

Research on the Catalytic Effect in the Urban Regeneration from the Perspective of Urban Morphology

Case Study and Practice

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Abstract: Since the rapid urbanization in many cities around the world, it is required more urban space for the further development. In the regeneration process, introduction of cultural facilities plays a crucial role. Based on the urban catalyst study, the cultural facilities could increase the activities and attract economic investment. With the urban catalyst theory, the thesis provides a new respect to study urban morphology issue. It extends the potentialities of relational theories for urban studies as well. Moreover, at the end of the study, there is a conceptual urban design practice in Sijiqing District, Beijing, which illustrates the possible changing of the urban morphology by cultural catalyst.

1. Catalyst Effects in the Urban Regeneration Projects

In China, thanks to the rapid urbanization process, more urban space is required for further development. To solve this problem, on one hand, the city is expanding with new infrastructures and facilities constructed on the outskirts. On the other hand, declining areas are regenerated in order to make full use of the existing buildings. Of these two solutions, the latter process is more complicated and restricted than the former.

798, one of the most famous art districts in Beijing, is known as a successful case of regeneration in industrial area. It was once a state-owned electronic device factory. With the introduction of creative industry, 798 was gradually developed and the factory buildings were changed into galleries, art centers, artists' studios, and restaurants. The pattern of 798 was regarded as a model that could be emulated. A number of duplications are emerging in other cities, such as 791 art district in Nanchang and the Hongfang. As a part of urban regeneration plans, these projects are not merely cultural projects with art studios and other creative industries, but also commercial projects with apartments and SOHO.

The introduction of cultural facilities plays crucial roles in revitalization of decaying districts, and it could attract more investment in the vicinity. At the same time, for local residents, the construction of cultural facilities improves their infrastructures and living environment. (Robert, 2000) Thus, cultural projects being catalyst is considered to be an effective approach in regenerating declining area. At present, an increasing number of cultural projects offer great

opportunities to catalyze the urban regeneration. However, in certain cases, the cultural facilities did not spur other projects on the site as expected. On contrary, they were isolated from the surroundings. In Beijing, there are over 30 creative industry parks and more than 100 art studios based on antiquated factories or warehouses. Yet a large number of them are running down, some are even closed and the buildings fall into disuse again. According to visit study, two key factors have been adduced to explain this depression. One is the inadequacy of various groups. In certain cases, the regeneration was directed by top-down plans which attempted to implant creative industry on the flat ground. Yet, it ignored the principle that a well-operated cultural projects in the city required organic growth. The other factor is inflexibility of function. The business in those cases was no more than art studios and galleries. There was lack of emphasis on the need of local residents. As a result, the development of renovation area left much to be desired. Therefore, it is necessary to find out what is the key issue in a successful regeneration led by cultural projects, and how could cultural facilities attract more people and investment.

2. Rethinking of Catalyst Theory from the Perspective of Urban Morphology

To cope with this issue, urban planners and architects conduct researches in various ways. Urban catalyst theory is one of these studies, and it provides a unique respect of design strategies in the regeneration (Attoe, 1989). It regards the renewal process as a chemical reaction, and it concentrates on the interrelationship between new projects and various urban elements. In a few theses on urban catalyst, researchers are convinced that introduction of cultural projects would revitalize the decaying neighborhood. And practices of culture-led generation in Europe and America confirm this opinion (Levine, 1997).

2.1. *Regeneration Projects in the Consideration of Urban Morphology*

Commercial renovation of traditional neighborhoods is one of the key activities among the current urban renewal. As the most vigorous and dynamic city region, commercial district is often a most significant carrier of urban cultural memories and inheritances. The renovation of traditional commercial district provides a positive catalytic effect on the surrounding areas, and could soon stimulate the overall regeneration of the urban environment. Combined with unique cultural and historical resources, the transformed commercial district could produce chain reactions, promoting tourism and real estate development and becoming a popular and vibrant area itself.

