

RETHINKING TRADITIONAL LILONG HOUSING FOR CONTEMPORARY
NEIGHBORHOOD IN SHANGHAI

by

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(Under the Direction of STEPHEN J RAMOS)

ABSTRACT

Traditional residence in the Chinese megacity is a big issue for urban development in the 21st century. The conflict between the cultural significance and pressure of the city's development requirement is the root of this issue. Shanghai is a highly developed urbanized city in China. Shanghai lilong, as the dominant form of a residential house in the 20th century, was undergoing significant evolution and was continuously threatened by the social environment. This thesis rethinks the value of Shanghai lilong towards the contemporary urban context by examining the changes and threats from the 1860s to 1960s, from both physical and cultural perspectives. Design principals and conceptual models are proposed to explore a 'new lilong,' which will inherit the merits of the traditional lilong but, at the same time, incorporate the modern requirements. This thesis provides an alternative strategy on preserving traditional housing, as the Chinese heritage, by activating its cultural significance in the modern context.

INDEX WORDS: Shanghai lilong, Traditional housing, Modern neighborhood, Community design

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CHAPTER 1
INTRODUCTION

1.1 Research Intention

China was forced to open its gate for the world in the late 19th century; this was a result of continuous invasions from foreign powers and a series of treaties on land control, land transfer, and land development, especially in Eastern China, along the Pacific Ocean. The Yangtze River basin, where Shanghai was located, was occupied by the British (the metaphor as the dog in Figure 1¹). During the following decades, China was pushed to undergo reformation and act on the world stage. After the end of the Second World War (1939–45), the People’s Republic of China was founded (1949). The next half-century followed with urban planning and

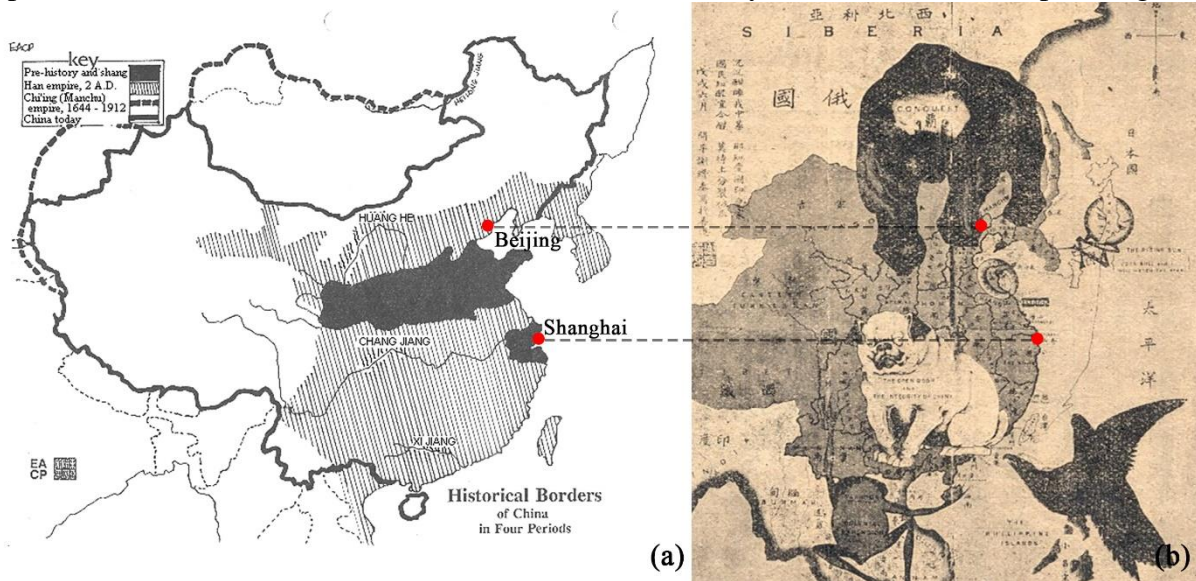


Figure 1: Map of China: (a) Four stages of the historical expansion of China, map cited from *Asia for Educators*, Columbia University; (b) *The Situation in The Far East*: the original version which was published by the Furen News Agency in 1898. Painter is Zuantai Xie (1872–1939)

¹ *The Situation in the Far East* is a masterpiece of Chinese modern current affairs cartoon, showing the division situation in old China at the late 19th century. There are six metaphors in this cartoon representing six foreign powers who were controlling or intend to control a specific province of China.

development of the infrastructure; this resulted in an unprecedented boom for the country, after it was under chaos due to the aftermath of wars. Thanks to the impact of the Western concept and contributions of the Chinese scholars at home and overseas during that time, urban development in the country was able to keep up with the world. During the mid-20th century, many cities in China began urbanization and experienced rapid population growth.

Following China’s extensive history, the expansion of neighborhoods varied according to each city’s unique landscape. One kind of expansion mode of the cities followed organic growth. Cities grew organically from small traditional settlements, based on their unique characteristics from the inner area of the city (Laquian 2005, 286–287). The other expansion mode followed a formal urban planning system, within the original principle of the city fabric. Figure 2 shows four historical stages of the city planning principles in Chinese cities, according to Hahn (2006). The first stage is the traditional city planned according to the archaic concept, especially the Chinese geomancy² and the Rites of Zhou³. Based on these theories, the city was planned as a

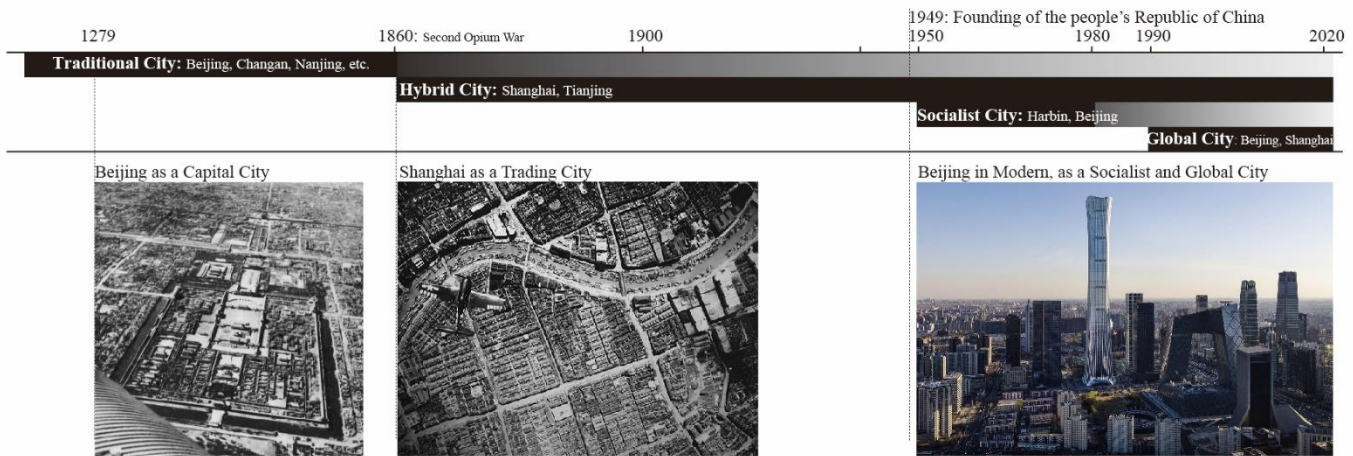


Figure 2: Different types of the city fabric in China. Diagram by author, image cited from the internet.

² Chinese geomancy is also known as Fengshui; it is a comprehensive science that incorporates multiple concepts, such as geography, philosophy, mathematic, etc. Fengshui was usually used in the domains of planning and the architectural design in a traditional city, considering the balance between the environment and human.

³ Rites of Zhou is a guide book used to regulate and organize the imperial city from the perspective of the government and its policy.

walled city. It was centrally organized and developed in a radiative way (such as Beijing's Forbidden City, as shown in Figure 2 and Xi'an). The following three stages occurred during the recent modern age after China opened up to the world. The hybrid city was often a semi-colonial city influenced by Western culture in terms of its planning concept and architectural typology; it experienced a dense development and urbanization process (such as Shanghai and Tianjin). The planning of a socialist city was often influenced by the city's function in terms of the country (such as Beijing as a capital city). As the most recent stage of the planning modes, the global city usually benefited from a good geo-location and political essence. In contrast to the horizontal expansion, the vertical construction catered a large population, which was the most noticeable feature of a global city.

Entering the 21st century, Beijing, Shanghai, and Guangzhou are listed as megacities and occupy 14% of the total of 22 megacities in the world, with more than 10 million inhabitants (United Nations 2015). Although the country's expansion, including the boundary and the infrastructure network, is never at a standstill, many large- or medium-sized cities in China are still suffering from the pressure of a large amount of old traditional housing infrastructure in the inner area. On the contrary, postmodern development enhances cultural and living quality at the same time. Today, many global cities, like Beijing and Shanghai, are undergoing unprecedented urban development, which leads to economic growth at a rapid pace and skyrocketing land values in the inner areas of these cities (Arkaraprasertkul 2010). The construction of high-rise buildings was encouraged; this further threatened traditional housing, as they do not exist as a space-efficient neighborhood typology. It is usually costly and time-consuming to reinforce and renew the old buildings as per modern requirements; this includes not only the living styles but also the aging infrastructure.

However, now, a large amount of traditional housing infrastructure has been redeveloped into a modern city and replaced by new buildings. This tendency has led to scholars, such as Sicheng Liang⁴, being concerned about the future of Chinese cities; it is believed that many ancient cities will lose their native morphological features as modern buildings are rapidly being constructed (Liang 1998, 11). As a result, China's cities will become a sea of homogeneous enclaves in the early 21st century under the mesmerizing speed of the country's development (Lee 2016). Other concrete issues follow the concentrated urbanization of the inner city, such as the uneven land value and pollution due to dense private traffic. It is also imperative to consider the conflict between traditional heritage and modern construction.

Although dwellers undoubtedly benefit greatly from advanced infrastructure because of the modernized community, the traditional living modes were abandoned unconsciously and will ultimately disappear. New generations, who live in high-rise buildings, can hardly remember or even know what traditional Chinese living means; it was a tight relationship with families who lived in a traditional local house. Unlike the modern community cluster composed of individual high-rise buildings with small dense units, traditional Chinese housing represented enclosed

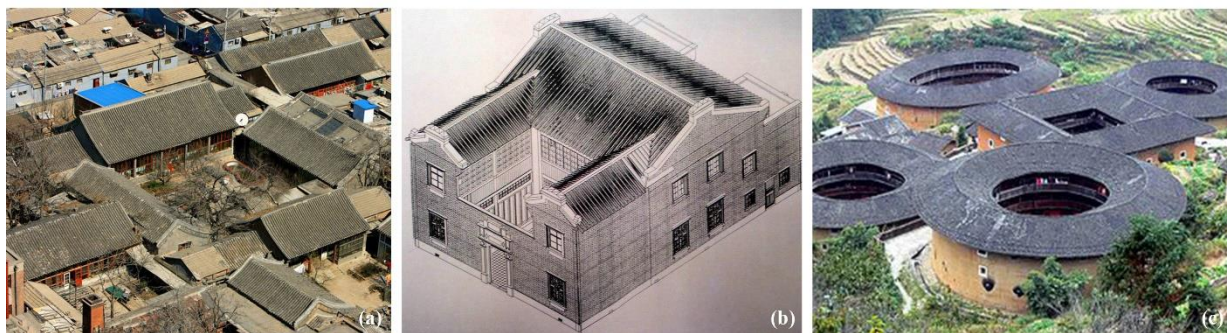


Figure 3: Different types of traditional housing pattern in China, representing the traditional Chinese living concept of sharing a courtyard as an enclosed layout: (a) Siheyuan in Beijing, northeastern China, (b) Lilong in Shanghai, southeastern China, (c) Tulou in Fujian, southeastern China. Image cited from the internet.

⁴ Sicheng Liang was known as the father of modern Chinese architecture and devoted himself to the research and preservation of Chinese historical architectural sites. His father, Qichao Liang, was one of the most prominent Chinese scholars of the 20th century. They both returned to China in 1912 after studying overseas.

houses in a pattern design, sharing a large amount of public space. Figure 3 shows three typical traditional housing types in China, and each of them represents the unique feature of a city and its living style. Although varying in shape, the fabrication reflects a strong connection and communication within the community. What is worth thinking about them, as modern architecture, is that if such a construction still fits the new generation's living requirements or if the traditional houses are only the legacy of the cities left behind by history. What can we learn from these structures? What's the meaning of being in the present? These questions will guide this thesis to rethink Shanghai's traditional housing with regard to its cultural significance and its possible application to the contemporary neighborhood design.

It is not easy to explore solutions to these common issues since Chinese cities vary in political function, physical fabric, social structure, culture, and psychological thinking. For example, Beijing is the capital of China; it is made up of thousands of courtyard houses that surround the Forbidden City, which is the focal point of the city. Shanghai is a colonial port city, where the inner-city neighborhood is made up of very dense residential cells that are connected into a strong attachment. However, it is imperative to understand the significance of those dwelling patterns, in order to further apply their essence as an urban form to the contemporary community planning and design, not only physically but also culturally and socially; this will help maintain a livable environment and the characteristics of the city portrait.

1.2 Research Target

This research chose Shanghai, a city located in East China, as the study city. It is one of

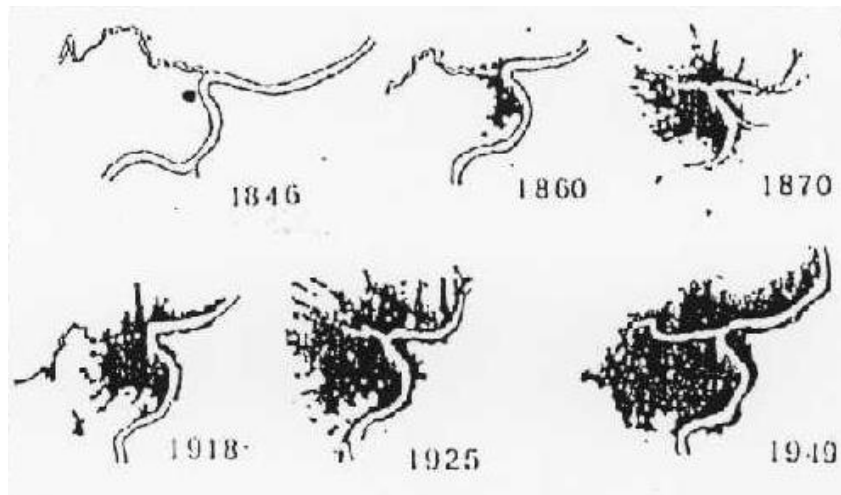


Figure 4: City expansion, 1846–1949, from the emergence of lilong to the founding of the People's Republic of China. Source: Song Zhang, An Approach to Integrated Urban Historic Conservation, p13, 1992

the most developed cities; it has been under rapid urbanization since the start of the 21st century.

Lilong housing is one of the most iconic feature of Shanghai, not only because it is the primary urban form but also because of its historical and social value. Shanghai lilong originated in the 1840s when the British landed in this port city and marked the beginning of the semi-colony city of Shanghai. Before the British came, there were only dwellings in traditional patterns, like other imperial Chinese cities, which were structured formally by the almost perpendicularly crossed layout and were protected by the heavy wall around them. The emergence of lilong housing, as an exotic product introduced from the West but on which absorbed the traditional Chinese dwelling features, is an external force that drives the city's function to change instead of the organic growth based on a common pattern. Besides, the distribution of lilong housing densely covers the core land of Shanghai, which is also one of the reasons why lilong housing carries memories of the history of Shanghai; it has experienced and witnessed the development of Shanghai from only a 4.5 km² fortified walled city in the 1840s to a 32.32 km² semi-colony in 1914 (Guan 1996). Even after the colony's suspension after the founding of the People's

Republic of China in 1949, the lilong housing still stood as the radial center of the expansion of the city (see Figure 4 & Figure 5).

Besides its significance of the original urban form from a historical perspective, lilong is also considered as an important part of the city due to its architectural and cultural value. After the British landed in Shanghai and made a market of this port city, other foreign powers (French, America, Japan) joined in sequence. In 1914, the total area of the international concession reached the figure of 7,743 acres⁵. Multiple foreign cultures enriched Shanghai, and this resulted in the city developing a hybrid social structure. People of different social statuses from multiple countries started injecting their individual cultures into this city, among which were scholars, artists, politicians, workers, investors, and developers; this brought about both the population and culture explosion, which was tangibly reflected in the architecture and people's living style. The morphology of lilong house, which benefited from its efficient accommodation, was widely applied as the dominant dwelling form during the colonial period (1843–1943). Thus, lilong housing varied in its artistic style due to the expansion and evolution of the foreign concessions. As the population structure was becoming more and more hybrid, Shanghai was able to develop its economics. Streets started to be filled with commercial factors, even along the boundary of



Figure 5: Shanghai expansion map, 1937–2020. Image source: Shanghai Virtual; Google Earth Pro

⁵ Data cited from the internet archives, <http://www.shtong.gov.cn/newsite/node2/node2245/node63852/node63855/index.html>

the neighborhood. The social life, thus, was enriched within the individual community, and it further formed the vivid culture of the Shanghainese living style.

