The Renascent Road of Old Industrial Areas

--A comparison between Zollverein and 798 Art Zone in order to do the planning of RUBBER SOUL in Nanjing

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Abstract: This paper examines the transformation of an industrial complex in the post-industrial city. I chose two study cases for research. Zollverein is an industrial complex and a World Heritage Site located in the city of Essen which is the 2010 European Capital of Culture. “798” art gallery in Beijing represents a clear example of the cultural movement, since 1990, for the renewal of art in China. (Greco and Santoro 2008) And this new cultural complex was created in what was once an industrial area. Through comparing the two areas Zollverein Coal Mine Industrial Complex in Essen and “798” art gallery in Beijing, I aim to highlight and discuss the similarities and differences of the process of transformation from an industrial area to a post-industrial one. After that, I can analyze some of the strengths, weakness, opportunities and threats from these two examples. Based on the conclusions drawn from the two cases, I will make a proposal for the reconstruction of Nanjing Jinsanli Rubber & Plastic Co., Ltd. I gave the new name “RUBBER SOUL” to this place. My design proposal for this area will bring the knowledge from the study-case analysis into practice.

Keywords: Image of city, industrial transformation, service industry, art gallery, SWOT analysis, design
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Introduction

The transformation of old industrial areas is not a new phenomenon. It can be seen in the Ruhr area in Germany, or in the Bercy area in Paris. But because industries continue to relocate, there are always new sites with singular particularities to analyse and new research can contribute with new perspectives.

Many industries are moving away from the traditional industrial areas and relocating to other places, leaving behind underused industrial areas. In some locations, traditional industries are being replaced by service activities, such as coffee bars, shopping malls and residential districts. We can also see a lot of theme parks that have been built in different places that have been abandoned by the industries that once settled there, such as Duisburg Nord Landscape Park in Germany. Even in China, the government is transforming the old industrial areas into residential places, art galleries, parks, such as Xu Jiahui park in Shanghai, and Zhongshan Qijiang Park in Shenzhen. It is a problematic that raises issues of culture as an economic activity, social concerns about the uses of space and for whom the space is being developed for, and environmental concerns, for example what use to give to polluted industrial sites.

The methodologies are guidelines which guide me to analyze my study cases and also steer the orientation of my design proposal. Theory of urban image helps me to investigate the planning of projects. Heritage protection theory is a way to analysis what people have done for heritage sites right now and a method for analyzing my study cases. SWOT is the guideline for analyzing the advantages and disadvantages. In addition, SWOT can help me to draw the elements which I need for my designing proposal.
In the part of study cases, I focus on two projects of the transformation of old industrial areas in this paper. The two projects which I choose aim to shed some light on the renascent road of old industrial areas. The case in China is Dashanzi (798 art zone) in the Chaoyang District of Beijing. It was the military factory area and the construction was granted to a German company in the 1950s. The existing buildings are in the Bauhaus style. Now, the reconstruction and redesigning follows some contemporary aesthetics, while also attempting to preserve part of the historical heritage of the site. The space combines the past, present, and future of the "New China" and the unique meaning of the socialistic culture. It has a large attraction potential for foreigners, young people and artists visiting 798 Art Zone. Visitors enjoy the sculptures, different kinds of exhibitions, cafes and graffiti on the wall.

As a second case study, I choose the Zollverein Coal Mine Industrial Complex in Essen in Germany. It was also an industrial area and the architecture style is similar to the one found in the 798 art zone. The Zollverein Coal Mine Industrial Complex in Land Nordrhein-Westfalen consists of the complete infrastructure of a historical coal-mining site, with some 20th-century buildings of outstanding architectural merit. (UNESCO 2001) Some new functions have been implemented in these old constructions such as casino, museum, café and restaurants. In 2010, Essen has been selected to be “European Capital of Culture 2010”.

A comparison between these two cases can provide some common characteristics and differences between them and allow me to discover some common elements of designing and planning from these cases that will inform my design proposal.

Finally, I am going to do a planning proposal for one old industrial district in my hometown (Nanjing, China) in order to implement in a new renewal project the characteristics I had encountered in the two renewal cases I studied before –
the 798 Art Gallery in Beijing and Zollverein Coal Mine Industrial Complex area in Essen. I choose the Nanjing Jinsanli Rubber & Plastic Co. Ltd which is located in the Northern part of Nanjing and close to the Jinchuan River. This factory is going to move outside the urban area and I argue that this abandoned space should be redeveloped. There are 3 universities and lots of residential districts surround this industrial area now, so the plot has high commercial value which contributes to justify its redevelopment.

I will consider the question of how I can do a design proposal for the area of Nanjing Jinsanli Rubber & Plastic Co. Ltd in order to improve the environment and make it more attractive for residents from the surrounding area and visitors. The second question is which kind of elements I can use for this designing from the Zollverein Coal Mine Industrial Complex in Essen and 798 Art Zone in Beijing.
Chapter 1: Theory

In the theoretical chapter, I am going to introduce and discuss the concept of urban image, industrial heritage and explore some of related theories. This chapter includes Kevin Lynch’s notion of the city image and its elements. The industrial heritage is an important concept for industrial transformation. Both Europe and China attach importance to the development of post-industrial area. Most traditional industries have been developing slowly or even been relocated in Europe since 1960s. There are new types of industries emerging that do not always find their way into the abandoned plots. China has the same situation too since 1970s. (Yang Xue 2008)

1.1. General Theory of urban image

My research question relates to the characteristics of post-industrial region which located in the city. For example, 798 Art Zone represents the special and original art center in Beijing. (BJCHY.GOV 2009) Zollverein Coal Mine Complex is the symbol of industrial heritage in the Ruhr Area and World Culture Heritage in the world. (Zollverein¹ 2005) So Lynch’s approach of the image of the city can be used for analyze these two cases and guide my design proposal.

Kevin Lynch in The Image of the City (1960) argued for legibility being an important visual quality of the city. According to him,” the ease with a city’s parts can be recognized and can be organized into a coherent pattern”. Some pattern such as paths, edges, districts, nodes, and landmarks act as the symbols of the city and should be easily identifiable. All elements in the city are perceived by its inhabitants. All elements in the city are perceived by its inhabitants. Every city should be in possession of his personality or characteristic.
Lynch argues the contents of the city images so far studied, which are referable to physical forms, can conveniently be classified into five types of elements: **paths, edges, districts, nodes, and landmarks.** (Lynch 1960)

The projects I choose locate in some district or node of each city. Heritage site Zeche Zollverein is the region's main landmark. (Rost, 2005) Most elements are suitable for explain the outdoor space in the industrial park. So I plan to describe the outdoor space with the guideline of Lynch’s viewpoints.

### 1.1.1. Paths

Lynch depicts “Paths are the channels along which the observer customarily, occasionally or potentially moves.” As a rule, railroads, sideways, motor ways and others belong to the range of paths. Individuals pass through the paths while they observe the cities. They can see some other environmental elements around the paths. (Lynch 1960)

### 1.1.2. Districts

Lynch describes districts as the medium-to-large sections of the city, conceived of as having two-dimensional extent, which the observer mentally enters “inside of,” and which are recognizable as having some common, identifying character. People from the outside district can understand all cells in the district have the same character. Most citizens construct their city to some extent in this way, with individual differences as to whether paths or districts are the dominant elements. It seems to depend not only upon the individual but also upon the given city. (Lynch 1960)

### 1.1.3. Nodes

Lynch argues that the concept of node is similarly related to the concept of district, since cores are typically the intensive foci of districts, their polarizing
center. Nodes are strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is traveling. Nodes may be junctions, places of a break in transportation, a crossing or convergence of paths, moments of shift from one structure to another. Or they may be simply concentrations, which gain their importance from being the condensation of some use or physical character, as a street-corner hangout or an enclosed square”. Some nodes which are the cores stand as the symbols. (Lynch 1960)

1.1.4. Landmarks

As Lynch mentions, landmarks are another type of point-reference. They are usually a rather simply defined physical object: building, sign, store, or mountain. Some landmarks can be a lot of elements such as isolated towers, golden domes, golden domes, great hills. Landmarks are unique or memorable and easily identifiable. (Lynch 1960)

1.2. Brief Reflections on Industrial Heritage

Zollverein industrial complex is on the list of World Culture Heritage by United Nations Educational, Scientific and Cultural Organization (UNESCO). But also the 789 Industrial Complex is distinguishable by its characteristic industrial architecture in Bauhaus style. Therefore it is relevant here to will introduce the concept of World Heritage and focus particularly on the idea of Industrial Heritage protection in Europe and in China.