After the War II, European countries and the United States have replaced the existing historical spatial programs through the renewal of commercial districts. The regional structures are revived with systematically rearrangements and restorations, and the purposes of revitalizing the urban central areas are gradationally achieved. One of the examples is the Beursplein commercial pedestrian street in Rotterdam, the Netherlands. This project has combined the commercial development with the renewal of the city. To heal the split and the city, Jerde collaborated to create a pedestrian street below the six-lane traffic barrier. The regeneration projects takes urban morphology consideration. Under gently curving glass canopies that protect shoppers against inclement weather, Beursplein echoes earlier times when the neighborhood was an upscale retail arcade. Beursplein reintroduced living, shopping, and entertainment into the heart of Rotterdam (Bianchini, 1993).

Through the improvement of the landscape environment and the guarantee of the progressive development of the surrounding constructions, the regional value has been greatly promot-

ed, which has brought about the revitalization of the declined districts and organically strung up the important places within the central areas. A domestic instance of the renewal project is Shanghai Xintiandi. Combined with traditional cultures, it has replaced the habitable space of Shikumen with new programs such as cultural exhibitions, characteristic dining and drinks, which provides a modern interpretation of the historical urban memories (Figure 1).

However, in recent years, the economic benefits of historic commercial district have become a big draw. The tourism and business resources have been over developed, a number of transformation projects, in the name of restoration and renovation, have been brought up. The original historical architectures have been demolished, which displaced are new constructions in the style of antiquity. The street of Song Dynasty and the street of Qing Dynasty have presented one after another, and numerous valuable historical blocks are degenerated to a “sham”. Although it could bring certain economic benefits in a short term, the lack of traditional culture and the undermining of the authenticity of the historical heritage could eventually lead to business depressions and neighbourhood declinations. At the same time, the dislocations of the inhabitants and the replacements with tourists and businesses have generated the loss of traditional life style and customs in the historic district, and thus, the loss of vitality. Using performed antique activities to supplant the original real activities in the historical districts is another sort of false behaviour in a certain sense. A truly effective and properly performing neighbourhood should be natural and dynamic, rather than a stage for people who are employed to act. This is in fact an even serious damage to the historical heritage.

2.2. Catalytic Effect from the Perspective of Urban Morphology

Hackescher Markt (Hackescher-market) is located in the centre of Berlin. Formerly a rather neglected place, Hackescher Markt with its old buildings has been developed into a cultural and commercial centre. Among these historical buildings, Hackesche Hoefe (Hackesche-courtyard), a notable courtyard complex, is the most famous one. During the war, the Hackesche-courtyard was damaged in air raids. Since 1990s, the area around Hackesche-courtyard has been a vibrant urban renewal place of the New Berlin. The regeneration project was carried out by Weiss and Partner. The structure of courtyard was fully preserved. And the façade was restored including the new addition of the arch at the entrance. The function, including residential areas, crafts,

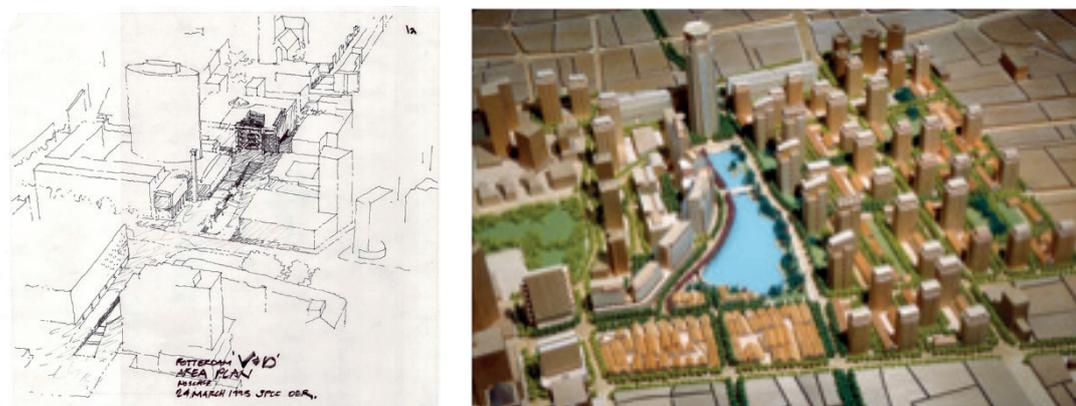


Figure 1. Urban morphology in Beursplein project and in Xintiandi project. Source: (Left) Jerde Partnership, (Right) Skidmore, Owings & Merrill LLP.

trade and culture was clearly organized in eight different courtyards. The successful project attracts thousands of visitors and citizens every year. The Hackescher-market indicates the five design strategies mentioned above.