Although the uniqueness mentioned above has emerged under a specific historical environment, many were able to maintain it in the long run, even after Shanghai was finally liberated after the Second Sino-Japanese War (1945). Most of the lilong housing survived and maintained its residential function during the late 20th century. Although the social structure in the near-modern society is not as hybrid as during the colonial period, the vivid life style and the solid interpersonal relationship in alleys were inherited, which later formed the unique living style specific to Shanghainese. As entering into the 21st century along with the rapid urbanization and modernization of Shanghai, it can no longer satisfy the accommodation needs of the city and the living quality of the citizens. Consequently, the government started to demolish lilong housing, and the new generations started to move out from lilong dwellings. Therefore, the lilong culture and the vitality of living in the alleys began to fade in the 21st century due to the increasingly severe conflicts between the traditional and the modern values in Shanghai.

To bridge the conflict and better preserve lilong housing as a unique heritage location in Shanghai, numerous proposed (problematic) solutions have been put into practice, according to the individual situation of the lilong community. For example, the highly commercial redevelopment strategy: Xintiandi has become one of the most entertainment and shopping hubs in Shanghai; the renewal strategy based on converting the community to half residential and half commercial: Tianzifang is known as one of the most popular tourists attractions in Shanghai; preservation strategy, which proposes lilong to remain a residential area but with a bottom-up development of informal commercial activities, such as Jing'an Villa (Wenbin 2004; Lin 2014; Bracken 2020). Most of the transformation projects were facilitated by the population and

economic mobility brought forward from commercial stimulation. Those projects did rehabilitate the traditional lilong, which succeeded in bringing the heritage back to the people's under the modern context; however, they did not fully reflect the original spirit of Shanghai lilong as a heritage site.

Under this backdrop, this thesis intends to provide an alternative of a 'new lilong' that inherits the essence of the original lilong community and incorporates the modern requirements at the same time. The thesis studied the evolution of lilong by examining the changes over a hundred years. The varieties of the physical structure and the social activities were concluded as providing the tendency of modern requirements. Through the analysis on those changes, the thesis aims to bring the essence of living in the lilong back to the contemporary residential context. Besides, this thesis also aims to, by focusing on Shanghai, provide a reference to the other cities in China facing a similar challenge regarding traditional buildings, as Shanghai, being a highly modernized city, is a typical example.

1.3 Research Question

Based on the introduction above, several questions were determined before narrowing down to the specific research question: What is the role of Shanghai lilong existing in a modern context? What has changed in lilong housing that emerged in various time nodes? Can these changes reflect the social evolution through time? What makes traditional lilong housing

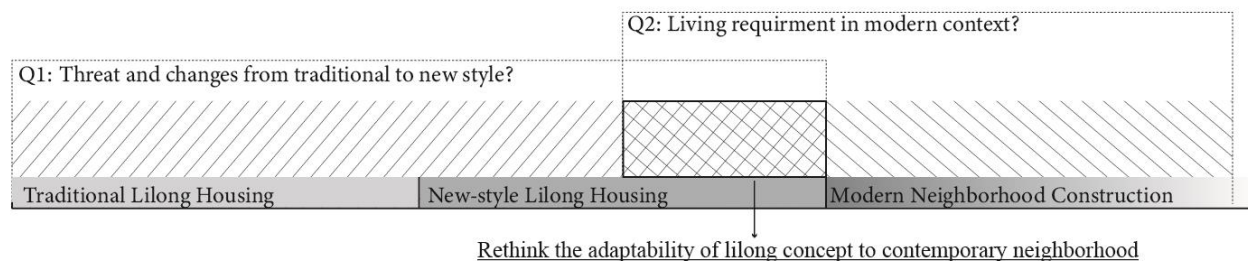


Figure 6: Three main questions guided the research structure.

attractive to be one of the cultural identities of Shanghai? What is the difference between the traditional living standards and the modern requirements of the residents? Are those features or design concepts still applicable to the contemporary community in Shanghai?

Incorporating the research target in the last section, this thesis will deliver the pragmatic answer through three stages. The first involves the changes, both physically and socially, of Shanghai traditional community by examining the revolution of lilong housing and the living styles in each time node. The second asks the value of Shanghai lilong with regard to the urban contexts in the contemporary moment. The third involves abstracting the design essence from the traditional lilong and exploring the possibility of it to be applied to the modern community design. During the revolution of residential dwelling in Shanghai, some overlaps between the lilong and the modern dwelling, in terms of the community layout and format, have already appeared with the fading of traditional aspects and the enhancement of modern characteristics. This thesis aims to trace through the evolution and explore the balance between the two poles of the timeline (Figure 5).

1.4 Methodology and Research Layout

The research process of this thesis can be divided into three main stages. The first involves the analysis of Shanghai lilong, which will implement an interpretive strategy to mediate between the theoretical concepts and the collected data, including investigating the lilong housing in different types through time (Deming and Simon 2011). In this stage, the author searched for archives and the antique data which were able to record the situation in the past because lilong housing has a lengthy history, as mentioned earlier. The archives include the research on Shanghai from the perspective of the history and the urban development (Xiaomo 1989; Marie Claire Bergere 2014) and on lilong from the perspective of history, architectural

value, and its preservation (Wang 1986; Shen 1993; Wenbin 2004). The collection of antique data includes the archives of various types (Guo 1996; Jiang 2012; Shen 1993), such as photos, cartoons, and documentary articles. At the same time, multiple methodologies are applied to analyze lilong in terms of its space components, the usage of space and space relations in lilong:

(1) Lynchian analysis: Kevin Lynch studied three typical cities of the United States (Los Angeles, Boston, and Jersey City) in the 1960s, and he concluded that every city dweller has his own image of the city, with five elements (paths, edges, districts, nodes, landmarks). He further argued that the image of the city plays an essential role in people's living; this argument was based on the interviews and the investigation in his three study cases. Therefore, he encourages the planners and designers to pay serious attention to people's mental requirements when organizing those five elements in a region. This thesis will refer to Lynch's conclusion of the definition on the five elements and apply it to the lilong community, which in turn implements the comparison analysis in the next stage.

(2) After clarifying the spatial components, the space relations are analyzed with the assistance of the methodology of space syntax, which was introduced by Bill Hillier; it ranges from an entire city to a single building unit. This thesis will apply the methodology of topology and the software of DepthMap, to analyze the space connectivity within lilong. As a reflection, the result will be further used to analyze the social relationship within the neighborhood.

(3) Jan Gehl focused his research on the relationship between space and activities in the book *Life Between Buildings*. He provided the definition of the different types of space and activities in the community and delivered the design principles and standards for urban development and the community, which aims to create a vivid and sociable environment for the dwellers. These definitions will be referred to for the analysis of the sociability in lilong space.

Secondly, the comparison is implemented from two dimensions embedded through the entire comparative analysis: one is to compare the different types of lilong through its one-century revolution, in terms of space component and the space relations; the other one is to explore the changes in terms of the usage and social activities in the same lilong case during different periods of time. To proceed this analysis, massive first-hand photos are required. Hence, the author built a three-member team for field investigation. All of the members in the team are from the Zhejiang University; they are finance and economics majors and were either born or have lived in Shanghai. Taking Shen's book (1993) as a major reference, they revisited all the example sites in the book (see the investigation map Figure 19) and recorded the existing situation in those 43 lilong communities; this is used for the comparative analysis on the first dimension. Taking the archives mentioned above as minor references, they took photos from the same perspectives as the antique image which is used for comparative analysis on the second dimension.

The third stage will deliver a practical result on rethinking the possibility of transitioning the lilong neighborhood to contemporary community design, based on the analysis result. The rethinking process includes the overview of two redeveloped projects and an analysis of the community both in lilong and the modern neighborhood of Shanghai. After that, the adoptable concepts in lilong are abstracted, incorporating with the requirements of the modern life and the city context, to deliver a model considering the lilong rudiment which is specific in Shanghai.

1.5 Thesis Layout

The first chapter introduces the common issue of a traditional house in China and the specific situation in Shanghai. This chapter further elaborates the reason why the study chose Shanghai as the study object and posts the research question after that. The second chapter goes

over the history of Shanghai and lilong, elaborating lilong's value towards Shanghai in multiple aspects. Chapter three disserts lilong as a neighborhood unit from the perspective of the physical space components, space relations, and the activities in the space. After demonstrating those features through its revolutionary period, Chapter Four analyzes the changes and potential threats behind the revolution, which in turn deduce a contemporary trend of the living requirement in Shanghai. Based on the analysis result on lilong, Chapter Five delivers a potential design model that absorbs the merits of Shanghai lilong but, at the same time, incorporates the contemporary living requirement of Shanghai (Figure 7).

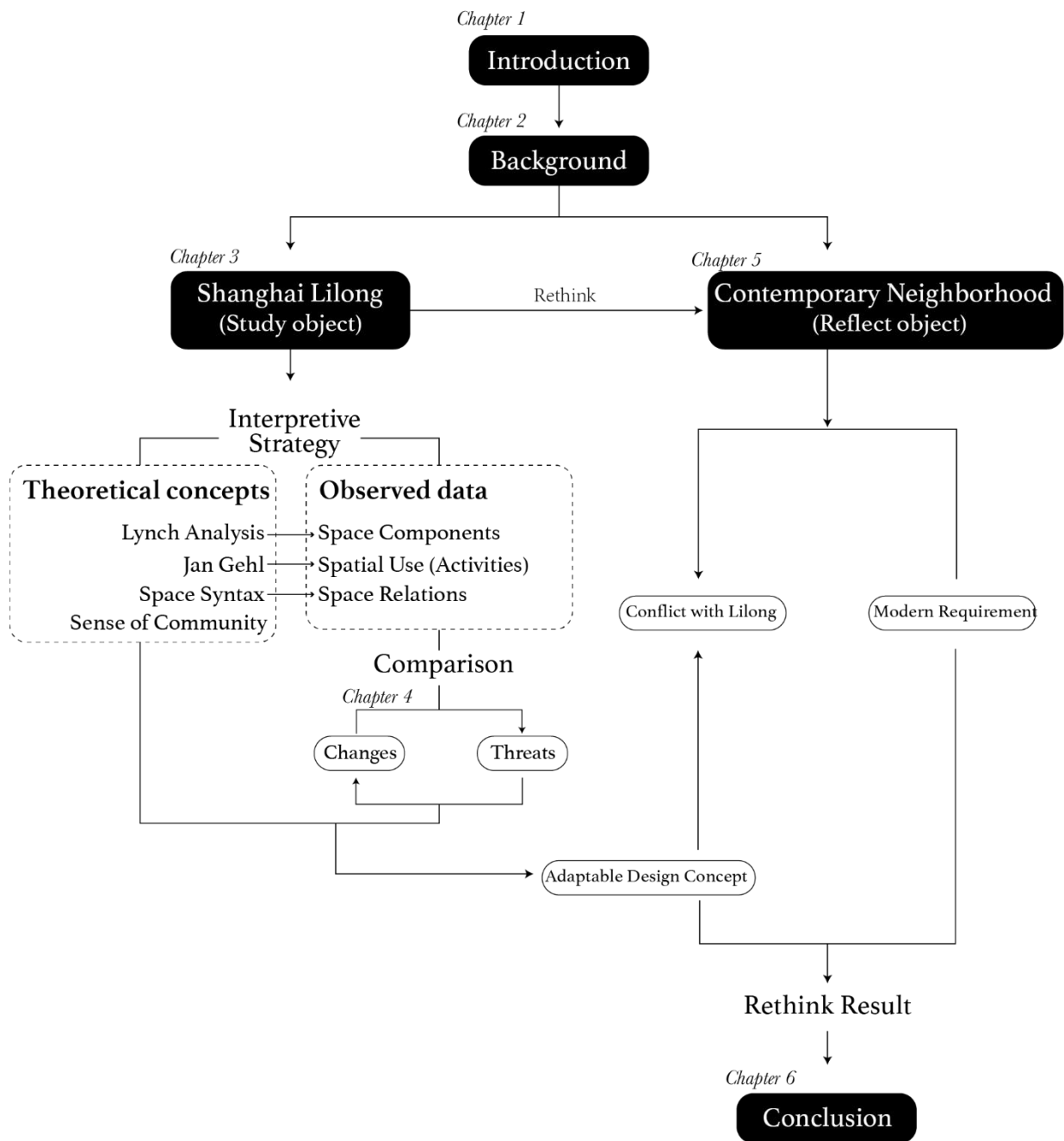


Figure 7: Research layout

CHAPTER 2

BACKGROUND

2.1 Shanghai

One of the treaty ports in China

China came to an end as an imperial country when access to the 19th century. Some of the coastal cities started to explore themselves to the western trade, for tea, silk, and porcelain. Many foreign powers began to notice the lucrative potential and import of illegal commodities, primarily opium from British. The First Opium War in 1840 symbolized the thorough opening up of China, followed by series of unequal treaties. The treaty of Nanjing (1843), which symbolized the beginning of the modern era of China. After that, five other trading ports (Guangzhou, Xiamen, Fuzhou, Ningbo, and Shanghai) were compulsorily opened and further undermined China's sovereignty (see Figure 8-a).

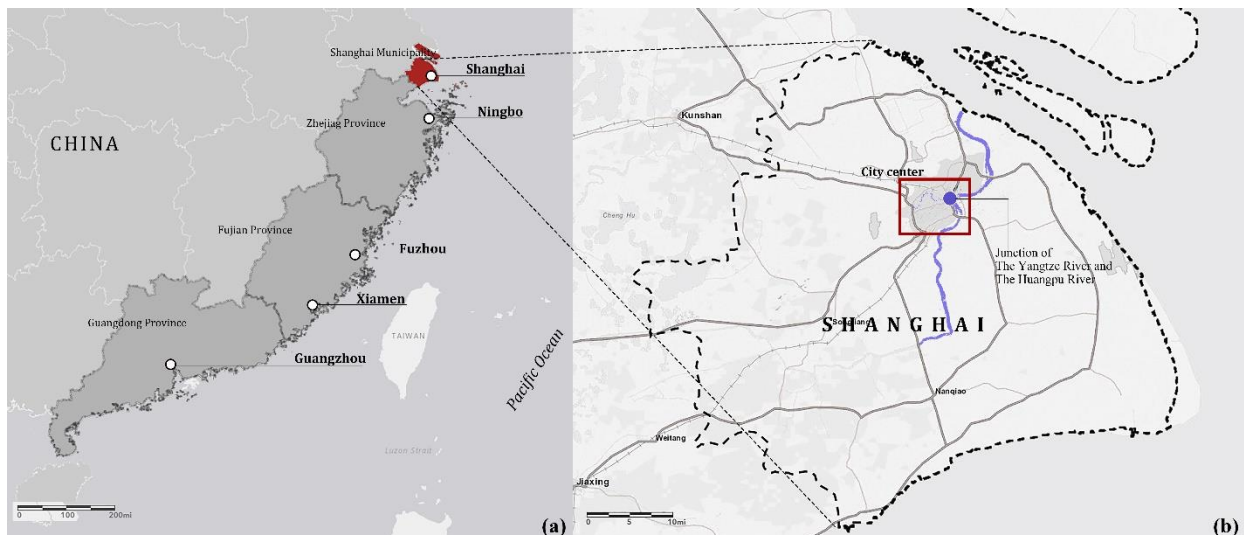


Figure 8 Shanghai as one of the five treaty ports along east coastal of China: (a) five treaty ports in four municipalities. Map by author; (b) peculiar geographical location of Shanghai, southern estuary of the Yangtze River with the Huangpu River passing through. Map by author.

Shanghai, one of those five treaty ports, originated as a fishing village and grew to a Walled City (see Figure 9-b)⁶ without a municipal county until the Qing dynasty (AD 1368 – 1644). Thanks to its favorable geographical location (see Figure 8-b), Shanghai was picked as the most lucrative port as its opening up was forced by foreign powers in 1843. In the following ten years, Shanghai became the largest port in China and the sixth-largest port in the world. In the 1930s, Shanghai was responsible for more than half of the outcome of the whole country and operated more than 100 shipping routes and undoubtedly become the shipping center of the Far East.

