



**TONGJI UNIVERSITY
COLLEGE OF DESIGN AND
INNOVATION**



POLITECNICO DI MILANO

**Enhance Experience of Siping
“Edible Community” through Service Design**

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ABSTRACT

The process of urbanization in China is intensifying. To a certain extent, the development of the city is sacrificing the interests of peasants, rural areas and agriculture. At the same time, the production is carried out away from the consumers. The industrial food system gradually occupies most areas of China, directly or indirectly bring about the production of transport energy consumption, environmental pollution, social development and other serious environmental and social problems. In view of this, urban agriculture and urban food system began to explore in the policy and urban planning and other macro aspects, and gradually have a lot of theory and practice. In this paper, the author starts from the human-centered design perspective, with the service-oriented design method to explore the urban agriculture and urban food system in the relatively micro level, provide better solution for urban people to build profounder and more comfortable experience on "what to eat, where to eat".

In this paper, through the study of urban food system and edible city, the service-oriented "Edible Community" system is constructed under the environment of urban renewal. Food growing and eating as the main body, the systematic excavation of the possibility of community external space, to promote the residents of social life forms and content diversity, to stimulate the food brought by the additional Value; explore both the physical space, but also contains sociological and cultural sense of the urban community. The system combines the excavation, integration and redesign of the external space in the residential area, builds the urban food system in the community dimension with the methods and tools of service design, enhances the user's food cultivation and enjoyment experience, and creates better in education, pension and leisure of the community relations, and promote community-level eco-economic and social integration.

In this paper, taking the streets of Siping Road in Yangpu District of Shanghai as an example, the paper summarizes the external space in the enclosed area by means of the combination of field investigation and electronic map, and then uses the observation method, the questionnaire survey and the depth interview, research method of the typical users of the "edible community" is extracted. The user needs of different types of users are studied. Then, based on the external space type and user demand of the closed area, the author proposes an "edible community" service system in 363 Fushun Road, Siping Road, and provides design proposals for important contact points such as space construction, visual system design and event design in service system. Prototype testing and feedback reception within the community are conducted.

This paper attempts to study and design the public space of the old residential area in Shanghai by means of service design. It is the construction of the edible community space, which is an extension of the service system design from the product point of view to the spatial realm.

In the finality, the problems requiring further studies are discussed.

Key Words: edible community, food urbanism, community building, user experience, service system design

Background:

- Food issues:

1. Food safety, food desert, food swamp.

The accessibility and safety of food are core to the basic assurance of living of the urban population. As a result of the expansion of urban space and the agriculture industrialization, how to ensure a quick and easy way to get healthy food affordable has become one of the major issues of big cities. "Food desert", no accessibility to or difficult to get fresh food, becomes a more and more severe problem in the metropolis.

Another food issue is "food swamp": modern lifestyle, dominated by the industrialized urban food system: convenience stores, fast food restaurants and heavy flavors, as well as all kinds of excessive added food additives, gradually erode urban people' s health.

In addition, with the gradual development of China's domestic economy and global trading, non-local and even overseas food are becoming more and more popular, affecting what kind of food we can eat in the city, and what kind of diet is there.

On the one hand, especially in a large city such as Shanghai, fast-paced life, living alone, economic burden, living pressure, food prices, fast food culture and so on, have been changing the urban people's dietary habits. 5% of the total Chinese population have obesity, of which 20% living in big cities.

2. Food production.

Various chemical substances not only destroyed the balance of original soil nutrient structure, but also alienated crop varieties, the output must be unhealthy[1].

In addition, urban people, already leaves their role as a natural member, neither one of the participants in the whole urban food system, no longer know the principles of the ecosystem, neither can they use ecological guidelines to build ecological communities. Contemporary people should have ecological literacy, understand and practice the basic principles of protecting ecosystems and sustainable development, and understand how to create a food system with a recycle feedback loop(Figure 1).

