
Research papers

Driving renovation: A comparative research project in urban regeneration across cities in China

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Abstract Post-industrial sites in Chinese cities are being redeveloped as catalysts for urban regeneration, often tuning into the creative cultures of these cities to provide platforms for creative enterprises to flourish. The success of these projects in driving the development of China's creative economy, however, has led to many imitative redevelopment projects, creating a blueprint for the format of industrial zones and cultural parks in cities. Many recent urban renewal projects have placed great emphasis on commercial and practical aspects of implementation and creative practice but have failed to respond to the different contexts of each location within the design and planning, and therefore performed poorly in providing opportunities for developing local enterprise or addressing social welfare needs. A recent funded research project has been conducted by an international cross-disciplinary team that is seeking different opportunities for developing relevant creative industries while retaining cultural and industrial heritage. The project focuses on regional culture and, with use of new methodologies, studies its impact on urban regeneration. By working with participants who are both site users and developers, this paper explores the research conducted so far and offers initial findings. Findings include that regenerations should integrate the characteristics of historic industrial sites with the new requirements of the creative industries. The major stakeholders whose impact on urban regenerations have also been identified and the most important factors for successful transformations from heavy to creative industry are discovered to be local geography, history, culture, politics, economy and ethnography.

Keywords: *industrial heritage, ethnographic research, participatory methods, post-industrial, urban regeneration*

INTRODUCTION

This paper presents current findings from a government-funded project that researches how regeneration can be achieved in post-industrial sites by supporting sustainable economic development through the creative industries. It details how research findings will have an impact on national and local governments in China as well as on designers, local citizens and building users. Applying human-centred methodologies, the project undertakes comparative studies of successful, yet distinct, examples of European and Chinese urban regeneration cases, revealing socially inclusive insights and critical understandings of identity and cultural values. The study enables the cross-disciplinary international research team to discover how sustainable urban renewal can build from a deeper understanding of the social and cultural

capital of a region, city or place, affording the opportunity for future interventions to enhance and contribute to existing notions of social value.

THEORETICAL CONTEXT

During 2021, in China's 14th Five Year Plan,¹ the State Council issued guidance on incorporating the creative industries during urban development planning across the nation. This underlines the important link that has developed in China between urban design and the creative and cultural industries. Successful examples of postindustrial sites that have been repurposed in this manner include 751 D-Park and 798 Art Zone in Beijing. As Hu and Morales² have identified, however, much current Chinese research on urban regeneration for creative industries focuses heavily on commercial and practical

aspects of implementation and ignores more socially inclusive modes of enquiry, thereby neglecting sustainability.

Although the value of regenerating rather than removing former industrial sites is being increasingly understood, the 'reality is that industrial heritage conservation ideals have gradually been displaced by the profit-making imperatives of property development'.³ This is despite the fact that redevelopment is shown to have a positive impact on local economies,⁴ tourism,⁵ and local and national identity.⁶ When post-industrial sites (effectively local hubs) are demolished, or renovated without sensitivity, this proves difficult for surrounding communities, who can even experience collective grief over their loss.⁷ Often, community engagement with the former industrial sites lives on in the form of local memory and cultural heritage practices.⁸

This study investigates alternative strategies for sustainable urban renewal of China's post-industrial areas. This has been achieved by exploring how cultures in both China and Europe benefit from shared dialogue. A comparative study of existing precedents in Europe and China was conducted which examined redevelopment of existing sites when used for a regeneration programme linked to promoting the creative economy. Resulting from this, new knowledge and insights were generated by focusing on three specific case study sites in China and conducting primary research involving participants via a programme of participatory activities that incorporate novel, context-rich research methods. This process enabled the identification of the local culture and social narratives that prevail in the sites.

RESEARCH METHODOLOGY

A cross-disciplinary international network was established at the early stage of

research, consisting of the research team and three groups of Chinese stakeholders that represent the locations of focus. An evidence-based, human-centred research methodology was applied during the research. Location-based case studies and semi-structured interviews with stakeholders were conducted. Discussion and evaluation of the research outcomes took place which promoted inclusion and critical analysis in order to balance potentially competing agendas such as social welfare, commercial enterprise and urban renewal.

The case studies during site visits focused on current examples of European and Chinese urban redevelopments, such as former factories or abandoned warehouses, and analysed different building typologies. The findings produced a resource of evidence-based research, providing a balance of quantitative and qualitative data (empirical, primary and statistical) that elucidated current knowledge of the sites and a broader historical overview. The site visits, to Germany, China and Liverpool, acted as a vehicle for understanding how social, cultural and economic histories has informed regeneration in the West and provided the basis of knowledge exchange between the UK and China research partners.

