Application of New Technology in the Development of Tunxi Old Street

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Abstract: Tunxi Old Street is a typical historical and cultural district in China. Taking Tunxi Old Street as the object, this paper studies the application of new technology in the development of historical and cultural blocks. The results show that the development of Tunxi Old Street has experienced the stages of commercial formation, service of foreign businessmen, service of urban residents, protection and utilization, tourism and shopping, among which new technologies such as transportation technology, service function, commercial format and economic system play a key role in the development of Tunxi Old Street.

1. Introduction
As the historical witness of city change, historical and cultural blocks are the intensive areas of culture and commerce in a city, which preserve the city's historical culture essence, architectural style and industrial characteristics. In different historical periods, the commercial development of historical and cultural blocks is not only a reflection of the current social and economic situation, but also a reflection of the people's living standards. After hundreds of years, the blocks can still be preserved and become an organic part of modern cities, reflecting their strong self-adaptability and renewal ability. Therefore, the extremely important historical and cultural value and research value of the historical and cultural blocks make them the focus of research. However, in the new historical period, how to continue the development of historical and cultural blocks is worth thinking about.

2. Overview of the research region

2.1. Overview of the region
Tunxi Old Street is located in the central section of Tunxi District of Huangshan City, Anhui province. Its north is surrounded by mountains, and its south is bounded by water. The street is 1272 meters long, of which the essence part is 853 meters, and the width is 5 to 8 meters. It consists of 1 straight street, 3 cross streets and 18 alleys. The whole street is made up of more than 300 Anhui style buildings built in different ages. It is distributed in the shape of fish skeleton, narrow in the West and wide in the East. It is the best-preserved ancient street market in China with the architectural style of the Southern Song Dynasty and the Ming and Qing Dynasties. In 1995, it was listed as a national historical and cultural protection block by the Ministry of construction; in 2015, it was announced as the first batch of Chinese historical and cultural blocks by the Ministry of housing and urban rural development and the State Administration of cultural relics.
2.2 Reasons of development

The formation and development of Tunxi Old Street is directly related to its superior geographical location. Tunxi is located in the junction of Anhui, Zhejiang and Jiangxi provinces. It is located in the superior position of the intersection of two rivers and the thoroughfare of three provinces. Because of the convenience of Xin'an River, Tunxi has become the material distribution center of the mountain area in southern Anhui. In the Southern Song Dynasty, most of the timber in Huizhou spread from Xin'an River to Zhejiang.

With the increase of freight transportation, in order to facilitate the transportation of local products and salt and other goods, businessmen from Wuyuan and Shexian built eight Zhanfang (warehouse), namely "Ba Jia Zhan (the 8 warehouses)", near the Sanjiangkou where Shuaishui river, Hengjiang river and Xin'anjian river converge at the east end of Tunxi Old Bridge. During the Hongwu Period of the Ming Dynasty (1385), Cheng Weizong, a merchant, built four more Zhanfang on the basis of "Ba Jia Zhan", with a total of 47 rooms. As a place for storing goods by classification, he also built pavilions between the warehouses for pedestrians to rest. After Cheng Weizong became rich by building warehouses, several merchants came to build more and do business one after another. From then on, a certain scale market was formed, and with the development of Huizhou merchants, it gradually became the trade distribution center of ancient Huizhou.

3. Development process of the Tunxi Old Street

3.1 Commercial formation stage (Ming and Qing Dynasties)

The commercial development of Tunxi Old Street flourished in Ming Dynasty. In the Southern Song Dynasty, Huizhou merchants rose, and there were "Ba Jia Zhan" and other warehouse formats in the late Yuan Dynasty and early Ming Dynasty. After the Chenghua period of Ming Dynasty (1465-1487), Huizhou merchants developed and expanded continuously, and the business forms of old streets tended to be diversified. In Tianqi Period of Ming Dynasty (1621), Tunxi Street gradually developed into the general city of Xiuning County. In the 32nd year of Kangxi period of Qing Dynasty (1693), the annals of Xiuning County recorded that Tunxi was a town that lasted 4 li long (1 li = 500 meters). Since Tongzhi period of Qing Dynasty, the tea industry had developed, and tea shops and tea houses in Tunxi had been established. Stores selling goods from the South and the North, cloth stores and other industries had been opened one after another, and business in all walks of life was booming. For a time, it had become the peak of business development in Tunxi Old Street. In 1884, 10th year of Guangxu period of Qing Dynasty, all kinds of shops covered the life of the residents.