Relying on the presence of these trade businesses, merchants from other parts of China and the western countries recognized the great opportunities for benefits at this area in early 20th century (see Figure 10). Before the opening up of the port, Shanghai was the twelfth largest city in the world, even cannot contend against its adjacent city Nanjing (which is currently a second-tier city

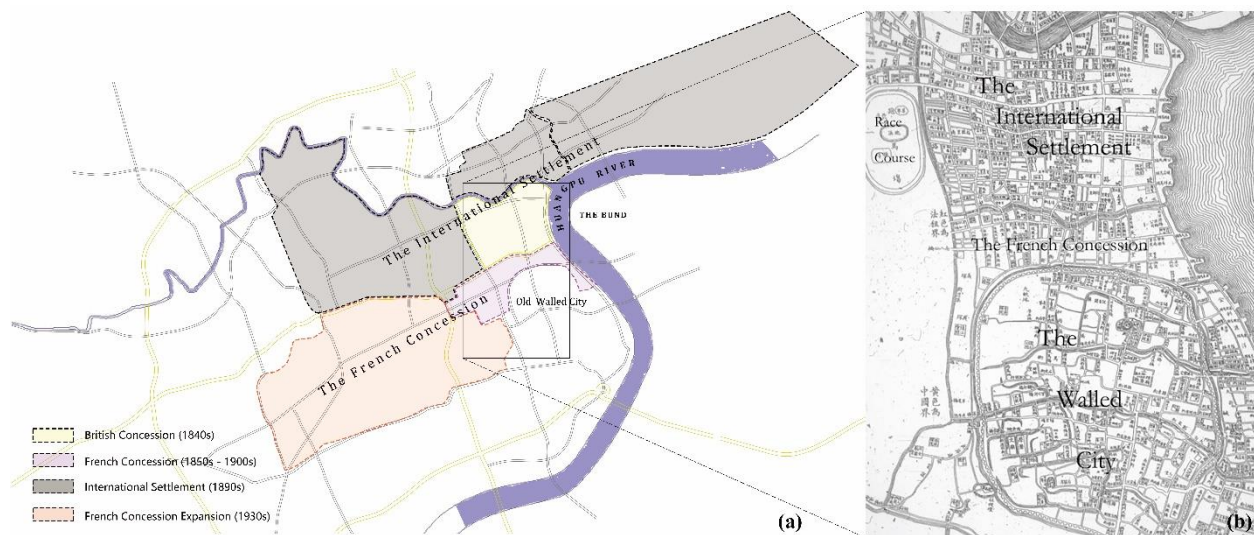


Figure 9 The expansion of Shanghai as a semi-colony: (a) time nodes on the spread of the foreign settlements from the original walled city, map by author; (b) map of Shanghai in 1901, source: *Where the courtyard meets the street* (Liang, p483)

⁶ The establishment of a walled city was followed by a traditional planning concept in China, usually the city was consolidated by the high stone wall and the city moat around for the function of fortification. The walled city in Shanghai here was also called as the Old Chinese City in some documents. Gates interjected that the wall played an important role in the function of commuting and protection. The boundary of the walled city in Shanghai was not planned as normal rectangle with delicate principals as the most traditional format in Beijing. The gates were arranged randomly on location and were not built at the very beginning. The original group of gates was built in 1554.



Figure 10 The wharfs along The Bund in 1935, demonstrating an exotic complex evolving the various architecture styles from foreign countries and a prosperous scene as a trading port. Photo by Corbis.

in China). However, in 1919, Shanghai had a population of 2.4 million, which is four times that of other cities, such as Chengdu or Hongkong at that time. Shanghai, from now on, started its modernity. The central city was growing denser as the most populous city in Asia by the 1930s. Besides, the living style and the social structure were undergoing a dramatic change as the city was unceasingly visited with not only exotic elements (for example, advanced technology and education and western commodities). Although Shanghai became more open and prosperous during that period of time, it was meanwhile unstable with the rising up of the notorious gangsters and drug dealers as the result of the opening up of Shanghai.

Shanghai as a hybrid city

Hybridization in Shanghai city is represented both physically and intangibly in its culture, mostly thanks to its function as a treaty port and as a semi-colony at some point. After the Opium War (1856), Shanghai officially became a semi-colonial city and experienced a rapid spread until the 1930s (see Figure 9). In 1856, as the First Land Regulation was signed, foreign powers started to carve up the land as self-control. The establishment and the expansion of foreign settlements facilitated the urbanization process of Shanghai with multiple foreign elements, and the establishment of the architectural complex along the bund is the best physical reflection (see Figure 10), and more importantly, the city was able to be injected with a foreign culture and eventually reach its own specialty: Haipai Culture⁷. All these results, tangibly and intangibly, have exerted a significant effect on the construction practices of the residents at that time.

2.2 Lilong

Although the concept of lilong housing did not exist only in Shanghai, some cities in south Shanghai, such as Suzhou, Hangzhou. These cities also have similar concepts in terms of their low-rise and dense attached units circulated by narrow alleyways in the neighborhood. However, Shanghai lilong has its own uniqueness in terms of its physical structure and culture.

Definition and introduction of Shanghai lilong

Literally, the Chinese word lilong is comprised of two words: li and long, which separately refer to the neighborhood and the alleyways. So, the name of the community was originally suffixed by "Li," and "Long" is referred to as the counting unit to the single unit of the neighborhood, one unit was usually occupied by more than one generation following the Chinese tradition. In the late 19th century, a total of 105 communities were named using Li as a suffix

⁷ *Haipai* is a Chinese vocabulary, literally means "Sea Style", it is a term specifically referring to a broad and hybrid culture of Shanghai.

according to the historical documents (Gu, 1876). They were initially built by the British for rental as terraced houses catering to the population flow to the concession, and this is the rudiment of Shanghai lilong.

From another perspective, lilong housing does not refer to one kind of architectural housing typology but refers to the construction groups, which reflect a specific living style with a strong attachment connected by the alleyways in traditional Shanghai. Shanghai people also called the narrow lane as longtang⁸, which represents a specific living space that is unique to the lilong community between buildings. Combined with the hybrid culture of Shanghai, longtang space was given its uniqueness which later represented the characteristics of modern Shanghai urban culture, attracted many arts and cultural youth to create a variety of unique lane culture in it. The lane space between buildings was also considered as the place for recreation and trading activities. One of the most famous commercial sidewalks today, Nanjing road, was the earliest longtang in Shanghai after opening up, which was once called Park Lang.

Expansion and Classification

The expansion of lilong has been almost synchronized with the expansion of the foreign concession (see Figure 11). The earliest lilong were mainly distributed in the west of Huangpu River and continuously expanded to the north, west, and also to the Old Walled City southward. The evolution of lilong is reflected in both the quantity and the diversity of the building construction. Lilong, as a kind of community morphology, was widely and commonly accepted by foreign migrants as pointed out by Zhao (2004), who thought that their priority was to find a foothold in this safe territory and the physical condition of the house was secondary. In the

⁸ “longtang” is a word in Mandarin that literally referred to the space in a lane or several interconnected lanes, which was also used by Shanghaiese as an informal appellation of Shanghai lilong. Longtang is equivalent to the hutong of Beijing.

middle 20th century, there were more than 9000 lilong communities in total in Shanghai, with more than 200 thousand units in shanghai, covering more than 21 million square meters in the central city⁹.

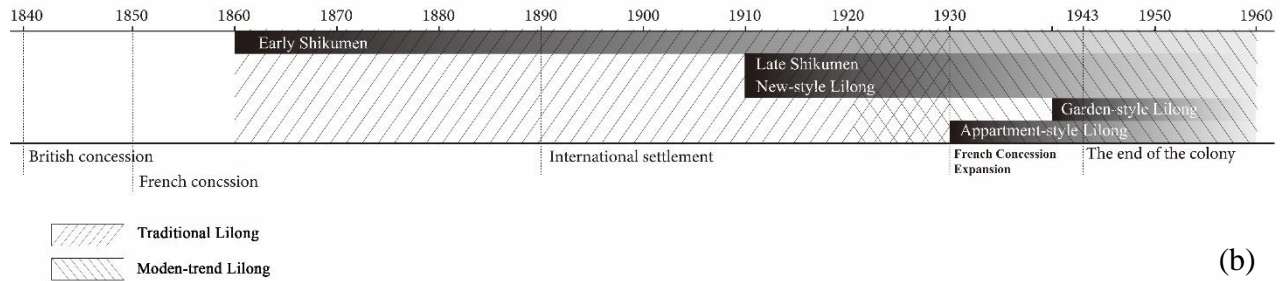
Lilong houses that emerged in different time nodes vary in multiple aspects, such as the material, construction structures, building decorations, and the community layout. Although the Shanghai Land Regulations in 1845 and the local management proposed regulations, such as the density and the story height during the semi-colonial period that were aimed to control the development of the residential house, the designers and residents were combined with population flow from different countries in various culture and living requirements. Scholars (Shen 1993, Luo 1997) and many of the governmental documents, especially The Land Regulations reversed by sequence from 1845¹⁰ have identified several classifications for lilong housing, considering elements of the emerge time node, architectural structure, and use. Therefore, it is hard to clarify the criteria to identify the category for lilong housing in Shanghai through its one-century evolution. Incorporation of those classifications primarily from the perspective of the historical timeline, traditional lilong housing could be commonly divided into two general categories: the Shikumen housing and the new-style lilong. Along with the emancipation of Shanghai, the term of 'lilong' was still utilized to refer to the residential cluster in Shanghai; however, the layout and unit structure were totally different. This thesis collectively referred to the garden-style and the apartment style as the modern-trend lilong (see Figure 11).

⁹ Data was collected from: http://www.archives.sh.cn/shjy/scbq/201203/t20120313_5839.html

¹⁰ The first Shanghai Land Regulation was published in 1845 which signified advent of semi-colony of Shanghai, as the expansion of the foreign settlements, Shanghai Land Regulations were revised several times to incorporate the mixed residential development.



(a)



(b)

Figure 11 Expansion of the lilong (a) Distribution of lilong housing in different type. Image source: *Shanghai Lilong Housing*, Shen, 1993; (b) Timeline of the emerging period of different types of lilong housing and the period of the foreign concession, diagram by author

The traditional lilong

The traditional lilong here refers to Shikumen and most of the new-style lilong in the earlier age. Shikumen, literally means the "Stone Gate", which was the most traditional lilong housing typically named with a suffix of Li as its emergence. One of the most typical characteristics of Shikumen is the architectural style and decorations of the end-wall gables and house gates. The earliest neighborhood named after Li was built in 1872, which was also recorded in *Miscellaneous Notes on Visiting Shanghai*¹¹. The initial lilong housing was constructed of wood and was later altered into brick-wood structure for safety consideration.

As time went with the rapid expansion of the lilong housing development in various neighborhood scales, other suffixes such as Fang (which means "ward"), Long (which means "Lane") and Cun (which means "village") appeared and distinguished the hierarchy of the neighborhood. From then on, Shanghai lilong started to enter a new stage which was classified as new-style lilong. In consideration of the timeline that is attached to the lilong housing types, there is a twenty-year overlap over the Shikumen housing and the new-style lilong. Except the neighborhood structure of new-style neighborhood is similar, some important architectural features, as mentioned earlier, disappeared or changed significantly.

The modern trend lilong

The last two types of lilong – garden-style lilong and the apartment lilong – were given their birth because of the modernization process as the emancipation of Shanghai in the 1930s. The house units were no longer attached like the traditional lilong. The modern trend lilong emphasized privacy and the quality of life. The garden-style lilong is equipped with advanced

¹¹“ *Miscellaneous Notes on Visiting Shanghai*”, translated from Chinese [沪游杂记] is the first “city guide” on Shanghai in 1876 which was translated as *Miscellaneous notes on visiting Shanghai* in English. It offers a systematic perspective on Shanghai as a hybrid city by a Chinese literati.

infrastructure and also a private garage. As for the apartment lilong, the building was equipped with an elevator for the vertical development with over four stories.

This thesis would refer to these five types which are consistent to the categories defined in the book *Shanghai Lilong Housing* (Shen, 1993). (a) The early shikumen; (b) The late shikumen; (c) New-style lilong; (d) Garden style lilong; (e) Apartment style lilong.

2.3 Redevelopment of Lilong in Shanghai

A large number of academic studies have focused on preservation and redevelopment. Since the reform and opening-up in China, much Lilong housing has been demolished and renewed, and the related policy and the management strategy have been studied accordingly (Hui 2014). Besides, the discussion on the future of Lilong housing remains a controversial topic in recent years. Lin (2014) concluded four typical redevelopment strategies on Lilong: (1) introduce commercial tourism; (2) retain part of the original residents and introduce the creative industries; (3) reconstruct with an imitation of the old style after total demolition; (4) preserve its original culture. However, the projects that aim to maintain the residential functions focused mostly on the preservation or renewal of the daily infrastructure, and the rest of others depended on the introduction of the commercial elements. Few of those practiced projects succeeded in preserving the original culture of lilong.

Two redevelopment projects on lilong are quite famous and have attracted a great amount of attention: Xintiandi and Tianzifang. Two management patterns have been used during the redevelopment process through the various roles of the people's government. One is the top-bottom development, and the other one is the Bottom-up development. “up” means the government, and “bottom” means the people. The project in Xintiandi followed the up-bottom mode, which is a purely business development that was implemented under the

corporation of the government and the developers. The project abandoned the lilong function as the residential community gave the historical construction with commercial value. The completion of Shanghai Tianzifang undoubtedly opened up a new model of urban renewal, and this mode of redevelopment was emulated throughout other cities in China (Archina 2019).

In contrast to the top-down development pattern, the bottom-up pattern is dominated by the market but not the government, which is the redevelopment pattern that Tianzifang applied. The development of Tianzifang was based on market conditions and the actual participants in the local market economy rather than being led by the government. Although Tianzifang also embedded new-industrial elements, especially art and commerce, the residential function remained and was preserved within the area. The living habits can still be seen in Tianzifang, and the area is further enriched by the commercial elements with a great amount of tourism flow every year. During the spring vacation in 2018, Tianzifang accepted around 260,000 visitors, including a large proportion of foreigners (Sina Shanghai 2018).

Except for the preservation and the redevelopment practice on lilong, a little researches (Lange 2015; Arkaraprasertkul 2009) proposed a potential model for a future lilong. They did a great job of rethinking the merit of lilong via the strategy of the redesign that is still a long way from being implemented into reality in order to achieve the ideal model.

CHAPTER 3

CHANGES AS EVOLUTION

From the very traditional Shikumen lilong to the nearest lilong-type apartment, the changes observed are from the neighborhood structure, considering the urban fabric, to the individual unit. These changes were resulted from threats in multiple phases, ranging from urban development to the citizens' living style. The changes and the threats were interacted upon, to push lilong housing forward before entering the 21st century. Nowadays, due to the increasing build-up of the high-rising constructions, no more neighborhoods will be called lilong. Instead, the contemporary residential buildings are grouped as individual clusters called '*xiaoqu*,' which



Figure 12: Comparison between modern apartment cluster and the traditional lilong neighborhood, Photo by Minyan Zhu

is translated as the micro-district; it is significantly different from the traditional lilong (as shown in Figure 12).

Although the types of traditional lilong housing varied significantly, they shared a similar spirit of a living standard, reflected from their physical structure, which in turn formed the uniformity of the lilong morphology and ultimately became one of the emblems of Shanghai. However, looking back to the distinction between types of lilong housing, there must be reasons behind the changes from its conception in the late 19th century. What changed in lilong housing, from both tangible and intangible aspects? And what threats were posed which resulted in the change that happened in every stage of the evolution? These two questions will be addressed throughout each section in this chapter. This chapter will firstly focus on a macro-perspective to see the relationship between the neighborhood and the city. Then, from a microscopic point of view, this chapter will look separately at the community as the integration and the individual unit layout within.

3.1 Layout and Boundary

The relationship between the neighborhood and the urban environment is essential to ensure the security of residents in the city and, at the same time, to maintain the energy of the city as one of the most essential components of the urban fabric. This section will discuss how the layout and the boundary of the lilong, through times, contribute to forming the urban fabric of the neighborhood itself and how the neighborhood constructs the bridge with the urban environment.

Layout

The concept of ‘home’ in the Chinese traditional ideology attached great importance on ‘living together,’ accompanied with a strong connectivity to the neighbors, which was undoubtedly

reflected in the construction of the traditional folk houses. Although Shanghai lilong is a hybrid product which combined the Western design concept with local elements, it still maintains the most traditional part that incorporate the traditional Chinese living style, such as the courtyard embedded in the middle and the sharing space attached. From a bird's-eye view, the concept of 'home' is also reflected as an integration encircled by the building structure entering the early 20th century when Shanghai was undergoing the modernization process in terms of the industry, commerce, economics, and public transportation. Following this process, the planning of the neighborhood was altered to incorporate modern living standard. (The difference between the traditional and modern morphology in Figure 12 indicates the general tendency of the changes on the layout of the neighborhood) Physically, three typical of lilong housing layouts emerged from two evolution stages; they will be discussed as follows:

(1) From the traditional to new-style

The construction of the old traditional Shikumen (Figure 13-a) was the rudiment of Shanghai lilong housing, which firstly adopted the concept of the 'terraced house' introduced from the British. The residential houses in the neighborhood were not able to reach a unified form. Although the neighborhood had formed the morphology circulated by the lanes in hierarchy, the distribution of the housing was relatively disordered compared to the later lilong. Additionally, the

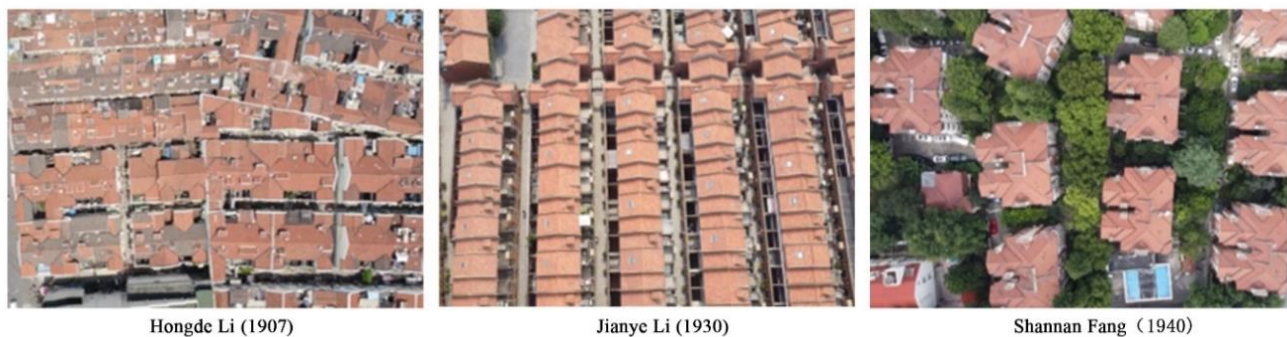


Figure 13: Layout of lilong house in times: liner to sporadic: (a) Old Shikumen lilong; (b) new-style lilong house, (c) apartment lilong. Photo by Minyan Zhu

scale of the neighborhood is small and usually includes less than 50 units; most of the late Shikumen lilong and the new-style lilong own more than 100 units. The largest one, Siwen Li, has 600 units in total. The cluster of the old Shikumen lilong was composed of several neighborhoods, which usually represent a disordered layout. Furthermore, the layout of the old Shikumen lilong was so dense that the average width of an alley was two meters between housing units, which led to the serious problem of adequate lighting and ventilation; this becomes even worse in Shanghai, as it is located in a humid subtropical climate zone.