Oil, water, land, air and other resources, are in shortage along with rapid development in China. Degradation of natural environment happens in the city, a large number of buildings occupy most of the land, so that low penetration and low water hold-up; a large number of chemical substances also pollute the soil. Urban heat island effect and heavy haze also increasingly threaten urban people' s life quality.

At present, food supply in most cities are distant from where food is produced. With large single planting area across the whole country, a huge complex logistics system transports our food through thousands of kilometers. Food cultivation, processing and packaging are far from where it' s consumed. The process of its

production to our dinner table, keeps unknown to most of the urban people(Figure 2).



Figure 1. Food production under industrialized agriculture



Figure 2. Food system under industrialized agriculture

- Urban renewal and community making in Shanghai.

At the end of the last century, Shanghai, after the transition from a planned economy to a market economy, gradually entered the era of ageing housing and urban renovation. Especially after the 2010 World Expo, when Shanghai's urbanization rate reached 90%, the urban construction focused on the renewal and transformation of old residential areas. The main problems of such old residential areas are as follows:

1. Ageing community infrastructure
This kind of "old residential area" has long been unable to meet the actual living needs, physically and mentally. Community scattered public space and facilities lack management; lack of in-depth thinking of how to organize community public activities and to promote community social networks in public space and facilities planning layout.
2. Aging society
According to the 2010 national census, the proportion of city's resident population of over 65 has reached 11.4%. The impact of aging society has also been gradually highlighted, high competition for resources and the environment has begun and will become a bottleneck restricting social development.
3. Community making and citizen participation
Compared to new residential area, the old residential area, because of its complex, diverse functions, constitute and deep history and culture, the residents have generated a stronger sense of belonging and identity through interactions. With the soaring house prices, changes in property rights, urban social structure has

undergone tremendous changes, the population structure is gradually mixed, neighborhood community functions and organizational forms transform, neighborhood relationship becomes weak and indifferent, and the interdependence between the neighbors is replaced by the socialized interests. The focus of research on neighborhoods has gradually shifted from the external factors to the internal mechanisms of neighborhood. Residents' autonomy promotion to the development, the behavior of residents from the sense of belonging to establish a sense of identity, spiritual needs of the community and the comprehensive and sustainable development of society are highly emphasized. With the development of society, their democratic consciousness and participation in state and social affairs are also increasing(Figure 3).



Figure 3. Community-making event: planting festival in Siping road quarter

The object of this study is the basic characteristics and requirements of the "edible community" and its related space and activity design, design methods and design process. At the same time to Shanghai Siping Road, "edible community" space, information and service design as a specific case.