Participatory research workshops were organised within the focus cities. These targeted different specific stakeholders which elicited qualitative data. Participants included government officials, regeneration project developers and creative industry practitioners. Anonymous questionnaires were also distributed seeking feedback and consultation from a broader public audience. This method is valuable in evaluating the effectiveness of current regenerated industrial sites and how the projected audience would consider future examples to best be designed.

Following these processes, a series of ethnographic studies were conducted in the same cities, aiming to gain insights from a wider range of stakeholders (consumers and developers). Semi-structured interviews and extended 'walking interviews' sought to capture a range of personal narratives of individuals' experiences of living and working in the cities. This highly visceral method provided researchers with a deeper understanding of culturally held values, social histories and attitudes towards regeneration that inform how an understanding of place and identity may unlock potential opportunities for culturally coherent regeneration strategies.

GEOGRAPHICAL CONTEXT AND CULTURAL NARRATIVE OF SELECTED CASES

On-site research was conducted in Europe and China, including Beijing, Wushan, Shenyang and Dalian in China, Liverpool in the UK and the Ruhr Valley in Germany, and provided primary findings in terms of local culture, heritage and environment.

Western examples

Urban revitalisation and industrial restructuring are pressures faced by cities in both the East and the West.^{9,10} To achieve the highest sustainable economic growth, raise levels of employment and standards of living, regions in Europe have undergone industrial transformations from the 1980s onwards.^{11–13} Successful examples of urban regeneration in Europe, such as Ruhr in Germany and Liverpool in the UK, provide sound examples for city transformations around the world.

The Ruhr region in western Germany historically contributed 40 per cent of Germany's industrial output. Since the decline of many traditional heavy

industries through the mid- to late 20th century, however, the Ruhr's abandoned industrial buildings have been repurposed to fulfil new roles as popular homes for galleries, theatres and spaces for creative businesses.¹⁴ Former industrial sites, such as coal mines in Essen and Bochum, have now become inspiring museums and heritage sites. The transformation of Essen's Customs Union complex followed the principle of 'Cautious Urban Renewal'¹⁵ and the protection of its buildings was the basic requirement. The renewal strategy was to preserve buildings and factories completely, with only minor internal renovation, and to create a cultural base in the Ruhr. Architect Rem Koolhaas and other specialists in industrial heritage protection collaborated on the general regeneration plans.¹⁶ Their designs showed great respect to industrial facilities, adding new buildings and regenerating the sites without changing main structures. The outside of the German Red Dot Museum, designed by Norman Foster, hardly shows any sign of transformation. The Ruhr Museum in Zollverein Park, designed by Rem Koolhaas, has an escalator taking visitors to the top floor entrance hall which replicates a coal conveyor belt. Likewise, West Park Bochum retains its original features (see Figure 1).

Located at the junction of the Rhine and Ruhr rivers, Duisburg's industrial heritage therefore reflected its utilisation of water. Under the International Building Exhibition framework, the government implemented three urban renewal measures in Duisburg: the construction of the northern park landscape, the renewal of the urban area and regeneration of the inner harbour.¹⁷ Following the principle of 'Critical Reconstruction'¹⁸ the inner harbour regeneration focused on effective integration of the entire inner harbour area with the city. Combining preservation and construction, Duisburg preserved



Figure 1: Zollverein Park, Essen (left and middle) and Bochum Mining Museum (right)

some of the original areas and added many new buildings.¹⁹ The factory area on the south bank was completely preserved and has undergone a significant regeneration. In contrast, many existing facilities on the north bank were demolished and replaced by newly constructed office buildings. Duisberg's northern 230-hectare landscaped park has been transformed into a large, cohesive landscape zone which retains many original industrial buildings²⁰ (see Figure 2).

Liverpool was formerly the UK's second city after London, due to its great importance as a port during the Industrial Revolution.^{21,22} Having endured many years of economic hardship from industrial decline in the mid- to late 20th century, the city today has invested billions of pounds in regeneration projects.²³ Liverpool's dock areas are now home to bars and shops, its museums and galleries nationally recognised, and its architecture Grade I listed. These redevelopments have fuelled the Liverpool economy and made

the city highly attractive to entrepreneurs, creative businesses and social innovation projects. The dockyard, especially, was transformed into art galleries, music studios, media studios, restaurants and bars. It has gradually become a cultural and creative park based on industrial relics. By combining historical capital with modern urban functions, it has given more vitality to the development of Liverpool²⁴ (see Figure 3).

