehouse that is representative in history China’s industrial development
5. The building has other historical or cultural significance.

8 Regulations of Shanghai Municipality on the Protection of the Areas with Historical Cultural Features and the Excellent Historical Buildings http://www.asianlii.org/cn/legis/sh/laws/rosmotpotawhcftehb1294/
Most buildings in industrial heritage sites fall into the 4th and 5th categories in Shanghai. Article 25 of Regulations of Shanghai Municipality on The Protection of the Areas with Historical Cultural Features and the Excellent Historical Buildings organizes the “Excellent Historic Buildings” into 4 different levels with descending degrees of protection:

1. The elevation, structural system, plane layout and internal decoration of the building shall not be changed
2. The elevation, structural system, basic plane layout and internal decoration with characteristics of the building shall not be changed, but the other parts may be changed
3. The elevation and structural system of the building shall not be changed, but the internal parts of the building may be changed
4. The main elevation of the building shall not be changed, but the other parts may be changed.

The majority of industrial buildings on the preservation list are in category 3 and 4, which a few in category 2. The clarification of the degree of manipulation allowed for the interiors of many previous industrial properties to be retrofitted and reprogrammed for newer occupancy and uses. However, the Suggestions on Strengthening Management of Planning and Regulations on Transforming the Nature of the Premises of Buildings issued in 2006 strictly controlled the direction of reuse, which led to more government involvement and rigidity. More requirements from the city were issued that specifically targeted industrial reuse projects such as the 2009 Technical Specification for the Industrial Heritage Protection and Monitoring, which ensured appropriate preservation methods and compliance with up-to-date safety codes.

Evolution of Regulations on Industrial Preservation

As the regulations for industrial preservation and reuse matured, the Shanghai municipal government sought to unify the approach and promote urban regeneration of these industrial heritage sites through the creation of Creative Industrial Clusters (CIC’s). The designation of “creative industries” was a means by the city government to attract investments by adding new fields to the traditional list of “cultural industries.” This shift in classification will be explored more in detail in chapter 5. The city saw these decommissioned industrial sites as the perfect places for creative and cultural industries that can regenerate the image of the area. The Shanghai Creative Industry Centre (SCIC) was established by the Shanghai Economic Committee (SEC) in 2004 as a semi-governmental designator and regulator of CIC’s in Shanghai. This

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was soon followed by the *Guidelines for Shanghai’s Creative Industry Development* in 2005 by the SEC and the Shanghai Statistics Bureau, which classified creative industries into five key categories: research and development design, architectural design, cultural and media, consultation and planning, and fashion consumption. In the preceding years, many industrial site have been designated as CIC’s by the SCIC: M50 in 2004, Bridge No. 8 in 2005, and 1993 Slaughterhouse in 2006, amongst a host of others. The SCIC has recently changed its name to the Shanghai Creative Industries Demonstration and Service Platform, and according to its website, there are presently 82 CIC’s in Shanghai, covering 2.5 million square meters. In more recent years, another type of approach for industrial preservation and reuse has occurred that seemed to revert back to the cultural relic preservation approach. This is a “museum-like” approach that is heavily guided and sponsored by the government. Some earlier examples of industrial preservation and reuse such as Red Town actually started off as a museum, but evolved more into an office cluster as development went on. The Shanghai Power Station of Art is another example of this type of approach. After becoming decommissioned as a power plant in 2007, it became the “Pavilion of the Future” during the 2010 Shanghai World Expo as an exhibition hall, before being converted into a contemporary museum in 2012. More recent examples of this transition are a number of projects along the West Bank of Suzhou Creek. The Long Museum and the YUZ museum both opened at the beginning and end of 2014 respectively. The Long Museum on the West Bank is but a piece that is remnant of industrial history, a coal-hopper with a newly built museum surrounding it. The YUZ museum is a new contemporary art museum that occupies a previous airplane hangar.

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3.2.2 Beijing

Beijing is a special case of modern industrial development due to original construction of large industrial zones in the surrounding suburbs. Because of the landlocked nature of the city and the presence of historic and key government buildings in the urban core, large industrial enterprises in Beijing, such as Shijingshan Steel Plant, Shijingshan Power Plant, and Qinghe Woolen Cloth Factory were developed in the western and northern suburbs from the 1890-1949. However, this did not prevent the development of some key industrial projects in more central locations within the city. While they were developed on vacant land, the city expanded into those areas and these sites became part of the urban fabric.

Beijing’s rapid urban transformation began in 1991 with the “Old and Dilapidated (or Hazardous) Housing Renewal” program. This led to a massive renewal of industrial zones within the city which resulted in the demolition of a large amount of industrial buildings. Close to 400 industrial firms were relocated while 20,000,000 square meters of industrial buildings were demolished, and more than 20 square meters of industrial land was rezoned. In the aftermath of renewal, around 27,000,000 square meters of industrial buildings remain. Most of the demolished industrial buildings were pre-1949 while the majority of remaining buildings which were built after 1949 could not initially achieve heritage preservation status. However, this was beneficial from another perspective because it allowed reuse to occur within these industrial sites without a lot of limitations as a result of strict cultural relic preservation requirements.

1. Shuang’an Department Store
2. Ocean Art Center
3. 798
4. 751
5. Lajin CIC
6. Beijing Coking Plant
7. Beijing Water Plant
8. Five Star Beer Joint Company
9. Beijing Printing Plant

Early Cases of Industrial Reuse

A case of industrial reuse occurred as early as 1992 in the Shuang'an Department Store, which was transformed from a watch-making factory into a shopping mall. However, this is a case of reuse without any efforts at preservation, which resulted in the mall having no physical or programmatic resemblance at all with its industrial past. An early example of reuse with respect to industrial heritage is the Ocean Art Center. Originally a textile factory building that was deemed for demolition in 2001, it was saved and renovated to an art center. Despite being demolished in 2004, this project served as the pioneer in the reuse of an industrial building in Beijing that made an effort to preserve the industrial heritage as well.


Another early example of industrial reuse is the 798 Art District, which this thesis will explore in detail. 798 is an example where transformation and adaptive reuse occurred spontaneously as a result of the artist community's interest and creative utilization of industrial spaces. Artists began moving into the space as early as 1995 and by the beginning of the 21st century, the area had already become a center of artistic activity with a concentration of studios, workshops, and galleries.

Guidelines and Reform

Similar to Shanghai, there were originally no official guidelines regarding industrial heritage preservation and reuse in Beijing. While these conversions began occurring, the Beijing Municipal Planning Commission created the Guiding Opinions on Beijing's Development of Cultural Creative Industry Using Industrial Resources and Guiding Rule on Protection and Reusing of Beijing Industrial Heritage Resources in 2006 as the first official guide for industrial heritage preservation and reuse. According to this guide, industrial heritage sites in Beijing area divided into 4 levels, in descending degree of protection and ascending degree of allowed adjustments15:

15 Yao, Yanbin. Towards the Methodology for the Reuse of Industrial Heritage in China. PhD Thesis. Polytechnic University of Turin, 2014. 64-45
1. Cultural Relic: Highest level of protection due to historical significance and/or architectural uniqueness, no change from original form or function

2. “Beijing Excellent Modern Building”: Second level of protection, minimal changes to form and space- the four main factory buildings in 798 are in this category

3. Industrial Architecture Heritage: Buildings of historical value but not listed as cultural relics or Excellent Modern Buildings. Although renovations are allowed on these buildings, demolition is forbidden and guidelines are given to preserve the original structure and architectural style. Programmatic reuse to respect the buildings structure and be compatible with the building’s original function- most of the other industrial buildings in 798 are under this category.

4. Industrial Architecture Resources. Buildings which may not contain much historical or architectural significance but provide an existing foundation for new construction. This level has the least limitations and most flexibility for renovation- some of the minor buildings in 798, such as previous residential quarters for workers, are under this category.

**Evolution into Current Approach**

The guidelines led to a more government-led approach toward the preservation and reprogramming of industrial heritage sites as their potential for development was slowly being realized. These guidelines led to direct government involvement in the planning direction for Beijing 798. The plan by the Beijing Planning Bureau in 2006 for 798 included the preservation of 4 main factory buildings, cultural-emphasized programming, and consistency in overall scale and appearance. Directly adjacent in 798 is the 751 industrial complex. It was once one of the three largest gas plants in Beijing building in the 1970s and the power plant is still in operation. As parts of the complex became decommissioned, industrial structures and equipment began to be demolished and replaced with new offices. However, in 2007, the Beijing municipal government stepped in to preserve the remaining industrial structures and equipment while creating a consistent theme for the entire area through transformation into a fashion design park, officially named as the “Design-Park” (D- Park). 100 new fashion designers’ studios were introduced and the area was designed as a “Creative Industrial Agglomeration Area”. In contrast to 798 which evolved organically, 751 is an art agglomeration area directly created by the Beijing municipal government.

Similar to Shanghai, Beijing also saw the potential in introducing creative industries in these industrial heritage reuse projects. More designations of “Creative Industrial Agglomeration Chapter 3
Area” soon followed in Beijing. The Laijin Cultural Creative Industrial Agglomeration Area was created in 2008. This was the preservation and reuse of a textile plant, formerly the Beijing No. 2 Textile Factory, founded in the early 1950s. After the 1980s, like other textile mills, low production efficiency led to massive reforms and restructuring, downsizing the operations significantly and leaving vacant mills. In 2008, the city formed the Beijing Guomian Cultural and Creative Development Co., Ltd. to begin the transformation of the mostly vacant plant. The Laijin Cultural Creative Industrial Agglomeration Area was completed in 2011 by world-renown Japanese architect Kengo Kuma transformed the old factory into a creative office park. The original roof structure was retained and more than 100 creative enterprises, such as new media, advertising and animation, set up business in the park.16

3.3. Issues with current practice

Despite the increased state control in directing industrial preservation and reuse, the current approach is not without its shortcomings. These issues will be explored more in-depth in the case studies in the next chapter. The very top-down approach creates a rigid system of protection that does not offer case-by-case flexibility or encourage innovative architectural and planning solutions. Furthermore, the current one-dimensional focus on art and culture as a direction for reuse is a reversion back to the archaic “cultural relic” approach that has resulted in numerous museums within industrial heritage sites with severely underutilized interior spaces and more severely underutilized real estate in prime urban locations. This museum-like approach strips away the industriousness that defined the site during its past, which is an important component of its heritage. Additionally, conceptualizing these sites as relics removes them from their local community, and extinguishes their potential to once again become places of spontaneous interaction and activities.

Even when industrial reuse areas are deemed “Creative Industry Clusters”, the encroachment of commercialism is evident and inevitably leads to a loss of creative production. “In all, hundreds of reconverted factories throughout China have incorporated assorted design, painting, media, fashion and advertising services, which are made more commercially viable by recreational add-ons – bars, restaurants, massage, book and souvenir shops. In a sense, it is not the creativity or the networks of interaction that fund this wave of construction: it is the production and sale of tourist commodities.” While government guidance from the initial stages attempt to regenerate industrial heritage sites with art and culture-related industries, the end result has been led by the consumer market. Additionally, developers are taking

16 Ibid. 70

advantage of the designation of CIC because of the unchanged industrial land use. As industrial properties, they are subject to a much lower tax rate relative to commercial properties. Because of unclear classifications of “creative industries” and lack of effective regulation, industrial properties can continue to pay the low tax rate despite having a high percentage of commercial activities under the guise of a CIC. This is especially prevalent in Shanghai, where lax regulation and vague industry definitions leave opportunities for inappropriate interpretations. “For example, under the label of fashion and consumption creativity, all traditional entertainment and commercial businesses may be referred to as creative industries. Restaurants offer creative food (chuangyi canyin), bars serve creative desserts (chuangyi xiaochi), and retail shops sell creative products (chuangyi xiaofei). Under the same logic, a shopping mall may similarly be called a creative industry cluster as all their activities may be attributed to fashion and consumption creativity.” These designated places of creative production ultimately evolve into tourist attractions and major retailing areas as spaces for consumer service functions dominate more and more of the landscape, replacing creative production and decreasing potentials for innovation.

as a prime example of culture-led urban regeneration. However, when it regained management control, it attracted a variety of new tenants. Recently, Red Town has won its bid for rezoning and redevelopment, and in 2017, will be converted into commercial use and much higher building density is expected to occur.

4
CASE STUDIES OF INDUSTRIAL PRESERVATION AND REUSE

This chapter presents 3 cases of industrial preservation and reuse. It follows the evolution of Beijing 798 Arts District, M-50, and Red Town. Although these 3 cases share similar urban contexts as Minsheng Wharf, their development history, present operations, and projected future change are very different from each other. These 3 cases are chosen because they represent the common directions of development of China’s urban industrial heritage sites. Beijing 798 began the type of spontaneous artist-initiated reuse mentioned in chapter 3 before becoming guided by the municipal government, but eventually went through intensive commercialization in recent years. M50 in Shanghai has gone through a similar process, but the final stage of commercialization has not taken over yet. Red Town, on the other hand, was government-led from the very beginning
Drawing from the challenges that Beijing and Shanghai faced during the early years of industrial preservation and reuse and issues that current practices face, this thesis creates a set of metrics to evaluate these 3 cases that will also serve as design principles that will guide the proposed strategy for Minsheng Wharf. The 3 different cases will be compared at the end of the chapter based on these 6 metrics:

**INDUSTRIOUSNESS**

As a result of the culture-led reuse approach, many industrial heritage sites are programmed as museum exhibits or art galleries while little to no traces of actual production activities occur. Even in so called “creative clusters,” the onset of commercialization as a response to rising rents resulting from tourism have led to the replacement of work studios by restaurants, cafes, bars, and souvenir shops. In order to maintain a sense of authenticity to the history of the site, industrial heritage sites should not only become cultural relics nor should they become places of pure food, entertainment, and cultural consumption. Opportunities for productive uses should be explored that allows the site to break out of the one-dimensional mold. Today’s innovation and technology offers new kinds of production that can enhance other activities in the site.