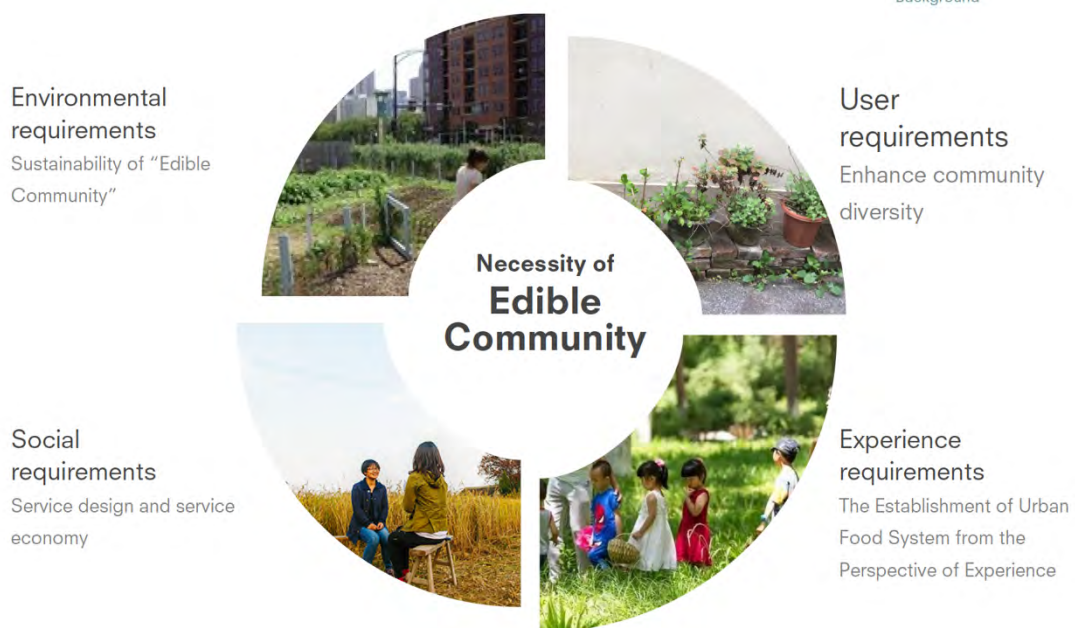


Figure 4. Basic background of edible community

The object of this study is the basic characteristics and requirements of the "edible community" and its related space and activity design, as well as the design methods and design process. Siping Road community, Shanghai, is taken as the site to set prototype to test "edible community" concerning environment, information and service design.

The service-oriented "edible community" can encounter various problems in different urban space as well as in the practical operation, concerning irreconcilable contradictory among population density, economic development and land, which is critical for developing the old residential areas into "edible communities". Therefore, in this article, research and design focus will only be limited to city center, where space quality and urban functions are relatively homogeneous –district inside the city inner ring. The term "Shanghai old residential area" in this article refers to those quarters built in late 1970s, of which the structure, as well as the infrastructure conditions are still livable, while not comfortable nor dynamic enough. Siping Road community is then taken as the typical site (Figure 1.5).