Chinese counterpart examples

The industrial restructuring pressures facing China are similar to the restructuring impacts and emerging renewal agendas that the West has faced. This research project focuses on three prime cities of Wushan, Shenyang and Dalian, due to their very different industrial and cultural heritages: imperial legacy, industrial power/decline and conservation of natural beauty. Each of the three areas offer histories, social



Figure 2: The northern landscaped park, Duisburg



Figure 3: Royal Albert Dock (left and middle) and Baltic Triangle (right)

demographics, economic characteristics and cultural identities that afford different opportunities for regeneration through a diversity of creative economy activities.

Shenyang is in the northeast of China and is well known as a heavy industry base, and therefore nicknamed the ‘Eastern Ruhr’.^{25,26} Recent regeneration projects here have highlighted its value to the region, both as an industrial base and historically as the birthplace of the ancient Qing Dynasty (1644–1911). Shenyang is a celebrated old city with more than 2,000 years of history, and associated cultural relics, that can be traced back to the Warring States Period (476–221 BC).^{27,28} The city is only now undergoing revitalisation due to the slower growth of the economy and urbanisation. Several regeneration projects have occurred, of which Shenyang 1905 Cultural and Creative Park is one of the typical examples. Constructed in 2012, ‘Shenyang 1905’ is the only comprehensive park and consists of production, trade, leisure, creative businesses and residential buildings.^{29,30} The park has four main activities: art exhibitions, art performances, creative business and cultural events, aiming to create space that integrates art with life. The project attracts two types of investments/businesses: 1) the cultural creative industries and relevant supporting facilities, such as design studios and cafes; and 2) exhibitions and promotional events.³¹ Therefore, Shenyang

1905 has become a place where culture integrates with life (see Figure 4).

In contrast, Dalian is the largest port in northeast China and home to many heavy industries such as crane and ship manufacturing and oil/chemical/cement production.^{32,33} In recent years, Dalian has felt the impact of urbanisation and is facing issues regarding industrial restructuring. This offers opportunities for spatial regeneration. Dalian shares several historical similarities with Liverpool in the UK. Founded in 1898, Dalian progressed from a small fishing village to a famous summer holiday destination and a city rich in industry and international trade.³⁴ The city gained the name of ‘Hong Kong of Northern China’, due to its renown as a trading and financial centre of northeastern Asia.³⁵ In addition, thousands of international designers, clothing merchants and celebrities converge to celebrate contemporary fashion in Dalian. The city is a paradise for shoppers, providing various malls and markets, inspiring calls for the regeneration of Dalian’s decommissioned Onoda Cement Plant to boost and promote the city’s growing creative enterprise culture. Dalian Wisdom Park represents another example of factory restructuring (see Figure 4).

Differing from the cities previously mentioned, Wushan is a smaller town located in the centre of the Three Gorges of the Yangtze River, a place well known for its ancient Chinese culture and for

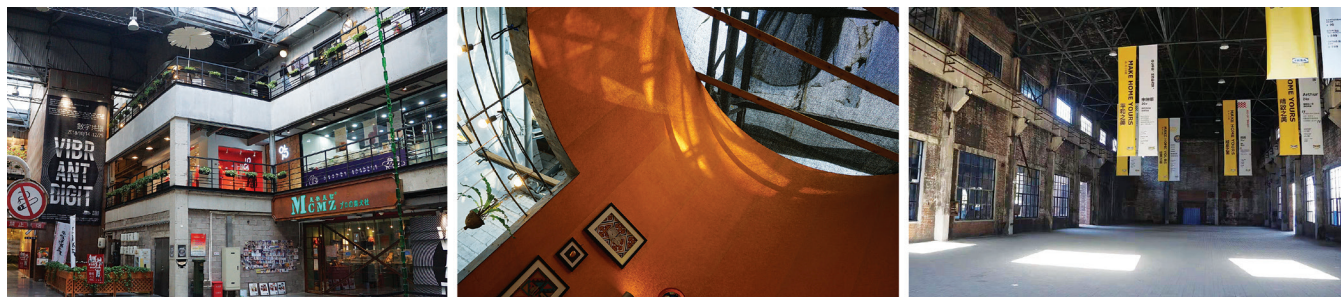


Figure 4: Shenyang 1905 Cultural and Creative Park (left and middle) and Dalian Wisdom Park (right)

offering the top ten views in China. The town has a long history and is full of tourist attractions and places of cultural interest. In order to attract more tourists and seek economic growth, Wushan provides a total of 5,760 acres of land to develop into the Three Gorges 175 Creative Industrial Park. The park will include the restructuring of an old cement factory, together with new developments of a cultural park, hotels, stadium and a residential area. The project is in its planning phase and, as an inspiration, the research team visited Beijing 751 D-Park, a project designed by one of our project partners — IDEA Latitude — also the design contractor of the Three Gorges 175 Park in Wushan. This provided an opportunity to study an excellent exemplar of Chinese renovation to understand its philosophy, context and the process.