**INNOVATIVE ENVIRONMENT**

The 21st century has led to a new era of unprecedented information sharing. Such exchange of knowledge is a catalyst for a new level of creativity and can lead to innovation. These sites should create an environment for information sharing and co-knowledge creation to encourage creative and intellectual collaboration. Spatially, the site should provide venues that foster social interactions, merging work activities within the public spaces. Public realm is key.

*Beyond just the physical preservation and maintenance of the architecture and spaces, the urban design and architecture of the existing and new buildings and additions should reflect a coherent organization of spaces while also creating a new, unifying identity for the area. Through strategic renovation of existing exterior, interior, and/or landscaping, a common theme can be created to redefine the area as the first step to regeneration and change its image from a dilapidated industrial site.*
**CONNECTIVITY**

This criterion refers to both industrial and social connectivity. Breaking from the convention model of a cultural relic, industrial heritage sites should take advantage of their central urban locations and look for opportunities to harness energy from surrounding key nodes through capturing spillover information, technology, and skilled labor into the new programmatic uses. Similarly, these sites should break from the model of an isolated artifact to form strong connections with their surrounding neighborhoods, strengthening the public realm through better urban design and increasing accessibility through pedestrian permeability from the public streets.

**ADAPTABLEITY**

Over the past two decades, the speed of urbanization and the economic and social changes it has brought in China is clearly unparalleled. Although this type of rapid growth is poised to stabilize, the real estate market in China is relatively immature and subject to constant flux. The approach to regenerating industrial heritage sites should acknowledge the rapid pace of transition and strive to accommodate multiple uses, rather than investing in infrastructure that is limited to a specific function that may be obsolete in the near future.

**ECONOMIC FEASIBILITY**

Situated on extremely valuable land within urban centers, industrial heritage sites in first tier Chinese cities are dreadfully underutilized real estate if a pure preservation approach is taken. Industrial heritage site, despite their preservation designation, are still very much part of the Chinese real estate market. Similarly, they should respond to market dynamics in order to attract tenants in forward-looking industries and innovative real estate products. This will increase economic sustainability as well as competitiveness in the current market. The result is not only a industrial heritage site that attracts tourism, but innovative industry cluster that can contribute to the local economy and increase the city's tax revenue.
4.1 Beijing 798: From Artists’ Haven to Tourist Attraction

Development History

Originally called Dashanzi factory, it was created under the “Socialist Unification Plan” of a military-industrial collaboration between China and the Soviet Union that started in the early 1950’s. However, although the Soviets were the original collaborators, a shortage of resources led to East Germany acting in their place instead. German architects and engineers gradually took over the entire project and resulted in the clearly Bauhaus style of architecture of the key buildings. Project began in 1952 under the name 718 Joint Factory and began production in 1957. 798 was an exemplary model of the Danwei model, with relatively high quality housing for 10,000-20,000 workers. The entire complex has an area of 500,000 sqm with 370,000 sqm dedicated to workers housing. It boasted some of the best public amenities, social and entertainment venues, and sports facilities.

Despite being a production powerhouse during its heyday, 798 was severely impacted by the 1980’s economic reforms and went through a period of decline. By the early 1990s employment in Factory 798 had declined from a historical peak of 20,000 to 40001. The state-owned factory eventually became privatized real estate management company called “Seven Star Group” which took over

the operations of property management and leasing. By 2003, there were 18 studios and 6 art galleries in the district\(^2\). In 1995, when most of the factory was vacant, the first artist workshops began to set up. These artists were from the Central Academy of Fine Arts (CAFA) and were drawn to the factory because of low rents and the availability of large spaces. They relocated from their original cluster in Yuanmingyuan (near Tsinghua University) and found 798 to be much closer to the city center, offering better transportation access and public amenities.

In 2002, most of the existing industrial buildings and equipment was deemed for demolition and redevelopment by the Seven Star Group to transform the site into a high-tech park and incorporate it as part of the Beijing High-tech Zone. However, this was met with much opposition from both the art community within the district as well as influential artists and architects from across the country. The grassroots campaign to preserve the area even gained the attention of the international community. In 2003 three United States magazines (Time Magazine, Newsweek and Fortune) intervened on behalf of the art district with what seemed remarkably exaggerated claims. Since 2004 overseas political figures including former German Chancellor, Gerhard Schroeder (in 2004), European Commission President, Jose Manuel Barroso (in 2007), former French President, Jacques Chirac (in 2007), and French President, Nicolas Sarkozy (in 2007) visited the area, improving its international reputation, and making the Chinese government aware of its cultural value\(^3\).

Finally, in 2005, the Beijing municipal government listed 798 as a modern architectural heritage site and designated it as a Creative Industry Cluster in 2006. In addition, a planning guide was issued by the Beijing planning commission in 2006 to preserve the 4 main factory buildings, maintain the area’s emphasis on arts and culture, and maintain the overall physical qualities\(^4\) of the district. After receiving government protection and planning guidance in 2006, rents have increased constantly, forcing artists to seek new studios in other places. In 2013, the average rent surpassed 6 RMB/m\(^2\)/day. Many art studios and galleries, especially smaller ones, were forced to move to more outlying areas\(^5\).

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\(^2\) Ibid. 152-153

\(^3\) Ibid. 153

\(^4\) Interview with Beijing Municipal Commission of Urban Planning, January 2016

Location and Context

Beijing 798 Art Zone is located in the northeastern Chaoyang District about 12 km from the Forbidden City between the 4th and 5th rings. When it was first constructed in the 1950's that area was still on agricultural land, but the city has since expanded and now the site is every much within the urban fabric.

798 is adjacent to 751, which was part of the original factory complex but under separate ownership. The site is situated in the middle of the developing Digital Innovation Park that is part of the ZGC High-tech Development Zone.
798 and 751 are both essentially part of a mega-block bounded by Jiuxianqiao Road and N. Jiuxianqiao Road, two wide 8-lane roads. However, 798 and 751, after being listed as industrial heritage sites, have been preserved in their previous physical state while the urban fabric around them has changed and even more density is being built up.

Current Conditions

The 798 complex is divided into 5 zones (A-F), with the main zones D and E along the central east to west axis of 798 Road. Although the number of artist studios have drastically decreased over the years, 798 is still very much an “Art Zone” with a huge number and variety of galleries and exhibition spaces. With the opening of Ullens Center for Contemporary Art (UCCA) in 2007, an institutional anchor was introduced that not only added a formal gallery space, but a conduit for exhibiting international art in Beijing. Although the number of restaurants remained consistent since 2007, the commercialization of 798 has really been brought on by the massive increase in cafes, bars, tea and dessert shops, convenient stores, and even pushcarts. This is further compounded by the growing number of small outdoor stands selling postcards, trinkets, and caricatures.
Evaluation

IMAGE:

798 has a natural advantage in this category because of its unique architecture and the resulting spatial qualities of its main factory buildings. The guiding plan issued by the city's urban planning commission emphasized the preservation of 4 main factory buildings.

The saw tooth form of the original factory buildings have become an iconic image of 798. The interior spaces are flooded with natural light from the unique roof shape. [photos by author]

The district is also known for interesting old and new sculptures that populate the area. They range from the original propaganda sculptures during the Maoist Era and new pieces some of which are parodies of the old. The sculptures in 798 are not only interesting in themselves but help tie the area together as a coherent whole. Sculptures from different eras also reflect on the history of the site and the changes that art has brought in recent years.

798 has some sculptures of socialist propaganda from its days as a factory (top) and more lighthearted parodies that were created later (bottom) [photos by author]
798 also has an existing infrastructure of the still active steam pipes connected to the neighboring and active power plant in 751. This network of pipes has created a consistent visual element that extends from one complex to the other, creating an interesting wayfinding element that has been also used for advertising.

However, despite emphasis on the preservation of the 4 main factory buildings, the planning guide issued by the city is less stringent on the other parts of the site. It calls for “maintaining art and culture as the main direction going forward” and “keeping the general physical atmosphere of the place”. The lax and vague requirements have resulted in significant alterations to some of the less prominent buildings, especially the single-story rows of previous workers' housing that have now become small galleries, retail, workshops, and other uses.

Without any formal regulations, Seven Star Group has allowed its tenants to make many changes to the original facades. While this does create a somewhat dynamic patchwork-like effect, the lack of a formal framework will cause these buildings to lose more and more of their original character and eventually will end up like any other strip mall in China.

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INDUSTRIOUSNESS:

798’s days as a place for traditional manufacturing is long past, but even the creative industries that had thrived during its early years of reuse is shrinking under the threat of rising rents and massive commercialization. Data shows that the number of artist studios reached its peak in 2007, right before the financial crisis. That number has continued to drop while other types of tenants such as galleries, food and beverage (F&B), and boutique shops continue to grow or remain stable. This transition from cultural production to consumption is evident in the number of boutique souvenir stores in 2013, which almost 5 times the number in 2007. While the number of artist studios is less than 1/3 of what it used to be in 2007.

Likewise, a study of the main corridor between zones D and E in 2013 reveals that while the number of galleries and studios as well as offices have decreased since 2007, the number of shops and cafes have increased drastically, nearly 280% and 300% growth respectively7. Although rising rents as a result of the popularity of the area is a main factor, this is also due to the complexity of sublease tenants that Sevenstar has no control over8. Sevenstar claims to have a limitation in place for F&B establishments, but not for small shops, but does not seem to regulate them. For the few studios that remain, high-revenue creative industries such as photography, film, and other media have replaced previous traditional art studios9.

The author visited the site in January 2016 and identified 257 establishments. Of those, just 20 were working artist studios while 139 were galleries or art centers. This further demonstrates how 798 is becoming a place of exhibition for accomplished artists instead of the experimental art production community it once was. 9 of the 20 studios were in the traditional arts such as painting, sculpture, handcraft, and jewelry, while 11 of the 20 were in more contemporary media such as photography, digital imaging, or other media. There is clearly a shift from the traditional art mediums to more contemporary, higher-revenue generating type of art. However, all of this is overshadowed by the 146 retail establishments

8 Ibid.
9 Interview with gallery owner. January, 2016
out of the 257, of which 49 are F&B establishments and 90 are small shops for clothing, accessories, gifts, and souvenirs. This is clearly the direction of 798 to cater more toward tourists and visitors, while less toward the artist community.

**INNOVATIVE ENVIRONMENT:**

Katz and Wagner note that innovation districts lead “with new fields like “tech/information” (including the burgeoning “app economy” … others still leading with highly creative industries, such as industrial design, media, and architecture.”\(^{10}\) Physically immersed within the high-tech digital park, adjacent to the 751 creative industry cluster, 798 has the locational proximity and potential for cross-industry information exchange and agglomeration between the high-tech fields and its own creative industries. However, given the current direction of development, there may not be much of a creative industry cluster left in 798.

While 798 has become a huge venue for art exhibition from the ever-increasing number of galleries, the profit-driven gallery exhibition model creates a very high threshold for entry. Most galleries today only sponsor very well-known artists while extremely high fees prevent lesser known artists from exhibiting their work. Such a model prevents new ideas in art by new faces from being displayed, appreciated, or critiqued.

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**CONNECTIVITY:**

The way 798 is situated is quite isolated due to location away from actual street fronts. New high-rise developments surround the district, creating a wall that is a visual barrier preventing visitors from seeing any part of the site. The isolation is compounded by the few entrances by which one can actually access the district. Although there are 3 north entrances on N. Jiuxianqiao Road, they are spaced very far apart, while only 1 entrance exists from the west. Although there are 3 north entrances on N. Jiuxianqiao Road, they are spaced very far apart, while only 1 entrance exists from the west.

The unflattering way in which the entrances are treated make it seem as though they were an afterthought in the midst of all the new construction. [photo by author]

Vehicular access gates mark each entrance, and one has to walk along a long road before actually reaching the art district within. [photo by author]

However, despite the current flaws in urban design and site landscaping, 798 has the potential to be very connected to the surrounding high-tech park if more opportunities for interactions were created from either built interventions or programmed events. 798’s immediate neighbor, 751, is home to a number of fashion design firms and other creative offices, and even has Audio Shanghai headquarters as a corporate anchor. 751 also regularly hosts outdoor concerts and other music performances in its main plaza. 798 has yet to harness some of the energy from those activities from its neighbor. Despite their proximity and similar industrial nature, 751 has developed into a much more industrious cluster while 798 is turning into a tourist attraction and place of consumption. The two areas are under different ownership and have very different development and management directions. In addition the new subway line 14 Gaojiayuan station will improve transit access drastically once it is completed in 2019.