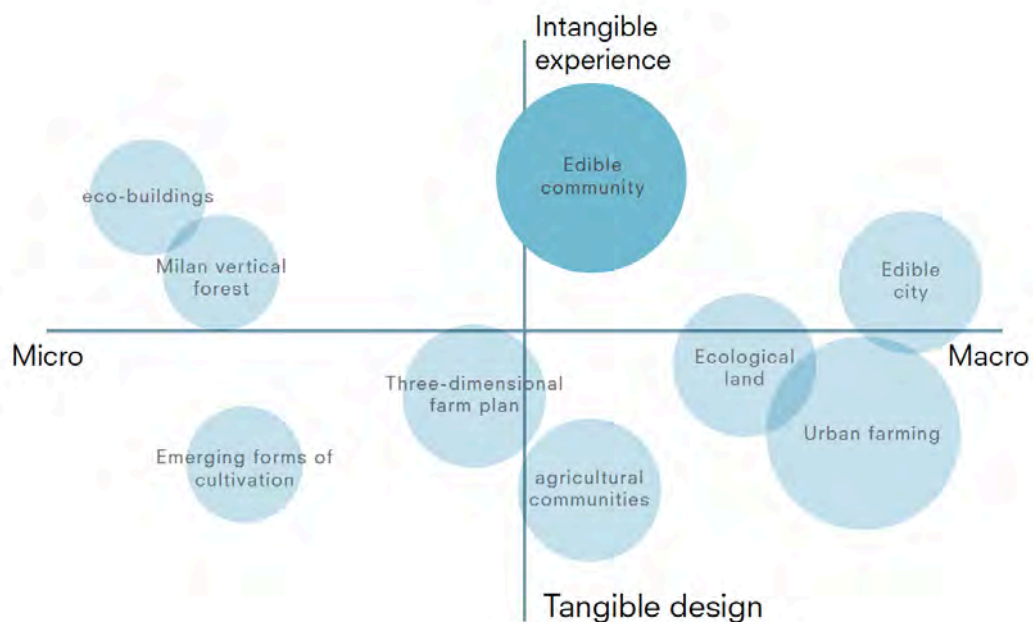


Figure 5. Positioning of edible community

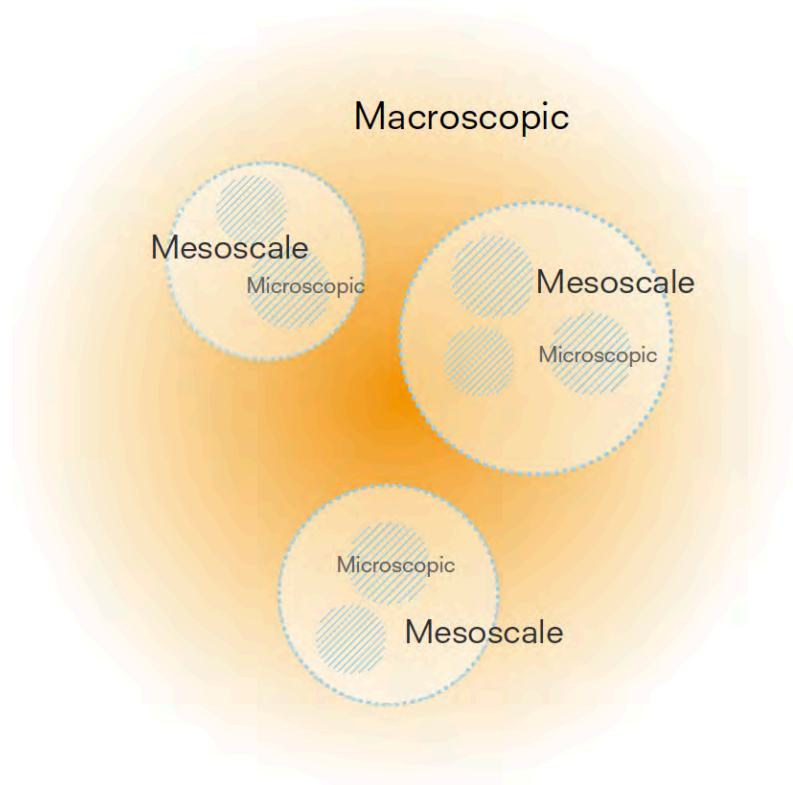


Figure 6. Edible community as a form of meso-scale food system

Theories

- Food urbanism

Since the 20 century, research on the relationship between agriculture and urban-rural areas has become one of the most important themes of urban planning.

Theory milestones:

1. At the end of the 19th century, Ebenezer Howard proposed: urban food cultivation, local production and consumption, advocate the establishment of self-sufficient city, which is still of theoretical and practical value (Figure 2.1).

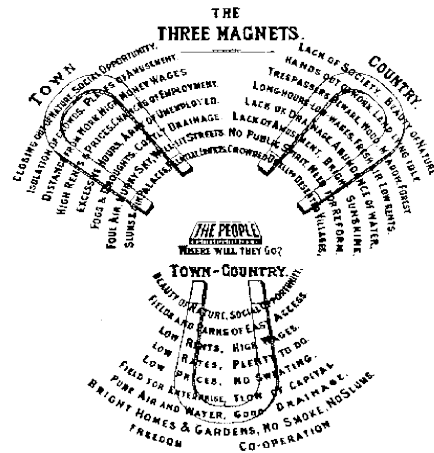


Figure 7. Ebenezer Howard with his "town-country" theory

2. Le Corbusier proposed to promote the self-transformation of the existing cities to adapt to future development needs, to promote the scale of urban concentration. He put forward the term of "agricultural development unit" and "vertical pastoral city", such as increasing the urban vegetation greening and agriculture being imported into city, etc., which was extremely radical at that time. Those concepts provided a substantive model for the current agricultural and urban relations research, as well as urban agriculture forms.