1.2.1. World Heritage

“Heritage is our legacy from the past, what we live with today, and what we pass on to future generations.” Both cultural and natural heritages are important sources of life and inspiration such as the wilds of East Africa’s Serengeti, the Pyramids of Egypt, the Great Barrier Reef in Australia and the
Baroque cathedrals of Latin America. World Heritage sites whatever they locate in any place belong to all the peoples of the world. The United Nations Educational, Scientific and Cultural Organization (UNESCO) commit themselves to encourage the identification, protection and preservation of cultural and natural heritage in the world. They are of outstanding universal value for humanity. (UNESCO 2010)

1.2.2. World Cultural Heritage

World Culture Heritage is a special kind of World Heritage. According to UNESCO World Heritage Convention, monuments, groups of buildings and sites can be considered as "cultural heritage". **Monuments** consist of architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features. They are of palmary world value from the point of view of history, art or science. **Groups of buildings** contain groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, stand out for its value for humanity. They have the same universal value as monuments from the point of view of history, art or science. **Sites** contain works of human or the combined works of nature and human, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view.”(UNESCO 1972)

The World Heritage Convention established a “World Heritage Fund” which helps the local government to protect and preserve the Heritage. They supply technical assistance, professional training for protection, and management planning or even long-term conservation. Sometimes they give local government emergency assistance to safeguard heritages in danger. Low-interest and long-term loan from “World Heritage Fund” are given to local
1.2.3. Industrial Heritage

“Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value.” These remains contain buildings, machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education. (TICCIH 2003) Most of constructions show the history of the development of the industrial complex, such as Zollverein coal mine complex in Essen. They are of educational and commercial value.

1.2.4. Industrial Heritage Protection

Before we know how we can protect the Industrial heritage, we have to recognize the value of them. Industrial heritages are of so many values, such as historical value, economic value, educational value and technical value. People can see the historical images from the industrial remains and some videos about how these machines worked before. If some Industrial places have been chosen to Industrial heritage or cultural heritage, they have more attractive potential for people visiting. So these places have more economic value for businessman and for policy-makers. People could “consume” these sites and their associated image for shopping or other activities held in that place. In addition, some old industrial places have technical value, because people can see the human intelligence and scientific methods for production in these areas. Finally, some industrial heritage sites have educational value, because they have teaching facilities such as operation platforms or others for
kids or young people coming and do practice. They also can propagandize the knowledge of environmental protection to visitors or others.

Legal and political protection should take into account the industrial heritage. Some industrial heritage sites should be fully protected and no interventions allowed that compromise their historical integrity or the authenticity of their fabric. Furthermore, the political assistance joins that, such as the technical advice, tax incentives. The governments establish some agencies to deal with emergency during the transformation of industrial complex. (TICCIH 2003) Governments have specialists advising on how to maintain or preserve all the elements in an obsolete industrial complex in order to promote its potentials and reduce the threats of destruction of potentially valuable assets. The threats may also come from environment for example, heavily polluted soils or human activities for example, when investors want to demolish the original buildings and infrastructures and replace them new infrastructures with no regards for the industrial image of the place. They also need economic supply for sustaining existing uses or complementing conservation or recording. (Judith and Tim, 1992)

1.2.5. Industrial Heritage Renewal

This thesis relates to the post-industrial city. It means the city was an industrial place. Industry was the most important activity in the city. During the city transformation, service industries dominate the main part of city activities. Some cities are still industrial places, but the traditional manufacturing industries have been replaced by new industries linked with telecommunication, bio-tech, medical industries and research, and cultural and creative industries. Also the service sector grew considerably. Therefore some authors talk about a post-industrial economy and a post-industrial city.
Most cities are still industrial places, but the traditional manufacturing industries have been replaced by new industries linked with telecommunication, bio-tech, medical industries and research, and cultural and creative industries. Also the service sector grew considerably. Therefore some authors talk about a post-industrial economy and a post-industrial city.

Industrial civilization is a special step during development of human being. In Europe, industrial revolution took place during 19th century and industry effect people’s lives. (Marlou Schrover 2008) With the scientific improving and decrease of fossil energy sources, some industrial factories went into liquidation such as Zollverein coal mine complex in Essen. After new planning of this place, people could come and visit this heritage site. The abandoned constructions inside of the heritage site show the history of industrial flourish before. The outside spaces can be used as green area or parking places. Another reason of the factories closed is about the urban sprawl such as the increasing of the population and the enlargement of the urban area. Some factories have to be moved to the countryside or other places which are far away from dense inhabitants. On the other hand, in China, some artists brought new atmosphere to the disused industrial complex. The factories closed because the place which factories located is full of inhabitants living surround them. Citizens want to live with the high quality environment. These industrial areas need some new functions. For example, the earliest artists come to 798 Art Zone in Beijing and rent workshops or warehouses for art activities such as sculptures, drawings, fashion show or others. Some citizens love to enjoy the art show or take a walk or do exercise in 798 Art Zone. (798 Art Org 2010)

Industrial heritage renewal is the integration of knowledge (scientific and practical) that is shared between person and teams. It is the cooperation among local government, inhabitants and international organization. The
transformation of industrial area also attracts international attention. From the psychological perspective, the transformation should be fit for human activities. (Xander O., and Anna J 2006) People come here and feel comfortable in the new environment. Furthermore, the visitors should have some interesting activities to join inside the transformed industrial area such as sports, concerts, exhibitions. That is the object for new planning of disused industrial place.

1.3. SWOT Guideline Description

A SWOT analysis is an effective framework for analyzing the Strengths, Weaknesses, Opportunities, and Threats of an organization (or a project) that helps to address the effectiveness of a project planning and implementation. (Sabbaghi and Vaidyanathan 2004) For the aspect of strengths, I will consider the advantages of the project, resources and internal assets that meet demands and reduce or address threats. For the aspect of weakness, I consider what I can improve for the project and which one should be avoided. For opportunities, I will look into the most favorable trends and some external circumstances or trends that favor this specific project or type of project. For threats, they are the obstacles of the transformation. Whether resources are sufficient or not, some external circumstances or trends will unfavorably influence the outcome of the project. (Sabbaghi and Vaidyanathan 2004)
Chapter 2: The Zollverein Coal Mine Industrial Complex in Essen, Germany

Ruhr is an area located in the northern part of Germany and includes the boroughs of Duisburg, Oberhausen, Bottrop, Mülheim an der Ruhr, Essen, Gelsenkirchen, Bochum, Herne, Hagen, Dortmund, Hamm, Wesel, Recklinghausen, Unna and Ennepe-Ruhr-Kreis. It is a very large region. During the industrial revolution, it developed as an industrial center because of the coal mining activity and of the existence of Mülheim as a port for commercial activity.

I choose to analyze the case of the Zollverein Coal Mine Industrial Complex because it shows the process of industrial transformation. Some disused constructions have been preserved directly and some of them have been redesigned for other purposes. The Ruhr region, in Germany, is a famous industrial area. I want to study the experience of industrial transformation from this project to better inform my design proposal.
2.1. The Background Description

Essen lies at the heart of the Ruhr area and is one of the largest cities in the region. At the end of the 16th century, many coal mines had opened in Essen, and the city earned a name as a centre of the weapons industry. The city became increasingly important strategically. (Wikipedia 2010) Essen was once the largest mining city in Europe and has been undergo a rapid transformation. The former warehouses and workshops for heavy industry have long history and a creative lightness. Zollverein Coal Mine Industrial Complex is now an exciting, highly diverse magnet for young people and up-and-coming audience. (Fritz Pleitgen 2008) Now Essen is the European Capital in 2010 and the metropolitan centre of art and design.