The main purpose of regeneration is increasing vitality. As a catalyst project, it has to attract more individuals from external environment, and to release the flow outside (Attoe, 1989). It helps to bring positive effect to the surroundings and create more business opportunities. It is similar to the catalyst in chemical reaction. Thus, the location of the project should be chosen carefully, and it has to establish direct links between facilities. The Hackesche-courtyard is on the visiting route from museum isle to the business center. The courtyard has three entrances. The main entrance opens to the metro station and pedestrian area, which is crowded on market days twice a week. The rest two accesses guide the visitors to the Rosenhoefe (Rose-courtyard) and Sophienhoefe (Sophia-courtyard). There, the cultural atmosphere leads the visitors to walk through the courtyard. In small shops, they could find deliberated handcrafts. And cafeterias are popular meeting places. The continuous courtyards, like commercial corridors, chain the various activities. At the same time, the new accesses make shortcuts in the complex roads net. It is convenient to get to the metro station at a shorter distance. At the same time, the corridors bring more benefit to the backstreet, and lead to the development of neighborhoods (Figure 2).

To upset the balance in the decay area, a catalyst should have a creative cognition about the existing situation. For instance, the reuse of abandon buildings or landscape will spur the potential value of the field, and encourage others to invest in the following program. It is essential to the cultural project. On one hand, taking advantage of the urban remains is the best way to retain the memory for history. On the other hand, a number of cultural projects are funded by the government or foundations and the restoration of the historical architecture could save a large sum of money. The courtyard has been a typical housing in Berlin since the nineteenth century. A variety of courtyards consist the urban form in downtown area. In the traditional housing, the inner space belongs to the residents. The design of the Hackescher-market converts the private space into semi-public. The courtyard is not merely for storage and access, but multifunctional for commercial use, art activities and leisure. It becomes one of the most distinctive and creative places. This design strategy set an inventive pattern. In Munich, the Fuenf Hoefe (Five-courtyards), designed by Herzog and de Meuron, is a sequence of courts varying in size and shape with shops, restaurants and cafés. Though



Figure 2. Catalytic Effect from the Perspective of Urban Morphology. Source: (Left) Visit Berlin, (Right) the author.

the stainless steel and glass furnish the interior faces, the existing structure makes a clear link to the tradition courtyard (Figure 3).

3. Design Practice

3.1. Introduction

Creative Beijing, a conceptual urban design project, applies the catalyst design strategies to the practice. The project is located in the West of Beijing. According to the planning, there will be one of the largest creative centres, in which it is purposed to construct the Broadway Theatre, creative studios, performing centers, residential area, etc. The existing properties on the site include automobile dealers, building material markets and urban villages.

The core projects are the Broadway Theatre and creative studios. They are given the priority in order to catalyze the overall regeneration. First of all, the large projects contribute to promoting the development plan and attracting more investigation. Then, the cultural facilities are proposed to foster art atmosphere. In addition, the increasing art and cultural activities will help to improve the living condition of the surroundings. With the development of art studios, it will encourage self-renewal of the private housing. Thus, the catalyst buildings push forward to the organic development on the site.

3.2. Urban Morphology Study in the Design

In the urban design phase, it mainly focuses on the foreseeing of the regeneration. The diagram illustrates how the project probably runs with the catalytic effect. The first step is introduction of catalyst. A former factory is moved to make room for the new theatre. At the same time, landscape architects create an active space for opening shows and other activities. The next step is promoting creative industry. The automobile sales are altered into experimental theatres which can hold dozens of audiences. The renovation projects lower the expense so that the young artists can afford to rent for exhibition and performance. The third phase is improving infrastructures. One of the significant programs is to organize shuttle bus service. In this phase,