FINDINGS AND DISCUSSION

Three participatory workshops were organised in the case study locations and a variety of stakeholders were invited, including government officials, university lecturers, researchers and designers. The workshops explored how both cultures may benefit from shared dialogue, to generate new knowledge and insight by identifying the local cultures and social narratives that prevail in the three representative

Chinese cities. Thirty-four semi-structured interviews were completed across four Chinese and one UK cities, to clarify local government policies on urban regeneration, the expectations of project investors/developers and business practitioners. Interviewees included ten Chinese government officials, nine project developers/managers (two from the UK) and 15 business practitioners (five from the UK). In addition, a questionnaire was sent to a mixed group of designers seeking a broader insight from multiple design practitioners. The questionnaire attracted 24 sets of feedback from both the UK and China. Findings pinpoint a massive demand for designers for post-industrial site renewal in China. Findings also identified development challenges for cities in terms of retention of industrial heritage, cultural history and transformation of the local economies.

Chinese government officials' insights

Interviews with government officials have allowed the team to gain an in-depth understanding of the motivations that influence urban regeneration. It is apparent that environmental protection, enhancing business competitiveness, unlocking regional development restriction, optimising/transforming economic organisation and upgrading industry are the motivations of relocation/transformation of enterprises in Chinese

cities. Most interviewees believe that urban transformation benefits the city in reducing air pollution/emission,^{36–39} calming traffic,^{40,41} growing the number of public facilities, expanding urban development space and attracting high-quality talents.^{42,43} In particular, regeneration has promoted the functional transformation of urban central areas and created new landmarks for regional development.^{44,45} Other positive impacts include constructing major functional areas, upgrading industry,⁴⁶ stimulating consumption and increasing employment rates.⁴⁷ Meanwhile, some participants are concerned that the regeneration brings some negative effects, such as the loss of jobs.⁴⁸ Others argue, however, that this impact is minimal, as much of the workforce were approaching retirement age after working at the factory for many years and younger members were offered different employment nearby, leading to no real negative effects from factory closures.^{49,50}

Apparently, urban regeneration brings not only opportunities but challenges to the prevailing local skillsets and employment context in Chinese cities.⁵¹ Therefore, supplying opportunities for reskilling the local workforce is crucial. The heavy industrial city of Shenyang shares similarities with the port of Dalian, as workers of former factories can transfer to creative industries after training.^{52–54} Alternatively, they can stay within the industry as the factory sites still exist, where their skills can be easily transferred between industries. Those who had a role in a large former factory can easily transfer to a role within a smaller creative-focused industrial factory.^{55,56} In contrast, approximately 70 per cent of employment in Wushan is related to the tourist industry, with the remaining 30 per cent being involved in agriculture. Local employment focuses mainly around supporting the tourist industry in the

area, working in hotels, restaurants and construction projects.⁵⁷ These skills are needed in redevelopment of the former cement factory, and in the new creative industries.⁵⁸

Findings also indicate that every Chinese city aims to enhance the leading local traditional business/industry^{59–62} by investing in the digital economy, finance and robotic technology.^{63,64} Former factory site redevelopment plans affect local city planning strategies, in terms of optimising/transforming local industry, integrating resources and gathering popularity.^{65,66} It is apparent that renovation can create impressive landmarks, where abandoned equipment can be the heritage and by transferring value from industry to culture, consequently fuel the local economy.⁶⁷

In China, most urban regenerations are driven by creative/cultural and tourist industries, but merge with local narratives, such as the cruises and yachts service in Dalian,⁶⁸ film production in Wushan⁶⁹ and industrial museums in Shenyang,⁷⁰ together with other forms of business, for example, catering, cultural creativity and education.⁷¹ After determining the area to be restructured, future renovations will seek functional diversity, to preserve culture heritage, to expose traditional value and to highlight its characteristics⁷² and, moreover, to attract investments through local government, enterprises and regional cooperation.⁷³ Consequently, the creative/cultural industries exploit emergent trends, technologies or growth markets.