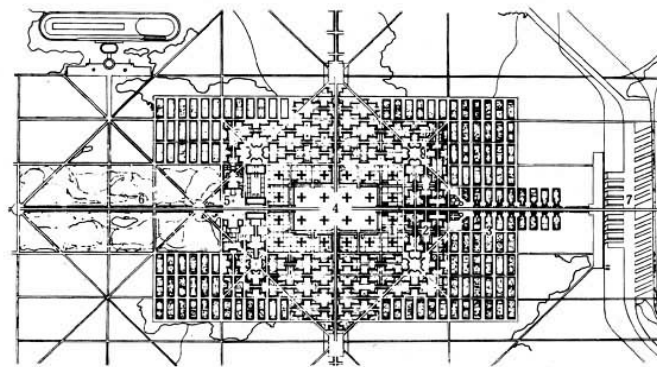


Figure 8. Le Corbusier with his "Tomorrow City"

3. Modern urban and rural communities in Europe and the United States have had many forms of urban farming (Figure 2.3), which is still an important way to improve neighborhoods, provide food, promote cooperation and improve society self-esteem. Germany's public farmland is also a typical form of practice for urban agribusiness, it's also not only for the urban residents to get enough food and nutrition, but also to meet the farming fun, social entertainment, beautify the environment and pension leisure and many other functions.



Figure 9. "Victory Garden" during WWII

In the mid-twentieth century, the rapid development of the world brought about by the environmental social crisis revealed that the focus on the form of urban agriculture and the urban food system became the focus of the new symbiosis of agriculture and the city.

4. In the 1970s, the "Organization and Performance of the American Food System", which was commissioned by the US government, had a great impact on American agricultural economics [8]. In 1987, Richard Regard first proposed the concept of Eco-city; in 2004, H. Girardet proposed to build food, resources and energy "The main reference framework for urban space planning", redesigning the "Human Settlement System" to build material recycling and metabolic cities; in 2005, British architects Weir and Boone proposed "continuous production (CPULs)" strategy, proposed to make full use of urban space through the design, integrated into the city to form a green corridor to produce a considerable part of the fruits and vegetables, and for local and community to create valuable recreational space [1].
5. In 2008, Andreas Duanei and his wife proposed Agricultural Urbanism, try to urban agriculture in the production, processing, transportation, distribution, consumption, waste recycling and other agricultural activities and various sizes The food market, the restaurant, the farmer market and other organizations to the urban space, agriculture-oriented, rethink the urban residents and land, agriculture and residential relations; 2011, food urbanism (Food Urbanism): food system can And should be linked to community vitality, cultural preservation, economic development, social justice, ecological integration and human health. This topic was highlighted at the annual meeting of the International Federation of Landscape Architects (IFLA) [2].
6. Community and citizen dialogues occur with the food and relevant topic. Food production and processing, as a bridge between urban communities and urban fringe areas, township communities, have been reintroduced into the city center.

Practice

1. In recent years, there were a series of local food compaign(Local-food Movement), such as 100 miles Diet, Community Support Agriculture, Buy-local Campaigns, reconstructing a sustainable, self-sufficient local food system.
2. In 2000, Dickson Despommier, a professor at Columbia University in the United

States, proposed a three-dimensional farm program based on the provision of architecture and technology to further expand the concept of urban agriculture and provide a viable approach for future edible cities paradigm. In 2009, Dutch architect P. de Graaf led the "Edible Rotterdam" research project, which integrated three levels: place, technology and society.

3. At the 2015 World Expo in Milan, "Feeding the Planet, Energy for Life": the introduction of urban food and agriculture, the introduction of ecology for the design of the future. In the future, human beings will think more in-depth on their own living environment resources, energy issues, food issues and so on. When we enjoy the social convenience brought about by urban life, we need to think about the future of the city in all directions(Figure 10).



Figure 10. New forms of urban agriculture in 2015 Milan EXPO

China:

1. China has a long history of agriculture, though with the modernization process relative later to Europe and the United States, urban agriculture and urban food system related research of which also lag. In 2004, Cai Yuming, in "From the International Trend of Urban Agriculture into Urban Planning", theoretically put the urban agriculture into urban and rural planning for the first time.
2. Afterwards, the relationship between agriculture and urban area at the community level is becoming more and more important for urban agriculture research. In the "production, life, ecology-city", Zhao Jilong and Liu Changan explored how to solve the urban economic, social and environmental problems of the new eco-community development model with multi-disciplinary methodologies under the rapid urbanization. The significance of urban agriculture to community construction is particularly prominent, the community is the best place to develop urban agriculture.