Tab. 1 Basic situation of the development of the Old Street in Ming and Qing dynasties

| Dynasty                        | Main business                                                                 |
|--------------------------------|-------------------------------------------------------------------------------|
| 18th year of Hongwu period in Ming Dynasty | Warehouse (Ba Jia Zhan warehouses)                                            |
| After Chenghua period of Ming Dynasty         | Wuyuan County- tea business, timber business; Shexian County-salt business (30%), pawn business (20%), other business (50%); Jixi County-restaurants, tea leaf; Xiuning-pawn business; Qimen County, Yixian County-cloth, grain and oil, tea leaf, bank, southern and northern goods |
| 15th year of Jiajing period of Ming Dynasty      | From Ba Jia Zhan and Xinshi street, it develops from west to east along the river, from Yubutou to Yanbutou, Xianhe street, houzheng street and then Houjie street |
| Tianqi period of Ming Dynasty                  | Bulk products: wood, tea (export)                                             |
After Tongzhi period of Qing Dynasty

There were many tea shops, timber trading was in the ascendant; foreign goods from Beijing and Guangzhou came in time; North and South goods stores and cloth shops had been opened one after another.

10th year of Guangxu period of Qing Dynasty

Most of the shops were tea shops, more than 130 ones.

3.2. Service stage of foreign merchants (Republic of China)

In 1918, Tunxi had more than 500 shops and workshops, and its products and services covered 38 industries in 8 categories [3]. In the spring of 1929, Tunxi Old Street was burned by refugees, especially the lower street and the middle street were seriously damaged, and some shops closed down. Until 1934, Tunxi Old Street again recovered to the prosperous period, mainly to develop small-scale peasant economy, the old street commerce developed to 60 industries [4]. The types of industries have increased significantly, and the dominant business is still daily service. At the same time, there are some new business, such as silver industry, battery industry, soap industry, etc. During the War of Resistance against Japan, the number of immigrants increased, and the economy of Tunxi Old Street was prosperous for a time, among which the entertainment industry developed best. In addition, during this period, new business such as hardware and electrical appliance industry, paper printing industry and photography industry appeared. After the war’s victory in 1945, the emigrated population returned to their hometown. The population of Tunxi dropped sharply and the economic depression affected many shops. On the eve of liberation in 1949, there were only 162 stores left in the old street.

| Business         | Content                                      | Percentage (%) |
|------------------|----------------------------------------------|----------------|
| Shopping         | 31 mountain goods shops, 20 department shops, 17 Southern goods shops, 9 fresh goods shops, 9 herbal medicine shops | 18.26          |
| Catering         | 30 noodle and pastries shops, 7 tea shops, 6 wine shops | 10.31          |
| Accommodations   | 9 inns                                       | 2.16           |
| Leisure          | 14 tea shops and tea making shops; 5 tea houses, 2 antique shops | 5.04           |

Tab.2 Basic situation of the development of the Old Street in 1934
3.3. Service stage of urban citizens (from after liberation to Cultural Revolution)

After the founding of the people's Republic of China, under the guidance of the policy of "developing economy and ensuring supply", the commerce in Tunxi Old Street was rapidly restored, the number of mobile vendors decreased, and the closed shops reopened. By the end of 1956, the public-private partnership had been reformed, mainly engaged in commercial and catering services, as well as cooperative stores across 16 industries. Oil and salt, grain, tea houses and slaughtering industries were transformed into state-owned businesses. After the 1950s, there were almost no shops in Hejie street and Houjie street, all of which were built into residential areas. This stage is the blending stage of the Old Street merchants and the residents. The historical and cultural commerce is integrated into a solid unique culture of Tunxi Old Street, which paves the way for the cultural loss and commercial decline caused by the commercial tenants moving away from the old street. During the cultural revolution, commercial outlets were further reduced. In 1976, in addition to banks, savings offices and handicraft workshops, there were less than 100 shops in the old street, and the business format was only life service. Some of the historic blocks have experienced a similar decline, the main reason is that it is affected by the rapid development of urbanization and industrialization to a certain extent.