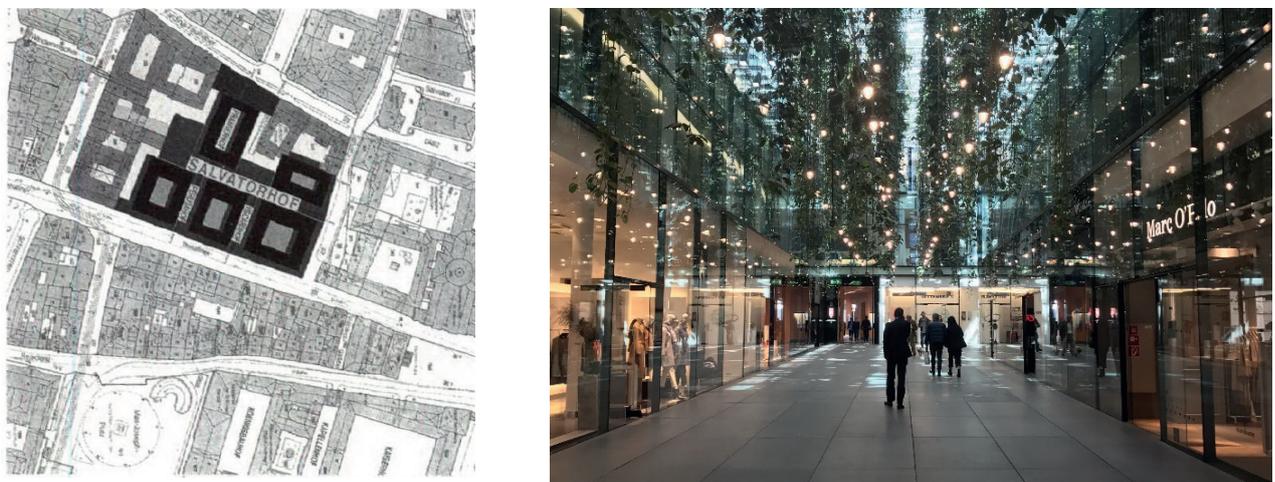


Figure 3. Urban Morphology Study of the Project. Source: (Left) Herzog de Meuron , (Right) the author.

commercial estate is involved in the following project, which ensures a sustained and sound development. At last, with an increasing number of individuals, residential project starts construction. The regulation supports mixed-use housing and self-renovation. Both measurements are beneficial to the bottom-up regeneration. The urban design result demonstrates a possible outcome of catalytic effect (Figure 4).

4. Architectural Design Phase and Catalytic Effect

In Creative Beijing, the cultural projects play a key role as catalyst. According to the study above, the five design strategies are present in the architectural design. A few particular instances are taken below (Sternberg, 2002).

4.1. Attraction and Release

The Broadway theatre will bring a great deal of visitors. Supposing that all the activities are limited in the hall, then the project can hardly catalyze the surroundings. Thus, the lobby is designed into a communication space. Looking out of the bay window, the audience will get in close touch with the sight outside. Furthermore, the sheltered platform provides a place for opening show. And the green pedestrian leads the way to the art district.

