

Spatial Reshaping and Vitality Regeneration in the Context of Urban Renewal: A Case Study of Xidan Renewal Site in Beijing

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Abstract In this paper, through a methodology combining theoretical research and field investigation, the project of urban renewal at Xidan Renewal Site in Beijing was studied from the aspects of data analysis, investigation of people's behaviors, measurement of its scale, and architectural history. Besides, how urban renewal creates new urban vitality was demonstrated. It has certain guiding and reference significance for research on urban renewal. Remarkable results have been achieved, such as rationalizing the internal functions of old residential areas, improving circulation experience conditions, and promoting and recreating unique cultural features. It is a case of engineering innovation in urban renewal in the core areas of domestic cities.

Keywords Urban renewal, Spatial reshaping, Human behavior, Architectural style, Xidan Renewal Site

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As urbanization advances towards the stage of stock development, urban renewal has become a key approach for optimizing urban space, enhancing quality and enriching content. The urban renewal of Beijing as a metropolis and a historical city has both universality and uniqueness. Xidan is a commercial cluster of time-honored brands in Beijing. Under the influence of consumption reform and urban transformation, it is now falling into a development predicament of “aging”, “secularization” and “lack of people and scenery”. With the development of cities, most traditional commercial streets are facing the problem of being “outdated”, and their traditional business models are also quite different from the current ones. However, if one directly alters old materials and imposes new ideas and new buildings on traditional streets, it is often not worth it. Though some traditional commercial streets are dilapidated, they are full of vitality. When they are transformed to be more brand-new and modern, they will instead lose their original characteristics and become out of place^[1].

Xidan Renewal Site, as a typical practice of urban renewal in Xidan, is the result of the comprehensive relocation and reconstruction of existing buildings in a specific area. Besides effectively “packaging” and renewing commercial scenes, it more importantly explores the renewal path and approach for the mixed development of public and commercial areas in the center of the city. An in-depth study of the “renewal attempt” and “effectiveness” of Xidan Renewal Site is of reference significance

for the theoretical learning of urban renewal in the history of urban development and the local practical innovation of urban renewal.

1 Research background and methods

1.1 Research background

The Xidan business district was formed in the 1990s, and has maintained a high commercial status in Beijing. However, with the development of the city and changes in consumer demands, traditional commercial complexes are facing unprecedented challenges. Firstly, the space of traditional commercial buildings is outdated, and their layout is not entirely reasonable, so that they cannot meet the diverse and personalized consumption demands of modern consumer groups. The predecessor of Xidan Cultural Square can be traced back to the Ming and Qing dynasties at the earliest. The origin of the name “Xidan” is related to a memorial archway. During the Ming Dynasty, a memorial archway was built on today's Xidan North Street, and was called “Single Archway”. In the Qing Dynasty, this place was called “Zhanyunfang North Street”, commonly known as “Xidan Archway Street”. Later it was called “Xidan Archway”, and finally it was simply referred to as “Xidan”^[2].

1.2 Research methods

1.2.1 Literature research method. The team consulted domestic and foreign studies and achievements on urban renewal, analysis of urban space, design of commercial space, etc., and carefully read the relevant reviews on Jane Jacobs' “street eye” theory, Kevin Lynch's urban image

theory, and the theoretical viewpoints on creating vitality in commercial space. By reviewing numerous typical cases of urban renewal both at home and abroad and summarizing their successful experiences, a clear mirror has been provided for the research on Xidan Renewal Site.

1.2.2 Method of field investigation. From October 2023 to June 2024, the team conducted detailed on-site investigations at the renewal site eight times. The investigation time covered working days, Sundays, and holidays, and the investigation content included the space, architecture, business types, and personnel of the renewal site. At the same time, various forms such as photography, on-site measurement, and in-depth interviews were carried out to meticulously record the spatial status and utilization of the renewal site. Through in-depth interviews with managers, merchants, and consumers of the renewal site, first-hand information on various details of the operation, business and consumers of the renewal site was also obtained.

1.2.3 Analysis of data. The data on revenue, customer flow, consumption amount, sales volume of business formats, etc. during 2023–2024 were obtained. Detailed statistical analysis of these data was conducted by using professional analysis software such as Excel and SPSS, including changes in pedestrian flow, tourists' consumption behavior, and the operation status of business types, etc. Meanwhile, the influencing factors such as the location of the renewal site, the accessibility of transportation and local access, surrounding population and consumption power were studied.