Therefore, what directly threatened the old Shikumen lilong is the issue of living requirements, in terms of the use of residential space. The old Shikumen lilong housing was initially used as a factory instead of residential use. So the infrastructural condition as well as the layout, as far as the planning is concerned, was not good enough. As more and more lilong housings started being used for residential purpose in the late 19th century, with the Western living standard introduced after the end of the First World War in 1918, the residents started to put forward higher living requirements in lilong housing, such as the orientation, ventilation, sound insulation, and circulation. Hence, the later lilong was well ordered in a vertical distribution of the circulation and the hierarchy of the lanes were much clearer than the former lilong (Figure 13-a&b).

(2) From new-style to modern style

With the emergence of the new-style lilong housing in 1910s, following the fade of Shikumen housing, the layout of the neighborhood started to be organized with a less dense atmosphere. Almost at the same time, the apartment-style lilong and the garden-style lilong appeared. These two types of lilong neighborhoods present a much-scattered layout, as shown in Figure 13-c.

This change was a direct result of the vertical development of residential buildings. The construction of new-style lilong appeared right after the revolution of 1911, which marked the end of Qing Dynasty. Shanghai was in chaos as a temporary anarchical city except for the concession area, which was well organized by the foreign powers; a large number of people from the bourgeoisie and rich social class swarmed into the center-area, looking for opportunities. Consequently, the center-area of Shanghai underwent a rapid development of economy and population for two decades beginning from 1912. As the prices of land and the demand of accommodation increased during that period, the traditional lilong house was considered as an inefficient use of land. As a result, most of the new-style lilong housing areas were constructed; they were of two or three stories, or even more, e.g., five stories. In this case, to ensure the accessibility of the sunlight and the requirement of ventilation, the layout of the buildings had to be scattered in order to leave enough distance between tall buildings.

Boundary

From a planning perspective, the boundary of the neighborhood is usually defined as the property line or is based on land divisions. However, boundary could be different as defined by different people in the city. Coulton (2001) carried out a research on the definition of a boundary,



Figure 14: Comparison on the boundary of traditional lilong before and after. (a) Shops on the first floor along the boundary of traditional lilong tend to attract more 'eyes on the street.' Photo cited from the book, *Shanghai Shikumen* (Qinggong, 2012). (b) The traditional lilong which was abandoned. Photo by Minyan Zhu.

by asking 140 residents to draw the neighborhood maps of seven block groups, and the result indicates the residents in various age and gender have a different sense of boundary, even though they belong to the same neighborhood. This is to say that the boundary of a neighborhood could not only be defined by various physical characters, but could also be defined based on the flexible factors, such as the uses and the activities (Germantown Asset Mapping Workshop 2017). In this case, the boundary could be defined not in the form of a single line but an area including multiple factors.

In the case of the traditional lilong, the boundary of the neighborhood is physically clear when looking from a bird's perspective (see Figure 12), since the entire neighborhood is encircled by its own building construction and naturally forms a sense of isolation from the urban context. However, considering the surrounding context as an influencing factor, the street attached with the building, as a physical character, is necessary to be included. More importantly, the uses and the activities did play an important role in influencing the sense of the boundary. Figure 14 indicates this by showing two boundaries of the traditional lilong in the similar physical form but in different usage conditions. The most prominent distinction is the shops along the first floor. The stores and the shops at that period of time, usually facing towards the south along the main street, can support the residents with almost all the daily needs, including grocery, restaurants, barber shop, laundry, etc. 'Necessary activities,' as defined by Gehl (2011), were frequently taking place, i.e., walking to school and work and stopping by for breakfast, etc.; this insured the basic vitality of space. Other 'optional activities' and 'social activities' further serve the close contact between community and urban context.

The sidewalk in Figure 14-a is occupied by a resident for daily activities. The street is occupied by either the residents of the neighborhood or the outsiders watching what was happening on the sidewalk. Either of these two kinds of people belong to this context within the ‘boundary’ as an integration area even outside the neighborhood. However, the sidewalk and the street in Figure 14-b indicate a separation from the neighborhood; the sense of the boundary is like a single line cutting off the neighborhood and the street.

However, the boundary in typology as being formed by the building construction was threatened, again, by the trend of the vertical development. A dominant distinction is that the windows facing the street disappeared. When it came to the garden-style lilong and the later high-rise apartment estate, the window attached to the outside street totally vanished. This is very important in terms of the security of the area, which was proposed as the ‘eyes on the street’ by Jacobs (1961). To remedy this deficiency, the landscape along the physical boundary is well planned and is supposed to block the view to the inner areas of the neighborhood. Following these

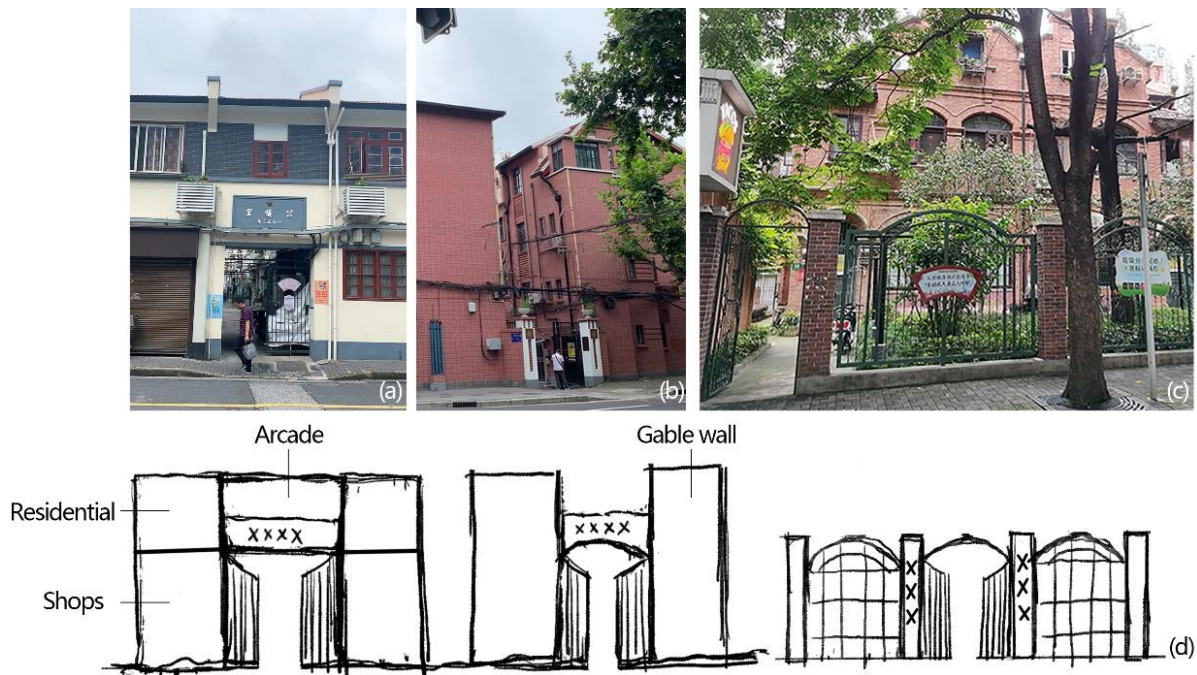


Figure 15: Boundary and entrance of the traditional lilong and the new-style lilong: (a) Gonshun Li, Early Shikumen, build in 1876, photo by Minyan Zhu (b) Hongzhuang, new-style Lilong, built in 1947, photo by Minyan Zhu; (c) 707 Lane Beijing Road, Garden-style lilong, photo by Jiaqi Lu; (d) Three typical entrance typology of lilong community.

changes, the entrance, as the node component of the boundary, also varies during the evolution process. The entrance plays a role as a bridge between the neighborhood and the urban context, connecting the public urban domains with the semi-public community domains, meanwhile playing the role of guaranteeing the security of the neighborhood. A lilong community usually has one or two main entrances facing the main street with several minor entrances on the sides. A traditional lilong community has its entrance closely attached with the building, making the entire community an integrated 'home,' which does not necessarily need a gate guard, as the neighbors within know each other very well (Figure 15).

This evolution trend led to the morphology of the modern community, which was later called '*xiaoqu*'; it translates to 'micro-district.' The sense of the boundary of the cluster of high-rise buildings is weakened since each individual building is able to generate the sense of safety; the building itself is reckoned to have an independent existence from the outside space. The physical connectivity is stronger than traditional lilong community due to the large open space within the community.

3.2 Spatial Components

This section looks at the physical structure to provide a solid foundation for further analysis related to the spatial relationship in the next section. The first question is how to define a spatial element in lilong. Multiple theories (figure-ground theory, linkage theory, place theory) have been used to identify the urban feature from a physical perspective. Each has different analyses patterns and purposes; besides, each of them examines the space with a very detailed definition (Transik 1986). The context in lilong, although on a smaller scale, contains a hybrid relation and multiple dimensions among the spatial components. For example, space can be divided, ranging from public to private one; the paths can be divided, ranging from the one connected with the street to the one

connected with the private bedroom. Hence, it is hard to find a method that could cover all the elements within a system. On the other hand, the spatial aspects in lilong are dynamic in terms of the physical form and the function, sometimes also the cultural significance. Under this situation, it is a better way to pass over the individual distinctions and come to the 'legibility' of lilong fabric, which is the method proposed by Kevin Lynch (1984), asking people to build the environmental image for the city by using the individual five elements.

Lynch (1984) identified five elements used for the mental maps, to reflect experience and analyze the space's interaction in the city area: paths, edges, districts, nodes, and landmarks. Since lilong is not on a city scale, it is hard to apply Lynch's mapping method with all the five elements. For example, according to Lynch, districts are the medium-to-large sections used for the external reference from outside; landmarks are usually the external objects the observer does not enter. In the case of lilong, it is a neighborhood dimension identified as a district in urban contexts. It is also hard to find a landmark within the small scale of area, as the neighborhood buildings usually share a similar feature without a unique construction. However, following Lynch's idea of mapping the city with its legibility, this section will identify three elements to understand the interaction between the space and human actions: paths, edges, nodes.

(1) Paths

The paths in lilong form a strong structure for the whole community, which is also the essential element that helps an observer form the environmental image in his/her mind. Once the paths, as the two-dimensional linear elements which form the whole community's skeleton, were given various scales and functions, they further helped the participant form a strong hierarchy for lilong circulation. The main lane is usually connected to the main entrance of the community. Therefore, the main lane could be considered the extension of the city street, connecting with the outside. Therefore, the main lane is usually straightforward across the community, to avoid the physical and visual linkage with private space, for security concerns. Although the main lane is usually served as the circulation function, there is still 'eye' behind the building's side window, acting as a monitor towards the people who have entered the community. As a comparison, the minor road can create great opportunities for social activities as a sharing infrastructure and a much smaller scale of the path.



Figure 16: Different environmental images result from same physical layout: (a) Jingan Villa photoed in 2020, by Jiaqi Lu; (b) Jingan Villa photoed in 1996, by Bo Guo

From the aspects of the time dimension, the mental image would probably be altered because of the usage change, following the changes of the living style (Figure 16). However, it is always a mutual reflection through time as the environmental images result from a two-way process between the observer and his environment (Lynch 1984, 9), where both the tangible and intangible aspects are affecting the space at the same time. The usage of the space could be changed due to the transformation of daily travel modes from bicycles to private vehicles. Conversely, the neighborhood's social structure could also be altered since space was becoming a place for parking and circulation rather than social activities and commuting.

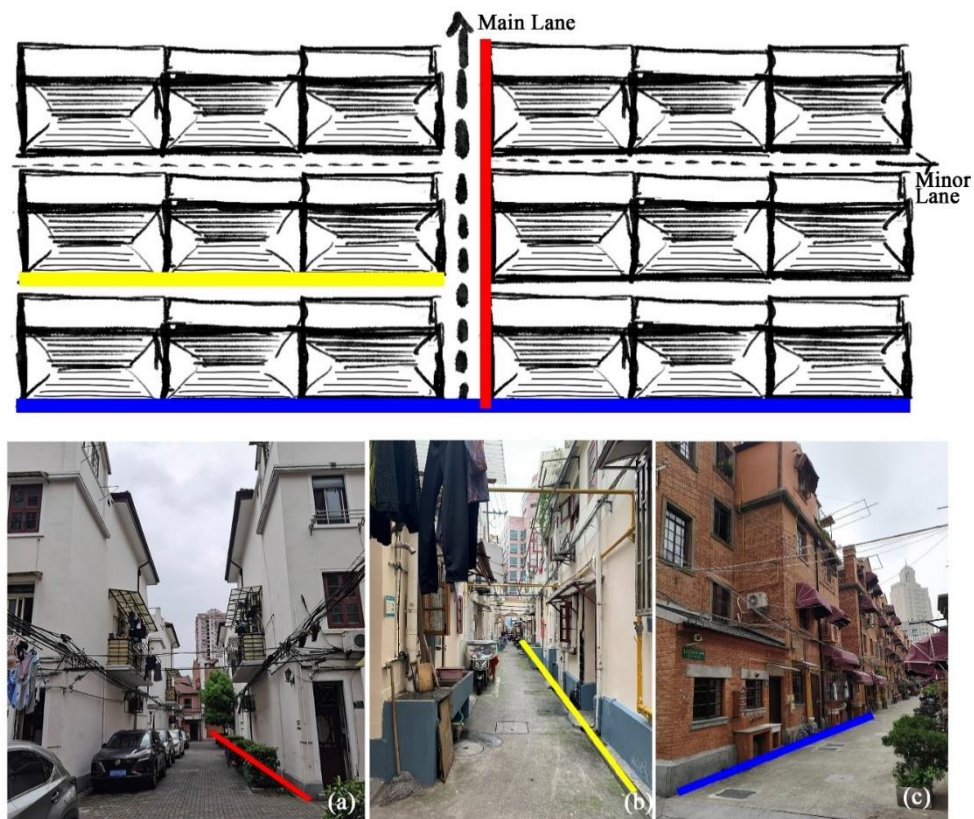


Figure 17: Paths and edges: (a) Main lane; (b) Minor Lane; (c) Last line of building. Photo by Minyan Zhu

(2) Edges

Edges were also defined as linear elements, which has the characteristic of a continuous object cutting off two phases. In lilong, the most remarkable edges are the buildings aside the main lane. The main lane has the role of cutting the neighborhood into several main clusters of the units, usually impeded by the solid gable wall (see Figure 17-a). The pieces partitioned by the main lane are further cut by the minor lane, and the back of the building facing the minor lane could be defined as the secondary edge of lilong. Different to the edges along the main lane, the edges along the minor lane are relatively blurry, with the extruded space containing the wash basin and the bike lane, and also the setback for the entrance area (see Figure 17-b). The third type of edge has emerged as per the modern ages, with higher elevations facing a large open area. As revolution took place, some living behaviors changed, which also affected the sociability of the space. For example, residents in the traditional lilong were used to hanging out the cloths outside, between the buildings, but the boundary is much cleared in the new-style lilong; one as the facility of the extruded construction on the facade of the building to hanging clothes without coming to the ground floor.

(3) Nodes

Nodes gain their importance from being the condensation of some use or physical character (Lynch 1984, 47). In lilong, nodes could be defined as primary junctions of the lanes, especially those between two lanes in different hierarchies, as they are usually the conversion point between the public space and the semi-public space. Besides, on the space in a straightforward type lilong, the place equipped with the physical character can gain its importance by attracting people for commuting, such as the sharing a washbasin along the minor lane or public chairs on the main lane. However, some spots in lilong do not have a fixed character but they still play their roles as

nodes. For example, people get together for board games (specifically called ‘Majiang’ in Chinese, a local game in the country) every afternoon, children play in the narrow alleys every day after school, and households hang the wet clothes between on the alleys every morning; these local behaviors happen regularly, to form a long-lasting memory, which in turn embodies the spot as a node in the neighborhood. The last kind of node is the spot which serves as a fundamental infrastructure for residents’ daily requirement, i.e., the notice board, parking zone, and the garbage chamber.