ADAPTABILITY:
Given the state of some of the smaller single-story buildings after extensive alterations, they are susceptible to demolition in the near future, and some are already being replaced by new construction since they are not under any preservation requirements. This allows for a malleable storefront that can change depending on demand. However, some of the new construction are quite custom and unique in form and space, making them in danger of quickly becoming obsolete once the new tenant leaves. There is an opportunity for Seven Star Group to create a structural framework for new construction to follow that can be easily adjusted for a different tenant. The structural preservation requirements on the main factory spaces help keep the interior works temporary. This allows for temporary partitions and installations which can be easily removed once the current tenant leaves, leaving the entire open space flexible for all types of functions.

ECONOMIC VIABILITY:
Beijing 798 Art District is an example of how government intervention saved the physical space but resulted in the displacement of its original occupants and creative productive image. Being listed as an industrial heritage site was a double edged sword for this district as the government sponsored events brought media attention and eventually big name corporations into the mix. The opening ceremony for the “Nike 706 Space” that featured the “25th Anniversary of Nike Air Force” was held on 5 January 2007. Two days later, BMW Concessionaires Ltd. displayed four models in their Art Car Collection in 798 at the same site where five artworks on the “Automatic Transmission (Auto) in Aesthetic” were displayed. In July 2008, Hong Kong’s biggest IT fashion group initiated a show for “Comme des Garçons”, the off-beat but established fashion label by Rei Kawakubo\(^\text{12}\). As a result, tourism exploded after the government support. There were 500 thousand visitors to 798 from 2003-2004 and that number doubled to over 1 million in 2007\(^\text{13}\). Tourist numbered over 1.5 million in 2007 and during the 2008 Olympic Games, the number of tourists in 798 grew to more than 10,000 per day, including many famous celebrities\(^\text{14}\).


While Seven Star Group began reaping in the revenues from events by corporate tenants and the growing number of tourist service establishment, its own creative industry was beginning to shrink. In addition to the steep rise in rents, artists and other original tenants found the new tourist environment to be distracting and not conducive for creative work. Although 798 is sustaining itself through its tenant mix currently, it is driving again the community that made it so popular initially. While economically viable today, questions arise about the future of this place. When behind the fanfare of commercialization there is no more substance of creativity or culture, will the area once again begin to decline?

**Conclusion**

798 is one of the first urban industrial heritage preservation and reuse examples in China and portrays the direction that such developments can take on very clearly. Although its physical area is many times the size of the other 2 cases and Minsheng Wharf, it is the prime example of an industrial heritage site in China that has been affected by grassroots, government, and market forces in the development process. International recognition had saved the area physically, but the increased media attention and tourist attraction have almost killed the community and culture that it had produced at the very beginning. The future of this area is also in question, as commercialization seeks to engulf it if left unchecked. Although the Beijing Planning Commission has issued a guiding plan, it only guaranteed the preservation of the 4 main factory buildings while leaving a lot of flexibility in the hands of Seven Star Group. The rapid change in tenant mix calls the enforcement of that plan into question, and there is reason to believe that the government may step in yet again when 798 veers too far from the direction of “arts and culture”.

Chapter 4 40
4.2 M-50: Authentic Creative Production, but for how long?

Development History

M-50 was established in 1917 as the Chunming Textile Mill. In 1937, the factory was acquired by Mr. Zhou Zhijun and registered as a British company. During the second Sino-Japanese war, the Japanese occupied Shanghai and the factory came under Japanese control in 1941. In 1943, Mr. Zhou regained ownership of the factory from the Japanese. Following the Communist Party's rise to power after the Chinese Civil War and the establishment of the People's Republic of China, the factory became a SOE in 1951 and was later renamed Shanghai No. 2 Woolen Factory at the beginning of the Cultural Revolution in 1966. In 1994, following the economic reforms of the 1980's, the factory was privatized once again and retained its original name Chunming Woolen Factory.

However, as a result of the deindustrialization of Shanghai, the factory was decommissioned in 1999 and had to make the decision whether to sell the land to developers, split the profits between its workers and dissolve, or rent out the property and continue to pay its workers. The factory chose the latter and the artists became the property's first tenants. The artist community continued to grow due to low rents and garnered the attention of the city. In 2002, the city designated the area as "Chunming Urban Industrial Park". However, realizing the inevitable decline of traditional industry in Shanghai and the growing number of
artist studios and galleries within the area, it was renamed as Creative Industrial Agglomeration Area by the Shanghai Economic Committee in 2004, and eventually known as M50 Innovation Park in 2005.

**Location and Context**

M50 is located on the bank of the Suzhou Creek in Shanghai’s Putuo District just inside the northwest part of the Inner Ring. It is within 800 meters of Shanghai Railway Station on the other side of the creek, and 500 meters from the nearest subway station (line 13).

M50’s surroundings are dominated by newer residential towers. Without the signage, one cannot locate Moganshan Road within the newly built density.  

[photo by author]
The only way to access the site is through Moganshan Road, a curved road lined on one side by a continuous wall and on the other side by closed storefronts. Both surfaces are heavily decorated with graffiti. Given its central urban location as well as valuable waterfront property, it is no surprise that a number of high-rise residential developments have sprung up around on both sides of the creek. New residential construction is ongoing as well along Moganshan Road, while M50 remains as one of the low density zones in the area.

Current Conditions

M50 has a 23,633 square meter site area with 41,606 square meters of building area of which 32,297 sqm is rentable space. M50 is composed of 51 buildings that are currently grouped into 26 units (numbered 0-26) which house artist studios, design offices, and small shops. The original planning concept was to reactivate industrial energy, exhibit previous industrial technology and culture, combine industrial technology with contemporary art and preserve historic buildings and warehouses while providing studio and exhibition spaces for artists.
Evaluation

**IMAGE:**

The buildings within M50 are well preserved and the exterior facades are maintained in good repair. Most of the original buildings have not been manipulated heavily, and a similar toned-down exterior color palette is applied consistently across so that no specific building jumps out at the visitor. While this does give the entire complex a kind of unity, it does not create special moments that stand out and give M50 its brand of spatial identity (like the Bauhaus architecture of 798). This may be due to the existing buildings, whose architecture and scale are relatively modest. However, an opportunity is missed to introduce those moments in the interior and landscape design, rather than bare minimal treatments. The low-key nature of building exteriors gives the entire site a monotonous color palette and a similar treatment is applied for the interior spaces, just a coat of paint over the existing and the rest are just signage from the new program.

In M50 there are piece of preserved industrial equipment from the site's days as a textile factory. However, unlike the saturated nature of the sculpture in 798, the few pieces are obscurely placed and fails to tie the site together but seem rather out of place. Pieces of previous industrial equipment in M50 seem like an afterthought instead of celebrated or highlighted.
INDUSTRIOUSNESS:

Of the 135 tenants that the author documented in M50 during the beginning of 2016, 60 were creative offices and 61 were either galleries or individual artists’ studios and workshops. Of those 61, 31 were individual artists’ studios and workshops. Unlike 798, artistic production is still very much a part of M50. The question in M50 is how much longer will it stay that way? Higher rents are the key factor in an increase in retail program and decrease in artistic production. When M50 first became an artists’ community in 2000, rents were 0.3-0.4 RMB/sqm/day\textsuperscript{15}. That number rose tenfold to 3-4 RMB in 2010\textsuperscript{16}. Today, the average space rents for 6 RMB/sqm/day\textsuperscript{17}. However, despite the growth in rent, M50 has remained quite resilient to the onslaught of commercialization. From 2008-2016, the amount of ground floor area for retail remained relatively unchanged, while M50 itself remains a cluster mainly of creative offices and artist galleries and studios. One way in which the tenant mix has responded to this rise in rents is introduction of media and advertising firms, now accounting for 11%\textsuperscript{18}. Therefore, while M50 remains relatively industrious, there are long-term questions of whether its artists will remain as the rents continue to rise.

\textsuperscript{15} http://epaper.dfdaily.com/dfzb/html/2010-09/14/content_386938.htm Accessed 27, June 2016
\textsuperscript{16} Ibid.
\textsuperscript{17} http://www.loukee.com/office/JNriYn
\textsuperscript{18} Ibid.

INNOVATIVE ENVIRONMENT:

George Bugliarello of Polytechnic University in New York observed the emergence of “urban knowledge parks,” concluding that these urban parks develop around a knowledge institution in a city, provide public space or spaces for community activities, and possess high levels of density.”\textsuperscript{19} Numerous studies of the many “innovation districts” around the globe have shown the importance of the public realm in fostering innovation. Well designed and curated public spaces allow new ideas to be displayed, discussed,
and welcomes the social interaction and activities required for creativity to flourish. A 2012 survey\(^9\) of 76 firms in M50 showed a mean score of 4.35/5 for satisfaction with cultural and arts environment. However, despite being a strong cluster of artists and designers at work, M50 does not offer many spaces for them to interact. Although there are a number of open spaces within the site, they are mostly hardscape and not welcoming places to sit or gather. This is partially reflected in the survey as well, where the mean score for satisfaction with greenery and landscaping is 2.84/5.0.

\[\text{photos by author}\]

**CONNECTIVITY:**

The length and curvature of Moganshan Road makes M50 quite difficult to locate from the nearest subway station. The street is not pedestrian-friendly with the sealed ground floor of the adjacent buildings and walled construction site making it devoid of any urban feel. Part of M50 is actually along the Suzhou Creek waterfront, but the tall flood walls prevent any visual or physical accessibility to the water from the site. However, there is a lot potential to utilize Suzhou Creek as an additional mode of transportation to and from the site with opportunities to connect to the active cluster of offices and hotels on the other side.

\[\text{photos by author}\]

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\(^9\) Yang, Haihuan. Creative industries, creative industrial clusters and urban regeneration: a case study in Shanghai, China. University of Hong Kong, 2012. 185
ADAPTABLENESS:

The lack of new design interventions in M50 allows for opportunities to retrofit and upgrade the spaces for new uses. The site’s response to the river is the typical archaic approach to flood prevention. The water’s edge is an opportunity for M50 to implement innovative flood adaptation design that can potentially remediate flooding or introduce temporary program along the waterfront. Although the spaciousness of some of the existing warehouse buildings allow for future flexible use, M50 also introduced several new buildings that have irregular profiles due to the site space limitations and will have problems accommodating future programming. Also, M50 did not invest heavily in its site infrastructure given its minimalist approach, opting to keep the old water, drainage, and electric systems. This is reflected in the 2012 survey of occupants in which the average satisfaction with infrastructure facilities was 3.29/5.0. In order to attract new-revenue tenants given the high rents, M50 will need to update its infrastructure as well as its overall image.

Most of the larger spaces within M50 have been converted into galleries with temporary partition walls and can easily be restructured for different uses (left) [photo by author]

Some of the new thin buildings along the southeast edge of the site, such as building 24 (above), are an attempt to capture every scrap of remaining space available. However, the resulting spaces are difficult to program and become residual space that have little use or relationship with the rest of the site [photo by author]
ECONOMIC VIABILITY:

The privatized factory has taken on the role of a developer, but the rent it obtains from M50 goes not only to the physical upkeep of the buildings themselves, but also paying the salaries of its own workers (including retirees). M50 has been able to balance its budget through its particular tenant mix, and in 2007 its net operating income was about 500 RMB, according to a manager21.

Real estate market pressures from the surrounding properties threaten to drive up rents within M50 as well, but M50 utilizes a model that subsidizes rents for artists to combat the inevitable commercialization that has taken over many other Creative Industrial Clusters. By attracting tenants in high-revenue producing sectors, M50 can capture higher rents while lowering the threshold for famous artists and creative firms. The challenge remains to attract those high-revenue tenants in the longer term, which will require a significant amount of market research to identify them, and more importantly, improvements to M50 itself that will keep the spaces in demand in a competitive real estate market.

Conclusions

Although M50 remains physically well-preserved and intact, it does not have the very unique architecture and grand scale of the larger factory buildings 798 nor the amount of space for extensive rebuilding. However, despite these natural disadvantages, M50 missed opportunities for improving its image either through new architectural interventions, interior works, or landscaping. Similar to 798, M50 got its share of media attention after government involvement, even going as far as being labeled “most artistic place in Shanghai” on the city’s website in 201022. Tourism increased as well, with the daily average number of visitors reaching 550 in 201023. However, the promotion did not affect its operations or leasing strategy as much relative to 798. The current artist subsidy model is allowing studios to survive, but for how long? M50 will need to attract higher revenue-generating tenants to maintain artist population, and leverage that unique creative community as a means to market its spaces.