3.4. Protection and utilization stage (from reform and opening-up to 2000)

The protection and utilization of the old street in Tunxi has been paid attention to after the restoration of the system of Tunxi city in 1975. Under the protection planning of the old street, the factory buildings and warehouses were moved out of the old street, and the major shops were restored to the time-honored brands. In 1978, the Tunxi government's investment in the old streets continued to increase, and the Tunxi market gradually opened to the outside world. By the end of 1985, 107 stores had been restored, the number of old street stores had increased to more than 160, and the number of time-honored shops had been restored to 35.

The protection of the old street is mainly attributed to the national policy. Meanwhile, other historical blocks began to carry out economic revitalization and architectural renovation. Since the 1990s, Huangshan City has attracted a large number of tourists every year relying on its rich tourism resources. At the same time, Tunxi Old Street has gradually become a historical and cultural district with tourism commodities as the main part. The service objects of the old street are also changing, from serving the daily life of local residents to foreign tourists. The protection of Tunxi Old Street is relatively successful, and its commercial appearance is close to the former prosperity again. With the increase in the number of tourists, some tourism crafts, four treasures of study (writing brushes, ink sticks, paper and ink stones), antiques, calligraphy and painting have become the main tourism products of Tunxi Old Street, and the proportion of these three types of business is very high.
3.5. Tourism and shopping stage (after 2000)
On November 30, 2000, Xidi and Hongcun, the ancient villages in southern Anhui, were listed in the world cultural heritage list. As the same cultural tourism as Xidi Hongcun, Tunxi Old Street has also embarked on a new development road. With the rapid development of tourism, the business forms of the old street are constantly enriched and improved. With the participation of the national intangible cultural heritage technology industry and famous tea at home and abroad, all kinds of local cakes and snacks, local restaurants and bars are also very popular.

On January 8, 2016, Huangshan Tunxi Old Street Cultural Tourism Development Co., Ltd. was established. Thereafter, Tunxi Old Street started a new round of large-scale reconstruction according to the old street protection planning and comprehensive promotion project planning, to create a traditional style street with cultural display, commerce, catering, inns, landscape, leisure and other functions. Yan'an Road (former back street) is mainly based on life service trunk road, the main street is based on traditional commercial culture, and Binjiang Road (Yuanhe Street) is mainly leisure business. The commercial reform plan of Tunxi Old Street has changed from the scattered response of the masses to the implementation of the reform by the fixed units. Its development goal is clearer and the reconstruction and construction is more powerful.

4. Role of new technology in the development of Tunxi Old Street

4.1. Impact of traffic technology
From the perspective of historical development, in the era of underdeveloped land transportation, waterway has become the most important traffic artery because of its low cost and convenient way. The place close to the wharf gradually forms a market, which is exactly the origin of Tunxi Old Street [5]. As a superior water port wharf, Tunxi became the material distribution center of Huizhou and even Southern Anhui in the Ming and Qing Dynasties. In modern times, the land transportation began to develop rapidly, the immigrating population increased, the traditional commerce declined and the new commerce...
developed. After liberation, with the further improvement of traffic and the expansion of urban area, Tunxi Old Street gradually became an old residential area. After the reform and opening up, with the rapid development of highway and aviation, and the rise of modern tourism, the historical and cultural value of Tunxi Old Street has been gradually recognized, and has become an important tourist attraction. In ancient times, because of the convenient transportation, Tunxi Old Street accumulated rich cultural heritage resources. In modern times, because of the obstruction of external traffic, it was less damaged by the war, and the heritage resources were preserved. With the economic development and convenient transportation, the heritage resources were transformed into important tourism resources.