2 Analysis of the current situation of Xidan Renewal Site

2.1 Location and transportation

According to ancient records, there were already many commercial shops in Xidan during the Ming and Qing dynasties. During the Ming Dynasty, Xidan was mainly composed of businesses served local residents, such as wine shops, noodle shops, clothing stores, oil and salt stores, silk and cloth stores, hat and cap stores, and candy stores. During the Qing Dynasty, various small vendors were distributed on both sides of the streets, selling local snacks, old books, etc.^[3].

Nowadays, Xidan Renewal Site is located in the core area of Xicheng District, Beijing, at the intersection of Chang'an Avenue and Xidan North Street. It is close to the transfer station of Metro Line 1 and Line 4. The nearest distance from Xidan Station to the renewal site is only 50 m, and the walking time is less than 3 min. The average daily pedestrian flow in Beijing's subways is 500,000 people, and during holidays, the average peak pedestrian flow can reach 800,000 people. All these provide a large number of potential passenger sources for the renewal site. Meanwhile, the bus routes around the renewal site are relatively dense, further enhancing the accessibility within the development area. There are about 300 parking spaces beneath the renewal site, equipped with intelligent parking call systems, which significantly reduce the local parking demand.

2.2 Functional layout and distribution of business formats

The renewal site has an area of over 35,000 m², where the first and second underground floors are used for business, and the third underground floor is as a parking garage. The commercial function has creatively formed a combination of different business formats through "vertical mix of commercial formats". The first underground floor mainly focuses on fashion retail, where over 30 trendy brand stores are gathered every day, creating a strong fashion consumption attraction area. The second underground floor mainly features catering and cultural activities, and catering brands cover domestic and international flavors of food. The cultural experience area features various sections such as art exhibitions, bookstores, and workshops, providing consumers with rich and diverse cultural, entertainment and leisure experiences.

2.3 Spatial scale and experience

The ground square of the shopping mall covers an area of 11,200 m², and is called the "urban living room", breaking the traditional

concept that there are barriers between stores, green spaces, parks and shopping malls. The square is equipped with comfortable chairs, pools, steps and other amenities, providing consumers with multi-level and various application scenarios and scales. Through our field research and investigation, we found that consumers spend an average of 45 min in the square, and they tend to stay longer on Sundays and holidays. The underground shopping mall should be gradually connected to the ground square through different heights of steps, ramps, corridors and other progressive methods, and transition the square to form a three-dimensional pedestrian network.

2.4 Style and features of buildings

The exterior of buildings at the renewal site is relatively simple and modern. The facade of buildings is mostly made of glass and metal structures. The particularly concealed lighting also makes it highly attractive during the day. Meanwhile, the renovation site also showcases traditional architectural forms of Beijing at the entrance, eaves and other places, embodying the organic integration of traditional and modern styles. There are upper and lower spaces inside, and buildings have an open large atrium, as well as cantilevered slabs, roof lighting, and staggered floors, which can greatly enhance the sense of space and fluidity. Besides, there are also many artworks and exhibits at the renewal site, which can further enhance the cultural and creative sense of the space.

3 Multidimensional analysis

3.1 Analysis of data

3.1.1 Changes in pedestrian flow. The statistics of data of pedestrian flow from 2023 to 2024 show that the average pedestrian flow on weekends was 1.4 times that on workdays. On a single day, pedestrian flow peaked two times mainly from 12:00 to 14:00 and from 18:00 to 21:00, which were the peak periods for lunch and dinner. In terms of seasonal distribution, pedestrian flow in summer and winter was lower than that in spring and autumn. The detailed statistics of pedestrian flow at different entrances and exits reveal that the entrances and exits directly connected to the subway were the main entrances and exits for the vast majority of people.

3.1.2 Analysis of consumer behavior. Through the analysis of consumption data, it can be found that the main consumers of the renewal site were young people, followed by middle-aged people. The main consumption at the renewal site included shopping and dining, accounting for a large proportion of the total consumption,

while the proportion of cultural industry consumption and experience consumption was very small. Through the analysis of the payment methods of consumers at the renewal site, it can be known that the majority of consumers used mobile payment when purchasing and obtaining selected goods. This precisely indicates that the current consumption habit was a fast consumption form.

3.2 Analysis of crowd behavior

3.2.1 Behavioral patterns. With the aid of the behavioral mapping method, it is found that people all had obvious patterns of attention to the behavioral paths at the renewal site. Consumers coming out of the subway usually stopped for a while in the ground-level ground-level plaza before entering the shopping area. In the shopping area, consumers are most interested in the large stores, and paid relatively less attention to the secondary and corner stores on the commercial street. They tended to stay in places like atriums and art exhibition halls for about 20–30 min. These places mainly served functions such as entertainment, sightseeing, and taking photos. In addition, consumers usually stopped to make purchases within several stores (3–5 stores), and the large amount of consumption spent at the related stores where they stopped also conformed to this proportion feature.