21 Yang, Haihuan. Creative industries, creative industrial clusters and urban regeneration: a case study in Shanghai, China. University of Hong Kong, 2012. 180


4.3 Red Town: Government-led to Market-led Redevelopment

Development History

The complex was built in 1956 and was formerly the No. 10 Steel Factory for cold rolling workshops. The state-owned factory went through major restructuring during the economic reforms of the 1980's, resulting in massive downsizing and eventual abandonment of the factory in 1989. A number of the original buildings were demolished in the early 2000's that created an opening in the middle of the site that was planned to become a supermarket. However, the city took notice of the industrial heritage site and planning for Red Town's regeneration started in 2004. It was chosen as the site for Shanghai Municipal Planning Bureau's urban sculptural exhibition project and was selected over 1993 Slaughterhouse and M50 because of its very central location within the city. The bureau saw the reuse of the currently vacant industrial buildings for sculptural exhibition as the perfect way to justify preservation and save the site from complete demolition. Calls for developers were answered in September of the same year when the private development firm Dingjie Investment Co. Ltd., led by Mr. Zheng, secured the winning bid. The Shanghai Sculpture...
Space was completed in 2005 and occupied buildings on the eastern portion of the site. As the curator of the sculpture space, the Shanghai Planning Bureau actually became a tenant of Red Town and signed a 5-year lease for minimal rent to gain control of the preservation of those buildings. Thus this project was initiated directly by the government through the planning phase and realized with a handpicked developer.

In return for Phase I of the project, Dingjie was awarded the rights to develop the rest of the site as a private project. Dingjie formed a joint venture with Shanghai Realize Consulting Co. Ltd. and W&R Group, combining to form Red Town Property Management Co. Ltd. in 2006. The rest of the site was developed as Phase II and called the Shanghai Red Town International Cultural and Business Community. In contrast to Phase I, Phase II was more of a revenue-driven development that looked to attract tenants in the creative industries. In 2010, when the 5-year lease by the Shanghai Planning Bureau was over, Red Town made alterations to those original factory spaces to accommodate new office spaces but still retained some areas for art exhibition and displays.

Location and Context

Red Town is located in Shanghai’s Xujiahui District in the southwest corner of the Inner Ring. It is right next to the Hongqiao Road subway station for the 3, 4, and 10 lines. Given its transit-convenient location and relative centrality, valuable real estate around the site has given rise to highly built density surrounding it.
Current Conditions

Phase II of Red Town added some new buildings but retained much of the large open spaces in the center of the site. The main portion of Shanghai Sculpture Space still remains as the original open space but now is available as a rentable venue for events and performances while the most of spaces in the other half has been rented out for office spaces.

Additional levels and volumes were added onto the existing factory spaces to create new offices on multiple levels and galleries and cafes on the side facing the open space. Currently, tenants in Red Town vary a lot in size and industry. Design firms, medical supply companies, financial services, and a host of other firm types make up a rich diversity of establishments.

More recently, Red Town had won another bid for rezoning, and as of 2017, will change to a commercial zone from its current industrial zoning. As a result, the new development plan, which has not been made public, will double the amount of FAR and introduce new program that was previously not allowed.

27 Interview with Red Town management, January 2016
Evaluation

**IMAGE:**

Red Town’s popularity stems from its spacious Shanghai Sculpture Space that possesses a compelling interior space for displaying sculpture while celebrating the original structure of the factory. Likewise, Red Town’s expansive outdoor sculpture garden and public open space has become a main attractor of visitors to the site. For the public, not only is it an outdoor space with interesting objects but one of the only open outdoor spaces with a lawn that people can site on in the center of the city. Similar to M50, Red Town preserved the original industrial quality of its interior spaces, but with more direct intent from the architect:

“Almost all materials are left in a way that they show their surfaces and textures as they were. The rough surfaces of concrete pillars are left nude; many dirty patches on side walls are not cleaned; the rotting patches on steel trusses are not polished... It is not the scientific or architectural beauty of these structural components that is respected; rather, it is the characteristic of dilapidation, agedness, and decay that are appreciated”  

However, the same cannot be said for the exterior, where significant alterations have been made to accommodate the new retail spaces along the existing workshops. Similarly, the new building constructed in Phase II are also of an uninspiring nature. In an attempt to imitate the older buildings, the Phase II buildings

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try to blend with the existing through similar material and color treatments. Unlike M50, where the existing buildings did not have unique or interesting form, Red Town Phase II did not use the opportunity to introduce innovative forward-looking architecture to site but instead chose to mimic architecture from the 1950’s.

**INDUSTRIOUSNESS:**

At first glance it would seem that Red Town is doing very well in this criteria. On the whole, the author only identified 6 F&B establishments and 12 retail stores from 78 total establishments. The rest of the establishments ran the gamut in terms of industry. In addition to the usual design firms, there were real estate offices, software, and a number of high-tech manufacturing companies. However, upon closer inspection, the establishments at Red Town for all of these high-tech manufacturing firms are only for distribution and management. Firms like Shimadzu, which manufactures precision measurement instruments, have an office branch in Red Town but the actual research and production lab is in ZJ high-tech park. However, given the number of tenants in high-tech manufacturing industries, there is potential for research, prototyping, and even production activities to transition into these spaces.

**INNOVATIVE ENVIRONMENT:**

In his analysis of the “new economy” innovation clusters in the urban core Thomas Hutton explores how amenities such as restaurants, coffee shops, and bars complement social interactions but also help activate public open spaces. Red Town has both an amenities cluster and a very generous amount of open space, but

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30 Hutton, Thomas. The New Economy of the Inner City
their dual potential has not been fully realized. Spatially, the current wealth of outdoor spaces creates opportunities for interaction and exchange. The large central open space is very sparsely populated with sculptural pieces and underutilized. In addition to artwork, the public open space can be used to showcase innovative products and prototypes from other industries currently in Red Town. With tenants that produce high-tech medical equipment, digital imaging, and other 21st century products, this open space can be used to as a testing ground for their innovative creations. This is just like how some streetscapes have been transformed into living labs in Boston, Barcelona, Eindhoven, Helsinki, and Seoul to exhibit and test new innovations in street lighting, waste collection, traffic management solutions, and other technologies31.

However, despite the potential for experimental exhibition and demonstration, it is not easy for a struggling artist or anyone with an idea to present or pitch his/her works in Red Town. Most sculptures displayed in this compound are products of already well-known artists. For example, the work called “Beloved mother and baby rhino” is by Pierre Matter, whose works are estimated to be worth RMB 72,000–80,000 in domestic auctions, and which have been exhibited in national museums and art galleries in America, Switzerland, Germany, France, Japan, and Singapore32.

Connectivity:

Red Town has the most convenient public transit access compared with the other 2 examples. The site is adjacent to 3 subway lines (3, 4, and 10). Its proximity to Jiaotong University and location within the Xiujiahu district, which has an enormous cluster of firms in the creative industries, will allow it to tap into the thick labor market. Physically and visually, it is relatively more accessible than the other 2 examples.

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ADAPTABLEITY:

The developer did not try to save any money on the renovations but proceeded with “technical installations normally utilized in a state-of-the-art, Four-A standard office building”\(^{33}\). In addition to the basic retrofits of electricity, lighting, and internet, the new a live monitoring system and high-tech window systems were installed. Not only do these investments in upgrades allow the spaces to be more competitive in the market for attracting tenants, but also keeps the buildings up-to-date for future changes. However, the same cannot be said for the Phase II new buildings that are architecturally and spatially out-of-date, with low efficiency and large amounts of outdoor circulation space that cannot be adapted for meaningful programmatic uses.

The insertions of the office spaces in one of the original factory buildings for Phase I was quite heavy-handed. Although multiple levels were created, the concrete frame is an obtrusive approach and the spatial organization leaves an awkwardly dimensioned corridor that was part of the Shanghai Sculpture Space. The heavy office additions dominate the once-open factory space while limiting the width of the corridor. It is too narrow of a gallery space to accommodate larger pieces of artwork and too large and wasteful of an office circulation corridor.

ECONOMIC VIABILITY:

Although marketed as a creative artist enclave on both its website and magazine, the spaces in reality are built and catered toward an office/business park development model. The intent on attracting high-end brands of retail, food, and wine as office tenants may have been there from the beginning. The developer probably realized the value of the area way before Phase I was
even completed. Office space rents in 2007 were 6.8 RMB/sqm/day, which were even higher than the average rent of Shanghai’s class-A office towers at 6.73 RMB/sqm/day\(^4\). Red Town’s leasing strategy diversifies its tenant mix so that upon closer observation, it is not really a creative industry cluster but more of a mix bag of everything from design to finance to product distribution. In addition, Red Town seems to target large established multinational companies such as Swiss lab equipment manufacturer Buchi, Japanese advertising giant Hakuhodo, and Japanese medical equipment manufacturer Shimadzu. The diversity of established tenants gives Red a degree of economic resilience.

**CONCLUSION:**

Unlike 798 and M50, Red Town was a government-guided project from the very beginning. But unlike 798’s development after government intervention, Red Town did not become a huge tourist attraction, but an attractive and profitable office development. A big part of this was due to the foresight of the developer, who had the professional financial and real estate acumen, unlike the cases of 798 and M50, where factory managers had to manage real estate. However, while Red Town’s diversity of high-profile tenants maintains a steady revenue stream, questions arise about whether creativity and culture will be retained. When Red Town’s transformation into a commercial zone is complete, will there be any hint of the arts and culture that initiated the project?

\(^{34}\) Jones Lang LaSalle, Corporate Occupiers Guide (Asian Pasific) - China. 2007.
4.4. Comparisons & Conclusions

Comparisons of Metrics

**IMAGE**

**INDUSTRIENESS**

**INNOVATIVE ENVIRONMENT**

**CONNECTIVITY**

**ADAPTABILITY**

**ECONOMIC FEASIBILITY**

Existing | Potential | Existing | Potential | Existing | Potential | Existing | Potential | Existing | Potential | Existing | Potential | Existing | Potential
---|---|---|---|---|---|---|---|---|---|---|---|---|---

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Chapter 4
Summary of Findings

**Beijing 798:**

Image- The existing large factory spaces give a iconic image to the site and sculptures inspire interest and tie the site together. However, if uncontrolled alterations of smaller spaces continue and no cohesive framework for new buildings, the original image will be lost.

Industriousness- The site is gradually becoming a tourist attraction, exhibition for established artists only, and advertising platform for major corporations with little to no actual production of art or other products on site. Proximity to creative industries in 751 and high-tech industries in the surrounding tech park have the potential to spillover

Innovative Environment- 798 currently does not provide an environment for innovation but has massive potential if better collaboration is formed with 751 and the high-tech park.

Connectivity- 798 is currently isolated from its surroundings, but can potentially connect with 751 and the high-tech park through interventions and programming

Adaptability- The current model facilitates adaptation but better framework is required in the future to preserve the image of the site.

Economic Viability- Although 798 is profitable as a tourist attraction and advertising platform for accomplished artists and corporations, it remains to be seen whether this model is sustainable in the long-term when the artist community is gone completely

**M50:**

Image- The toned-down colors and uninspiring new additions detract from an attractive image but there are a lot of opportunities for interior designs and landscaping that can transform the place.

Industriousness- M50 is currently still an active creative industry cluster producing art with good management that ensures the existence of these workshops.

Innovative Environment- While a creative community exists within, the current public spaces and landscape design do not encourage interactions. There is potential to utilize public outdoor spaces in the future for events and activities that encourage conversation within the site

Connectivity- Currently isolated by Moganshan Road and surrounded by gated residential communities, the site is quite hard to find from the nearest subway stop. While the continued development of gated residential communities in the surrounding areas prevent any increase in street activities, there is potential for better connection and utilization of Suzhou Creek as a feature of the site.

Adaptability- Temporary nature of interior additions and partitions of the factory spaces allow for future flexibility but new buildings are constrained by the site’s area, resulting in thin structures that cannot be used for any normal programming. There is no attempt for flood adaptation with relation to Suzhou creek.

Economic Viability- current leasing strategy and tenant mix is allowing M50
to survive but not flourish. The area’s proximity to high value residential properties will only drive up rents further in the future and put further market pressure on M50’s management.

Red Town:

Image- The successful Shanghai Sculpture Space and the public-attracting sculpture garden and expansive open space are what initiated the project. However, very uninspiring architecture of Phase II will hamper future efforts on improving the physical appearance.

Industriousness- While not a place dominated by tourists, entertainment, or consumption, Red Town is essentially an office park in an industrial heritage site. However, the presence of the offices of high-tech manufacturing firms has the potential to bring 21st century manufacturing activities either through the established firms themselves or smaller new firms through the effects of agglomeration.

Innovative Environment- Red Town has the physical spaces and some of the high-tech industrial networks to foster an innovation environment, but that potential has not been realized currently.

Connectivity- Very close proximity to 3 subway lines and facing an active urban street gives Red Town a lot of immediate contextual connectivity. Its proximity to Jiaotong University and location within the ever-growing creative industry hub within Xujiahui District creates lots of future potential as well.

Adaptability- While the developer has invested heavily during the renovation process on new state-of-the-art building and mechanical systems, the heavy-handedness of office additions and out-of-date architecture of Phase II will make future adaptability quite difficult without significant demolition.

Economic Viability- current leasing strategy is very revenue-driven and is successful and the rezoning will give Red Town more flexibility to accommodate future market demand.