“Zollverein industrial mining complex” is a good example of the coalmining and coal processing industry in the 19th and 20th century. In addition Zollverein Coal Mine Industrial Complex is the only mining site in the world
where the complex processes involved in this branch of industry can be seen and clearly understood. For this reason Zollverein is the symbol of industrial heritage in the Ruhr Area and World Culture Heritage in the world, the region in Germany most deeply affected by the social, economic, aesthetic and industrial upheavals during the age of coal and steel. (Zollverein1 2005)

2.2. The Road from Industrial Center to the European Capital of Culture 2010

The Ruhr Valley, an important industrial area, produces petrochemicals, cars, iron, and steel. It is the principal manufacturing centre of Germany and formerly known as one of the world's leading industrial complexes. The area was occupied by French and Belgian troops in 1923–25 in an unsuccessful attempt to force Germany to pay reparations laid down in the Treaty of Versailles. During World War II the Ruhr district was severely bombed as it was vital to German industry. The seven dams across the river were constantly bombed by the Allies in an attempt to flood the area (for example, with the ‘bouncing bombs’), but without success. Allied control of the area from 1945 came to an end with the establishment of the European Coal and Steel Community in 1952. Control of the region passed to West Germany in 1954. In the 1980s the coal and steel industries declined, leading to serious unemployment. (Talktalk 2010)
2.1.1. History of Zollverein Coal Mine Industrial Mining Complex

The Zollverein Coal Mine Complex is located in the northern part of Essen. It symbolizes the region’s industrial past and the unique structural expression of the industrial modernity of the 20th century. The central shaft number XII at the Zollverein pit was built between 1927 and 1932. The developers of this complex wanted a factory that functioned in an extremely rational manner and
the Bauhaus style architecture reflected the productive might of the German mining industry. Architects Fritz Schupp and Martin Kremmer were responsible for designing and building the pit of the Zollverein shaft XII as a central winding tower for a total of four mine locations with the name Zollverein. (M:Al 2010) They just used the concrete and steel frameworks and brick facings characterize the architecture.

Subsequently, because of a very rich layer of coal that was found by Duisburg-born industrialist Franz Haniel (1779-1868), who needed coke for steel production, the first coal mine was founded in 1847, and mining activities begun in 1851. Zollverein coking plant was built between 1957 and 1961. (Wikipedia 2010) It began operation in 1961 and was considered to be the most modern coking plant in Europe. The coking plant workshops were used for the extraction of by-products and coal derivates – ammonia, crude benzene, crude tar. Until the early 1970s, capacity was expanded up to 8,600 tons of coke produced at Zollverein each day. (Industriedenkmal-stiftung 2010) It became a very important place for this industrial center.

The main industries in Zollverein Coal Mine Complex included the industries of coal, iron, steel and coke. It survived during the Second World War with only minor damages and by 1953 was again placed on top of all German mines with an output of 2.4 million tons. (Zollverein¹ 2005)

The Flöz Sonnenschein coal layer in the north of the Zollverein territory was the last coal layer to be exploited in Zollverein area, by the early 1980’s. In 1983, the coal mine in Zollverein area could not keep up with the production at that time. The decision to close down Zollverein was voted for by Germany government in 1983. Only the coking plant remained open until June 30, 1993.
Since 1980s, the mining industry declined and the region was left to deal with heavily polluted land and high unemployment.

The tides start to turn when in December 1986 Zollverein is put under an official protection order by a ministerial decree from Düsseldorf, and listed as a monument in the city of Essen. (Zollverein² 2005) The ministerial decree prevented the demolition of Zollverein. In 1989, the International Bauaustelling (IBA) Emscher Park, wanted to transform the defunct and polluted industrial areas into one green area and to give the former industrial complexes a new function.

In 2001, the Zollverein Coal Mine together with the Zollverein Coking Plant was placed on the UNESCO World Cultural Heritage list. OMA/Rem Koolhaas and Floris Alkemade began to do a master plan for the 100-hectare site in the Zollverein Coal Mine Complex at that time. In this new plan, all new buildings
are arranged around the edges of the site and divide the heritage from the
surrounding workers’ housing. (Bergen 2006) Now there are many new
services inside of Zollverein Coal Mine Complex, such as markets, college,
museum, casino, swimming pool, ice rink and park.

2.2.2. The Master plan of Zollverein Coal Mine Industrial
Mining Complex

In 2002, the Office for Metropolitan Architecture (OMA) from Rotterdam, under
the management of Rem Koolhaas, was commissioned to convert a
previously developed concept for the economic and cultural development of
the site into a master plan for urban development. (M:AI 2010)

The planners gave Zeche Zollverein new functions which will be placed to
inform and attract visitors. The programming of the new buildings and
re-programming of the existing buildings will be used for many functions (Image2-4), most of which will be related to art and culture. (OMA 2002) As Lynch described, the district is a middle-to-large section of the city. People can enter into the inside of district. (Lynch 1960) Zollverein Coal Mine Complex is one of the districts of Essen. Visitors can enter inside of it and visit Ruhr museum, Zollverein Coking plant and other buildings.

2.2.3. Functional Plan in Zollverein Coal Mine Industrial Complex

From the master plan (Image2-4), I can understand OMA divided Zollverein Coal Mine Industrial Complex into many pieces of zones and gave them some new functions such as marketing area, attractive infrastructure, leisure area, educational institute, bike roads and tracks that were kept as public space and connected the main buildings. In my opinion, the phenomena of industrial transformation has large attractive for people visiting. People love to see these “new” constructions and inside of them.

2.2.3.1. Indoor Space

There are two methods of transformation mentioned in industrial park. One is the abandoned building has been redesigned for other functions. The other is new architecture has been built for new activities.
The Ruhr Museum is located in the former Coal Washing Plant of the Zollverein Coal Mine, Shaft XII in Essen, Germany. The building’s redevelopment was undertaken by the architects Rem Koolhaas and Heinrich Böll. (Ruhr Museum¹ 2010)

It has existed since January 2008 as a dependent foundation within the Zollverein Foundation funded by the Federal State of North-Rhine Westphalia, the Rhineland Regional Council (Landschaftsverband Rheinland; LVR) and the city of Essen. As a unique type of regional museum it showcases the entire natural and cultural history of the Ruhrgebiet in its permanent exhibition. It is not a traditional industrial museum, but presents itself as the memory of and a window for the new Ruhr Metropolis. (Ruhr Museum² 2010)
The visitors come to Ruhr museum and see the abandoned equipments in order to understand the history of industrial culture. (Image) The guides of the museum were the workers who working in Zollverein Coal Mine Complex. They know what happened before clearly. There are so many projecting cameras inside the museum which can show the videos of the past operation of these machines. The guides can explain the working process of these machines before. “Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value.” That is also the way of the industrial heritage protection. (TICCIH 2003) Many unemployed workers got the jobs inside the Coal Mine Complex. They work for their factories before and they get used to introduce the industrial knowledge to the visitors.
The designer transformed this unused building to museum with 5 levels. Each floor has his name with the height from the bottom to its exhibition hall. (Image 2-7) They marked the floor’s height on the glass of entrance. The visitors can look around the museum with the guide of gradations from top to downstairs. The public stairway was designed in the old elevator place. So in the middle of the stairway, you can see the unused elevator shaft.
The Zollverein School of Management and Design is the only research and educational institute of its kind in Europe and it is a totally new building which was designed by Japanese firm SANAA (Karuyo Sejima and Ryue Nishizawa) in Zollverein Coal Mine Complex. (Zollverein School 2003) It is the first new building constructed by SANAA in Europe. The building was completed in summer 2006. As Lynch argued landmark can be a building which is distant one and typically seen from different angles and distances. (Lynch 1960)

The process of designing the School was very complex. Different ideas and sketches were discussed but the goal was that the final object, the building itself, would be a landmark for the area. For the new Zollverein School of Management and Design building, SANAA came up with a design that picks up the basic functional and effective idea used by the original Zollverein architects Schupp and Kremmer.(Zollverein School 2003) The architects designed a cube-shaped building heated by hot water from deep inside the mine, which now flows through pipes in the walls. (Manibus 2010)
The 4,000 sq. metres of available space will be used for offices and conference rooms, project and computer rooms, studios and workshops, and communal areas such as a cafeteria, media library, foyer, and a large lecture theatre. (Zollverein School 2003) The figure of Zollverein School is perfect square and four floors of the building are of varying heights with an asymmetrical arrangement of square windows of varying sizes. The interesting part is the first floor is an open area without partitions. So people can see the whole view in the first floor. Undivided space can give people the sense of large. This place can hold some exhibition or speech or lesson for a large number of students. As an innovative area, Zollverein School gave the platform for people coming and communication inside of it. This place can collect the creative ideas in order to transform them into the factual products.
People can have a candlelight dinner date at the Casino Zollverein, one of the region’s most spectacular restaurants. The big construction afford large place to contain many tables for customers. The white part of the architecture (Image2-10), is the new structure which connect to the old red brick one. The consumers can see outside views through the French windows when they are having dinners in this new part of the building. Consumer can choose to drink beer outside the Zollverein Casino, because there are many dinner tables in front of the main gate and some people can enjoy the good weather. People also can see some commercial installations and other industrial buildings outside the casino. The decoration of this restaurant used the original structure of the plant. So people can enjoy special dinner environment in Zollverein Casino.
Currently, the Foundation Zollverein and the city of Essen are working together on the qualification of the location as a site for creative industry with a focus on design and on the dismantling of the industrial site. A 3.5-hectare area at the interface with the Zollverein coking plant will be developed as a site for residential and working models of youthful creative companies. In addition to offices, studios and workshops, apartments, restaurants, cafés and a hotel are also planned. (M:AI 2010)

2.2.3.2. Outdoor Space

There are huge areas which is outdoor space in Zollverein Coal Mine Complex. As Lynch (1960) mentioned five elements can be used to describe the phenomena of the Zollverein outdoor space. The wind tower is the landmark of the Zollverein Coal Mine Complex and the symbol of the whole...
Ruhr area. Also they have some other landmarks, such as the Ferris wheel in Zollverein Coking Plant, railways inside of Zollverein Industrial Complex.