3.2.2 Activity requirements. The results of the questionnaire survey show that consumers' demands for activities at the renewal site were generally diverse. The demands for activities at the renewal site involved multiple aspects such as shopping consumption, leisure and entertainment, crowd activities, and cultural demands. Younger consumers were more willing to approach novel and fashionable activities, such as art exhibitions, fashion shows, and taking photos for social media influencers. Consumers who were relatively older paid more attention to factors such as shopping atmosphere and convenience, as well as their high demands for the quality and practicality of the purchased items.

3.3 Analysis of spatial scale

3.3.1 External spatial scale. The length-to-width ratio of the ground square outside the renewal site is approximately 3 : 2. This proportion design is artistically meticulous, making the site appear serene and spacious without giving people a sense of being overly vast and empty. In terms of greening, the arrangement of the number of plants in the square is orderly in terms of density. Visually, it serves as a cushion for occlusion, solving the problem of occlusion.

The main and secondary pedestrian paths within the square also take into account the specific volume of foot traffic. Generally, the width of the main path is 6–8 m, and the usual width is 3–4 m, making it more convenient for people to pass through.

3.3.2 Internal space scale. The scale of the planned space within the commercial area is ingeniously designed based on the characteristics of different business formats. The retail of trendy new products requires a sufficiently large space to be fully displayed. The average area of each trendy retail store is approximately 100–150 m², and that of each restaurant store is approximately 50–80 m², ensuring that the planning of various business formats of different sizes meets their requirements. At the same time, it also makes better use of the space in the commercial area for practical application. Meanwhile, the width of streets or public roads within the area is 3–4 m, which smooths the shopping pleasure brought by the flow of people.

4 Problems and challenges

4.1 Congestion of people during peak hours

The renewal site fully considered the requirements for crowd evacuation at the very beginning of its planning and construction, but during peak periods of pedestrian flow such as holidays and weekends, the subway entrances and the entrances of some popular stores at the passageways of the commercial integrated center are still crowded with people. The existing passageways are relatively narrow in the face of high-speed pedestrian flow, and cannot meet the needs of high-speed pedestrian flow leaving

the store. Meanwhile, some popular stores have no restrictions on the inflow of people or other measures. As a result, a large number of people gather at the store entrances, further exacerbating the congestion in the passageways. In addition, the directional signs guiding traffic inside the renewal site also need to be strengthened. Many consumers take the wrong turn and are not clear about which store to sit in, which also causes congestion in pedestrian flow.

4.2 Coordinated development of business formats

The renewal site has abundant appeal, but the necessary push and pull among various business formats are still lacking. From the perspective of consumers' behavior, the relationship between restaurant-style commercial renewal and trend-driven interactive retail renewal is not very close. After relatively time-consuming consumption in restaurant-style commercial areas, the probability of consumers' interest being accompanied by a similar interaction or purchasing the brand is very small. Moreover, the interlinked parts of business operations, promotions and other activities related to various business formats are relatively few, and there is no overall linkage effect, making it difficult to effectively aggregate consumers' various shopping demands.

4.3 Space maintenance and update

A place takes a space as a carrier, where people can engage in activities and live. It is a real existence and a space with clear characteristics. The sense of a place requires people to invest their true feelings and accumulate gradually through long-term experience, and it also demands that people constantly create and improve it^[4].

As the operation time of the renewal site continues to increase, some facilities in the public space have shown varying degrees of damage and aging. At the same time, new demands from consumers have also emerged. The spatial layout and business formats previously built by the renewal site may not be suitable for the above new demands. At present, the time delay available for the space maintenance and update of the renewal site has already emerged. More importantly, the renovation of the renewal site also requires huge construction investment, and has a significant impact on vehicle operation. All these factors make the renewal site lag behind in terms of space maintenance and facility renewal.

5 Conclusions and suggestions

5.1 Conclusions

In this paper, Xidan Renewal Site in Beijing is taken as an example to study the spatial reconstruction and vitality release in urban renewal and transformation. It is concluded that the positive elements of Xidan Renewal Site include a reasonable functional layout, a comfortable scale for the livable space, a distinctive facade design, and a complete consumer appeal, which promotes commercial transformation and urban revitalization. The development predicament of standardized commercial complexes is essentially the result of the combined effect of urbanization development, consumption upgrade and differentiation. Driven by rapid urbanization, the large-scale development of real estate has given rise to the rapid expansion of standardized commercial complexes as basic commercial facilities^[5]. However, during the operation of Xidan Renewal Site, there are also phenomena