Conclusions

Overall, the three sites all show great potential for improving their industriousness, innovative environment, and connectivity given their prime locations and existing physical conditions. Furthermore, they are all economically viable with the current direction of development although in varying degrees. However, all three sites are within urban settings that have changed drastically over the past decade and are currently changing with added infrastructure and new developments. How these 3 sites adapt to the new settings is key in determining their future success or failure.
Traditional manufacturing is experiencing a global transformation as digital fabrication and clean production technologies become more prevalent. R&D spaces are transforming as well with research and production activities merging in the same space. Traditional lab spaces for research and testing are evolving into makerspaces for prototyping and micro-production to accommodate manufacturing that is becoming increasingly focused on precision and customization rather than high volume. Spatially, the size of high-tech R&D spaces in China is also changing. Many of the high-tech parks were originally designed to house large domestic and international enterprises, but that landscape is changing today as smaller firms and startups have taken up the majority of those spaces (more 80% of the firms in Shanghai’s ZJ Innovation District are small firms). A major force behind this evolution in China is the advent of a “post-90’s” generation that is riding the wave of entrepreneurship spirit, forgoing conventional education and employment to seek creative innovation. The government is also fueling this trend by offering a host of incentives for startup firms in high-tech industries. High-tech parks are trying to capitalize on this trend by transitioning development from large structured spaces with a singular identity into flexible and dynamic co-working spaces with a variety of different users.

However, this shift is not without its problems. The reason these new startups flock to these high-tech parks on the urban fringes is because of the location requirement in state-designated “National High-tech Industrial Development Zones” in order to receive government benefits. Studies have shown that workers within these tech-parks outside of main urban areas experience long commute times and inadequate social amenities. Furthermore, continued development of “suburban” high-tech parks in China will lead to costly infrastructure investment as well as immense pressure on an already scarce land reserve. This chapter will detail the shift in development model due to technological and social changes, and potentials for changes in this new culture of innovation.

5.1 The Growth of High-tech Parks in China

As a late-comer to the world of R&D, China’s high-tech industry began to take shape after the significant reforms that opened up the country in the early 1980’s. This new type of industry in China not only produced new building types to support it, but a whole new development type in the country: the high-tech park. China’s pilot high-tech park is Zhongguancun (ZGC) in Beijing, a R&D and high-tech production zone in Beijing. ZGC was the vision of Chen Chunxian, a scientist in the Chinese Academy of Science. After a visit to US during 1979, Chen was inspired by both Silicon Valley and Route 128 in Massachusetts and became one of China’s first entrepreneurs after setting up his own technology consulting firm in Beijing, laying the foundation for ZGC. Strategically located near Tsinghua and Peking Universities, ZGC sought to benefit from the knowledge and human resources made available by these distinguished institutions while building on an already existing urban fabric.

As the pioneer of High-tech industrial parks in China, the initial development of ZGC spurred a rapid growth of similar zones within China. To promote research in new technologies and innovative products, the central government designated High-tech Industrial Development Zones (HIDZ), and policies soon followed through a host of tax incentives in order to attract high-tech industries to these locations. Starting with designation of high-tech enterprises in 1991, high-tech industries were assigned to the following 11 categories:

1. Microelectronics science and electronic information technology
2. Space science and aerospace technology
3. Photoelectron and optical, mechanical and electronic integration
4. Life science and biology engineering technology
5. Material science and new material technology
6. Energy science, new energy and energy-efficient technology
7. Ecology and environmental protection technology
8. Geoscience and ocean engineering technology
9. Science of fundamental matters and radiation technology
10. Pharmaceutical science and biomedical engineering
11. High-tech that has the ability to reconstruct traditional industries

The 1991 policies also included tax exemptions on profits for the first 2 years, reduced income tax thereafter, and low-interest loans for eligible high-tech enterprises within designated national

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4 Provisional Regulation on the development of national high-tech industrial development zones, 1991
high-tech industrial development zones. The turning of the century brought about 6 additional policies from 2002-2003 that granted additional benefits to the software industry and integrated circuit industry.

Following the footsteps of ZGC, Zhangjiang High-tech Park (ZJ) was established in 1992 in Shanghai as the beginning of the HIDZ there. ZJ is located just south of the Minsheng Wharf site. Despite also being modeled after Silicon Valley, ZJ is very different from ZGC in the fact that it was completely developed from scratch, on previous agricultural land without any existing urban infrastructure. Furthermore, it did not have existing major educational institutions within the area nor had any significant involvement from universities or research institutions. Development did not start in ZJ until 1999, when a “Focus on Zhangjiang” initiative was created by the Shanghai municipal government to promote the IC industry, software industry, and biomedicine as the key industries of which would play a leading role in innovation. 27 HIDZ’s were approved in 1991 and 25 in 1992 to begin allocating land for which to construction high-tech parks. In 2010, an additional 27 HTDZ’s were approved by the central government. Today, China has 145 HIDZ’s nationally supported by the Torch program created by the Ministry of Science and Technology (MOST).

The original overarching philosophy of HIDZ’s is to attract Foreign Direct Investment (FDI) and large domestic high-tech companies that the government hopes will change technology and knowledge channels that will result in innovation. This is expected to occur in three steps: “Firstly, proximity between potential business partners in a park allows for frequent contacts. Secondly, based on frequent contacts, functioning local business networks can evolve. Thirdly, cooperation in networks allows for knowledge exchange and learning. Finally, learning will, overtime, evolve into innovation.”

A large part of this thinking dates back to Marshallian economics of agglomeration, where clustering of industries will eventually lead to knowledge spillovers and increased technological innovation and efficiency. For newly industrialized countries such as China, “importing” foreign firms as well as products serves as a conduit for technological transfer. The resulting form of developments are very corporate-looking in nature; new buildings with glass facades and large footprints on the city’s edge became the norm for tech-parks around China.

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7 China Torch Program. “National High-tech Industrial Zones in China”.
5.2 The effect of technology, creativity, and entrepreneurship on R&D and production

Over the course of 2 decades, the industrial makeup of high-tech parks throughout China has changed quite dramatically. While traditional manufacturing has been leaving major urban areas in China, 21st century manufacturing, in the form of digital production (software, media, information technology) has become the dominant industry and job creator for young professionals in today's first tier cities. In the past decade, employment in science & technology and IT & software fields have grown consistently, with the latter making a significant jump in recent years.

The growth in IT & software employment is especially prominent in Beijing and Shanghai. Employment in IT & software industries has already surpassed employment in science & technology in the past few years. Although Beijing’s employment in science & technology industries has seen steady growth, employment in that sector had taken a dip in Shanghai from 2011-2012 before bouncing back.

**Beijing’s High-tech Employment**

**Shanghai’s High-tech Employment**

(source: National Bureau of Statistics of China)
Coupled with the new technological development is a new culture of innovation. With an initial spark in the creative industries, a merger is forming between art and media with new digital technologies. The new digital medium allows for an increasing variety in interactive media with a profound impact on creative industries. China is no longer a factory for the reproduction of commoditized art and design, but transitioning into designer as well.

**Impact of the Internet and Digital Technologies**

Since the turn of the 21st century, increased internet infrastructure and accessibility throughout China has led to an increase in the microelectronics science and information technology industries. This growth was magnified recently through the onset of mobile technologies. According to research by China Internet Network Information Center, smart phone connections to the internet exceeded PC connections for the first time in June 2014. As a result, e-commerce, online banking, information systems security and digital marketing have become new growing industries within the country. China's largest mobile platforms: Baidu, Alibaba, Tencent (BAT) are capitalizing on this trend and expanding compatibility of mobile applications and gaming, prompting an explosion of startup mobile software and gaming

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Evolution of a Creative Culture and the merging of industries

China’s reputation as a world factory comes from the typical business model of opening a factory and mass producing a contracted product. Foreign investors bring not only capital, but also new products/services and practical sector-specific skills. This model has become used to mass produce pieces of art and components of design and other creative industries. Dafen, an artists’ village in Shenzhen, south China is an example of an “art factory” where 8000 or so artisans work long hours in factory conditions replicating oil painting of old masterpieces as well as kitsch paintings found in cheap souvenir shops. Similarly, animation factories were opened in China to provide cheap outsourcing options for international companies, offering huge savings in labor costs. Last but not least, render farms exist all over China as well, taking orders from international architects and producing photorealistic or artistic renderings of other individual’s designs.

However, that model is slowly transforming as the creative culture becomes more prevalent in China. The transformation was expedited in the early 2000’s when the country realized the way to stimulate economic growth was either to increase production capacity through the existing traditional industries, or create new eco-friendly industries with unknown growth potentials. The term “Created in China” appeared in 2003 and the movement began at the Second International Forum on Cultural Industries in 2004. It was quickly noticed by the government and in 2005 Beijing hosted the first Creative Industries and Innovation conference. The cultural innovation timeline, as described by Michael Keane, is a transition from standardized mass production, imitation of imported culture, co-production with knowledge sharing, industrialization of culture, to the final creation of creative communities that produce cultural goods for local and global markets. China strived to move past mass production and imitation to the production internal creative products.

However, from a policy standpoint this was a difficult transition because the original “cultural industries” (traditional arts and media) were completely state controlled. Digital technology has transformed the original “creative industry” classifications and as a result, the Chinese government has not officially provided a classification. Major cities like Beijing and Shanghai however, had started classifications of creative industries as early as 2002, but the range of fields are extremely broad. “Beijing Cultural and Creative Industry Classification Standard” was issued in 2006 by the Beijing Bureau of Statistics which defined nine major sectors of the creative and cultural industries: 1. the arts; 2. press and publications; 3.

13 Kean, Michael. Created in China the great new leap forward. UK: Routledge, 2007. 87
The Growth of Entrepreneurship

Another key driver in the changing high-tech industry is the rise of entrepreneurship. A large part of this is influenced by the younger generation, or what Chinese has coined “post-90’s”, which is equivalent to “millennial” in the US. Due to the internet and the availability of information, this generation of young people are born into a wealth of knowledge that no generation has ever experienced. Through their qualitative interviews and research of middle-class educated Chinese youths in first and second tier cities, they discovered that this new generation of post-90’s have a new sense of individuality. They are no longer willing to copy others by buying or wearing the best brands, but creating their own individual image and striving for their own individual aspirations. This change in perspective of post 90’s generation in career paths as well, opting to take risks in entrepreneurship rather than work at a traditional white-collar corporate jobs. For many young Chinese graduates, the path of entrepreneurship offers an alternative to the pressures of conventional job search, fear of unemployment, and an opportunity to fulfill individual goals. In Forbes China 2014’s 30 under 30, more than 20 of the youth entrepreneurs were founders of high-tech companies.

Radio, television, and film; 4. software, network, and computer services; 5. advertisement and exhibitions; 6. art trade; 7. design services; 8. tourism, leisure, and entertainment; 9. and auxiliary services. In Shanghai’s classification system, there are only five categories: 1. research and development (R&D), 2. architecture design, 3. culture and media, 4. consultation and planning, and 5. fashion and consumption. However, each category contains a huge range of specific fields and the system is similarly vague and open-ended.

While the broadness and open-endedness of the “creative industry” classification is one of the problems affecting the actual creativity of Creative Industry Clusters (CIC) as mentioned previously in chapter 4, this inclusion of new fields such as software, network, and computer services allows some current high-tech industries to be included in that group. New forms of digital media, animation, software, and game design are just some of the industries that are emerging in CIC’s. Although better classification is needed to distinguish fields that actually engage in creative production activities that can potentially lead to innovation, the traditional fine line between art and culture and industrial production is gone.

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18 China Youthology. “Post-90’s Tiny World, Big Era”. China Youthology 2013
However, these entrepreneurs do not succeed on their own. Their ideas and innovations are backed by huge amounts of venture capital funding. In 2015, VC funding in China ballooned to an unprecedented $37 billion US\(^{20}\), which accounted for 27% of the total global venture capital funding that year.

But the largest supporter of this entrepreneurship phenomenon is the Chinese government. Realizing the slowing growth of the economy, the central government envisions entrepreneurship as the key to continuing economic growth and innovation. This is evidenced in many recent injections of public funds and beneficial policies to encourage domestic startups. Government-backed venture funding raised $231 billion in 2015, financed through tax revenue and state-backed loans, the largest pool of money for startups in the world\(^ {21} \). The 12th 5th year plan in 2013 included policies that decreased startup capital requirements for new company registration, which encouraged entrepreneurship and made crowd-source funding as a viable source of capital. These beneficial policies were further enhanced in 2014, with government sponsored friendly interest rates, insurance, and a host of other benefits to encourage young people to choose the path of entrepreneurship\(^ {22} \). While more recently, the government is targeting entrepreneurs before they even graduate. The Ministry of Education promoted new policies at the end of 2014 to allow flexible terms for students to have the option to put their studies on hold and start their own businesses\(^ {23} \). All this has resulted in the

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Chapter 5
dramatic growth of new company registrations throughout China and the increasing percentage of private firms.

**Annual New Firm Registrations in China**

There were more than 2.5 times the number of firm registrations in 2015 compared to five years ago due to the amount of public and private support for startup companies. 