Lynch also argues the paths which people pass through, such as railroad, bicycle roads and walkways. There are many kinds of paths inside the Zollverein Park. So I can draw some elements from these road planning.

The nodes are the strategic spot in the city which people can enter. Maybe they are the traffic breaks and traffic junctions in the city area. (Lynch 1960) So there are some nodes in the outdoor space inside Zollverein Coal Mine Complex.

Other places are full of plants. In this aspect, I have to focus on the outdoor space transformation. Comfortable environment attracts people coming and relax in these areas. Children can have fun in Zollverein Park. Even they can design their own playing venues there. In addition, railway is a good symbolism or landmark to show the history of Zollverein. Lynch argues the landmark is one element from a host of possibilities. (Lynch 1960) Keep the railway track is the advisable method for landscape view. So planning outdoor space is benefit for landscape changing.
From aspect of the master plan picture, the designers kept winding Tower of Shaft 12 in order to attract the visitors coming and preserve in the collective memory the original function of this area. This kind of structure is simple and high and was built between 1927 and 1932, so it is a good symbol for marketing the Zollverein Coal Mine Industrial Complex and the story of this place. Now it becomes the landmark in Zeche Zollverein. People can see this construction in many covers of magazine or documents or posters.

As Kevin Lynch (1960) argued the landmarks are usually a rather simply defined physical object. They may symbolize a constant direction such as isolated towers, golden domes and great hills. He also described a landmark as a singularity, some aspect that is unique or memorable in the context. Landmarks become more easily identifiable, more likely to be chosen as significant, if they have a clear form; if they contrast with their background; and if there is some prominence of spatial location. (Lynch 1960)
Since 1998, the project managers of Zollverein Coking Plant transformation are Stiftung Industriedenkmalpflege and Geschichtskultur, IBA Emscherpark. The building was modified and refurbished by Jürg Steiner (Berlin) Heinrich Böll (Essen). (M:AI 2010)

The 150 meter long ice rink alongside the listed coking ovens of the coking plant is a big draw for skating fans of all ages in winter. The boundary close to the “coking plant” can be the seat for people having rest. It has attraction for citizens in Essen coming to skate there.
The works swimming bath on the coking plant is both an art work and a valuable leisure area. People can enjoy the dinner or drink cafe outside the swimming pool. The color of coking plant construction and the color of swimming pool is harmonious. It just opens at the summer time, because it is an open swimming pool.
When people stand on the top of Ruhr Museum or walking inside of the industrial park, they can see the big Ferris wheel cycling on the Zollverein Coking Plant. That is suitable for the Lynch’s viewpoint. Landmark can be seen from different angles and distance. (Lynch 1960) This phenomena happens in many part of Zollverein industrial park. People can enjoy the dinner outside and see the Ferris wheel or they can look at that when they swimming in the works swimming bath.
The rail track has been kept for memory and it is also a good landmark for people visiting the site. As Lynch described, landmark is special character in this place. People can see them in everywhere inside the industrial park. It is different from other place in Essen. Lynch also argues the path is the channel along which people walk through it. People can enjoy the special view which located surround the paths. (Lynch 1960) The plants are also allowed to grow and to surround the rail track. The contrast between the hard iron and the soft plants can be seen as a special landscape. Citizens can see this kind of view only here. The rail track connects to each of the buildings so it just shows the relationships between each construction and reveals that all constructions come together to form one unit- Zeche Zollverein is not just an individual plant.
The OMA Company planned some bicycle road on the both sides of railways. As Lynch (1960) mentioned paths are the channels along which people can through them, such as walkways, railroad, bike road and others. (Lynch 1960) In Zollverein Coal Mine Complex, visitors and inhabitants can ride bicycle in these planned roads. They can enjoy the views which surround the paths, such as the structure of the workshops, outdoor commercial installations and the plants surround the paths. These bicycle roads also can connect each of the main buildings. People can go to Ruhr museum, Zollverein School, Zollverein Casino and other place by bike.
Lynch describes the node maybe the traffic break in the city. (Lynch 1960)

This is the planning map of the Zeche Zollverein. The blue parts are the car parks inside the Zeche Zollverein. They are also the nodes of Zollverein Coal Mine Complex. People drive the cars to these areas and park the cars there. So they are the strategic spots or points which person can enter. (Lynch 1960)

The middle one (image2-17) is also the traffic junction among the railroads, bicycle roads, walkways and motor ways. It is the foci of Zeche Zollverein.
Zollverein Park has changed its appearance. The existing landscape was designed and complemented carefully and respectfully. Some playing venues are designed by children and constructed for children. They animate to dream and explore, to play and romp, to have a ball and meet friends. 20 square elevated plant beds are cultivated by children from nearby schools. They study as “green” classroom in the open. Balls and equipment can be borrowed at the Zollverein Visitor Center, at the coking plant Info Point.
2.3. Brief Summary

SWOT guideline is a good way to analyze this project of industrial transformation in this region. In order to compare the case in Essen and the other in Beijing, I have to draw the four parts of elements from here. After that, I can do my design proposal within these specific aspects.

2.3.1. Strengths

The region has generated 300,000 new jobs since 1989, and the idea of closing down has long been banished from people’s consciousness. (Manibus 2010) Zollverein has become the creative centre of the Ruhr Area. Every year 7000 visitors pour into Zollverein to view the largest industrial monument in the region. And the number continues to grow. (Zollverein² 2010)

In addition, 165 million EUROs have been invested by EU, the State of North Rhine-Westphalia and the City of Essen in restoration, extensions, and in a new infrastructure. (Berkhoff 2008) The managers in Zollverein got the funds and they can do the planning of this World Cultural Heritage. The Coal Mine Complex has been refurbished now. Today it attracts so many visitors coming and visiting this area.

Furthermore, The Zollverein School of Management and Design located inside of the Zollverein. That place is a creative center and educational center. Many exhibitions and meetings are hold in the Zollverein School. It plays a positive role of collecting creative ideas and gives a platform for people communicating them. College has the power of innovation. So new college building brings the fresh breath to the old industrial area and also brings the creative ideas and visitors.
2.3.2. Weakness

The weakness point of the industrial transformation in Ruhr is about the business inside the Coal Mine Complex. They need a large number of funds for sustaining investment. Because the revenue of the Coal Mine Complex just comes from the tickets of museum, some commercial exhibitions and restaurants, that is not enough for the maintenance and development of the Zollverein Coal Mine Complex in the future. They do not have any policies or methods to deal with their own funds’ problem. So they have to lie on the sustentation funds from the up levels such as EU, the State of North Rhine-Westphalia and the City of Essen. I hold the idea that it is the biggest weakness of the Zollverein development.

2.3.3. Opportunities

In 2001, Zollverein Coal Mine together with the Zollverein Coking Plant was chose to be a UNESCO World Cultural Heritage. Generally speaking, a site on the list of the World Cultural Heritage could get technical assistance or long-term loan from UNESCO. It also can get more attention from the upper level government such as the municipality or the federal level.. This is a huge opportunity for this place. The European Union, the state of North Rhine-Westphalia and the City of Essen gave 155 million EURO for investing Zollverein project. The OMA Company did a very good plan for it and made it more attractive for visitors.

2.3.4. Threats

The Zollverein complex is not a model for the whole region in Ruhr. There is too much empty industrial space, far more than the museums, cafes, studios and project offices can ever hope to fill. The fund of developing Zollverein
Coal Mine Complex comes from the European Union, the state of North Rhine-Westphalia and the City of Essen. It costs €155 million in investments. Such a sum cannot be raised for other, similar facilities. (Manibus 2010) So the money and developmental model of Zollverein Coal Mine Complex is not panacea. People should think about new methods for renewal other sites.
Chapter 3: Case Study in China-- Dashanzi in the Chaoyang District of Beijing (798 art zone)

798 Art Zone is the popular name for Dashanzi in the Chaoyang District in Beijing. It was a military factory area 50 years ago. The Chinese government used the number to name the factory that they managed by themselves. So there is a 798 plant, a 718 plant, a 706 plant and some more. Now we use the 798 for the common name of this area. A three number identification is simple, easy to memorize and striking for the eye.