4.2. Impact of service function
The development of service function of historical and cultural blocks is closely related to people's needs. During the Ming and Qing Dynasties, Tunxi Old Street became the material distribution center in the mountainous area of Southern Anhui Province due to its advantageous geographical location, smooth post roads and convenient boats and boats on the Xin'an River. The main function is to transport the local abundant timber, tea and other goods through Tunxi wharf. During the period of the Republic of China, Huizhou political center began to transfer from Shexian to Tunxi. During the War of Resistance against Japan, a large number of merchants and refugees poured into Tunxi, and the population increased sharply. Once the economy was abnormal and prosperous, the service industry for the public began to increase. At this time, Tunxi Old Street has turned from a commodity distribution center to a commercial deformed town, that is, as a service center for community residents. Tunxi Old Street has been regarded as the commercial center of the whole city since Tunxi transformed into a city. The surrounding trade city has developed in the original old street. After the reform and opening-up, the old street, as a historical and cultural district, attracts tourists from all over the country. The old street is transformed into a tourist shopping center, serving tourists from all over the country, and the products sold change from daily necessities to tourist commodities.

4.3. Impact of commercial formats
Commerce plays an important role in historical and cultural blocks, and with the change of community residents' demand, the types of commercial formats are constantly updated. In terms of time sequence, in 1934, as the prosperous period of Tunxi Old Street business development, the number of employees increased sharply. From the perspective of business types, the shopping was dominated by antiques shops and tea shops, accounting for 18.26%, indicating that there were few shopping formats in old streets at that time. Catering, leisure and entertainment and accommodation accounted for less. At that time, it was mainly to meet the needs of residents' daily life, and the proportion of convenient services was 64.23%. In 1956, the format changed little. It was not until 2000 that the distribution of business types changed significantly, with shopping reaching 66.67%, convenience services decreasing to 16.18%, accommodation increasing to 11.11%, leisure and entertainment and catering respectively 4.71% and 1.33%.
4.4. Impact of economic system
The development of social economy determines the development of the block, and the development of block economy determines the development of commercial formats, and the change of business forms will be reflected in the form changes through the construction of the whole block. Tunxi Old Street has experienced the development and evolution of commodity economy, small-scale peasant economy, planned economy, market economy and tourism economy.

The formation of Tunxi Old Street originated from the development of commodity economy in Huizhou area in Ming and Qing Dynasties, and went up and down with the rise and fall of Huizhou merchants. During the period of the Republic of China, the economy of Tunxi Old Street was dominated by small-scale peasant economy. After liberation, the government implemented the policy of "developing economy and ensuring supply", and the economy of Tunxi Old Street was revived. Shops and handicraft shops were nationalized, and the economic model gradually changed into planned economy. In 1978, the country carried out reform and opening-up, transforming the planned economic system into a socialist market economic system. Today, with the rise of tourism, tourism related catering, shopping, entertainment rise, Tunxi Old Street succession for tourism service economy based historical and cultural blocks.

5. Conclusion and discussion

5.1. Conclusion
Tunxi Old Street is a typical representative of China's commercial oriented historical and cultural blocks. After more than 600 years of development, Tunxi Old Street has gone through various stages of "formation-development-prosperity-decline" of traditional blocks. It is a typical example of continuous self-renewal and self-improvement of historical and cultural blocks. It is the result of the joint action of new technologies such as transportation technology, service function, commercial format and economic system. Its transportation has experienced the development from water transportation, land transportation to aviation. The main function has experienced the development of commodity goods distribution center, service center for community residents, commercial center for urban residents and tourist shopping center. The business format has experienced the development from convenient service to tourism shopping. The economic system has experienced the development of commodity economy, small-scale peasant economy, planned economy, market economy and tourism economy. The
development of Tunxi Old Street accords with the development of city, social economy, commerce and local industry.

5.2 Discussion

If the historical blocks in modern society are redeveloped, most of them cannot escape the transformation of tourism. In the process of tourism development\(^7\), the tourism environment of Chengdu is not lack of high-quality tourism facilities, and the tourism environment is not lack of innovation\(^8\). Tunxi Old Street is also under the pressure of horizontal tourism scenic spots. For example, Liyang in lane, which is characterized by Huizhou style old houses, is also full of merchants, settling in special food and Huizhou traditional industries. Therefore, the further development of the old street needs to pay more attention to the cultural restoration and protection, develop diversified tourism products linked with the culture of Tunxi Old Street, and take the competition as an opportunity to carry forward the Huizhou characteristic brand.

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