(source: State Administration for Industry & Commerce of the People's Republic of China)

### 5.3 Spatial effect on High-tech Parks:

As a response to the explosion of startups, the conventional workspaces for research and production is dramatically changing as well. China is seeing a dramatic growth in the number of real estate's newest products: incubators and co-working spaces. In 2000, the number of incubators in China was 131. In 2013, that number grew to 1468. According to a report by iiMedia, the number of incubators in China is more than 2000 in 2015 and is projected to be more than 5000 in 2020. Meanwhile the growth of co-working spaces in Beijing and Shanghai led to the establishment of companies like SOHO 3Q, UR WORK, Naked Hub, People Squared, and others. Tech-parks are quick to realize the entrepreneurship trend and incorporate new real estate products into their program.

Beijing's ZGC Innoway was established in 2013 after receiving $36 million in government funding for renovation of entire 200-meter street. It became a mixture of co-working spaces, incubators, investor offices, and coffee shops that became the home to over 300 startup companies. The original street, Haidan Book Street, was a dilapidated collection of bookshops before the makeover. Shanghai Knowledge Innovation Center’s InnoSpace was opened in 2011 and provides entrepreneurship services for its startup tenants.

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such as tech support, personnel recruitment, market promotion in addition to physical space and infrastructure. Shanghai’s ZJ Park has recently launched a 6,000 sqm incubator for Hujiang.com, and is planning to establish an international incubator in collaboration with Israel. This is further boosted by a number of preferential policies from the central government as early as 2007 that exempted specifically high-tech parks from land use and property taxes on properties or land provided to incubators.

However, Innoway in Beijing is physically very different compared to the incubators in other high-tech parks around China. Since ZGC is already within an urban fabric, the renovation of the previous Haidan Book Street produced a very urban environment in which street activities occurred alongside the coffee shops on the ground floor of the startup workspaces, creating quite a vibrant atmosphere that encouraged activity and interactions. KIC’s InnoSpace and ZJ Park’s new incubators, like most in other tech parks, are confined in large buildings within a suburban office park environment. While environment is more successful and conducive to a fostering a startup company is difficult to quantify, iiMedia’s 2016 report selected the top 30 incubators from across the country based on their level of media awareness, management capabilities, resource capabilities, and overall innovative atmosphere. Of the 30, 9 were located in ZGC of which 7 were in Innoway. 4 of the top 5 incubators were located in ZGC, 10 were not located in high-tech parks, while number 30 was InnoSpace, and ZJ Park did not even make the list.

29 Notification of Ministry of Finance and State Administration of Taxation on certain taxation policies questions concerning scientific and technological enterprise incubator, [2007], no.121
5.4 Future Opportunities and New Directions for China’s R&D and Production

The original development model of high-tech industrial parks has a number of issues. Contrary to Beijing’s ZGC, most high-tech parks are developed on agricultural land outside of urban areas. Despite flexibility in design and planning, this model encourages new construction and sprawl within an already land-constrained context. Some municipal governments have taken advantage of the national HIDZ designation by converting large amounts of agricultural land and selling them to high-tech park developers to generate quick revenues. As a result, the average area of China’s national high-tech industrial development zones in 2009 is 21 km², whereas 80% of science parks internationally have an average area of less than 1 km². Despite the rapid development process, the actual constructed area of HIDZs is much less than the approved area, leading to questions about land usage efficiency.

An example of this inefficient land use is the original park of ZJ Park, which tried to imitate the low suburban model of Silicon Valley. The amended plan in 2000 required the FAR of research and educational zone to be less than 0.55, and the FAR of Technology Innovation Zone to be less than 0.85. However, that model was soon discarded when it was discovered that more building density was required in order for the industries to function and currently most sites in ZJ Park have a FAR from 1.2 to 2 as a result.

Although building on the urban fringes reduced construction costs, it inevitably led to much higher costs for new infrastructure development and other social amenities, some of which is lacking. According to a 2007 survey conducted in ZJ Park revealed that 46.7% of respondents believed that the ZJ should increase the number of supermarkets or groceries. “To buy a drink we need to walk far away, to take a newspaper we need to walk far away and to have a lunch we still need to walk far away.” Although “Live in ZJ and work in ZJ” is the advertising motto of the area, ZJ is designed like complex, where individual zones are separated for singular uses (small and large enterprises, incubators, residential, service, etc.). Such single-use approach to planning takes life away from certain zones during certain times of the day and fails to create an active urban environment. Not only is the location away from urban center create a lack of many amenities, it also prevents opportunities for social interactions that are vital for innovation to occur. The fringe locations of these tech parks prevents them from tapping “into the dynamism of the very consumers they are targeting.”


33 Yan D., Jiaming F. (2007), Zhangjiang Life Survey, Architecture & Culture, 3rd issue

with several CEO's of firms in tech parks by Michael Keane revealed that although HIDZ offered attractive business incentives, it was not a place to be creative, especially for creative high-tech firms involved in digital media.\(^{35}\)

Furthermore, questions arise over whether the knowledge spillover from foreign to domestic firms that the government hopes to capture is actually happening and is really leading toward innovation. One argument is that the state-led system of innovation is actually counter-productive. Critics like Dieter Ernst points out that in 2009 almost 90% of China's patents were created in state-owned enterprises with many of them being low-quality, and concludes that China's innovation system actually creates incentives for low-quality patents due reliance on government directions rather than market forces.\(^{36}\) This also leads to the question of foreign dominance, a one-way exchange of information that is a barrier to innovation. A survey of ZJ tech park's integrated circuits (IC) industry in 2008 reveals that almost 65% of shareholders are foreign investors. Therefore, ZJ's IC industry is not innovative in a strict sense, but specialized in carrying out low-cost steps of the value chain of high-tech products. In this way, ZJ is not producing innovations, but at best raising the technological level of China's IC industry.

This foreign dominance is reflected in the FDI directly responsible for productivity of tech parks at least in their early stages (1992-2000). A 2003 study looking at China's tech parks found that there was considerable spillover to firms in the technology parks from the FDI that the host cities received. A one-percent increase in host city FDI raises labor productivity in the technology parks by 157 yuan. The spillover also produces dynamic effect. A host city that received one-percent more FDI in 1992 saw labor productivity in its technology park increase by 1.5 percent more from 1992 to 2000.\(^{37}\) Meanwhile studies also show that the actual spillover effects in tech parks is not due to agglomeration, but FDI infusion and favorable government policies toward firms. “On the micro-level, the spatial concentration of hi-tech industries does not result from a division of labor based on specialization, but is caused by the FDI push, local policies, and also the export pull. So although the degree of industrial concentration is increasing, the spillover effect and economic efficiency are relatively low.”\(^{38}\)

All in all, this leads to the conclusion that the original model for tech parks is obsolete and is not conducive to innovation. Critics like Wang Jici contend that industrial parks are regarded by government as infrastructural, a means to attract enterprises

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35 Ibid.
36 Tylec, Tomasz, Transformation of China’s Innovation Policy. Selected Issues Research Papers of the Wroclaw University of Economics. No. 257. 105-112.
from outside\textsuperscript{39}. In contrast, the industrial cluster, or the creative cluster model, is about enabling a learning economy within. The Creative Industry Cluster (CIC) model is showing very promising results despite the encroachment of commercialization. Although current literature is lacking on this subject, a panel study of Chinese provinces from 2003-2009 finds a significant positive correlation between creative industry employment density with the number of patents produced and value-added from high-tech industries when controlling for FDI, enterprise size, and regional R&D intensity\textsuperscript{40}. The same study revealed that increased FDI had a contrasting negative effect on regional innovation, reinforcing the position that while FDI increases productivity, it acts as a barrier to knowledge spillovers that can lead to innovation.

Industrial heritage sites within central urban contexts like Minsheng Wharf have the opportunity to provide a space where both the creative and high-tech industries can coexist and mutually benefit each other. High-tech production startups and small firms can begin to move back into the urban centers if reforms are made to policies on locational benefits for high-tech industries. In addition, preferential policies and governmental support can be provided for new incubators and co-working spaces to open in regenerated urban industrial sites instead of being dominated by the tech parks. The central urban location allows not only access to a thick labor market, but more social interactions with the latest trends and fashions that stimulate creativity. Such a move will allow firms to benefit from agglomeration economies, create environmentally more sustainable developments with smaller carbon footprints and reduced sprawl, and unlock the unique potential to revitalize industrial heritage sites through increased activities and contribute to the contemporary innovation economy. Furthermore, the government needs to realize that if an industrial heritage site is already a designated Creative Industrial Cluster, such a move will also create an opportunity for high-tech industries to interact with the creative industries already in place, capitalizing on the merger of the two industry sectors. There will not only be technical knowledge spillovers but also creativity spillovers, going beyond merely improving existing technologies but engendering true innovation.

\textsuperscript{39} Sun, Yutao and Fengchao Lu. “Evolution of the Spatial Distribution of China’s Hi-tech Industries: Agglomeration and Spillover Effects”. Issues & Studies’ Vol. 48, no. 1 March 2012. 151-190
\textsuperscript{40} Yu, Wentao et al. “Creative industry clusters, regional innovation and economic growth in China”. Regional Policy and Practice, RSAI 2014
This chapter will describe in detail a strategic planning and design proposal for the Minsheng Wharf site. This proposal was the result of a team effort during the Beijing Joint Studio between MIT, Tsinghua, and Shanghai Jiaotong University from May 22nd-June 16th. The author collaborated with fellow students Kai Chen, Daniel Fink, Elaine Kim, Xi Luo, Zixiao Yin to produce the design and drawings for this project.
6.1 Contextual Analysis

Macro Analysis

Located in Pudong New District, the site is located along the lower reaches of the Huangpu between Shanghai’s financial district and a number of active traditional industrial areas further down the river with culminate in the main import and export ports as Huangpu pours into the Yangtze River. The site is quite centrally located within a number of new developments in Shanghai, including ZJ High-tech Park to the south, the Knowledge Innovation Community (KIC) to the north, and a great number of Creative Industry Clusters to the west in Puxi. Minsheng Wharf’s location also places it in the crossroad of Shanghai’s transition from a manufacturing to a service-based economy. North of site across the Huangpu lies Yangpu District, which was once the engine of Shanghai heavy industry but now the home to decommissioned industrial site undergoing conservation and reuse, such as the Yangshupu Waterplant, Shanghai Fashion Center, and the recently decommissioned Yangshupu Power Plant. This meeting point of both the old and new world economies gives Minsheng Wharf the potential to harness the new industrious energy from the Financial District while becoming a paradigm for industrial preservation and reuse.
The site is roughly 118,000 sqm (29 acres) and is the eastern end piece of a long strip of the currently undeveloped land under the state-owned development firm Huangpu Group. Another state-owned firm East Bank manages the buildings. An overall masterplan has already been developed by the Huangpu Group for the rest of the entire site which is a mixture of office and residential buildings set back from a public open waterfront\(^1\).

Although close in proximity to the Financial District in Lujiazui, current public transit infrastructure is lacking. According to Baidu Maps, it takes 45 minutes to get to the financial district just 3 km away by bus or subway (1 transfer), while walking would take just under an hour. However, this is bound to change by 2020, when the construction is underway for new subway lines 14 and 18 that will better link Minsheng Wharf with the rest of the city\(^2\)^3.

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\(^1\) Interview with Huangpu Group, January 2016

\(^2\) [http://baike.baidu.com/view/947449.htm?fromtitle=%E4%B8%8A%E6%B5%B7%E5%8F%B7%E7%BA%BF&type=syn](http://baike.baidu.com/view/947449.htm?fromtitle=%E4%B8%8A%E6%B5%B7%E5%8F%B7%E7%BA%BF&type=syn)

\(^3\) [http://baike.baidu.com/view/1733006.htm?fromtitle=%E4%B8%8A%E6%B5%B7%E5%8F%B7%E7%BA%BF&type=syn](http://baike.baidu.com/view/1733006.htm?fromtitle=%E4%B8%8A%E6%B5%B7%E5%8F%B7%E7%BA%BF&type=syn)
While the site may currently lack public ground transportation, the Huangpu River is very active with shipping activities. This is reflected in the dense ferry service network along both banks of the river.

Flooding is a main concern of the Huangpu River and flood prevention infrastructure in the form of flood walls and flood gates have been already implemented on site. However, given the threat of climate change, the site will have to adapt imminent sea level changes in the long-term.

A 2-degree Celsius increase in average temperature will cause most of the waterfront edge of the site to become underwater.

A 4-degree Celsius increase in average temperature will cause most of the site to be underwater.

Micro Analysis

Currently the site is bounded by a number of undeveloped areas and areas under construction. The site across the canal to the east is currently mostly vacant but is zoned for commercial development set back from a public waterfront. Portions of area south and southwest of the site is currently under construction for residential and commercial uses, while older residential housing from the 1990's are on the southern edge of the overall master plan area.

4 Shanghai Municipal Planning Bureau. Detailed zoning plan of parcels containing Minsheng Wharf.
Ownership on and around the site is already being fragmented as Huangpu River Group is looking for project proposals from other developers to realize the master plan. Currently, Vanke has acquired the larger block to the south and is currently constructing a high-rise residential project, while Greenland Group, a state-owned developer and the largest real estate development firm in China, has acquired the smaller piece and is proposing a similar residential development that has not started construction yet. Meanwhile, Depu group has acquired 3 buildings in the middle of the site and are finishing rehab works on all of them.