3.1. Background Description of Dashanzi in the Chaoyang District of Beijing (798 art zone)

Beijing as the capital of China is the second largest city after Shanghai. On October 1st, 1949, Chairman Mao Zedong proclaimed the establishment of the People's Republic of China, with Beijing as its capital. The city has
undergone a massive transformation since then. It has expanded from its old confines within the nine gates of the Inner City wall (Zhengyangmen, Chongwenmen, Xuanwumen, Chaoyangmen, Dongzhimen, Fuchengmen, Xizhimen, Andingmen and Deshengmen) to the seven outer gates (Dongbianmen, Guangqumen, Xibianmen, Guang'anmen, Yongdingmen, Zuoanmen and Youanmen) and out into the suburbs, Beijing now covers an area of about 750 square kilometers, which includes a dozen new living districts built on the outskirts of town. Tian'anmen Square is still the center of Beijing.( China org 2010)

New buildings like the International Post Office and Bank of China have been built along the Second Ring Road, the former line of the Inner City wall. No.7 Ring Road, No.8 Ring Road and No.9 Ring Road will be built in Beijing in the future. (Wikipedia 2010) There are six ring roads in Beijing now. Old living quarters and blocks of traditional Beijing style buildings have been restored. Large scale construction has been undertaken along the Third and the Fourth Ring Roads. Chaoyang district, where the 798 Art Zone is found, is located inside the Second Ring Road.
3.2. The Road From National Electronic Industries to Art Zone

Chaoyang District (Image3-2), located in east Beijing, was under the jurisdiction of Jixian Country of Youzhou Prefecture during the Qin Dynasty more than 2,000 years ago. It became the East Suburban District in 1925 and renamed Chaoyang District in 1958. Covering 470.6 square km and having a population of 2.29 million, Chaoyang is the largest and most densely populated urban district in Beijing. It takes the shape of a narrow polygon from north to south on the map. (Chaoyang 2006)

As Lynch described, districts are the relatively large city areas which the observer can mentally go inside of, and which have some common character. They can be recognized internally, and occasionally can be used as external...
reference as a person goes by or toward them. (Lynch 1960) Chaoyang District includes Silk Street Pearl Market, Olympic Park, Chaoyang Park and 798 Art Zone. All these regions belong to the public space. The purpose of citizens coming to Chaoyang District is to relax and have fun. For example people could look around exhibitions or buy some artworks in 798 Art Zone. Otherwise they also can buy some antiques in Silk Street Pearl Market or celebrate some festivals in Chaoyang Park.

3.2.1. The history of 798 Art Zone

The area occupied by Beijing 798 Art Zone was once the place for Beijing North China wireless joint equipment factory (namely, 718 Joint Factory), which was designed and built by the experts of former GDR (Germany Democratic Republic) in the 1950s. The investment capital for the construction came from the compensation money that Germany Democratic
Republic gave to Soviet Union after World War II. The Joint Factory was designed to be built in 1952, constructed from 1954, and went into production in October 1957.

In April 1964, the supervisor units canceled the organizational system of 718, and established, among others, the 798. The Chinese economic system was a socialist planned economy between 1949 and 1984.

A planned economy (or directed economy) is an economic system in which the state or workers' councils manage the economy. It is an economic system in which the central government makes all decisions on the production and consumption of goods and services. (Wikipedia 2010)

During that time, wireless joint equipment factory (namely, 718 Joint Factory) made some important hardware of high tech weapons. The main industries included Electron, Communication Engineering and hardware of high tech weapons. (Baike 2009)

The former six factories of 700, 706, 707, 718, 797, and 798 were reorganized and incorporated into Beijing Sevenstar Science and Technology Co., LTD in December, 2000. To cooperate the reforming plan of the Dashanzi Area, the Seven Group rented out these plants for a short term. (798 Art Org 2010)
The task of designing a Factory was in charge of a German architectural institution in Dessau, located in the same city as the Bauhaus school at that time and the two shared the same architectural spirits. The Bauhaus style’s main characteristic is meeting the practical demand. (Baike 2010) The German architectural institution brought the technical and aesthetic property of new materials and new structures into effect. That is the genre that was later called Bauhaus. As Lynch argued, landmark defined the physical object such as building, sign, store and others. (Lynch 1960) Visitors can see the symbol of 798 Art Zone from the sign or logo of “798” as the image3-4 shows. It is the landmark of 798 Art Zone.

On July 13, 2001, the Olympic Committee named Beijing as the site for the 2008 Olympic Games. The government had the ambitions of promoting a series of transformations connected to the event, suited to forge a radical
change and present the new face of the ancient capital, taking advantage of the high impact of the event in the hosting cities. (Greco and Santoro 2008) The factory rented their warehouses and workshops to the people who wanted to use them. Many artists were attracted to come there. They thought the location of 798 Factory has the advantage of convenient traffic, and of unique style of Bauhaus architecture. So many art organizations and artists came to rent the vacant plants and transformed them. As the earliest area where the art organizations and artists moved in located in the original area of 798 Factory, this place was named as Beijing 798 Art Zone. (798 Art org 2010)

Every artist designed their own studios or art galleries. As they gradually gathered in the district, they brought with it a new homogenous use, as a place to find galleries, art studios, cultural companies, fashion shops etc in the 798 Art Zone.

3.2.2. The New Function of the Unused Construction

Because of artists or other organizations renting the warehouses and workshops from the 798 Factory, these constructions have the new lives from that time. Some buildings have been redecorated for personal studios or restaurants or art galleries or book stores. There is a map to show some new identities in 798 Art Zone. (Image3-5)
The renamed 798 Art District (also known as Dashanzi Art District) is used by gallery owners, artists and visitors alike. The walled compound of red brick factories, warehouses and offices set on a tree-lined grid of streets and lanes offers a unique setting for the different uses and users to interact. (Cao Yin 2006) Most of the warehouses have been used for art galleries. Others can be used for bars, bookstores, restaurants. Inside 798 Art Space, people have to walk around that. Everyone should park the cars outside 798 Art space. It gave a quite environment for artists and visitors.
3.2.2.1. Inside space

Beginning in 2002, artists and cultural organizations began to divide, rent out, and re-make the different spaces vacant at the complex, gradually developing them into galleries, art centers, artists' studios, design companies, restaurants, and bars. (798space 2006) The workshop and warehouse have been changed into an exhibition place and restaurant. The designers kept the main structure and graffiti of these factories and redecorated and refurbished them according to the new functions. This kind of designing makes the combination between past and modern feeling. It was the new style of designing in China at that time.

The Bauhaus style architectures had large indoor spaces which had been designed to let the maximum amount of natural light into the workplace. Arch-supported sections of the ceiling would curve upwards then fall diagonally along the high slanted banks or windows; this pattern would be
repeated several times in the larger rooms, giving the roof its characteristic saw-tooth-like appearance. Despite Beijing's northern location, the windows were all to face north because the light from that direction would cast fewer shadows. It is an example of a redesign proposal where form follows function. (Wikipedia 2010)

It became a "Soho-esque" area of international character, replete with "loft living," and attracting attention from all around. Combining contemporary art, architecture, and culture with a historically interesting location and an urban lifestyle, "798" has evolved into a cultural concept, of interest to experts, visitors and residents alike, influencing the very concepts of urban culture and living space. The bookstore specializes in books, magazines and some postcards of 798 Art Zone.
This cozily modern coffee house which called “AT CAFÉ” retains the exposed brick wall and kept the original style of inside of the warehouse. People can see the broken brick wall and feel the special atmosphere in that place. Bauhaus style building gave this café enough daylight and space to enjoy the coffee. This café owned by artist Huang Rui. He was one of the first group coming to 798 Art Zone and hold the art exhibitions. So people who coming to this café can know the time of his art exhibition.

3818 Warehouse Studio has the same decoration style with AT CAFÉ. The host of the studio kept the whole construction for private studio and hanged the signboard outside on the steel tube. The steel tube looks like a corridor to guide people visiting this place.