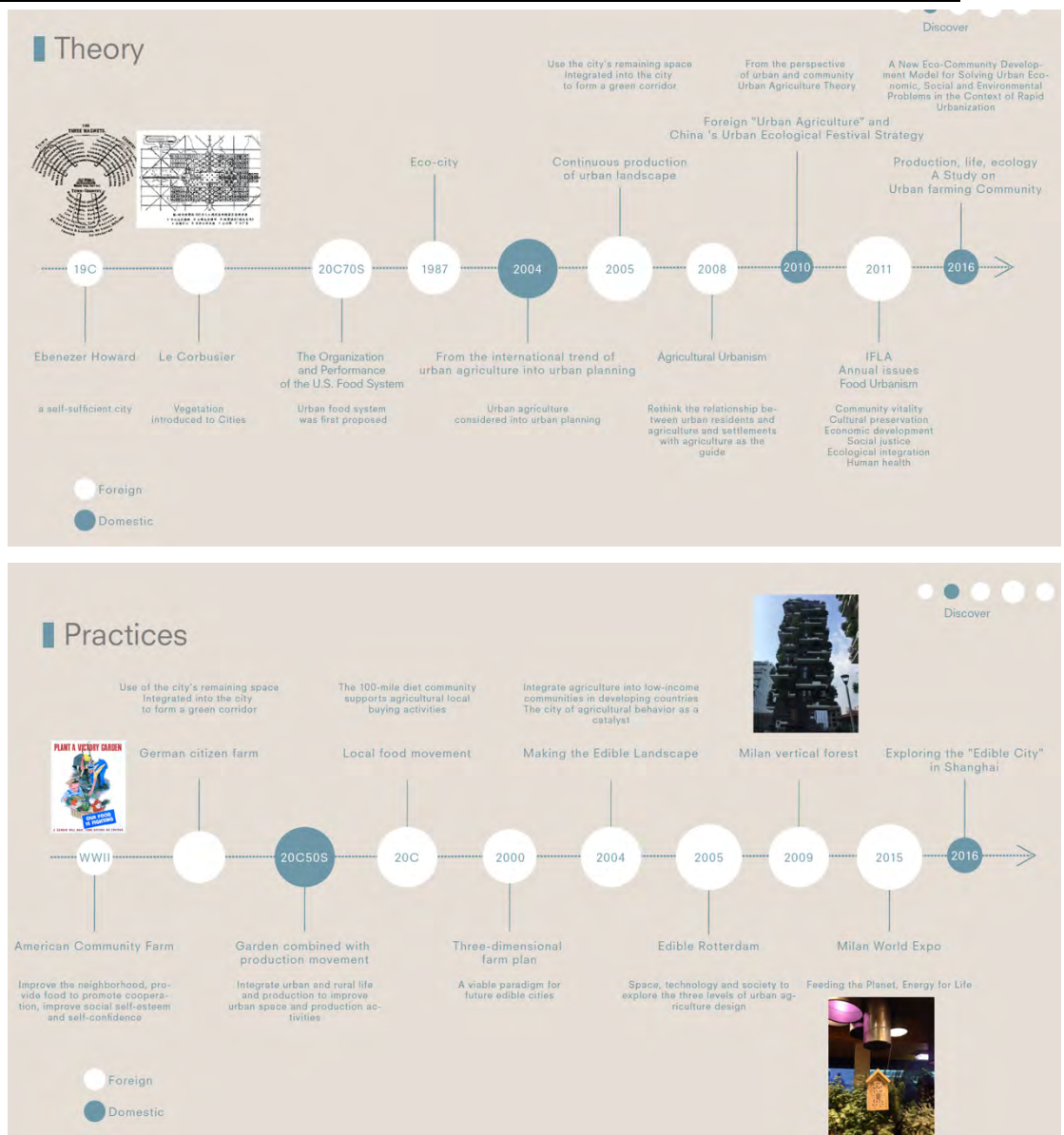


Figure 11. Historical development of agriculture and food system theories and practice

- Community making

Urban renewal:

1. The study of the renewal of the old city gradually improved, subdivided, from emphasis on the whole to the local changes, from physical space to the attention of people. Guidance and planning of public participation has been widely recognized, and gradually reflect the urban construction of people-oriented principle. At the same time, the objective situation of population diversity and the problems of public participation itself are worth exploring further.