The buildings on the site are protected by a 1.2-meter flood wall continuous across the entire length of the waterfront. Access to the waterfront is provided by a series of flood gates. This typical approach to flood prevention is actually a barrier to the waterfront, which has a boardwalk that is an expansive 30 meters in width. With that type of infrastructure, the waterfront area is in danger of becoming vacant without any actual programmed use.
Our group immediately noticed some of the past industrial structure remaining on the site, such as the 8-meter width bridge structure for transportation of goods just outside the edge of the flood wall, and the tracks for cranes that still remain on the site. These elements began to drive our proposal to integrate them into the design. We envisioned the waterfront walkway as potential having a combination of temporary and permanent new interventions that create a much more dynamic public space, and provide public access to the water in key locations.

Currently, there is no public realm on the site as it exists because like all site deemed for redevelopment in China (even when no finalized proposal has been confirmed), the site is closed to the public and only controlled access is granted for individuals involved with the project. Even when the temporary barriers are removed, the layout of the site and design of the existing buildings allow for few points of access into the site and to the waterfront.

A current temporary wall is set up around the site which creates a visual and physical barrier (below). Even when the temporary wall is taken away, the current ground floors of the silos are sealed and not accessible (right) [photos by author]
Noticing this, we sought to create a more permeable street face, especially opening up the ground floor of the silos to allow pedestrian movement through this street edge. The activities from the street can spill into the site and vice versa.

Not only does the site currently have a low built density (<0.9 FAR), but also a low site coverage. A large portion of the site is open space, and even more when temporary buildings like the contractor's on-site management office and living quarters for construction workers and removed. However, these open spaces lack an urban scale. They are very spacious but surrounded by industrial buildings that lack human-scale at the street level. Our design sought to create a choreographed sequence of urban public open spaces that pull in surrounding activities through strategic adjustments of the existing ground floors, new interventions, and landscaping.

Existing access (top). Potential to create more public waterfront accessibility through increased permeability of the ground floor (bottom).

Existing open spaces on site and their relationship to other spaces in scale.
There are 3 building structure types on the site. The oldest buildings (1915-1920) are built with a concrete frame structure. Two of the buildings have already undergone extensive renovations, and the new design has significantly changed materials of the exterior facade. One of the oldest buildings on the site (1915) used to be a management office and is also of concrete frame construction. The other two older warehouses have very unique exterior “slides” as architectural features that were used for the transportation of goods. From the very beginning, we realized the historical value and uniqueness of this group of buildings and sought to prioritize their preservation in our eventual proposal. However, this was not to be done in a “culture relic” kind of approach, but finding ways to incorporate new architecture while. The second structure type is the warehouse with steel trusses. 4 of the buildings exist with 3 along the waterfront right inside the flood walls. These buildings were built much later from the early 1980’s to early 1990’s. Architecturally, these buildings lacked the details and features of the previous group. Our approach toward this group was focused on adapting the existing spaces for new 21st century programmatic uses. Finally, the set of 40-ton and 80-ton silos, built in 1974 and 1995 respectively, have very dramatic interior spaces emphasized by the massive supporting columns. Although the space is difficult to utilize for conventional programs because of the structural obstructions, we see massive potential to attract social gathering and interaction within this space due to its interesting form.
6.2 Programmatic Analysis

Although the developer sees this portion of the entire waterfront master plan as being heavily subsidized by the other developments, we do believe that there is opportunity to create value through the program in such a unique physical and historic built environment. Unlike so many recent museum-like culture-led industrial preservation and reuse projects in Shanghai, Minsheng Wharf can retain its historic value while looking to the future. Chapter 5 argues for the integration of high-tech industries into the existing framework of Creative Industry Clusters and we see the opportunity to create that alternative model in Minsheng Wharf. Rather than selecting and assigning individual program to either space, the strategy here is to create an environment that will generate innovation through a holistic approach that integrates synergistic program into a cycle of creative production and consumption.

Our team immediately noticed Minsheng Wharf's locational advantage not only for physical connectivity but potential industry connectivity as well. The new subway line 14 will create an east-west industry corridor that connects the creative industry clusters in Puxi, the financial district in Pudong, and the more traditional active industries further up the Huangpu River. The new line 18 will create a new north-south corridor of technology and innovation, connecting rapidly developing Yangpu Knowledge Innovation district which contains the Knowledge Innovation Community (KIC) as well as top academic institutions such as Tongji and Fudan with the ZJ High-tech Park in the south. Minsheng Wharf lies at the center of this network of knowledge and creativity, and has massive potential to become where ideas and talent meets.
Our approach toward programmatic analysis was to understand the current industries within these growing high-tech areas and their potential growth directions in order to optimally position the redeveloped Minsheng Wharf into this network while taking advantage of its central location within Shanghai.

**Yangpu Knowledge Innovation District**

The “Guideline of the Yangpu Knowledge Innovation District” released in 2004 as an effort by the municipal government to reposition Yangpu’s traditional industries for high-tech development. The guideline stressed the integration of educational institutionals, high-tech parks, and local communities. Data from the 2011 Shanghai Statistical Yearbook shows the rapid growth in high-tech industries within Yangpu from 2006-2010, with the software sector dominating as sector of new company registries in 2010. The newest fast-growing developing in that area KIC, a 49-hectare high-tech park part of the Yangpu Knowledge Innovation District, is capitalizing on the growth of this sector. KIC’s phase I and II (completed in 2006 and 2011 respectively) brought in corporate tenants in software, design, finance, and cloud computing with industry giants like Oracle, Deloitte, China Telecom, EMC, and eBaoTech. More recently, KIC’s focus on innovation and entrepreneurship led to the opening of InnoSpace, a startup accelerator that hosts approximately 60 tenants at a time for 3-month leases. Over 50% of InnoSpace’s tenants go on to obtain addition funding and many move to the more formal offices within KIC. On March, 2014 KIC was the venue for Shanghai-Hong Kong Hackathon, in which over 180 young developers, designers and entrepreneurs from Hong Kong and Shanghai competed in an intense 47-hour app development event.

**2010 companies established in Yangpu District by Industry**

![Pie chart showing the distribution of companies by industry in 2010.]

*Source: 2011 Shanghai Statistical Yearbook*

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Zhangjiang High-tech Park

Shanghai’s first high-tech park started off with industries mainly in the bio-medical and integrated circuit sectors. However, in recent years, that landscape has changed dramatically with the growth of a new sector in software and creative media. In 2010, the bio-medical and integrated circuit sectors in ZJ Park generated a combined revenue of around 40 billion RMB. That same year, the software and creative media sector (software and app development, gaming, animation, etc.) generated 55.358 billion RMB in revenue. The boom of this new sector led to the creation of ZJ Animation Valley within the tech park. The gaming industry within ZJ Park generated more than 7 billion RMB of output value in 2012 and accounted for 37% of the total gaming industry in Shanghai. From a real estate development perspective, ZJ Park has performed extremely well. The ZJ Park development company had purchased over 130,000 sqm of rentable properties in 2006 and until 2011, have had 95% occupancy. ZJ Park also has a number of high-end business hotels that services its high-tech enterprises with almost 100% occupancy rates. More recently, ZJ Park is also capturing the startup market, joining with Unilever in 2016 to create an incubator platform within the park that gives technical support, laboratory facilities and business guidance to multinational companies.

For Minsheng Wharf, we considered a mix of different program types that diversifies the development risk while at the same time creates a strong theme to give the place a unique identity. Drawing on the research of surrounding examples in high-tech production and innovation, our group looked into using digital media as the main theme. This is a high-tech, 21st century industry that is also part of the creative industries. We thought of the site as combination of art, culture, and technology. It is where the production and consumption of these 3 elements occur. A machine that produces media while being a performance in itself: The Minsheng Media Machine.

MINSHENG MEDIA MACHINE

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Today's media is changing, breaking down the clear line between consumer and producer. The internet and digital technology has produced social media stars that bringing down the threshold and scale of media production. However, the other extreme is true for TV shows and movie sets that are becoming more complex and detailed. This leads to a new level of flexibility that is required in designing for new forms of media.

In addition to media, our team looked to build on the growing internet-based industries such as software development, apps, games, etc., which merge creativity with everyday life. Minsheng Wharf can provide unique offices within its historic industrial buildings as well as new offices that meet the latest spatial and technical demands. In addition, Minsheng Wharf's programming will look to provide co-working spaces and incubators, relatively new real estate products in China that accommodate the rising wave of entrepreneurship and foster innovation. Public spaces can be utilized for product display and testing, allowing entrepreneurs and their innovative products to directly engage with the target customers given Minsheng Wharf's central urban location. Another programmatic use our group looked into was data storage, which is a rapidly growing industry in China. According to research conducted by the U.S. Department of Energy, China had 5% of the world's data center space in 2013 valued at US$24 billion. The research also states that China's data centers are growing 20% annually and capturing around 7% of total global investment in data center operations\textsuperscript{12}. DCD Intelligence in 2013 predicted that China's colocation data center market will grow at a 40% compound annual growth rate, nearly quadrupling in 2016\textsuperscript{13}. The “Internet Plus” Plan issued by China's central government in 2015 that provided additional policy incentives for internet-related industries will create even more demand for data storage\textsuperscript{14}. Data centers are the new warehouses of the 21st century and can store the results of digital production on-site.

Our initial concept behind the program of Minsheng Wharf is to create complementary uses that each fit into the process of innovation—from ideation, to research and production, to experience and consumption, which leads to market response and evaluation that initiates the innovation cycle again.
6.3. Design Concepts

*Design Principles*

Drawing from the 6 metrics created for the case studies in chapter 4, those same metrics were used as design principles that would guide our strategic planning for Minsheng Wharf:

**IMAGE**

The image of Minsheng Wharf is very important to determining its potential as a successful regeneration project. Through the creation of the Minsheng Media Machine, the design seeks to create a unique place that transforms Minsheng Wharf’s current image of an abandoned industrial site to an active and exciting new area that maintains the industrial nature of its past yet integrates it into its new use.

**INDUSTRIOUSNESS**

In order to maintain a sense of authenticity to the history of the site, our design seeks to create a place that has an active productive use. This breaks the mold of many industrial reuse projects around China that have turned previous industrial sites into museums and cultural artifacts but instead integrates the site into the 21st century urban context. Additionally, Minsheng Wharf can contribute to Shanghai’s economy today by providing valuable real estate for a number of new high-tech and creative industries that define Shanghai’s future development.

**INNOVATIVE ENVIRONMENT**

By creating an environment for information sharing and co-knowledge creation, the design serves to encourage creative and intellectual collaboration. We envision the site as a meeting place of different industries, as well as members of different demographics – from producers to consumers to the broader public.
On a macro level, taking into account the location of the site relative to existing innovation and technology districts, such as the Knowledge Innovation Community and the ZJ High-tech Park, the design and programming seeks to harness the energy from the existing zones around the city and capture the spillover knowledge, education, and skills from these areas. On a micro level, through urban design and architecture, we seek to create a sense of permeability and curate a sequence of public spaces that will tie the site into the surrounding neighborhood. Additionally, we seek to create more pedestrian-friendly connections to transit stations and new and existing ferry stops along the site, creating new methods of accessibility to increase pedestrian that will activate multiple parts of the site.

Shanghai’s overall urban landscape is constantly in flux, and the largest granary on the site was only active from 1995 to 2005. It is important for our design to acknowledge the rapid pace of transition and change and create a design that is adaptable to multiple uses, rather than investing in infrastructure that is limited to a specific function.

An understanding of both the macro and micro dynamics in the current Shanghai economy is crucial for creating a design that will attract businesses and forward-looking industries. Following broader trends in media production technologies as well as changes in industrial businesses, the design provides a physical space that reflects the economic trajectory.
The new site planning strategy organizes the site into 2 parts and potentially 2 phases. Phase I is the larger chunk of the site contains the Minsheng Media Machine, the new data center silos, co-working spaces, creative offices, and a new hotel. This portion is where media production as well as consumption is focused while still being very accessible to the public. It is also a place of information exchange and collaboration, utilizing the ground floor of the silos as an attractive gathering place for working and communication.

The Media Machine, which utilizes the 3 existing warehouses along the waterfront as media production and performance spaces, introduces new cranes that move sets in and out of the warehouses. At the same time, the cranes also move temporary container retail along the waterfront within the flood zone. Although this retail is temporary, it creates a dynamic waterfront space that encourages pedestrian activities.
We envision the new waterfront as a place full of production activity which ties it back to its industrial past, but also a place of performance and consumption in the 21st century setting. The cranes are not only part of a production process, but become a performance in themselves.
Phase II, although smaller in size, is a dense mixed-use development of residential, ground floor retail, office spaces, a boutique hotel, and newly landscaped public open spaces. There is also a contrast in the scale of the buildings within the two pieces. The Media Machine and the silos retain an industry scale that is monumental in nature, while we see an opportunity to introduce a smaller, denser, and more neighborhood-like scale for the other portion of the site. The introduction of residential program along the existing canal that based on our assumption of the inevitable changing nature of the waterfront. The current area still used for loading has been rezoned for commercial uses, while the portion along the waterfront will be designated public open space. Our proposal takes advantage of the valuable land along canal but as an alternative to the common high-rise mega-blocks of typical gated residential communities, our approach is to minimize the block size while maximizing the ground floor retail street frontage to create a more urban street grid. This creates a zone of 24-hour activities while also a sense of a community that is connected to the rest of the site.
Site Access

The new site design emphasizes preserving public access throughout the entire length of the waterfront while creating more porosity by opening up the ground floor of the silos to allow for pedestrian access in the other axis as well. A new “cove” is created that cuts into the existing waterfront to create a new landing area for ferries as well as opportunity for programmatic integration with the water. This also defines a new activity node in the center of the site that has pedestrian, vehicular, and water access.