The research data pinpoints Dalian as the key growth point of the coastal economic belt in the northeast and the core location for future redevelopment of industrial sites. The city emphasises branding, specialisation, internationalisation, supplying space for innovation and further stimulating the economic development of surrounding

areas.⁷⁴ Likewise, as a regional centre, Shenyang will adjust the proportion of heavy, light and cultural industries.⁷⁵ Driven by renovation, the city will promote the development of cultural and creative industries based on local heritage and boost other cities. Elements remaining from history will become the key to the creation of new creative industries.⁷⁶ In contrast, Wushan is proposed for redevelopment into a hub for media and film and will have a positive impact upon the whole region.⁷⁷

Apart from capital and investment issues, the significant challenge of renovation is to attract customers and make profit sustainably to enhance economic growth. Therefore, the necessary design concept includes existing well-designed tourist products. Good designers are critical for preserving and transforming industrial environments carefully into cultural sites.⁷⁸ In order to fully realise the design, construction requires good coordination and communication between developers, suppliers, government and local communities; however, much industrial heritage has already been destroyed. This results in, for example, the fact that Shenyang 1905 Park is smaller than many other projects⁷⁹ as a large proportion of the original site has been destroyed. Consequently, good governance in protecting industrial heritage and maintaining local environment will preface renovation success.⁸⁰

Project developers' feedback

There are two types of project developers in this sector, but they perform similar roles of management. One acts as a department or subsidiary company of a large group (property owner); another is an independent company who offers professional services for managing the project/business. In this research, the

team interviewed four from each type of developer. Four interviewees have creative industry experience or design backgrounds; others are in a pure management role but have a passion for working in creative industries.

Findings indicate that most redevelopments are based on former heavy industrial sites such as steel mills, foundries,⁸¹ refrigeration plants,⁸² and a few are light industries, for example, a knitting mill, tannery, fashion clothing factory and print works warehouses.⁸³ Turning abandoned factories into creative business zones appears to be a desirable solution for most renovation projects. Expanding the uses of space for arts purposes and establishing art studios, historical-heritage museums and other culture-related businesses are popular. Likewise, 'incubators' and small and medium-sized enterprises (SMEs) are also typical tenants of Chinese projects. Design/photography studios, do-it-yourself (DIY) shops and coffee bars are forms of business that were mentioned by most Chinese interviewees.⁸⁴

'Current business users are ranging from small start-ups who take a desk in one of our two co-working spaces, through to a fast growing make-up brand "Sample Beauty", who has outgrown two incubator spaces and now taken a larger unit where she can grow.'⁸⁵

Other regular services include events and exhibition space hiring that host many different events and networks for fashion show and brand launches.⁸⁶ Therefore, creative and service industries are the most popular regenerations in both cultures. 'Generally, we like those tenants who can add interest to our community', space manager, Jason Abbott, stated. 'We probably wouldn't take an accountant's or solicitor's office — as an example of what we are not.'⁸⁷ Likewise, another manager, Roy Jones, agreed that SMEs should

be the target users for these sites — for example, the Castle Fine Art foundry in Liverpool's Baltic Triangle is the ideal.⁸⁸

In general, most regeneration projects benefit the area that is beyond the city: 'Shenyang 1905 is the only creative park in the region that attracts many foreign governments to discuss outputting the project.'⁸⁹ By creating an art space, the park provides a platform for cultural appreciation, leisure and entertainment for residents and visitors and enriches their cultural life.⁹⁰ Likewise, the development of Dalian Wisdom Park recorded the urban regeneration process, utilising the relics of the former factory, the renovation created a regional cultural landmark and expanded public activity spaces.⁹¹ In the UK, Liverpool's The Tapestry fashion district won the Inspired Spaces North award, 2018, and has thereafter hosted delegations from London School of Economics, the Portuguese fashion trade and Norwegian regeneration experts.⁹² The Tapestry manager now plans to develop new spaces and activities: 'From there the focus will be on developing the community and keeping momentum going to bring more creative businesses to the District.'⁹³ Similarly, aided by the British Council, a group of Russian officials visited the Baltic Triangle in Liverpool, asking for advice on revitalising such cities. The manager, Roy Jones,⁹⁴ hosted the group of 12 Russians for three weeks and made extensive explorations of the Baltic Triangle and other areas of Liverpool. Later, Roy was also invited to Russia as a consultant to Moscow and Krasnoyarsk, where he worked with local politicians, artists, craftspeople and citizens.⁹⁵

UK developers work closely with local governments. The Liverpool Fabric District Community Interest Company (CIC) was formed to develop conversations with the city. They host monthly meetings to progress matters

affecting the area and receive great support from various councillors and council employees.⁹⁶ The Baltic Triangle in Liverpool (another CIC), however, appears to discourage politicians' involvement. The interviewee argued that the regenerated area should be used by creatives, instead of for construction of high-volume student accommodation supported by local councillors, which often exhibit poor specifications and are built on the minimum legal allowances. Single living should not be the goal; instead, families should be encouraged.⁹⁷ Not every Chinese developer works closely with government, unless the sites are identified as a key project by the local government, and/or the project was listed as a new urban cultural landmark. Keeping in line with the government plan will ensure full support from the city.^{98,99}