Community making:

1. How to recreate the negative and potential public spaces of the community through spatial narratives and place-making is to update the spatial senses of the old communities and the user's public environment experience, and to establish a connection with the user of perceiving the environment. Protection

and return of history, experience, and emotion in the human cognitive space, help people to create sustainable public spaces and to create more cohesive communities.

In the community public space, residents not only need to enjoy the existing space, produce activities, but also need to interact with space and other individuals to form higher engagement and interaction within community.

2. Modern people's active space and identity are private, community and public at the same time. "Community people" are willing to immerse themselves in a free while lonely way, so in a modern metropolis, public life is very poor. One of the goals of community governance and making is to restore the community identity of contemporary people in modern society.

Community governance and residents' autonomy are to construct the channels and space of social interaction through the restoration and reconstruction of human social relations under the premise of following the social principle of human beings. Community life is not in the logic of domination and business logic. It emphasizes mutual help, group help, mutual trust based on the exchanges and order.

3. Community public participation

Expert-led public participation; authorized public participation, experts from the leader into a facilitator or facilitator; collaborative public participation, is to promote the participants in the collective learning process; organizational capacity to build public participation, this type of public participation is seen as a supplement to the granting of public participation, mainly supported by technical support.

- Service system design

Nearly half a century, the service economy in the global context has been developed by leaps and bounds, has become the world's major economic development trends. At present, the proportion of added value in service industry in developed countries is close to or more than 70% of GDP. In recent years, developing countries have also emerged in the service economy, the proportion of service value-added GDP increased from 45% in 1990 to 65% in 2013.

Will be edible community service system marketing and promotion, is its long-term development of the guarantee. In the context of a service economy, the economic model of the edible community will provide equal returns and risks to all service participants, as well as mutual trust, and the service relationship that will be established will support the transformation of the parties. Mutual help, get rid of development dilemma.

Methodologies:

- Human-centered design:

Because the object of this study is to take the design of "edible community" in Siping

Road quarter, concerning space, information and service as an example to explore basic characteristics and requirements of related activities and space design, human-centered service design principle is applied to the design method and design process, along with the manual for design method developed by IDEO (Field Guide to Human-centered Design), as well as the some service design tools, gradually build the conceptual design of the service system[7].

1. Field research and in-depth interview: In the research process, the author mainly applied some sociological research methods: field research, observation, questionnaire survey, individual in-depth interview.

Observation method: *Fly on the wall* is used to analyze the behavior and needs of the participants in the non-participatory field observation method.

Objective: to understand the residents' real behavior in the real situation, not to interfere in their status, to observe and record the behavior on the site, the purpose is to study the different types of space concerning accessibility and practicality of the food service system of the community.

2. Interview: individual and group interview were used to get insights from shallow to deep. To observe the behavior, attitude and emotional evidences during the interview process, and to observe the different performance of interviewees individually or in group, in order to get deeper and accurate information to capture the inner expectations and values of interviewees.

Objective: to further study of how and why different types of residents conduct urban agriculture superficially and in depth, the nature of the excavation and the demanding value, to explore the emotional basis of constructing "edible community" , and to define the typical user as well.

- Collaborative design:

Designers tend to obtain many important information and inspiration from whom they design for. Collaborative design provides more accurate understanding of the object of design services, and an important method for the feedback, profound insights and opportunities. In this paper, the author through the design of the formal invitation, gathered a group of residents from the service of the design community, not just to listen to their voices, but also to encourage them to join the design team, surveying lifestyle and operation of the community, in order to create services. The core of this approach is to allow users not only being recipients of services. They are crucial to the design and delivery of services, not just part of the design of the service, but not simply as a user's self-service in the traditional service model. Users play a more important role in helping to mine requirements, propose solutions, test and implement, and so on.