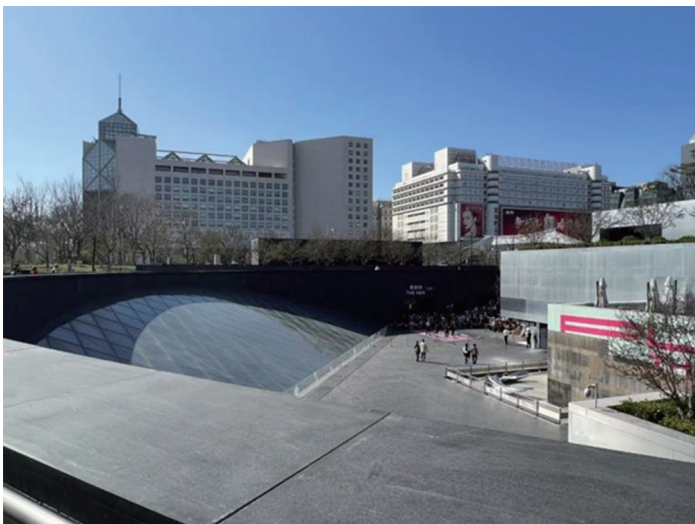


Fig.1 Sunken square at the entrance of Xidan Renewal Site

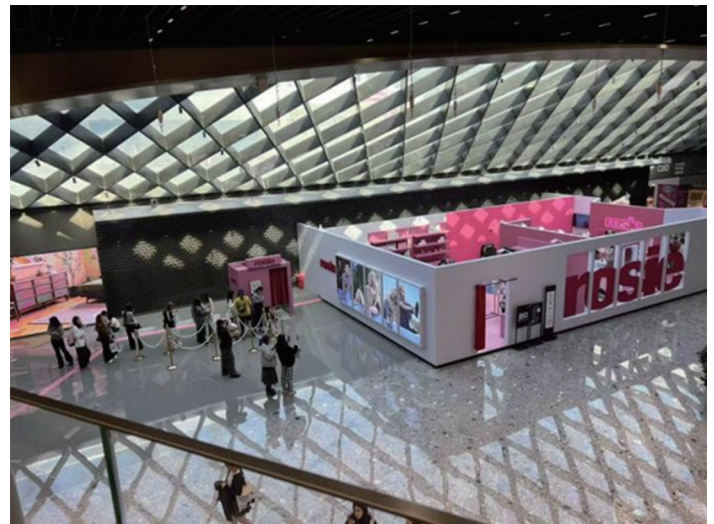


Fig.2 Internal space

such as crowded shopping malls during peak hours, shallow and overlapping development of various business types, and lagging construction and renewal of the business district's appearance. The emergence of various problems has restricted the development and improvement of the renewal site.

5.2 Suggestions

The renewal of traditional commercial districts should focus on the introduction of new business formats and the revitalization of traditional spatial characteristics. On the one hand, it can be combined with experience, leisure and other business formats with higher efficiency to rejuvenate traditional functions. On the other hand, under the trend of de-regionalization, the characteristic value of the block itself should be strengthened, and contemporary functions should be considered on the premise of historical protection and the exploration of traditional spatial features^[6].

During peak hours, it is advisable to install certain facilities to control pedestrian flow at the entrance as much as possible, such as adjustable and expandable barriers and one-way entrance and exit channels, which can effectively reduce pedestrian flow. Even for popular stores that buy out the market every three or five days, it is advisable to adopt an innovative flow control method of appointment and limited entry time

periods to effectively alleviate the noise and congestion at the store entrances and exits. At the same time, at the renewal site, in addition to continuing to supplement the guidance system, increasing the density of guidance signs and the clarity of indication directions, and significantly strengthening the guiding and directing role for pedestrian flow, it is necessary to add some pedestrian passages around the stall market or widen the already established ones, so as to coordinate and connect with the surrounding commercial areas, and effectively enhance the overall mobile evacuation capacity around the renewal site. Under the backdrop of urban renewal, the redevelopment of community commercial complexes still has many challenges and opportunities^[7].

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“government, village collectives, social capital, and villagers” is crucial for the successful implementation and long-term operation of paddy landscape design.

6.2 Research prospects

Future research can further explore the following directions: By integrating smart agriculture technologies, an IoT-based monitoring system (such as soil moisture, pest and disease surveillance) can be introduced into the paddy landscape of Xiangling Village to enhance intelligent landscape management. Long-term tracking studies can be conducted to monitor the impact of the paddy landscape design on villagers' income and the ecological environment, thereby providing data-driven support for scheme optimization. The experience from Xiangling Village can be extended to other rural areas in Huizhou and across Guangdong Province, ultimately forming a paddy landscape design model that is both regionally distinctive

and replicable.

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