3.2.2.2. Outside space
It is a good way to show the story of this area with keeping the rail track and steam engine locomotive. It is the landmark and special path of 798 Art Zone. These two elements are also good for landscape. As Lynch argues, paths are the channels along which people can walk through and enjoy the views surround the railroads. Landmarks are usually a rather simply defined physical object. Landmark becomes more easily identifiable and significant. It is also easy to be remembered by the visitors. (Lynch 1960)

On the other hand, there are many public sculptures outside the buildings. Throughout the 798 Art Zone, compound large pieces of sculpture stand beside the lanes, pathways and in courtyards. People like taking a walk in this place and taking pictures with these sculptures. It seems like a node for artists and visitors. As Kevin Lynch described, nodes are strategic foci into which the observer can enter. It is such like a point which many people coming and stopping there. (Lynch 1960) When people drive to 798 Art Zone, they can easily see these sculptures in the outdoor space. Most people stop there and enjoy the show. From the other perspective, the whole 798 Art Zone is a node for people getting together and looking for their interesting shows. Most of sculptures are “in storage” awaiting proper homes or buyers.

3.3. Brief Summary

SWOT guideline is a good way to analysis this industrial transformation in this region. Beijing as the capital in China has the strong authority in the whole country. 798 Art Zone is the first transformational project in Beijing. Some people admire it and someone take thought for its future. So with the method of SWOT guideline, I can do analysis from my perspective. After that, I can do my design proposal within these elements.
3.3.1. Strengths

The 798 Art Zone is located in the Chaoyang District. It has convenient traffic and a comfortable environment. There are two huge parks inside this district - the Olympic Park and the Chaoyang Park. So the environment here is good for the development of a service and leisure industry. Many citizens like coming to this place and relax in this district.

The 798 Art Zone has another advantage which is the Bauhaus style buildings. Other buildings surrounding the 798 Art Zone are skyscrapers (Image 3-15) and traditional residential ones (Image3-14).

Thus the Bauhaus style buildings in 798 Art Zone are special ones. People like to get the different feeling in this place. They are curious about German structures. The warehouses and workshops inside 798 Art Zone are extraordinary compared with other Chinese architectures. (Image3-14 &3-15) Inside the western style buildings, Chinese culture and western culture mix very well. Visitors can see the traditional bellyband show in one of the warehouses or a Dior fashion show (Image3-6) in the same building. So that is a good combination between western culture and eastern culture. Industrial transformation from unused factory to art center is an artwork. Visitors like the contrast between the old one and fresh one. After the thematic transformation
from industry to art activities, people are interested in the art atmosphere inside of the Art Zone.

In addition, the 798 Art Zone gave a good platform for people communication and exchange the creative ideas. It is the community for creative ideas collection. That is the purpose of the innovation region. Innovation region is the place for collecting good ideas and transform to the realistic products.

### 3.3.2. Weakness

It is free for all artists coming to 798 Factory for renting warehouses or workshops at the beginning. The land price is cheap compared with the other commercial area. The rent is going to be higher and higher with time going on, because it developed commercially. Some artists cannot stay in 798 Art Zone because of the high rent. The Art Zone is changing to a commercial place.

On the other hand, because 798 Art Zone is not a Cultural heritage, the local authority did not invest a person who wants to transform this place or ask some professional company to do the plan for this area. So there is no specific plan for transformation of that place. All the transformations depend on the owners who are renting these constructions. Some artists did very well and someone just copy from others. They have no creative idea for their arts. No one is going to appreciate their copy works.

### 3.3.3. Opportunities

On July 13, 2001, the Olympic Committee named Beijing as the site for the 2008 Olympic Games. It is a huge opportunity for the transformation of 798 Factory. The Chaoyang District is located close to the city center. So this factory cannot keep working in this place. Inhabitants and visitors demand a “Green Olympic”.

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Before the establishment of the 798 Art Zone there was no cultural center in the capital of China. Artists needed a platform for their exhibitions and communication. At the right time and the right location, the 798 Factory decided to rent their warehouses and workshops to these people. They did not do a huge change in all the buildings. On the contrary, they chose to preserve the structures and did the decoration inside the constructions and put their sculptures on the public square. So the Olympic Games is the opportunity for the transformation of this factory.

3.3.4. Threats

At the beginning of transformation, the 798 Art Zone became more and more attractive for artists and visitors. But now, too many commercial elements are coming in to the 798 Art Zone and this affects the atmosphere of the area. It looses a certain irreverence, creativity, innovation and originality often associated with art and art movements. Some companies painted the wall of the structure to cover the original graffiti. That is a kind of destruction for the old culture. The special features of the complex are disappearing with this kind of commercial elements affecting.

On the other hand, the 798 Factory has the lease hold of the whole art zone. They did not have the positive attitude to fix the infrastructure in the 798 Art Zone. On the contrary, they just increased the rent of warehouses and workshops. Some poor artists moved out because of the high rent. It also breaks the real art atmosphere there.

The 798 Art Zone is not the perfect model for all industrial transformation in China. We have so many factories which need to be transformed. People supported cultural and leisure activities in older industrial sites that have been abandoned. This means that the idea is no longer innovative or creative and there is a lot of competition from other similar places. That poses another
threat for future industrial transformation.
Chapter 4: Comparison Between Zollverein Coal Mine Industrial Complex in Essen and Dashanzi in the Chaoyang District of Beijing (798 art zone)

In order to explore the similarities and differences between two cases, I have to compare them in this chapter. First of all, I will do general remarks about the two cases, then I will compare them based on the general remarks. Finally, I will draw some ideas from these cases.

4.1. General remarks

Essen is the European Capital of Culture in 2010. Zollverein Coal Mine Complex, as a visiting centre in Essen, is the symbol and model for structural change in Ruhr area. The aim of RUHR2010 is: “Change through Culture—Culture through Change”. They want cities in Ruhr to have the identity of arts and integration of culture. (RUHR 2010) Inside of Zollverein Coal Mine Complex, the Coking Plant, the Zollverein Shaft 12, the Ruhr Museum, the Zollverein Park are good examples of this transformation. The Zollverein School is a new building in this place. It is a creative centre for people getting new ideas. They have “ESSEN’S CREATIVE CLASS” inside Zollverein School. This class opens the doors of creative people and firms for interested guests. (Berkhoff, Doring and Valentin 2009)

The 798 Art Zone is the art centre in Beijing and is also the first example of a transformation from an industry area to an art zone. Many artists redecorated inside of warehouses and workshops for personal studios or exhibition halls. The Olympic Games gave the opportunities for industrial transformation here. Citizens need the green and creative spaces in the city. In addition, the 798 Factory is in the Bauhaus architectural style. That is different from other
buildings surrounding it. So the 798 Art Zone has a large attraction effect for people coming there.

4.2. Similarities and differences in SWOT-analyses

Earlier I have analyzed the two cases through a SWOT analysis. In this part, I will compare the conclusions of that analysis for the two study cases.

4.2.1. Similarities

Both of the cases have a Bauhaus architectural style. It has some common characteristics of this kind of architecture. Bauhaus style shuns ornamentation and favors functionality. Asymmetry and regularity are used for planning. “Bauhaus buildings are usually cubic, favor right angles, (although some feature rounded corners and balconies); they have smooth facades and an open floor plan.” (Yael Zisling 2001) Because Zollverein Coal Mine Complex is in Essen, it is very common to find the Bauhaus style in constructions. On the other hand, the 798 Factory was designed by a German architectural company. They also use the Bauhaus style as the theme of industrial architectures. But this was the only one in the city of Beijing. This style of building, which has large windows on the roof, gave enough daylight for inside space. Also the artists in Beijing gave them the new lives with the creative functions such as exhibitions, cafés, bookstores and personal studios.

2001 was a very important year for both cases. It brought huge opportunities for them. In this year, the Zollverein Coal Mine Complex was chosen to be a World Cultural Heritage site. After that, the European Union, the Federal government, the State of North Rhine-Westphalia, and the local authority began to focus on this project. They continue investing in this place for industrial transformation and make it to be a more attractive place for
everyone.

Beijing was chosen to be the organizer of the 2008 Olympic Games, and the central government and the local authorities want to hold a Green Olympic Games. So the 798 Factory cannot go on producing anymore in the city. They needed a new, less pollutant user for this area. It was an opportunity for young artists and cultural organizations to come and to change this area.

Cultural activities are the main topic in both areas. Essen is the European Cultural Capital in 2010. The Ruhr museum is not simply one of industry, but a triad of nature, culture and history. There are many special exhibitions in this area such as street arts, fashion shows, musicals and others. In the 798 Art Zone, the art exhibitions are often held there. It is the cultural center in Beijing. Artists and fans love to get together to communicate with each other in the 798 Art Zone. There are different kinds of sculptures and graffiti here. These, together with the buildings, the visitors and resident-artists, the new uses of the place, show history combined with the innovative ideas there. It is highly attractive for both inhabitants and people visiting Beijing.

Both of the cases preserved the railway and train as elements to the memory of the industrial history. The railway is a good element for landscape and history. Visitors like to take pictures with the railway system and old trains.