Shanghai lilong, as a specific culture entity, was not able to indicate its significance when the society could not provide such preconditions incorporated with the social activities in the neighborhood. In other words, the nodes in Shanghai lilong were mostly identified by the residents themselves, by enriching the physical structure with a strong interpersonal relationship in the community. However, the society environment started to threaten lilong’s culture, as the last 50 years have pushed Shanghai to become a megacity; this makes the environment much competitive in the city. Everyone in this global city was like a component of a big machine; they walked faster, and the social areas started to move from the neighborhood to urbanized locations, as living within the community could not satisfy the social and entertainment needs anymore. The traditional activities were fading, and as a result, traditional lilong was losing some of its ‘nodes’ through time to the lilong built in the new style.



Figure 18: Nodes: (a) Wooden bench along one side of the alley; (b) Notice board under the arcade at the entrance of the neighborhood; (c) An old man reading the book at his gate; (d) Garbage collection station of the neighborhood. Photo by Jiaqi Lu

3.3 Space Relations and Activities

Preview of this section

The previous section utilized Lynch's methodology to establish the lilong neighborhood's morphology and elaborated how individual components have posed their importance in building a community that is specific to Shanghai. This section will analyze these individual components' interaction with the assistance of the theory of space syntax. Similar to Lynch's approach to mapping the city's image by five elements in the city, the space syntax also targets at explaining the city's complexity, by identifying elements in the city by convex, axial, and segment. But the point is to convert the multiple relations to a space system that could be analyzed in a syntactic way (Hillier 1989). The software DepthMapX was developed by Alasdair Turner (Turner 2001; Turner 2004) to achieve this analysis once space is remapped by convex, axial, or segment. This section will firstly go through the changes on the general layout of the neighborhood in the five types mentioned in section 2.2, and then utilize space syntax as a tool to help visualize how space is physically interrelated and to further explore the function and the feature behind the changes from non-physical perspectives.

Study case

The choice of the cases is essential, which should be typical and analyzable to represent each category of the lilong type. The research group first visited the sites given in the book *Shanghai Lilong Housing* published in 1993, including 42 lilong neighborhoods (see Figure 19). After going through these cases, five specific sites were picked to go in-depth to explore the changes in the space structure and examine how these spaces are utilized through time (Table 1, Figure 20). The selected sites were all in residential use, whose layout represented the morphology of its category.

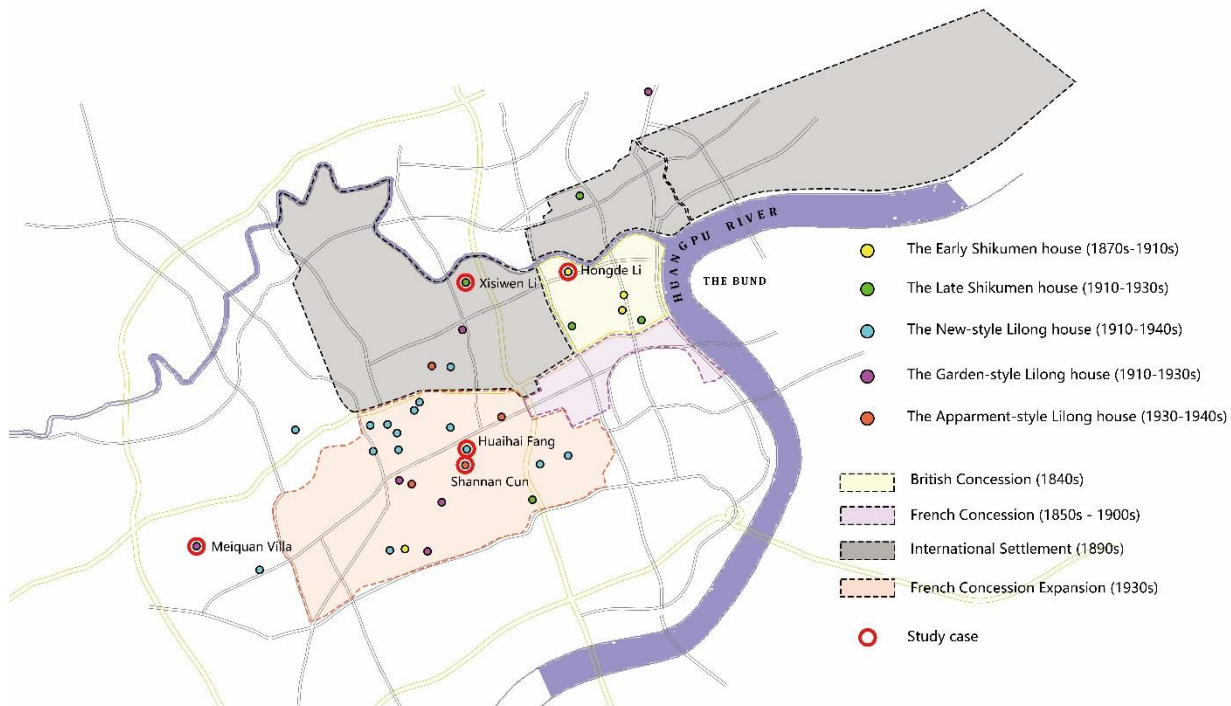


Figure 19: Investigation map and the location of the case study

Table 1 Basic Information on the five study cases, data source: book, *Shanghai Lilong Housing* and Shen, 1993

Neighborhood name (study case)	Year	Neighborhood type	Area (hectare)	Story	Building Unit	Density (unit/hectare)
Hongde Li (HDL)	1904	Early Shikumen	0.48	1-2	50	104.2
Xisiwen Li (XSWL)	1914	Late Shikumen	1.8	2	200	111.1
Huaihai Fang (HHF)	1924	New-style Lilong	1.73	2-3	180	104.0

Meiquan Villa (MQV)	1956	Garden-style Lilong	1.25	2	20	16.0
Shannan Fang (SNF)	1940	Apartment-style Lilong	1.62	4	16	3.7

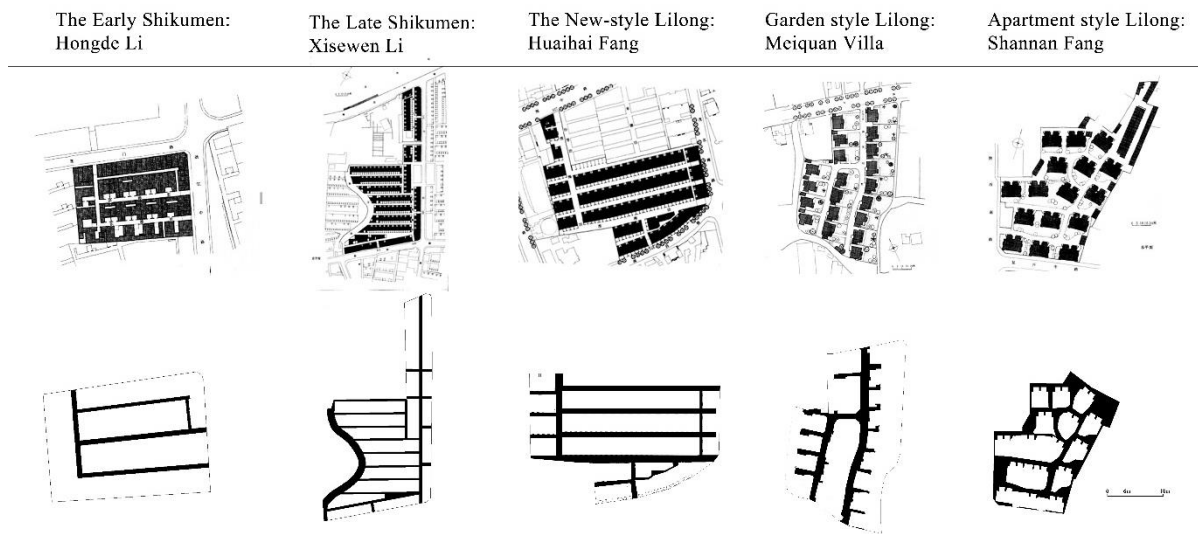


Figure 20: Neighborhood layout in different types of lilong: Line 1: Five typical study cases chosen from the book *Shanghai Lilong Neighborhood* (Shen, 1993); Line 2: open space/main circulation attracted from the plane

The formation and transformation of the community layout

The early Shikumen housing is the rudiment in terms of the housing type in Shanghai. However, the community design was not very concerned about the planning issues and standards, as early Shikumen housing was marked as an economic low-rise building type that could be duplicated in large amounts with the same materials and styles. The neighborhood scale is small, and the units were distributed in a dense and disordered way. So, the circulation, especially the individual unit's access alleys, was not explicit in a hierarchy and too narrow to ensure the neighborhood planning's essential requirements, i.e., the accessibility to clean water. With the rapid expansion of the concession settlement, old Shikumen issues became even more serious, such as the safety, the infrastructure, and the living qualities such as illumination and ventilation. Hence, the late Shikumen house emerged in the 1910s. Late Shikumen started to emphasize on proper planning in advance, in terms of the micro-scale and the circulation structure.

The traditional lilong house structure (refer to the Shikumen house and most of the new-style lilong) is the so-called fish-bone, which is commonly classified in the sequence of ‘City street – Main lane – Minor lane – Courtyard – Unit/House’ (Fan 2004; Zhao 2004). The space within lilong is guided by this structure with a clear hierarchy relationship, which in turn, is divided into ‘Private space – Semi-Public space – Public space,’ as shown in Figure 21. This type of structure indicates a vital function of the circulation. The alleys are almost straight, which increases the accessibility of the unit but, at the same time, lacks the diversity of the place in the neighborhood. However, the fact is that the traditional lilong in the 20th century is well known for its alley life. The alleys contain a large part of the city’s memory, which was recorded by litterateurs (Wang Anyi, Shen Zhanzeng, Feng zikai) who lived in lilong. The cartoon in Figure 22-a shows the activities in the mid-twentieth century. These activities were repeated every day by the same group of peddlers and the same group of customers living together in the neighborhood. Therefore, the alleys in lilong are not simply the pathway as the primary function but also used for necessary activities (Gehl 2011).

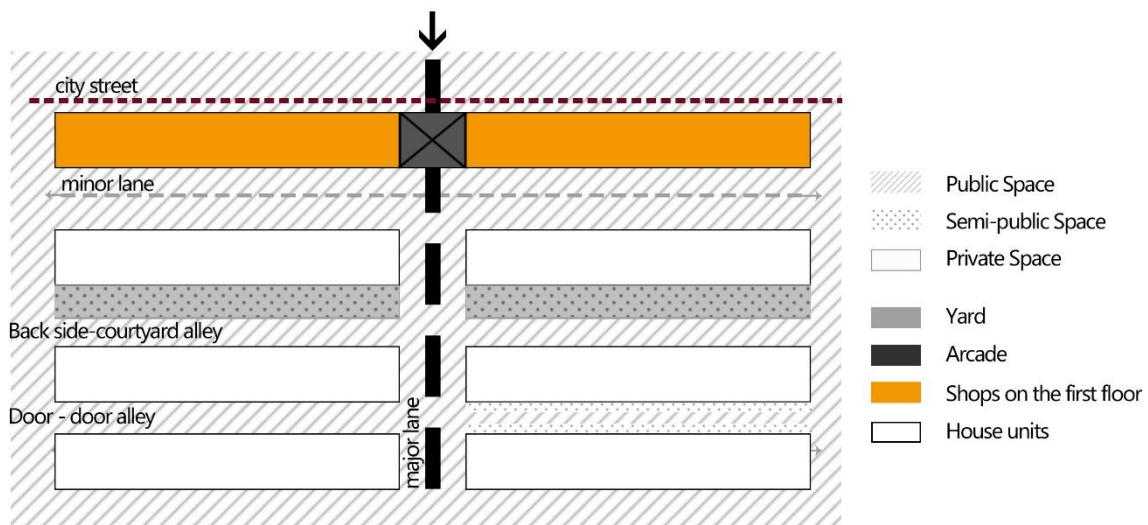


Figure 21: Morphology of traditional lilong structure, diagram by author

The rich social activities in lilong should primarily be attributed to the stable living style and the self-sustaining environment within a small city's scope. However, the physical structure also contributes a lot to these activities and establishes a tight connection among the dwellers. One feature is that the alleyways, as the public space, are usually between two semi-open space zones. In this way, the dwellers had more opportunities to talk once they got rid of the private zone. The second feature is the scale of the alley. The minor alleys in the traditional lilong ranged from 3 to 6 meters wide and were mostly below 4 meters. According to Edward Twitchell Hall's (1966) theory, "Interpersonal distance, the distance between two buildings can be identified as the social distance (1.2 to 3.7 meters) as people perform in a formal and comfortable interpersonal relationship talking to each other." The alleys in lilong are like containers, which set the people within this social-friendly scale once they have a chance to be exposed to the public space. In the long run, the dwellers became so familiar with each other that they could form a solid relationship in the neighborhood and start developing a regular schedule for their daily social activities in the community. The dwellers got together spontaneously with card games every afternoon, and trade activities happened at the nodes of two alleys during commuter time every day (Figure 22-b).



Figure 22: Activities in public space in lilong: (a) Four sketches by Feng Zikai of Shanghai's alley life showing the activities among the sellers and the customers in alleys during the 1930s. Source: Chunlan Zhao, 2004, originally from Fengzi Kai Wenji; (b) people gathered near their gate doors for card game and selling the vegetables which was self-cultured, in 2010s. Source: Wenlei, Shanghai Shikumen, 2012; (c) the public space was intentionally planned with the fitness devices and the public charging in 2020d. Photo by Minyan Zhu

The neighborhood structure known as the ‘fish-bone’ was adapted in the new-style lilong. However, coming to the modernization period in the 1940s, this neighborhood could not satisfy the residents’ pursuit of quality. As a result, the former semi-public space equipped with the shared washbasin and the cooking bench vanished after the evolution of the new-style lilong. Instead, the semi-open space, which was usually at the edge of the building, was replaced by the public green belt or the garden privately used by one family. This is mainly because of the vertical development, as mentioned before. Along with the dramatic decrease of the building density, the common space between buildings became more extensive in the later lilong community (see Figure 25). Figure 22-c shows the large scale of the open space instead of the linear alley in the traditional lilong. The activities in this area are not spontaneously generated by the residents as in traditional alleys. The fitting device and the chair were equipped as a function to promote the connection between dwellers.

Connectivity between the private and public structure

Various community layouts reflects the different qualities of the common space. As the clarification of the five evolution stages in the last section, three typical types of structure were inputted in the DepthMap to examine the open space’s visibility intensity. The findings reflected

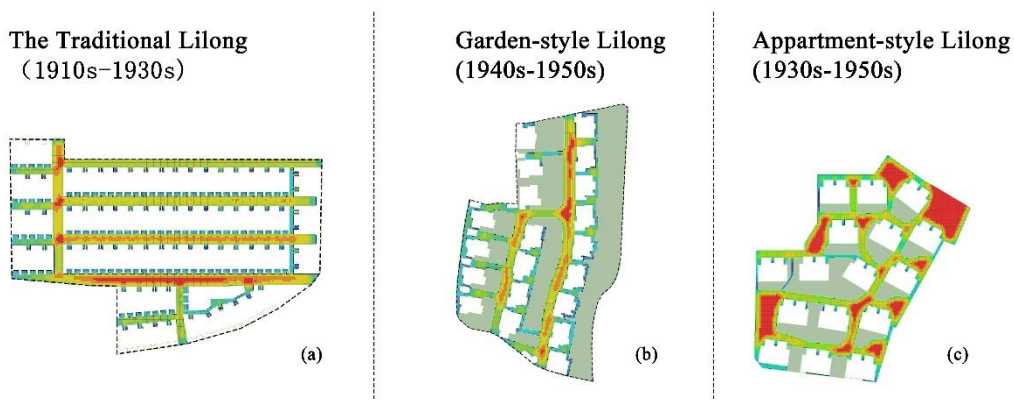


Figure 23: Visibility map exported through DepthMap software, showing the how space visially connected in terms of the layout of the public space

by the comparison are as follows: (1) the junction nodes, as the most visible area, act as safety guards, before entering the secondary lane oriented to the individual unit. (2) The site in a straightforward layout has visibility area in a more continuous way, which, to some extent, goes against the safety function. Under this point, the apartment-style and garden-style lilong have a clear separation between private space and public space.