The site planning takes a pedestrian-friendly approach to organizing the site. In addition to increased permeability from the existing public street, an interior pedestrian corridor is created that runs parallel to the public waterfront. This corridor between the silos and the Media Machine is not only a public open space, but also the service area for media production and performance and will be filled with activities. This corridor extends to the other end of the site and ties the 2 phases together.
Site Programming

The Minsheng Media Machine along the waterfront is a 21st century media production factory as well as a series of flexible and adaptable performance spaces.

The data center is a 21st century warehouse that stores the results of 21st century production. Utilizing the vertical cylindrical form of the silos as a natural ventilator, the data center is a high-income generating use of real estate while also preserving the monolithic appearance of the silos.
The site can accommodate a variety of office spaces for firms of different sizes. The ground floor of the silos offers unique co-working spaces naturally partitioned by the existing columns. The existing floors above the silos can be transformed into financial investment and analysis offices that can take full advantage of the telecommunications infrastructure and the proximity to vast amounts of data. In addition, new offices for creative high-tech industries.

In addition to permanent retail spaces, a number of flexible temporary retail spaces are introduced both along the public waterfront walkway and along the waterfront. These spaces are in the form of prefabricated units that can be moved or replaced by the cranes of the Media Machine. These retail spaces are pop-up in nature, exhibiting new products and prototypes that create an ever-changing waterfront experience. Small retail spaces below the silos are cafes, coffee shops, bars, and other venues that stimulate social interaction. Larger permanent spaces adjacent to the Media Machine are destination retail areas that integrate media production and performance in the retail experience.
A business hotel is introduced in Phase I as part of the Media Machine and Data Center to provide accommodations for traveling artists, performers, film crew, and others. A boutique hotel is part of the Phase II development, reusing the historic management office while adding on a new portion of building along the waterfront.

New residential along the canal as a part of the Phase II development create a new neighborhood that ties into the forecasted new commercial areas as well as the public waterfront transformation on the other side.
Although the new proposal adds significant density, we have carefully allocated most of that new FAR on Phase II of the site to preserve the original industrial nature of the waterfront.
6.5. Architecture & Place-making Strategies

Media Machine

The Minsheng Media Machine is the most important feature of this proposal and its defining image. Beyond just being an iconic image, it is an integral part of the media production, performance, and logistics on the site.

The Media Machine is a working system that is the interaction between new cranes and existing warehouses. Its range of movement enables the positioning and storage of sets for filming and performance, temporary retail along the waterfront, and providing a roof over the warehouse spaces. A portion of the site between the silos and the Media Machine is excavated to provide an underground space for the storage of large set pieces and also workshops and prototyping spaces for set construction. As a result, the space above is not only a public open space that can be used for exhibitions and testing of new media technologies and forms, but also a place where the public can observe the machine in action as it interacts with the stored sets underground. In this way, the process in producing media can also become a performance that becomes the public’s consumption of the culture of media production.
The Media Machine in action: using the existing warehouse exterior walls as a container, the crane acts as a tool for the movement of sets and the extension of a fabric roof that extends over the media production/performance spaces.

In addition to viewing and testing new forms of media, the public can experience the media production process through the movement of the Media Machine within the public open space. Part of the production process becomes a product for public consumption.
The strategy for the reuse of the silos seeks highest and best uses for the existing structures without weakening the monumentality and unique architectural qualities of the existing spaces. Programmatic, the proposal is a layering of complementary uses that maximizes real estate value while creating public spaces that foster an innovative environment. The open ground floor allows public access, with informal co-working spaces, cafes, and bars. Taking advantage of the floor height, a second level is added with more formal co-working and meeting spaces. There are moments of open spaces which create atriums in which the upper level co-working spaces and the silos themselves are visible from the ground floor. Above these spaces are the original silos with added floor levels and repurposed for server layouts for the data center. Finally, the top floor is occupied by offices of firms that can take direct advantage of the data center and its infrastructure. These may include financial investment firms, data analytics, etc. Given the location above the co-working spaces, these firms also have the advantage of exposure to potential new startups that are meeting right next to their lobby space on the ground floor.
The new “cove” created from the cut in the existing waterfront walk become a dynamic public gathering place and outdoor performance venue. This outdoor performance space is also integrated with the Media Machine itself. The cove is a break in the waterfront walkway that allows the public to engage with the Huangpu River. In addition to seating stepping down into the water, cut also allows floating stages and performances to occur. As an open space between two enclosed portions of the Media Machine, the cove is highly adaptable as an open or covered public seating or performance space in which sets can be moved by the crane above.
6.6. Long-term Vision & Adaptability

The manipulation of existing warehouses along the waterfront through the addition of the new cranes allows flexibility for almost any type of program. Minsheng Media Machine's high initial capital investment in the optic infrastructure for the data center is in the long-term investment of the site to keep it updated to accommodate multiple uses in the future. The large variety of different office spaces—from newly built to reused industrial spaces—cater to a range of tenants. Minsheng Wharf can attract tenants from vastly different industries and of different sizes that can mix into a diverse business community. This in turn creates opportunities for cross-industry collaboration, potential investment, mentorships, and always more dialog between firms that can inspire creativity and lead to innovation.

The high-revenue generating program will allow creative tenants and experimental program for innovation to exist in the long-term. Startup incubators and accelerators can begin to form in some of the reused industrial spaces, with potential investors and mentors sharing the same site. Successful companies who can secure funding can have the option to move into larger offices on the site, allowing Minsheng Wharf to nurture and generate its own future tenants.

The Minsheng Media Machine can act as an example of an innovative approach to industrial heritage preservation and reuse as a method to urban regeneration. It serves as an alternative model to the common development directions of similar historic industrial sites in Beijing and Shanghai by not only preserving history and culture in the existing built environment, but producing new culture through integration with 21st century technologies on the same site.
7 SUMMING IT ALL UP

7.1 Lessons

- Evolution of the government’s involvement in industrial preservation and reuse approach in China

Although industrial preservation and reuse is relatively immature, it has made large strides in the past few years exploring alternative ways for preservation to the archaic cultural relic model. The government has become more active in these projects as their intrinsic value become more understood.

- Failure of high-tech parks as a model for industrial innovation for today’s China

Studies have shown that the high-tech park model for promoting innovation is not effective but rather a drain on China’s resources while creating obsolete office parks that do not encourage innovation but a one-sided knowledge transfer that leads to a mass-production economy.

- Potential of Creative Industry Clusters to bring about innovation

Many industrial heritage sites in major Chinese cities have Creative Industry Clusters have demonstrated their positive effects on innovation and high-tech industries, but too often the encroachment of commercialization turn them into mere tourist attractions or places of entertainment and consumption. Although the direct effects have not been proven, the shift in high-tech industries toward creative content will create more possibilities in the future.
• Technology and entrepreneurship are redefining 21st century production spaces

The new era of small private enterprises and startup entrepreneurs combined with new digital technologies have transformed the workplace. Incubators, co-working spaces, and makerspaces and sprung up all over China to accommodate the new forms of research and production.

• Most industrial preservation and reuse sites in China are currently economically viable

Current industrial reuse and preservation projects in major Chinese cities are not struggling financially. Rents in 798 have grown almost tenfold over a decade and rents in M50 have rising beyond that, while Red Town is charging class A office rents in its spaces while paying industrial property tax. While 798 and Red Town are taking short-term advantage of the rising rents and commercializing their operations, M50 is taking on a subsidy approach in order to retain creative production on the site.

7.2 Conclusions

• Technology and entrepreneurship are redefining 21st century production spaces

The “cultural relic” or “museum-like” approach to preserving industrial buildings results in spaces physically intact historic architecture and industrial equipment that are devoid of life, the very productive activities that defined its history. That spirit of industriousness was first revived by the spontaneous reuse by artists which carried on the industrial production into creative production. The image of the site needs to reflect the physical history but also integration and accommodation for 21st century activities. Likewise, culture is not only represented in the physical remnants or the products of industry, but the process itself.

• Better coordination is needed between the government and the private sector in the preservation and reuse of industrial heritage sites

A balance needs to be achieved in the process of public-private collaboration. While a market-driven development approach will put sites in danger of significant alterations or complete redevelopment, a heavy-handed government-guided approach without flexibility will stifle creative and innovation solutions. Too
much government attention and promotion will also turn the site into a landmark tourist attraction, prevent any integration of the site into the 21st century economy or society. However, stronger regulatory measures are needed in defining and directing “creative” production programming to close the exploitation of the loophole that is turning reused industrial sites into shopping malls.

- There is a need and an opportunity to bring high-tech industries into industrial reuse projects near urban centers

The failure of the obsolete tech-park development model is evident. An opportunity for an alternative approach is in the existing industrial heritage sites. The proximity to the urban core offers significant benefits including more sustainable developments, increased amenities and social interactions, and human resources. The evolution of high-tech production technology in the 21st also enables these new forms of research, prototyping, and manufacturing activities to occur in renovated historic industrial spaces. Additionally, the presence of existing creative industries within these industrial heritage sites have the potential to form a synergistic relationship with new high-tech industries to encourage creativity, innovation, and new forms of culture.

- While there are significant shortcomings with current examples of industrial preservation and reuse, the context and physical conditions offer numerous opportunities for improvement

The case studies in chapter 4 demonstrate that while all 3 cases may be lacking in industriousness, innovation environment, and connectivity, they all have the potential to improve these 3 metrics through design and planning strategies, and changes in management approach. This reflects the inherent locational value of these sites in relation to new urban nodes of activities and innovation. Additionally, the formal aspects of the sites are not set in stone, there is room to adapt and change to accommodate new functions but retain the industrious integrity.

- Preferential locational policies for high-tech parks in China need to be rethought

It is striking after the numerous studies on the problems of high-tech parks that the country still adopts a heavily favorable policy towards them. But what is more concerning is the fact that most of the existing parks have expansion plans given the amount of land that was previously designated for these zones. A shift it policy is needed to divert the energy given to high-tech parks, whose spaces were not built for the spatial and social needs of the new innovative research and production spaces.
7.3 Recommendations

**Design & Planning Strategies**
- Introduce creative and innovative interventions that celebrate the existing built environment but do not try to mimic it, preserving key physical features but not creating an artifact frozen in time.
- Design flexible and adaptable spaces that meet the demand of current market trends while having the ability to transform in a fast-changing economy.
- Provide and curate accessible public spaces and strategically placed amenities that encourage social interactions and exchange of ideas.
- Explores ways in which the production process is part of the consumption and not replaced by it.

**Development and Management Direction**
- Create a unique image and theme for the site to change the public perception of it as a dilapidated industrial site.
- Look for opportunities to collaborate with neighboring institutions, tech hubs, and creative communities to organize gatherings, events, and other functions to form a new place of idea exchange.
- Leverage the central urban location and unique creative environment to attract high-revenue tenants in finance or flourishing high-tech industries.
- Subsidize rents for creative industries and startups that contribute to an innovative environment.
- Management of food & beverage and retail programming to compliment other programming and not replace them.

**Policy Implications**
- Open up limited portions of the site so there is visual accessibility for the public to observe the industrial heritage site and opportunities for temporary uses.
- Case-by-case approval approach to renovation proposals that encourages innovative design solutions to transform in a fast-changing economy.
- Create locational incentives within Creative Industry Clusters that affect both creative and high-tech firms with clearer definition and better regulation of creative industries.
- Locational incentives should be granted onto industrial reuse sites as well, attracting anchor institutions that mentor startups.
- Funding for incubators in industrial reuse sites.
- Consider mixed-use zoning within industrial heritage sites to encourage 24-hour activities.
7.4 Further Research & Reflection

The case studies for this thesis only looked at 3 industrial heritage sites in Beijing and Shanghai, chosen because of their contextual similarities to Minsheng Wharf, development history, and relative popularity. However, there are many industrial preservation and reuse projects throughout both cities of various sizes and conditions (there are over 75 Creative Industry Clusters located in historic industrial sites in Shanghai alone), and even more in lower-tiered Chinese cities. Using the same 6 metrics on all of these sites may reveal additional relationships based on their location, physical conditions, and development timeline. Literature on creative industries are on provincial data, and more detailed studies need to be done on creative industries specifically within HIDZ’s and their effects on innovation. However, the proposal for Minsheng Wharf offers a fresh alternative to the common approaches for industrial preservation and reuse. It is applicable as an innovative way of thinking about industrial reuse as a way for urban regeneration, with a forward-looking approach while also recognizing the past.


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