4.2.2. Differences

The state of North Rhine-Westphalia asked OMA Company to do the planning for the Zollverein Coal Mine Complex, while the Beijing government did not ask any architectural company or other agency to do it. OMA divided the Zollverein Coal Mine Complex into 4 major parts. In SHAFT12, they altered this area more, as can be seen from the Ruhr Museum, the Zollverein Casino, the Zollverein School and others. They kept the forest inside this Cultural
Heritage site and asked children to design some parts of it for their fun. That is a creative idea for designing. Compared with the German case, the Beijing government just gave the chance for the 798 transformation and fixed some infrastructure in the area of 798 Art Zone.

Compared with Zollverein Coal Mine Complex, no new building has been built inside the 798 Art Zone. The artists and some organizations came to the 798 Factory and rented the warehouses and workshops for their personal use. In Zollverein SHAFT12 area, Zollverein School was designed by SANAA Company. It has the elements of Bauhaus style, such as emphasizing on functionality, cubic exterior, using nature lighting, open floor plan. The ground floor in Zollverein School is open. This allows for many kinds of exhibitions or activities to be held on the ground floor.

From the perspective of threats and weaknesses, not all industrial parks can copy the Zollverein model. It needs large funds for investment. So people should think about other creative methods for other projects. On the other hand, the Beijing case is facing the commercial influence. High rent and low quality service is an obstacle for the 798 Art Zone to continue developing. The artistic and alternative atmosphere is being threatened by these commercial elements. Too many commercial advertisements can be seen inside 798 Art Zone. Many young artists are leaving 798 Art Zone in order to find other cheap places for renting.

### 4.3. Ideas for in-put to the design chapter

In this part, I draw some elements which I need for my design proposal. Both industrial areas preserved most of the original constructions. In Zollverein Coal Mine Complex, they kept the Wind Towers as landmarks. The 798 Art Zone preserved the steel tube for symbols.
In the Zollverein Coal Mine Complex, the designers kept the washing plant, but they redecorated inside structure for Ruhr museum. They changed the conveyer belt to the modern elevator for entrance. In addition, they used red light decorating that elevator because it looks like molten steel. This is a creative idea for designing. People also can play ice-skating or swim or play Ferris wheel inside the coking plant. That place became a sport center. There is a large forest near the coking plant. People can take a walk or just relax in this forest. It was also an intelligent way to let the children design their playing area. Additionally, the Zollverein School is a new building but it has the Bauhaus characteristic with others in the whole area. The first floor is open for large activities. Zollverein School is also a college of management and design. It is an innovative center for students, teachers, businessmen, visitors and others. I need this kind of place for people’s communication and collecting some good ideas from individuals. People with different backgrounds can meet together and negotiate with each other. Some creative ideas come out in this platform and they can be transformed into the smart products.

In the 798 Art Zone, people can see all kinds of sculptures and graffiti in that place. There are some empty spaces for fashion shows or different kinds of exhibitions. Some workshops and warehouses can be rented for restaurants, which offer some special or traditional foods and drinks. It gives the atmosphere for consumers having dinner in these restaurants. I hold the idea that the industrial transformation needs the commercial elements coming and supporting the future development. In addition, inside the 798 Art Space, people always walk around. Most people park the cars outside the 798 Art space. Some places inside of 798 Art Zone are pedestrian streets. They gave a quite environment for artists and visitors.
Chapter 5: A design proposal for the area of Nanjing Jinsanli Rubber & Plastic Co. Ltd

In order to further reflect upon the transformation of de-industrialized districts, I decided to design one factory area’s transformation in my hometown. The ideas for the designing are drawn from the Zollverein and the 798 Art Zone examples. I can reflect on the advantages from these two cases and use them as inspiration for my design proposal.

The proposal is intended for the Jinsanli Rubber & Plastic Co. Ltd, an old factory in Nanjing that lies on the river side. (Image5-1)

5.1. The Background of the Area of Nanjing Jinsanli Rubber & Plastic Co. Ltd

In this part, I want to introduce the environment of Jinsanli Rubber & Plastic Co. Ltd. The landscape surrounding this factory is neglected and no one takes care of that. In addition, I will show the photos of the factory and other elements surrounding that area in order to make the reader understand the situation right now. The factory is facing a lot of problems such as the unmanaged warehouses, broken equipments and poor landscape. In the design proposal, I will do the plan for transforming this neglected place and renew its connection to the surrounding areas.
Nanjing is the capital of Jiangsu Province. Over 10 million people live in this city. There is no cultural center like the 798 Art Zone in the city of Nanjing. With the urban population increasing, many factories have to be moved to the countryside, due to the increase of land prices and the increasing demand for residential and commercial and office areas. Citizens of the city need better living condition and environment improving, through the creation of new leisure areas and the (re)development of green areas across the city. In my mind, this area has the potential to be reused as a leisure and cultural center. Inhabitants living surround this factory also hold the idea that riverside can be renovated as a walking path and a green area.

Nanjing Jinsanli Rubber & Plastic Co., Ltd. is a professional manufacturer of various rubber parts, a backbone enterprise in China rubber industry and a special designated manufacturer for national water conservancy projects and war industry.
There are 14 buildings inside the factory. Buildings 1 to 3 were used as workshops. Building 4 was used as office. Building 5 was bathroom. No.13 was used as staff dorms. Others were used for warehouses.
All buildings are now empty and neglected. Buildings 3 and 4 are high ones which can be transformed into public using. The warehouses connect with each other. These have no pillars inside of the hall. That means these buildings can be transformed to a larger indoor space for sports. Building13 is a long one but not high. We can thus observed that there is some diversity in the structure of the buildings in this complex, and this can be used as an advantage for the design proposal, because it also allows for different types of uses to be experimented in this area. Different settings can better accommodate different uses.
The factory located close to the river and there is a small park between the river and that factory. Now the landscape in that park is terrible. No.7 picture (bottom right corner) shows the situation now. A broken barrier is the obstacle for people take a walk inside of it. In addition, the river and its shores are monotonous and too straight.
5.2. The Road from Industrial area to the Cultural Center

Three universities are located close to the Jinsanli Factory. There is a very good traffic link between them. From the perspective of my study cases, Zollverein Coal Mine Complex is the landmark of Essen city and cultural center and leisure area in that district. 798 Art Zone has the same theme. There is no cultural center in Nanjing right now. I would argue that this complex has the potential to serve as this missing cultural center for the city of Nanjing. Another reason is the factory is located in the middle of the three universities. So this area can attract students and school staff to come and have fun there. That is why I add the element of entertainment into this project.
Students and staff need 15 minutes walk from Nanjing Railway Transportation College to the area of Jinsanli Rubber& Plastic Co.Ltd. Walking from Nanjing University of Finance & Economics to the area of factory takes 10 minutes. It costs 20 minutes from Nanjing University of Posts & Telecommunications to this factory. There is common road of three universities which located in front of the factory. Lynch mentioned the theory of nodes. Nodes are the traffic junction of many paths. (Lynch 1960) So the road in front of the factory is the node. The road between the river and the main entrance of the factory can be designed for a special way for landscape and historical theme in order to memory the development of this factory.

5.2.1. The history of Jinsanli Rubber& Plastic Co.Ltd

Nanjing Rubber Manufacturing Factory established in 1958. It was the first name of the factory. After that, the company name change to Nanjing Rubber Factory in June 1960. Subsequently it became to Nanjing Rubber Graduate School in 1982. In 1999, Nanjing Jinsanli POLYURETHANE Co., Ltd. replace
the former company there. The last change happened in 2004, Nanjing Jinsanli Rubber & Plastic Co., Ltd established until now. In 2008, they moved to the countryside. (Jinsanli 2009) I can design a landscape way in front of the factory with memorizing these important years. These years can be used as some graffiti which are painted on the walls or other elements.

5.2.2. The Project Planning of the Area of Nanjing Jinsanli Rubber & Plastic Co. Ltd

This place can be transformed into a cultural center for art and entertainment. (Image5-7) I want to gave a new name of this industrial area. That is RUBBER SOUL. The RUBBER SOUL represents the history of Jinsanli Rubber& Plastic Co.Ltd and symbolizes the spirit of hard working. I divided the unused factory into two parts. The blue part (Image5-7) is used for art and
leisure activities such as restaurants, cafés, salons, personal studios and art galleries. In addition, there is a small square between the last two buildings. It can be the public place for people’s outdoor activities. I used the method by Zollverein Park. This square can be designed by artists themselves. They also can put their sculptures outside like in the 798 Art Zone.