The convex map and the topology remapping following the space syntax methodology are applied to understand the space interrelations in lilong. The space in lilong is assigned into three categories: open space (courtyard, dooryard, backyard), private space (bedroom, guest room, study room), and transition space (staircase, the aisle in the unit). The space's depth could

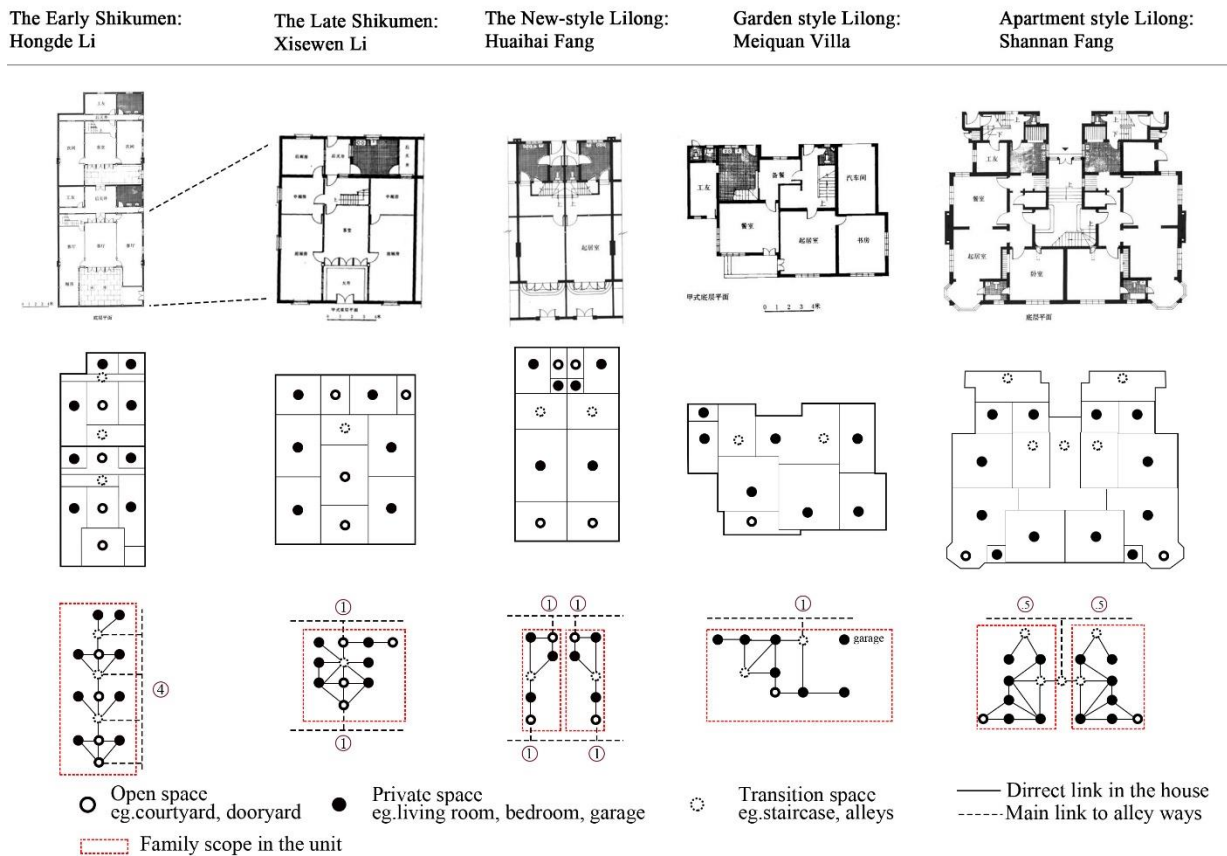


Figure 24: Spatial connectivity within the unit, diagram based on the concept of space syntax: Line 1: Ground layout of one individual unit, image from the book (Shen, 1993); Line 2: Convex map is converted from unit plane, each space is defined according to three categories; Line 3: Define the link or unlink relationship for each space with each other and with the open street to see the depth of the space on the first floor.

be visualized through the topology map in Figure 24, line three). The depth could be understood as the cost people would spend from point A to point B. People's movement between spaces does not necessarily follow the shortest distance but the path with the least cost corresponding to the dynamic environment. As in the small scale of the neighborhood, the atmosphere is dynamic in terms of social and physical aspects. To decrease the access cost (depth), the physical arrangement is adjusted to better correspond to the life requirements. Reflected from Shanghai's traditional neighborhood, the topology method helps explain how the social structure was changed through the alterations of space relations spanning over one century.

Firstly, there is a significant transfer from the family-centered living style reflected by this topology. The open space in modern-trend lilong, especially the courtyard, is deeper than the traditional one. This means the yard is less functional than the union space, being less accessible than traditional lilong. The considered threats involve not only the vertical development but also the reduction of family size. Secondly, the topology indicates more robust connectivity between the transition space (staircase, corridors, and alleys). In the traditional lilong, the alley space was directly linked with the courtyard, before entering the private space. However, the space layout in modern-trend neighborhoods indicates a vital function of accessibility, which weakens the dialogical relationships with the alley space and the neighborhood context.

CHAPTER 4

TENDENCY AS CHANGES

The previous chapter represents the changes of the Shanghai lilong over its one-century revolution. This chapter will firstly conclude the evolution tendency from a physical perspective, based on which the social changes behind those physical changes will be discussed to further rethink the future potential for lilong under the modern context.

4.1 Trend on Physical Perspective

Chapter 3 implemented the case study on the five types of lilong housing from 1860s to 1960s. However, the evolution during this one-century period is a progressive process, which does not have a clear boundary for each of those classification. Based on the timeline of the concession growth, incorporating the case studies on the 43 lilong sites, three types of morphologies of lilong housing are concluded, as shown in Figure 25: (1) the very traditional lilong (includes early Shikumen and late Shikumen); (2) the new-style; (3) the modern-trend lilong (include the garden-style and apartment-style lilong). The evolution trend of the lilong housing is concluded as follows:

Horizontal and vertical development:

A formal rudiment of lilong was generated (first stage as shown in Figure 25) in the late 19th century and was commonly known as a ‘fish-bone’ structure (Figure 21). This kind of structure performs a well-organized distribution of the densely attached units in the neighborhood. To satisfy the increase of the accommodation demand during the expansion of the foreign concession, the lilong units started to undergo their vertical development. Due to the technique and economic limitation in the 20th century, the height of a lilong building was not

constructed over six stories during that time. Apart from that, the scale of the neighborhood was representing a gradual increase at the same time. According to the cases recorded in the book by Shen, the average area was almost tripled during this evolution period. More specifically, as the

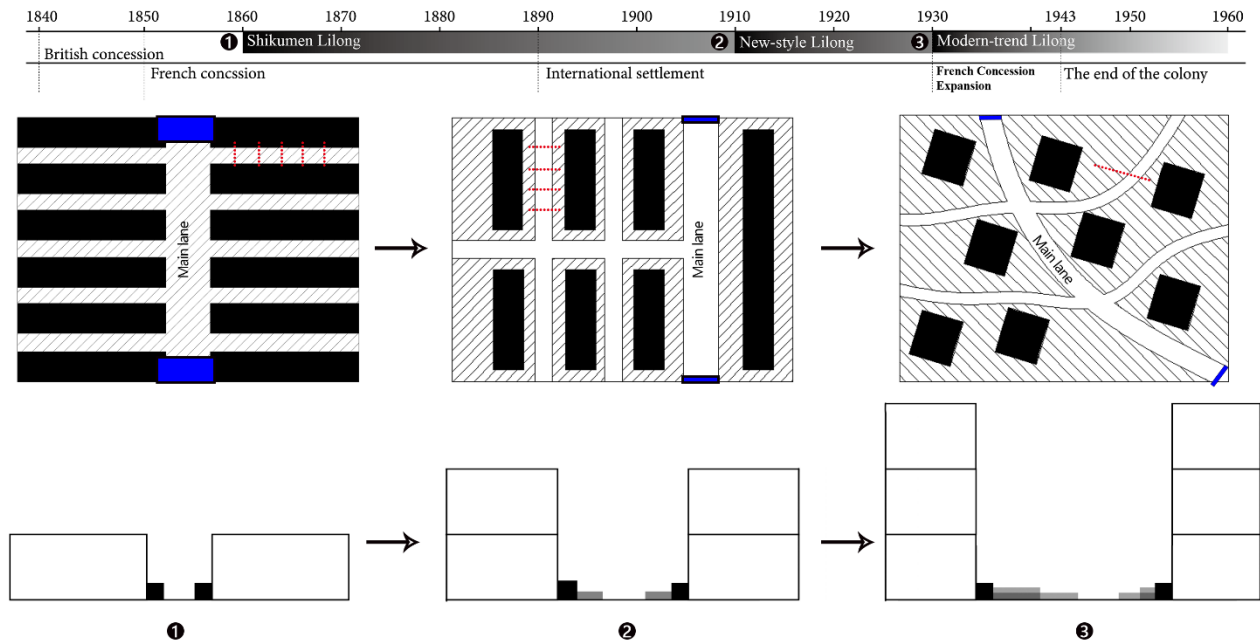


Figure 25: Transformation from the traditional style to the modern-trend style, diagram by author.

study cases are shown in Figure 20, Hongde Li, built in 1907, has only 20 units in 0.43 acres.

Most of the early Shikumen are under one hectare. From the late Shikumen to the new-style lilong, neighborhood scale was greatly increased. The expansion of these low-rise houses quickly occupied the center of Shanghai with organic growth patterns. However, the new-style lilong was developed with more flexibility. During its evolution from the 1910s to 1940s, the scale in terms of the unit amount within one neighborhood ranged from eleven (Xiaoyi Cun) to nearly two hundred units (Jinan Villa).

Unit layout and the circulation of the neighborhood

As time passed, the number of the attached units decreased until the detached distribution in the last stage of the revolution. There were around 30 units attached continuously in Huaihai Fang (which was built in 1924) along one alley. As the emergence of the garden-style, the units were distributed as several clusters, with less than ten units attached (the second evolution stage in Figure 25). The circulation of the neighborhood is representing a less hierarchical trend. The essence of the traditional lilong housing is a strong hierarchy of alleys. The main alley provided a strong sense of public space where social activities happened frequently. However, once into the minor alley, the space represented less public area, but this is where the necessary activities frequently occurred, for example, washing vegetables, cooking, and hanging out the wet cloths. However, the circulation of people decreased. This is also the trend of the modern community because of the staggered arrangement of the high-rise buildings. This kind of layout created more sight blocks than the former stages, which in turn increased the safety of the neighborhood but, at the same time, decreased the visibility and the opportunity for social activities.

Boundary

Boundary plays an essential role in ensuring the security of the neighborhood. The boundary of the traditional lilong is featured as a close attachment to the street along with the arcades at the main entrance as the transfer space between the city and the neighborhood. Comparatively, the boundary of the new-style lilong and the modern-trend lilong is no longer composed of the building construction itself but the extra fence accompanied with the green cover, which is usually equipped with the extra guard room. These transformations of the boundary reflect the different ways of protecting the community. In the traditional lilong, the security of the community is established upon the acquaintance of the neighbors and strong interpersonal

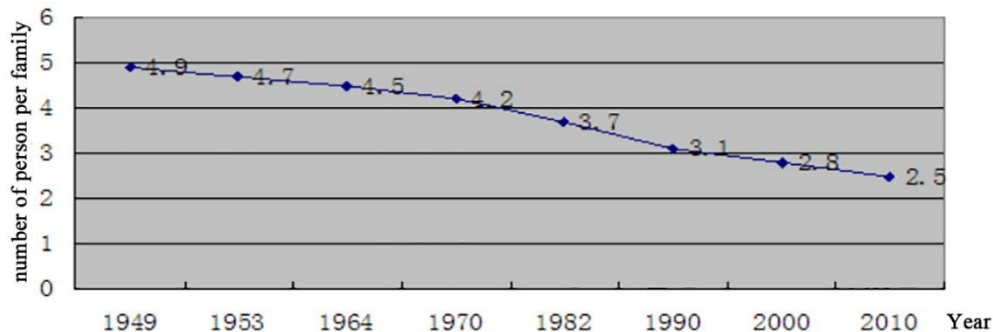
reactions resulted from the frequent mobility at the retails along the boundary. While in the latter lilong morphology, the construction of the boundary reinforces the sense of separation between the urban context and the neighborhood.

4.2 Trend on Social Perspective

Beyond the physical perspectives, the living style in lilong also changed significantly through the one-century development. One of the most primary changes is the commuting mode; an increase of the private car rather than cycling and public transit would widen the alleyways imperceptibly. On the other hand, the gradually widened alleyways with cars going through may discourage the dwellers' communion intentions, which would, in turn, result in weaker connectivity within the neighborhood.

The effect of the change on the unit structure is the gradual breakdown of the family size from more than two generations into smaller ones. According to the result of the 6th national population census in China (Shanghai Municipal Bureau of Statistics 2011), the family scale was undergoing a continuous reduction since the founding of the People's Republic of China, reducing from 4.9 people per family to 2.5 people in Shanghai (Table 2). This is the result of multiple aspects from society, economics, and culture. One of the most influential factors is the improvement of the living environment and promotion of the living quality in modern Shanghai.

Table 2 Changes of the family size from 1949-2010. Diagram from Shanghai Municipal Bureau of Statistics, URL: tjj.sh.gov.cn.



Gentrification is another essential process which causes the changes beyond the physical perspective, such as the population structure and land value. Lilong housing was born in the center of Shanghai and was able to avoid the homogenization with the unceasing flow of the diverse elements. It is indeed because of its advantageous location and its hybrid culture; the gentrification¹² of Shanghai is so conspicuous that it changes the living style in the lilong neighborhood. In the early 20th century, a large portion of Shanghai lilong was a luxury neighborhood, with many famous people living in it: politicians (including Mao, the founder of the People's Republic China), litterateurs (for example, Hsu Chih-mo), and painters. However, in the 1960s, most of the lilong became a residential area for ordinary people, and the gentrification started to affect the shops along the edges of lilong, which created many employment opportunities. Under this situation, lilong was again thrived by outside investors and young artists. The most direct influence is the increase in land value. According to the Shanghai yearbook, the land value was more than 27-fold since the emergence of the early Shikumen house in the 1860s. The land value kept increasing in the 20th century, which is one of the main reasons for the vertical development of the late lilong.

¹² The term gentrification is originated by Glass in 1964 which refers to the process of changing the character of a neighborhood by developing new housing and business in it. (Wikipedia: Gentrification)

4.3 Traditional versus Modern

As mentioned in Chapter 2, traditional lilong housing was dominant in Shanghai residential by the 20th century; they were regulated by foreign intruders as colonies but were undergoing a significant decline since the beginning of the 21st century. The modern high-rising buildings, especially during the 1980s, spreading from the Pudong area (East side of Huangpu River located at the top of Figure 26), begun to compete with the traditional lilong housing for the limited land in the central city. While flying over the central city or examining an aerial photograph for comparison, it is not difficult to discern the patterns of the development and how the city started being demonstrated as a hybrid construction. Figure 28 showcases a relative inconsistency between the low-rise and high-rise buildings in Shanghai. Other than the tower buildings, modern urban elements, such as the highway interchange shown in Figure 28-(a), have been added, catering the requirement of the high-pace mobility in this city. This phenomenon, provided by the process of urbanization, is not uncommon in South-east China, which was called ‘urban village’ by

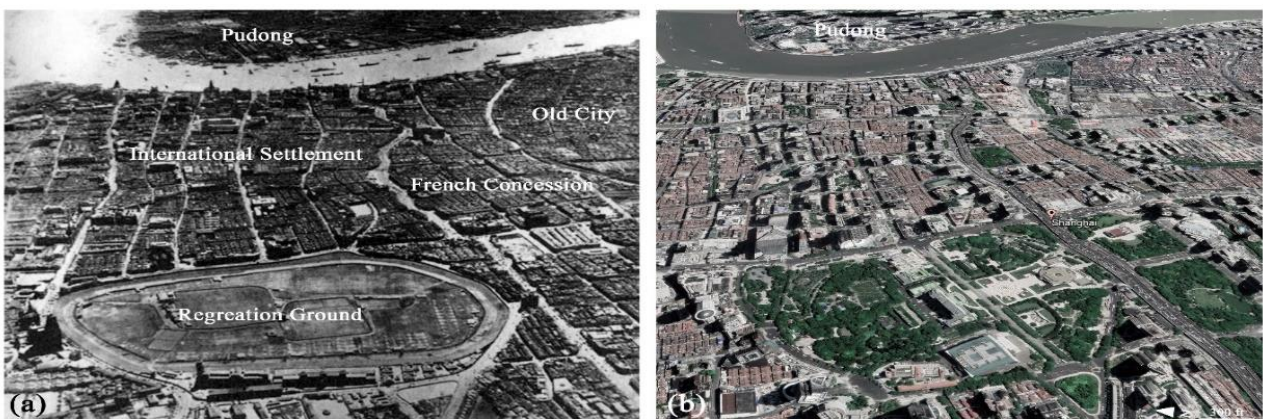


Figure 26: Comparison on the city fabric in central Shanghai, from a bird's eye view towards Pudong area (east side): (a) Shanghai map of 1937, as the central Shanghai was the semicolon developed with large amount of low-rise housing, source: Visual Shanghai Project; (b) Shanghai

sociologists (Gans, Herbert J). The issues related to the urban village are not only about the physical inconsistency but more about the variety of the social structure.