In China, a favourable location, high quality services and well-designed public spaces/facilities are factors that attract tenants and new users.¹⁰⁰ Furthermore, some developers offer the government's preferential tax policies for their tenants. Others attract tenants by forming an alliance of enterprises, to supply the members with some free services and resources.¹⁰¹ Good advertisements and high-quality services have enabled the Z28 Fashion Silicon Valley in Dalian to achieve 'over 95% occupancy rate',¹⁰² whereas, in the UK, tenants are attracted through word of mouth and social media, and investment is courtesy of bank loans.¹⁰³ The restructuring of abandoned factories, retaining their heritage features, granting old buildings/spaces with new functions and integrating new environments appears to be a great challenge.¹⁰⁴ Others, however, believe cross-disciplinarity and fusion of cultures are more difficult.¹⁰⁵ Practically, the cost of regeneration requires more capital, talents and physical resources compared with conventional project developments.^{106,107}

Therefore, in order to reduce cost, Abbott¹⁰⁸ has adopted many roles and juggled workload to ensure that work and health and safety regulations are all undertaken. He completes marketing for and secures tenants, arranges for the completion of legal documents, helps the tenants to move in and co-ordinates their business fit-out. Besides this, his role as Chair of the Fabric District CIC has its own challenges, which are again down to manpower as it is a voluntary organisation.

Tenant and business practitioners' expectations

Fifteen business practitioners/tenants were interviewed, including five from the UK. Their businesses include three design studios, nine crafts/DIY shops, one book shop and one coffee shop. Seventy per cent of the interviewees hold art or design degrees at higher education level, others (30 per cent) do not have such degrees; however, all have a passion for arts and related careers. Most interviewees agree that differing from conventional urban environments, renovation projects offer unique landscapes and a desirable atmosphere. This appears to be the major reason that attracts tenants/small business owners who are engaged in creative and cultural industries. They desire a place where people can communicate with each other and visitors, artists and designers.¹⁰⁹ Focusing on art and creative businesses, 'Shenyang 1905 attracts many art lovers every year, to shop and/or experience art/cultural activities, where people can sit down for a coffee',¹¹⁰ and/or read books in the bookshop.¹¹¹ Similarly, Liverpool's Baltic Triangle is a developing area for creative culture.¹¹² Dodd feels that 'Being located amongst other creative practitioners was important to us'.¹¹³ Wang believes 'The style of mixing rough/old factory appearances, with exquisite interior space, brings

visitors a strong scene of visual impact that enhanced the customers' satisfaction with our design services'.¹¹⁴ Li agrees: 'I like the well-designed environment and the creative atmosphere as it matches with my brand.'¹¹⁵

Research data indicates that current services offered at renovation projects are satisfactory in both cultures. Dodd states that 'I think that everything here is running very well and can think of no other suggestions'.¹¹⁶ Holmes concurs: 'The landlords have been very supportive. They do wish to improve the area and see the Studio as a positive thing.'¹¹⁷ This is also noted by Threlfall:

'A great thing is that our landlords inhabit the buildings on a daily basis that demonstrates they are invested in the buildings and clearly understand the local context. Therefore, seeing a landlord's motivation is key to a tenant's sense of trust.'¹¹⁸

In addition, other provisions, for example comfortable size, affordable price, safety and good location with convenient parking space are also concerns for tenants and users from both cultures. Feedback is positive from most interviewees; in particular, the rent is noted to be very reasonable for such a big space.^{119,120}

'The landlord enables us to share the studio, which makes running the studio financially easier.'¹²¹

'Our landlord has agreed to a manageable rent that helped with setting up the business. The lease is very flexible, and I can give a short notice if needs be.'¹²²

Dodd feels that 'The units are affordable, as I don't pay Council Tax because of size and the rural location',¹²³ and Threlfall believes that the 'workshop location affords good levels of local interaction, with people physically engaging in

workshop practice'.¹²⁴ 'The price is much lower than it would be in a more affluent place, as the position is very central for many people to come for the workshops'¹²⁵ and Dodd also notes the significance of location: 'The government is trying to get more businesses into rural locations.'¹²⁶