The red part (Image5-7) can be transformed for people’s entertainment. The warehouses can be rebuilt to one building for sports such as ice-skating, roller skating and others. The tall building can be transformed for shops to be able to settle in. Students also can rent these rooms for their own business.

In Art Zone (Image5-7), there is no building that can be dismantled. Building No.1 can be transformed into a saloon. People can see the view on the platform on top of the building. Buildings No.2 and No.10 were made by red brick. In Essen, most of the architectures in Zollverein Coal Mine Complex are red brick ones. But in Nanjing, most workshops and warehouses are made by concrete. Just some of them are red brick ones. So these red brick buildings are special in this factory. These can be used for restaurants. In addition,
there are some special commercial installations beside the two buildings. People can see these commercial installations through the windows.

I keep the chimney for the landmark of this area. As Lynch argued, landmarks can be the singling out of one element from the host of possibilities. They are
the symbolizations for all practical purposes. (Lynch 1960) Just like the Zollverein Wind Tower, the chimney is the symbolization for this area. I open the new gate between buildings No.1 and No.2. It is easier for students and others coming into this place. Building No.1 can be transformed to a salon which can service for students and the individuals who come through the way in front of the factory.

Building No.2 and No.10 can be used for restaurants. People sitting inside these buildings can see these special commercial installations. (Image5-10)
Some buildings are close to the new entrances. (Image 5-12) They have the attraction for people who pass through this area coming and having dinner. Buildings No.12 and No.13 (Image 5-8) can be linked to one construction for personal studios. It brings a large space for many people using. No.11 can be used as a small café. No.14 (Image 5-8) can be redecorated for bookstore. Building No.11 and No.14 are located in the unruffled space compared with the entrance area and entertainment place. In addition, the small square can be transformed to Sculptures Park. I got the inspiration from the Zollverein Park and outside space of 798 Art Zone. They did the same planning for some of outside spaces. I also can ask the artists who are renting the personal studios to put their works on the square. Building No.3 was the main workshop for this factory. So there are a lot of commercial installations left inside of it. I want to transform this workshop to an art gallery. The ground floor should be open as the one in Zollverein School, because some large-scale exhibitions can be held on the first floor.
I hold the idea that people need a large square for getting together. This place is too dense. Compare with art Zone, people need a larger area for fun. No.6 was an ugly building and rest room inside the industrial area. Building No.7 has the same style as No.8 and No.9. So I decide to dismantle these two constructions (No. 6 and 7) in order to make a large-scale square for people getting together and parking the bicycles. I choose two big trees in the middle of the square in order to make a sign for node. As Lynch described, node is the point which observers can enter and a foci of traffic. (Lynch 1960) I do the planning for the bicycle way outside the factory. So this square can be the node of the bicycle way.
In addition, building No.4 has a lot of rooms which can be rented to students or others for their own business. Building No.5 (Image 5-14) can be used as the table tennis room. Chinese students love this game very much. Buildings No.8 and No.9 can be connected to one huge hall for roller-skating. It is a very interesting game for visitors.
I will now turn to the plan for the short link between the three universities and the factory area. Riding a bicycle has the advantages of time convenience and environmental protection. With the population growing faster and faster in China, more and more people chose to drive everywhere. We need some places just for bicycles. The yellow path (Image 5-15) marks the ways for students and others to come to Jinsanli Rubber& Plastic Co.Ltd. The green path is the landscape way in front of that factory. It was a terrible place with ill-favored view. I decided to include a proposal to change the situation. Lynch described that nodes maybe the traffic junction.(Lynch 1960) Green part of the road is the common one of three bike roads. (Image 5-15)
The bank of the river is straight without changes. I need to make it more flexible. The curve has the character of flexibility with aesthetic value for landscape design. (Kongjian Yu 2001) I used a water pool to divide the landscape way into two parts (Image5-17), a northern one and a southern one, because the south entrance is the main one of the whole area. It is the code and foci of the “Scenic path”. The name of this way is “Road of Development”. As Lynch argued, people are going to stop in the node area. (Lynch 1960)

Because there are six developmental phases of the factory since 1958, I design the five platforms to preserve the memory of the history of this complex. The last phase can be delivered by the transformed factory in the future. I used the railway to link these phases similarly to the Zollverein project and the 798 Art Zone. I also can paint the 1958, 1960, 1982, 1999 and 2004 on each platform to record the history.

The Northern part (Image5-17) has a channel link to the main water pool. I kept the same pattern in the southern part. Compared with the Zollverein
School, it has the same style with Bauhaus one inside the Coal Mine Complex. So I used the same method to design the landscape way in front of the factory. There are some white squares in the design picture for people to rest besides the channel. I can put some chairs and chess table on these squares, because many elders like to play chess in the park. In addition, the elders who live around the factory can play Tai Chi or do other exercises in this park in the morning.

The bicycle way is located between the factory and the public park. This way is the highlight of the whole bicycle roads.

The blue way (Image5-19) is the short link between two universities. It is much easier for students and staff coming to each others’ campus. Furthermore, this path makes them coming together at factory area easily. It is
suitable for students, staff and citizens living neighborhood. At the cross point (blue way and green way), it forms a node. As Lynch (1960) described, some paths link together can form the node. This node is the main entrance of the factory. In front of the main entrance, this blue way (Image5-19) needs a new bridge crossing the river. In addition, we need the other new bridge for crossing the river in front of Nanjing Railway Transportation College. The part of this blue way inside of the factory is also passing through two squares.

![Image5-20: the part of blue way pass through RUBBER SOUL
Edit by author](image)

This blue way (Image5-20) connects two squares. People across this way can see the views and activities of two places. So this way has the large attractive for person coming and visiting. When someone passes this way on foot or by bike, he or she can see the most of industrial buildings and the landmark of chimney.
Chapter 6: Conclusion

After studying the German case, I understand more about the concept of World Cultural Heritage and the methods of how to protect the World Cultural Heritage. They have some creative ideas for transformation of old industrial areas and OMA Company did a good planning for the Industrial Heritage. It is very professional and effective. In addition, the SWOT analysis is a good way to analyze the Zollverein Coal Mine Complex project. It helped me to understand this project more in depth, such as the advantages and disadvantages, opportunities and threats in the past and future.

Kevin Lynch described the concept of the image of the city. He focused on the identity of the city. The five elements can show the characters of the cities or regions. They are also important methods for my design proposal.

Compared with the German case, the transformation of the 798 Art Zone is different model. No master plan and not enough funds for the transformation. But the Chinese case has a special part about free development. The architecture was redesigned and redecorated by the artists themselves. In the German case, they just left the kids’ place in Zollverein Park to be designed by children. I think this is a good idea for how to deal with this situation, it gives children, a group of potential users to this place, to leave their mark and imprint on the project.

Another different aspect is that many commercial elements are coming and staying inside of the 798 Art Zone. The place can survive and develop by itself. The landholder can get the profit from the rent of companies, personal studios and other commercial activities. Now 798 Art Zone has the large influence by commercial atmosphere. But people also want to come to this place and enjoy the special environment. I asked myself the reason of it. In my opinion, the
consumers also focus on the quality of consumption such as the environments, people, and history. It is the development trend of 798 Art Zone. On the other hand, Zollverein Coal Mine Industrial Complex got the funds from EU, North Rhine-Westphalia and city government. This project can not transformed by itself. The tourism income and consumption income are not enough for their future development. Although it is the culture center in Europe, it has the trend to become an innovation region. Zollverein School, Ruhr museum and other constructions supported a very kind platform for people coming and communication. It is a large “machine” for collecting the creative ideas and transferring to the individuals or companies who need that.

My design proposal is the real factory which needs to be transformed in the city of Nanjing. I try my best to do a new plan for the transformation of that factory based on the comparability between the two study-cases. I got the inspiration from these two cases. It makes me understand some theories and methods more specific. Furthermore, my design proposal makes me think about the future development of industrial area or even innovation region. All these culture centers or art zones, they need survive by themselves firstly. So they need commercial elements inside of them in order to get profit for transformation. The next step is try their best to attract normal people, colleges, creative Industries coming and meeting inside of them. These culture places give the platform or channel for people exchanging or collecting their creative ideas. Then some companies can transform the ideas to new products. After that, the innovation regions link to schools, companies, residential areas. They are sprawling to transform the city into culture city or innovation city. That is the new model for urban planning in the future from my personal perspective. (Index2)
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The ways of Industrial Transformation

- Uplevel Investment
- World Cultural Heritage
- Cultural Capital
- Innovation Region
- Innovation City
- Art Center
- High Quality Consumptive Area
- Commercial Influence

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