Figure 28: Low-rise traditional housing in modern fabric: (a) aerial photo by Yufan Jiang above Huaihai Fang looking at modern community opposite to the office building; (b) photo by Minyan Zhu in Huaihai Fang looking at the high-rise high office building next to the neighborhood.



Figure 28: The traditional life style and the modern one on the alley way, photo by Minyan Zhu



Figure 29: The elderly in lilong. Photo by Minyan Zhu

The other factor is the phenomenon which was called ‘urban village’ (Gans 1982). Literally, this term refers to the old village in the urban context. In other words, there is unbalanced urbanization and development in the city when looking at the regional plan. Shanghai lilong is one of the most typical examples of ‘urban village’ (Figure 28). An example of this phenomenon is the living structure in Shanghai. The old generations stayed in the old traditional housing, while a large part of the young generation, original from lilong housing, has moved to modern apartments, pursuing a higher quality of life. Another group of the current residents in lilong is the tenants, for the favorable location of lilong housing, which is benefited by public transit. Figure 28 showcases a hybrid of traditional and modern lifestyles in lilong, in terms of the transit modes and hanging clothes between the buildings. This situation has led to an

increase of the empty-nest elderly after the foundation of New China in 1949. By the end of 2008, the total number of empty-nest elderly was as high as 863,800 in Shanghai, a figure comprising 3.5% of the people aged 60 or above (Rui and Steven 2012). Moreover, most of the elderly are living in lilong housing, and they do not want to leave their original house even if the government is willing to offer allowances for their move out (Figure 29).

CHAPTER 5

RETHINKING LILONG IN MODERN COMMUNITY

This Chapter rethinks the value of lilong in terms of the modern neighborhood in Shanghai. Many scholars have studied the future lilong by proposing various redevelopment strategies for lilong (Jie, 2014; Lin, 2014). Several successful redevelopment examples have motivated millions of customers to experience the specific lilong life in Shanghai, such as the Tianzi Fang and Xintiandi (Figure 30). Less research (Arkaraprasertkul, 2009; Lange, 2015) was able to represent the new model for traditional lilong and discuss the possibility of translating the lilong neighborhood into modern neighborhood districts as another method of preserving the living style of lilong. This chapter will reconsider the physical structure of lilong based on theories that promote a sense of community and rethink the translation of the traditional lilong in the contemporary residential district, especially the high-rise apartment clusters.



Figure 30 Redevelopment of the traditional lilong: (a) Tianzi Fang, image source: *A Cultural Jounal*, 2017; (b) Xintiandi, image source: *Shanghai Highlights*

4.1 Related theory on community design

Community is commonly considered as a tangible extent with definite boundaries but also an abstract extent with a group of people living in the same context. Gusfield (1975) identified the term community in terms of two major uses: one refers to the territorial notion, and the other is concerned with the "quality of character of human relationship." In 1976, the theory of sense of community was initially developed and presented later by McMillan and Chavis (1986). This term is used frequently by social scientists to describe patterns of relationships and the quality of life in urban neighborhoods (Doolittle and MacDonald 1978). Sense of Community is an abstract and broad term that is supposed to be assessed through multiple-dimension perspectives. One of the most influential factors is that knowing many people in the local area well enough to drop in for a visit. This type of relationship requires a long-term establishment of the interrelationship among the neighbors.

Except for the analysis from the perspective of sociologists and psychologists, the physical structure of the community is another essential influential factor. Kurokawa Kisho (1995) emphasized the important role of the street in city planning. He argued that the street served as the space for circulation but also provided a utilization function for the residents in the community. His concept of grey space also underlined providing people with a sense of natural and organic wholeness by utilizing the transition space, such as courtyard and corridor. His idea broke the common classification of the space: indoor and outdoor space, private and public space. To think about Lilong, the enclosed wall created a physical boundary between the indoor area and the outdoor area. However, the multi-hierarchy and function of the alleyways eliminated the boundary between the inside and the outside to some extent. At the same time, the

multi-hierarchy of the common space offers the residents the flexibility to find their comfortable distance from the public.

Similarly, Jane Jacobs (1961) encouraged city planners to look out of the windows, look at the people, and look at life before they plan and design. She insisted that people's emotional sense and their life experiences are strongly related to physical space. Moreover, Jan Gehl(2011) provided a clear definition of the social space between buildings based on three types of activities: (1)necessary activities, (2) optional activities, (3) social activities. He argued that these activities strongly depend on the exterior physical conditions, especially the social activities. He also proposed some detailed design principles on physical planning, such as how to determine the distance and how to deal with the boundary between the space. All his principles are proposed according to the analysis of people's daily behavior, such as standing, walking, sitting, etc. It is obvious that physical planning has a strong connection to human behavior; in other words, people's emotional sense is closely related to the physical structure.

The resident is the city's main objective of service, and the activities are one of the most important parameters when measuring the quality of the community life and the physical space as well. The relationship between the neighbors and space has been researched in multiple domains: Multiple sociological principles have been approved to have significant effects on people's behavior in the neighborhood from previous empirical research. Festinger (1950) indicated that friendship in the community is closely affected by the residential distance and the sense of belonging via interviewers and the sociometric techniques in a housing development. The distance here not only refers to the strait-line distance physically, but more importantly, refers to the mental distance between human beings, which is also why the enclosed sharing space with the gates face-to-face is generally considered as creating a strong sense of connection.

4.2 Rethinking lilong in modern residential

Sense of community in the modern context

From the perspective of the importance as the sense of community in the neighborhood, Cecilla (2007) argued that there is no need to assume that the deeper tie or connection in the neighborhood with each other will lead to better relationship among the residents when we separate the strong relationships (the direct relatives, close friends or the work fellows) and the weak ties (daily life along with various neighbors). She indicated that the neighborhood relationship is very important only when we are aware of the weak ties in our daily life. That idea makes a lot of sense in modern society, especially in Shanghai, which has fierce competition among a great amount of population. However, at the same time, we cannot ignore the mental health when of the citizens under such high pressure. And the community as a 'home' within the larger scale is usually a second physical place after the strong ties in the family.

When it comes to the population structure in Shanghai, the heavy migration of the young generations makes the neighborhood very important to their mental health in terms of the need for a strong sense of community. In order to cater to the high demand of accommodating the increasing population, some neighborhoods feature high density within the living space and lack the basic infrastructure for individual units or apartments, such as a restroom and kitchen. Usually, there are one or two shared restrooms on the same story. The environment of the community, such as the layout and the landscape of the community, was not planned under good consideration of the residents' living experience. Instead, the planning of these neighborhoods is highly focused on how to include as many residents as possible and how conveniently they can get access to the urban context.

Translation of the lilong design concept to the contemporary community?

Lilong is the product belonging to a certain social environment, so duplication of its physical features will make little sense in terms of regenerating a strong sense of attachment like the original life in lilong. So, it is essential to understand the in-depth meaning behind the physical structure and material elements in lilong. Once the similar design concept and purpose are understood, then the translation can be implemented. As for the design of the public space in the community, residents can connect with each other in alleys on a daily basis because of the shared elements of the washbasin or the kitchen in lilong. In these high-rise neighborhoods, although they have a chance to talk or know each other which could increase the sense of community (Robert and Donald, 1978), they are not under an outside environment as lilong community could provide, which impede the possibility for a further 'spontaneous activities' as defined by Jan Gehl (2011) since these places are not in good quality, as most of them are internal space and functional oriented. However, the shared elements located at the open space in lilong community can provide more opportunities for 'social activities' as the outside environment could offer the environment more than supply of the hardware infrastructure of their 'necessary activities', but also the flexible factor that offers multiple opportunities for 'social activities', for example the sunshine, the children playing around, or the peddlers' passing. As Jan Gehl (2011) defined, the physical quality of the space for social activities does not have to be salient but should emphasize the opportunities given by the location.

4.3 Design Process

Based on the study of shanghai lilong and the discussion of the applicability to the modern community, this section will propose three design principles abstracted from the lilong and further discuss the opportunities to translate these principles to the contemporary context and combine them as an integration.

Table 3 Metric of the design principals

Feature of the modern community	Assessment of positive and negative aspects	Possibility to transform the design concept to modern community
High-rise building	+ high using rate for more accommodations. - Less connectivity with the other buildings because of the long-distance of the building - Less sense of community since the dwellers could not receive direct contact with people upper or downstairs.	<ul style="list-style-type: none"> • Embed the medium-rise buildings to narrow the distance between the buildings • Enforce the vertical connection of the buildings by using the indented structure on the building façades
The scattered layout of the building	+ Large area of common space between the buildings + Privacy - Without a clear hierarchy for circulation in the community - Does not separate the pedestrian with from the vehicle - A weak connection to the urban context	<ul style="list-style-type: none"> • Apply the attached unit with shops and retail on the first floor at the edge of the neighborhood. • The arcade structure at the entrance • Adjust the unit entrance in a face-to-face direction
Homogenization of the building	+ Easy to manage the neighborhood in the community. - Is losing Shanghai's living spirit as a diverse city	<ul style="list-style-type: none"> • Low, medium, and high-rise building hybridly embedded in the community. • Clear the hierarchy of the circulation

Three design principles:

1. Building distribution

The newly-built neighborhood in modern Shanghai preferred the high-rise buildings in a scattered layout. There is a large area of open space between the building that is cut by the wandering circulation. Therefore, the space is also scattered, which challenges the landscape design in terms of generating sociable space and a sense of community in the neighborhood. In this case, the new model adopts an enclosed layout with varying heights to create a concentrated common space but at the same time ensures adequate accessibility of sunlight. Besides, this conceptual scenario also represents the hybrid distribution with the detached and attached units staggered, which diverse the space between buildings from homogenization. The proposed layout also adapts the arcade which is commonly seen at the main entrance of the traditional

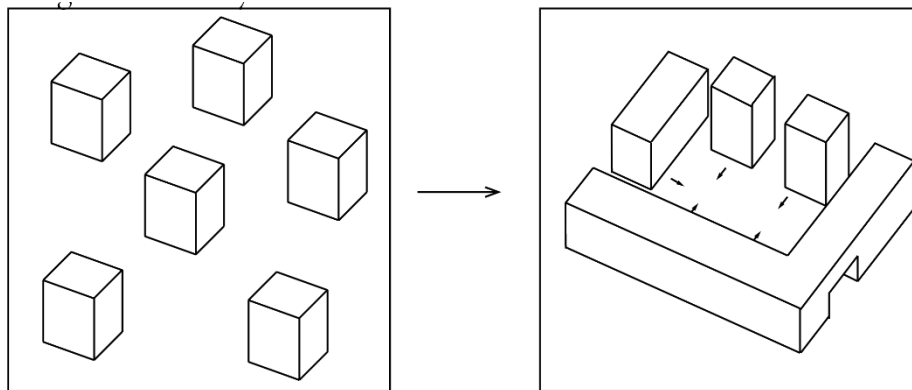


Figure 31 Scenario one: Neighborhood layout. Illustrator by author

lilong to make the transition from the outside urban context more general (see Figure 31).

2. Vertical connection

The high-rise building, to some extent, limits the sense of community because of the limitation of the instant attachment to the other neighbors. It is hard to initiate a conversation when the dwellers on the same story are sitting or standing in their private balconies at the same time. However, in traditional lilong, once they got a chance for the fresh air in the alleys, the relatively short width of the alleys easily build the interpersonal talking. That is why dwellers in the lilong know each other well, which in turn promotes the sense of community in the neighborhood. As in the modern neighborhood, the ties among the neighborhood is not strong enough because the place for talking spontaneously for a long time. In this case, a rethink of the neighborhood in a vertically developed district considers the indented structure to bridge the vertical distance with the opportunity for social conversation. As the establishment and reinforcement of the vertical connection, the amount of the 'eyes on the street' will, in turn, be increased to further ensure the safety of the neighborhood (see Figure 32).

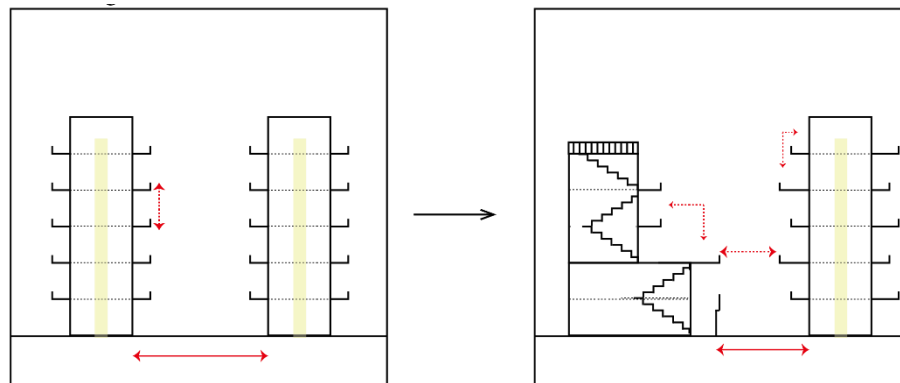


Figure 32 Scenario two: Building section. Illustrator by author

3. Floor plan alternative

The layout inside the unit in the contemporary residential house mostly follows an asymmetrical layout with the elevator and the staircase at the center to meet the most efficient circulation for the residents. The balcony is one of the essential elements for residential buildings. This conceptual scenario aims to strengthen the relationship within the unit by extending the transition space to the common space. This layout still shows the respect of the private space by placing the transition nodes away from the common space as catering to the modern living style for young generations (see Figure 33).

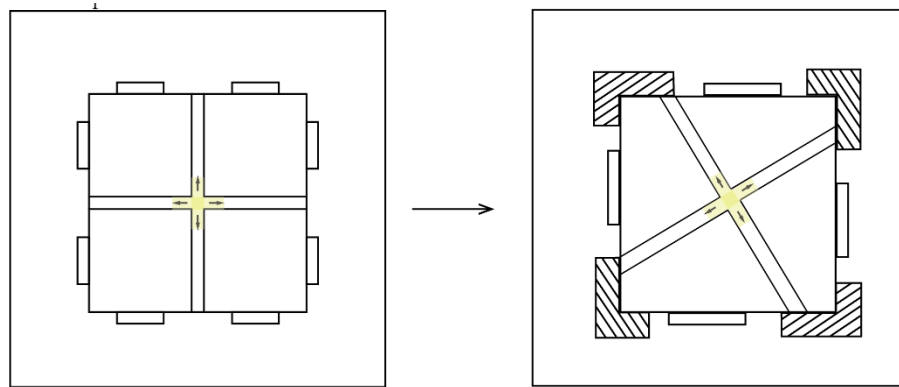


Figure 33 Scenario three: Floor plane. Illustrator by author

Conceptual master plan

This conceptual master plan rethinks the lilong in a contemporary movement in Shanghai. Based on the alternatives from several micro-perspectives, this section will consider alternatives from a macro-perspective and ways of integrating the community design for the future of Shanghai. First, the proposed plan meets both the elders' and the young generations' living requirements. Elders need more social activities to fulfill their casual lives, and the traditional lilong life is a style of life that fits them well. According to the series interview video¹³ on the original residents about their lives, the elders expressed their preferences of living in the old traditional house even though the basic infrastructure is not as good as the modern one. They preserved their original living habits and enjoyed sitting at the gate of the courtyard, reading, and chatting. However, for the young generations, the demand for social space within the community is not significant. That's why there is a high rate of empty-nest elderly in Shanghai. The second purpose of the conceptual proposal is to break the monotonous environment within the community. The sense of community, as mentioned before, emphasized the involvement of the residents. The reason why lilong created a strong sense of community not

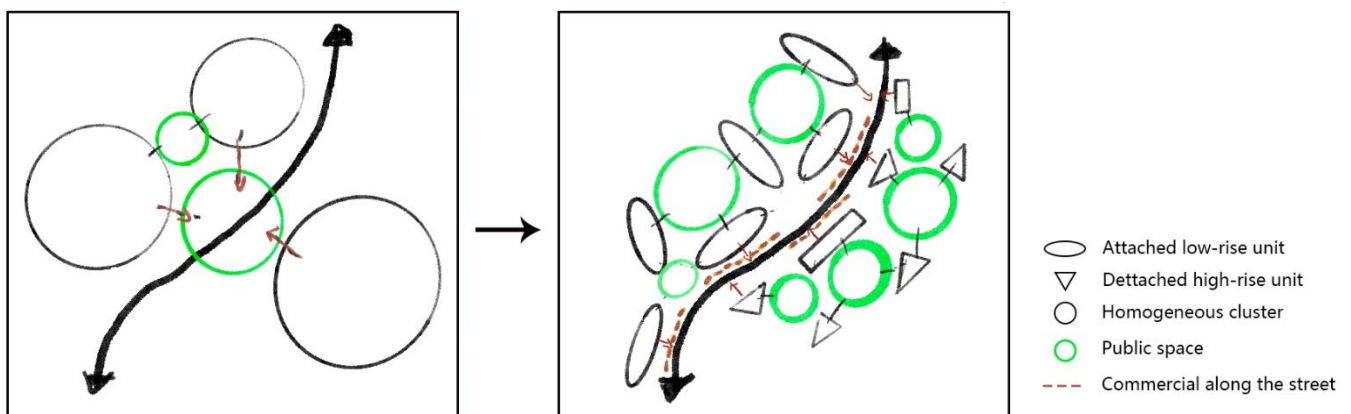


Figure 34 Conceptual design on the future community design integrated the lilong concept. Illustrator by author

¹³ A serious youtube video by Eugene ESP J: <https://www.youtube.com/playlist?list=PLhkNd1cC03CMs7mDRnDD6KNDKUOBZcSSo>

only concerned the physical structure, but their necessary activities from solid relationships among the neighbors. Also, a diversity of people from all walks of life lived together, which also contributed to the diverse living style in the public space. Reflected by Jan's design principal in the book *Life Between Buildings* (2011), Figure 34 showcases how the buildings and the space connected in the neighborhood in my case and Figure 35 represents the conceptual master plane in a virtual site.