Keeping heritage features is important, as people like to see industrial relics; however, health and safety needs to be improved and there needs to be safety access and egress. Free parking is also very important, as visitors make a day of it to come to the sites and have lunch while they are shopping. There needs also be a disabled access, as some spaces are inaccessible for people with mobility difficulties. In addition, there is a demand for exhibition space for art students. Dodd asserts that 'it would be good to have students' work on display and for them to be able to hire workbench space'.¹²⁷ Many Chinese interviewees comment that renovation projects focus heavily on commercial development. They suggest that reducing commercial projects and developing more cultural industries would be desirable.¹²⁸ Placing some cutting-edge public artworks in the redeveloped public space will establish a relationship between old industrial features and with new design.¹²⁹ Likewise, Czarnecki bemoans that many UK redevelopment projects do not include artists but are geared around technology and web design companies.¹³⁰ The Baltic Triangle is the only provision in her area for artists without a commercial practice. For the future, tenants and users hope that landlords will create multiple spaces and interactive services to attract visitors; in particular, they want to attract local residents who have visited before but would be willing to come back again.¹³¹ Enriching the current service chain sustainably, to attract more cultural and creative business practitioners to set up

businesses is essential,¹³² as is 'upgrading management approach scientifically to benefit both the landlord and tenants'.¹³³ Yang states, 'I hope to grow with 1905 together, to flourish our business via both online and offline promotions'.¹³⁴

Designers' comments

Twenty-four designers provided feedback, including nine from the UK, eight from Shanghai and Beijing and seven from other Chinese cities. Participants reported that preserving industrial heritage and retaining the city's original memories is the issue that concerns most clients when redeveloping aged factory sites. Many clients expect the designer to create distinctive concepts that can attract audiences and maintain the fit between the new space and the users. Beside this, minimising cost and maximising profit are also essential. Most designers, however, lament that there is no national policy regarding post-factory renewal in China. This has resulted in the fact that massive amounts of heritage resources have been destroyed permanently. They suggest that buildings featuring historical value, local characteristics and with typical structures are worthy of preserving and redeveloping. Nevertheless, components lacking industrial features and with safety risks that cannot be mitigated should be removed.

Findings indicate that 90 per cent of Chinese designers had been influenced by Western successful regeneration cases in their designs. They studied Western approaches of spatial management, design detailing, business attitude, and the integration of new and old and functional and entertainment elements. In general, Western designers value heritage protection and have more freedom and opportunity to create novel and human-centred solutions. In contrast, Chinese designers face more restraints

and interference from multiple parties. Designers who have paid great attention to satisfy clients' commercial requirements focus more on utilitarian and temporary benefits rather than cultural heritage retention and memory. They complain that this results in the final concept being often different from their initial idea. Chinese designers also agree that industrial heritage retention is important, however 'it seems not our business, as the government should be responsible for it'.¹³⁵ Chinese designers understand that, differentiating from conventional projects, regeneration should retain close contact with the original industrial heritage and pay great attention to cultural memory. Interacting between the new and the old, the renovation maintains the connection and independence between the two, but there are challenges. Regenerations have some technical limitations, due to requirements of heritage protection; therefore they benefit from constructive technological support. Designers agree that ideal solutions should balance historical memories, the change of function and rational use of space.

The premise of design is strengthening regional characteristics and establishing the distinctive city image in order to win over the market competition. Regional elements play a significant part in local culture and social life. In the future, renovations need to emphasise regional characteristics, otherwise the designs

created by different cultures will be identical. Applying human-centred design to enhance the interactive experience is critical. Combining tradition and innovation, continuing the cultural and historical attributes conveyed by the project, endowing it with a sense of the period and continuing to participate in contemporary development will enable successful projects.

A successful experimental project

Significant experimental projects have been developed by our research project partner, IDEA Latitude. Nominated by the central Chinese government as the most successful exemplar of regeneration, Beijing 751 D-Park has been listed as an outstanding national industry heritage project. Together with this, IDEA Latitude's public sculpture 'Obscure Reality' (2019) in Beijing (see Figure 5) represents another excellent experiment nominated by ArchDaily.com as Building of the Year 2019. These successful projects have made a substantial contribution to research and innovation.