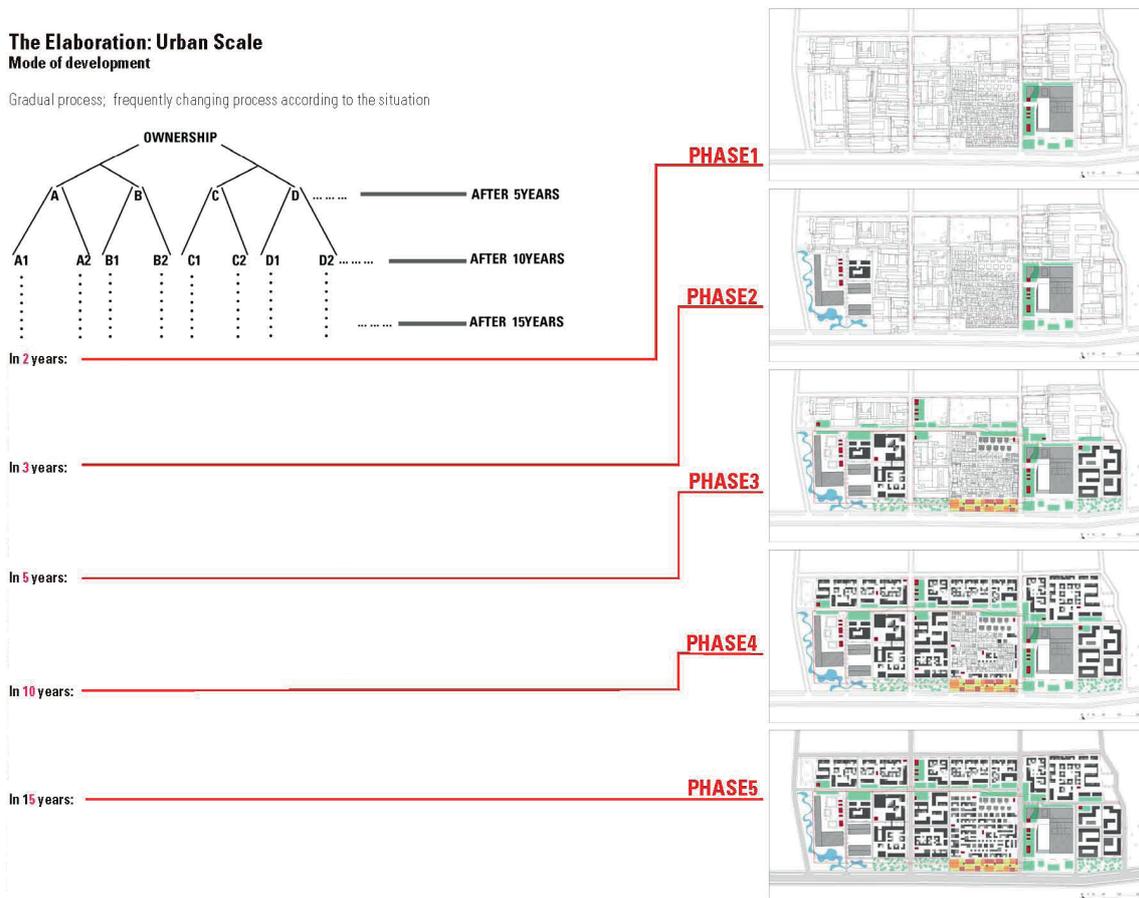


Figure 4. Urban Morphology Study in the Design. Source: the author

4.2. *Enjoyment*

The Broadway Theater does not merely bring joy on the stage, but also lead to various kinds of performances outside the theater. For instance, a theme park could exhibit posters and scenes of famous musical drama. It provides a temporary stage for drama amateurs. And it is also a direct way for the public to learn about art.

4.3. *Exemplary Design*

The creative center is purposed to be another catalyst building. It is based on a former car accessory market. In the restoration, the frame structure is preserved and the space is divided into standard 6m*18m units of two stories. The artists could arrange the functional parts in different ways, such as small offices, photo studios, exhibitions, living rooms, etc. The elevation, likewise, is designed by the tenants. The non-coincidence design reflects multicultural spirit in this district, and it has a possible influence on other projects as well.

4.4. *Cultural Atmosphere*

The creative center needs an atmosphere filled with art. The site is located in the south of the Yuanmingyuan. Since 1990s, young artists and freelance started to live and work around. Gradually the place was well known as an art village. From then, this district attracts a growing number of artists to settle down. The Creative Beijing offers opportunities for them, especially for the grassroots, to promote their artworks.

4.5. *Field Cognition*

Compared to large performing center, the form of the experimental theater is more flexible, and the operation cost is lower. The theater is converted from the car sales center. There are six buildings in this area, and most of them were built in the last decade. The theater takes advantage of the former exhibition hall. In addition, these scattered theaters help to catalyze the development in the surrounding.

5. Conclusion

The study concentrates on the interrelationship between new projects and various urban elements, which both make influence on the emerging urban form. According to the case study, the thesis would like to discuss two issues: how to observe the catalytic effect from the perspective of urban morphology, and how the cultural catalyst could be more effective to spur the surrounding development. In urban and architectural design, it is better to follow the five design strategies. By those meanings, it would be more effective for cultural facilities to spur surrounding development. With the urban catalyst theory, the thesis provides a new respect to study urban morphology issue. It extends the potentialities of relational theories for urban studies as well.

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