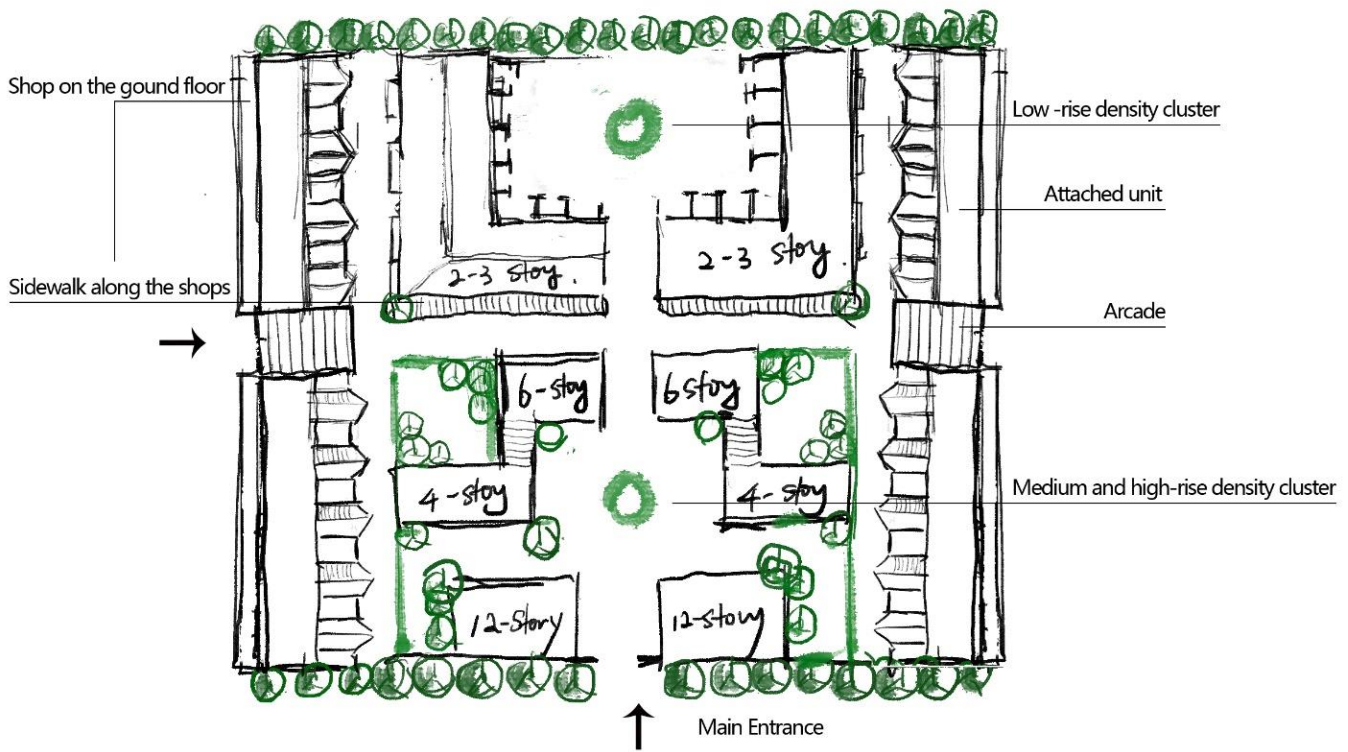
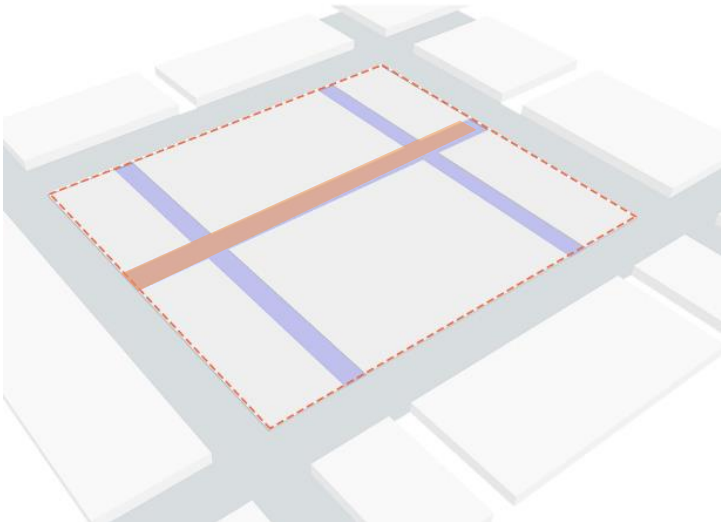



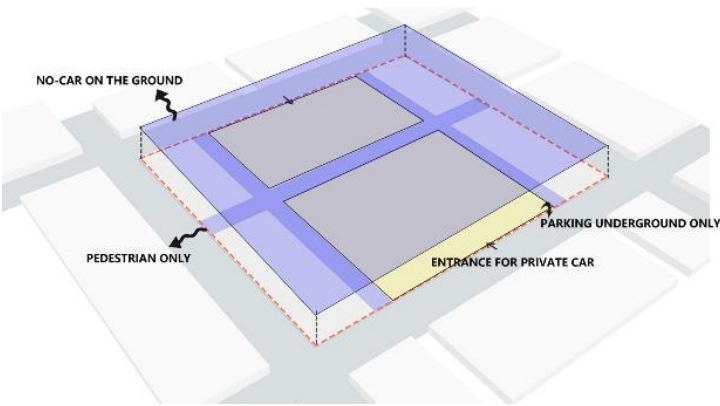
Figure 35 Conceptual master plan of the whole community. Illustrator by author

4.4 Test the Design Proposal

To test the feasibility of this model to be implemented in Shanghai, this section will firstly disassemble the design principles of the conceptual proposal and elaborate on each piece considering the perspectives from both the traditional lilong and the modern communities. After that, a SWOT analysis is conducted to provide an objective and comprehensive assessment of this proposed model.

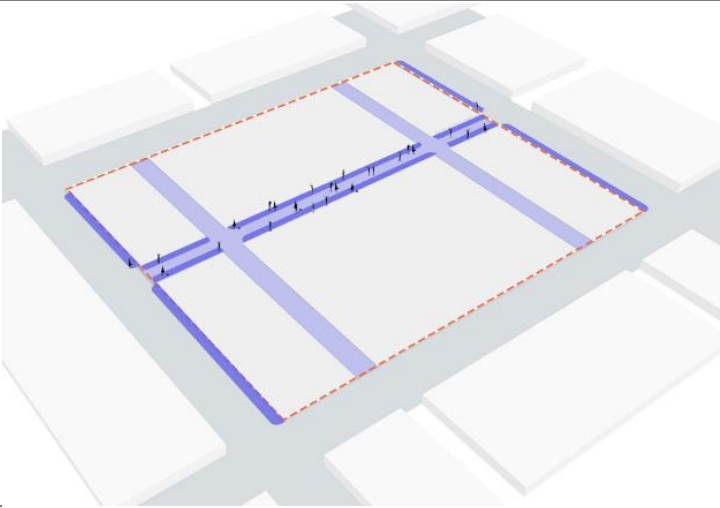
Design Principals

Design Principals	Lilong Concepts & Modern Requirements
	<ul style="list-style-type: none">• A clear hierarchy of the path, one main lane, and several minor lanes across. The layout of the circulation is relatively straightforward in the community• The circulation within the neighborhood should consider the connection with the adjacent community.
	<ul style="list-style-type: none">• Add the low and medium-rise cluster along with a relatively higher construction density• Maintain a larger area for existing high-rises to meet the accommodation demands and the requirement of the city development.



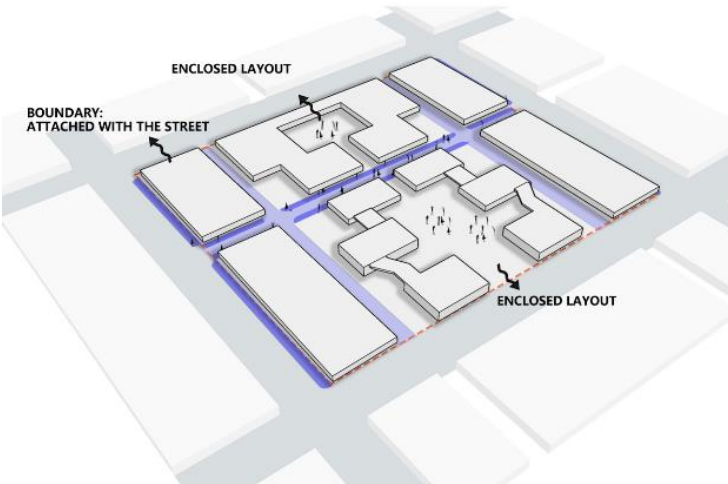
- Inherit the traditional transit mode in lilong. The no-car zone is planned on the surface of the community.
- The pedestrian-only entrance is equipped at the main entrance

- The underground garage and the entrance as well for each of the clusters.



- Create a buffer zone between public space and private space.
- Add the potential commercial elements along the buffer zone/sidewalk.

- Add the pedestrian sidewalk (the buffer zone) along the boundary of the community and the main lane to increase the mobility of the community.



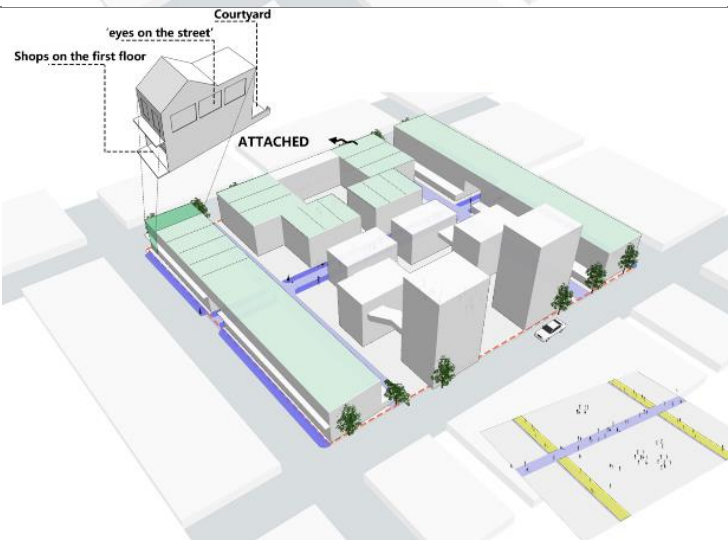
- The enclosed layout for the building creates a concentrated place for social activities.
- The attached unit layout for the boundary.

- Remain the private space at the high-rise cluster to meet the modern living requirement, especially for the young generations



- The arcades at the entrance of the community.

- The hybrid heights for the community design that cater to the living requirements of various dwellers.



- Maintain retail elements on the ground floor, facing the outside street
- Add courtyard facing the minor alleys to reactivate the alley-life that was originated in lilong.

SWOT Analysis

Strengths

This model inherits the physical merits of lilong and has a considerable potential to increase space quality in terms of sociability and connectivity in the community. An efficient transit within the neighborhood increases the opportunities to tighten the relationships between neighbors, which in turn enhances the sense of community in the neighborhood. The hybrid of building height increases the diversity of the space, which will increase the security of the

community as the 'eyes to the street' could be able to be located at multiple locations and elevations. The pedestrian walkway in the middle of the community is beneficial to the creation of social activities.

Weaknesses

The model can not reflect the entire cultural spirit of Shanghai. Although this model can partially bring the traditional living habitat back to the physical space, it is still a brand new community type that embedded the living style of the modern generation. The living style of lilong was generated based on a long-turn history which is not possible to wholly transplanted to a new layout. Besides, the historical architecture is one of the most significant components of Shanghai culture. Once the living is separated from the historical building, the original cultural significance will lose to some point. In this case, the old generations will still not willing to be in this new community model because the memory of the old historical building can not be duplicated.

Opportunities

The social-related issues such as the demolition and the empty-nest elders have the opportunities to be relived with the application of this community model. Demolishment is always a sensitive topic for the old generations, which requires many negotiations between the residents and the government. Many elders did not want to move to a new place, not only because of the emotional factors associated with the old buildings, more importantly,, they are afraid of the loneliness in the high-rises close to the younger acquaintance. After all, there are large gaps between them in terms of living habits and interested topics. However, this model provides opportunities for those old generations to move to a group like themselves in the low-rise clusters. And at the same time, they can still have close contact with their young relatives, which also could relieve the empty-nest issues.

Threats

This model will be threatened by the economic context of Shanghai. More specifically, The implantation of the low-rise clusters is potentially become the luxury private villa according to the current land value and the housing market. This situation is against the initial intention. The expected residents of these low-rise clusters should mostly be the old generations who originated from the lilong housing. Therefore, they should be affordable. However, under the economic context of Shanghai, especially the central area, this model would be highly critiqued because of its less accommodative capability.

CHAPTER 6

CONCLUSION

Result

Shanghai lilong went through several evolutions from 1840s to 1940s, which was the most acceptable residential typology in the 20th century in Shanghai. In this case, the typology and the fabric of Shanghai lilong formed the basic framework of Central Shanghai at that time, which significantly influenced the urban patterns of the development and expansion of the city in the following centuries. Besides, Shanghai lilong also became one of the most typical emblems of a vivid and hybrid living style in the city.

Fortunately, it survived the Sino-Japanese War in 1945 and coexisted with the contemporary residential high-rises. However, Shanghai lilong was facing risks of being largely demolished as the rapid process of urbanization took place in Shanghai. Although considerable attention has been paid to the preservation of the physical heritage, the soft value such as the tight relationship among the neighbors is not that easy to be preserved because of the dynamic environment. Therefore, it is of importance to understand the social logic behind the spatial layout to reactivate the history with new vitality.

This thesis firstly resorts to the interpretive strategy to excavate the features and evolution trends of different types of Shanghai lilong through time. Based on the evolutionary changes in the physical aspects, the merits and deep connotation of the traditional lilong are explored as follows: (1) the common space in the traditional lilong is served as highly sociable because of the attached layout of low-rises, (2) the circulation of the traditional lilong is laid out in a clear hierarchy, leading to the diverse and lively space between buildings, and (3) the

transition space between the public and private area promotes the occurrence of social activities, which in turn improves the sense of the community among neighbors.

After extracting the features from the traditional lilong, the author started to think about the spatial relations and the interrelationship between the physical and social structure. The comparison analysis in two dimensions was implemented to further examine the applicability to translate the traditional lilong fabric to the current situation for a better consideration of the social trend. The first dimension is the different usage of the same space. The second is the micro variations on spatial relations in different types of lilong through time. The results are as follows: (1) the disappearance of the specific activities in the common space along with the less diversity of the population structure in lilong, even at the sociable nodes such as the junction of the two lanes, (2) the clearer separation between the private and public areas without the transition space, catering to the modern living style, (3) the unit scale was decreasing along with the decrease of the family size, and (4) the increase of the building height for the increasing demand of the accommodation.

The comparison in time dimension builds bridges between the tradition and the modern lilong. Combined with the related theory on the sense of community and the use of the public space, four main principles were proposed to rethink the traditional lilong in the modern community: (1) the distribution of building that considers the enclosed layout, (2) the staggered arrangement which aims to promote vertical connectivity and the interconnection between the high-rise buildings, (3) the layout of the floor plan in the unit aims to promote connectivity within the building, which aims to improve the sense of community for the neighbors, and (4) the last principle is about the layout of the whole community. A conceptual master plan is also

proposed to combine the elements abstracted from both the traditional and modern lives, to finally rethink the lilong in the contemporary urban context.

The implication of the future research

This thesis has concluded the basic design concept of Shanghai lilong and analyzes the applicability on the design of a modern community. The purpose is not only to provide the design principals on the future community design but also, more importantly, to reactivate the traditional living style of Shanghai in the real residential environment. However, there are still opportunities to expand and refine this proposal. (1) The systematic investigation on the behavior in lilong space must be conducted in a long-run period. This would be helpful to support the positive or negative aspects of the space structure in practical programming. (2) The research on the landscape design of the community is worthy of being implemented in the design of a modern community. In traditional lilong, the public space is almost generated by the building structure, which is not covered by the well-planned landscape design. However, the situation in the high-rises or the blend of medium-rises is different. The design on the streetscape design combined with the physical lilong structure would be another research opportunity.

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