Beijing 751 D-Park (see Figure 5) is a creative industrial park covering an area of 220,000m². The former 751 Factory was a state-owned factory producing gas and thermal power. In 2006, it was decided to restructure this industrial site into '751 D-Park Beijing Fashion Design Plaza',¹³⁶ adhering to the government's



Figure 5: Beijing 751 D-Park (left and middle) and Obscure Reality (right)

policy of developing creative industries. This national industrial heritage site is informed by participatory design strategy: 'The theme of our funded research project follows the philosophy of "selflessness".' The lead designer, Y. Wang, suggests that

'personal style should be abandoned over the renovation process. Design needs to respect the objective realities and to highlight the conflicts between old industry and fashion, so as to characterise the old industry and retain the memory of industrial heritage to the greatest extent.'¹³⁷

The regeneration of 751 D-Park does not just retain old buildings and machines but transforms industrial heritage and incorporates the characteristics of creative industries.¹³⁸ While the area has changed from coal refining to fashion, art and culture, the creativity interacts with industrial heritage and promotes the awareness of both sides. Now 751 D-Park is home to more than 100 fashion, design and service providers. The distinctive features and ambience of the place attract many well-known brands and companies and holds about 500 exhibitions and events every year.¹³⁹ 751 D-Park not only attracts cultural/creative industries, but offers new business management, research and consultation practices.¹⁴⁰

Working collaboratively with our UK research team, IDEA Latitude adopts a participatory design method and provides unique design services for the businesses within the park. Differing from another well-known example in Beijing's 798 Art Zone, which was driven by business owners and practitioners, 751 D-Park is fully created by designers, and well planned and constructed by one multidisciplinary team, so as to respond to the contexts of factory, cultural heritage and social narratives within the design and planning.¹⁴¹ The project provides spaces and opportunities for larger thematic events and exhibitions for local enterprise

and/or big brands and preserves the binding cohesive community identity.¹⁴² In contrast, nearby 798 Art Zone is a typical Chinese renovation that focuses commercially on providing small private retail and entertainment facilities.

CONCLUSION

The discussion above establishes that different stakeholder agendas and viewpoints exist between local government policy, industry, residential and business practitioners. Findings illuminate that it is essential to reflect the diversity of concerns among the wider constituency of voices, and it pinpoints the development challenges of cities when respecting local culture, industrial heritage and economic transformation. China calls for strategies for regenerating post-industrial buildings and sustainable development of cities and this paper suggests that highlighting the geographical characteristics of each city will build its unique image and distinguish it from others. This study concludes that regenerations should create a new product that combines the characteristics of both industrial resources and new formats. Findings have also identified that local government policy holders, business investors/developers and creative industry practitioners are the three major stakeholders that have an impact on city revitalisations. These stakeholders share similar insights in most aspects and expect to work together with a synchronous vision for redevelopments to be successful. Meanwhile, local geography, history, culture, politics, economy and ethnography have been identified as important factors that affect project design and development during urban transformations.

In the West, government policy makers and programmes play a key role in urban renewal strategies and

the transition of local economies, and developers work closely with local governments. For example, the Federal Government of Germany worked closely with local Ruhr institutions during its regional regeneration¹⁴³ and Liverpool Fabric District CIC was formed to develop conversations with the city.¹⁴⁴ There is no national government policy in China, however. Instead, each city has its own ambition and targets local traditional business/industry to lead the sector. Conversely, factory site redevelopment plans have an impact on local city planning strategy. Moreover, Chinese investment policy and the level of attention paid to nature, culture and the system are different from the West. Chinese developers place great emphasis on commercialisation, whereas those in the West value further the reuse of old industrial sites and cultural continuation.

Successful Western examples of regeneration influence Chinese designers, although Western solutions may not be perfectly suitable in China. Data has been processed from this research and has provided theoretical guidance and practical support for the development of significant future experimental regeneration projects. Inspired by Western experience, Beijing's 751 D-Park demonstrates a successful Chinese example. In conclusion, the best process for successful regenerations involves: 1) creating a café for conversation; 2) a craft shop or other type of shop; 3) creating meeting/ working rooms for people to hire for short periods; and 4) site workshops for SMEs to use and develop.¹⁴⁵

This research expects to benefit a broad scope of beneficiaries who will include government bodies, higher education institutions, residents and education/ training providers and further may extend to artists, designers, researchers, business owners, tourists and the general public. A project website (redacted)

has been constructed and published, to provide a platform for dissemination of the research findings, stakeholder interaction and generating impact on local government policies. It outlines sustainable regeneration strategies to preserve local cultural and industrial heritage experiments and ways of developing creative industries and further promoting local economic development.

The research team aims that these interim research findings will provide greater visibility and promote wider dialogue of the issues being addressed. Further works focus on the practice of participatory design method to create new function, better public service and improve the city's image in aged factory renewal projects. The solution will satisfy the projected audience's expectation of future examples to best be designed. Consequently, a book — *Industrial Regeneration in China* — was proposed to offer the guidance for government, project developers and business practitioners for their future regeneration projects. Further, the solution will then be successfully reiterated across different towns, cities and regions in China and, thereafter, globally.

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