1. Collaborative design objective: using non-participant observation with observation method *Shadowing*, without disturbing the observation object, followed by the observer as faithfully observed their daily activities, behavior, interaction and hidden value, cognition and demand; gain design insights, explore the design theme.
2. Collaborative design method: use the method of automatically recording the user's Day (*a Day in the Life*), with less manpower, material and time, to explore design

issues related to edible community service system from the user's real daily activities. The residents selected by the shadow observation method were analyzed, and all the actions of the day were recorded according to the designed form[8].

Collaborative design processes include:

1. Topic opener: the designer in the design of collaborative acts as a facilitator, open the topic; through the display of photographs, research base analysis results, and design, expand the topic to inspire participants to share their knowledge and express their views; the participants expressed, to obtain the expected solution.

In the process of topic communication, through simple, superficial and interesting points, the process does not interrupt or correct the incorrect views that the participants may derive from their own understanding.

2. Card Sort and collage:

The card sorting method helps the designer quickly and simply define the user's direction to the design and determine the important determinant in the design. The participants were given a written side of a keyword or a pattern card by the participants according to their own preferences, understanding and standard classification or ranking, obtain the user insight and open dialogue from the deeper level, mining users expect value.

Collage can help designers capture the user's values and modes of thinking. By providing some images cut out of magazines, or objects and scenes in life, participants are asked to choose and synthesize their intended scenes of life, which can be expressed in words or in simple strokes. Finally, listen to the participants' own descriptions of the collage and get design vision and insight.

3. Brainstorming and Role-playing:

In the process of brainstorming, the designer first list oriented one or more groups of keywords or problems, encourage participants to describe their views or related association method from simple text or illustrations, finally collect as much as possible associated insights.

By encouraging participants will assume that managers or service or designer, for a virtual free funding arrangement, conceived the idea made in a given base on the change or vision, to avoid limiting factors to the exclusion of participants for their valuable insight.

4. Co-creation Session:

The designer invited participants to become a member of the design team, with the first three steps involved in the production of collaborative design, concept extraction, drawing design, model in the design process, carried out by the designer to professional guidance, finally get some icons, text or grass as common creative achievements[9].

Prototype:

- Phase I: Environment analyses:

Siping Road quarter, with a total area of 2.64 square kilometers, their 22 neighborhood

committees. Because this block sample area is larger, according to the previous analysis in accordance with the residents' autonomy committees shall the whole block sample is divided into 15 small partitions, each neighborhood is defined as a small sample in the district name of the sample.



Figure 12. Samples in Siping Raod Quarter

With main focus on the form and layout of residential space, the public, making the concept of graphic, respectively set out the external physical space form elements of the community sample with the public.

Through the above analysis of 15 samples, the use of the road, area, nodes, landmarks, the boundary of the city physical space form elements of the organization of all 15 cell samples and its public function are summarized.



Figure 13. Functional distribution



Figure 14

1. Study on community block space

- 1) Public space, that is, public roads between communities, streets, public service facilities, commercial facilities, concentrated green spaces or parks for residents in the streets. Colorful greening, more complete facilities, convenient for residents to communicate with each other, is the ideal place for residents' recreation and communication[10]. This kind of space is mainly planned by the government and maintained and managed. The residents of the community are usually their users, not their co owners.



Figure 15. Public Spce



Figure 16. Population density

- 2) Semi-public space for the public has certain limits or restrictions of space, such as the area within a lane, as a semi-public space of the residential area is the common people for internal use, it is the main place for residents of a variety of spontaneous or social behavior, providing increased contact and mutual aid, familiar with the conditions, the house green more freedom and liberation[12]. This kind of space is usually the center of the community, with high public use and open development value.

For example, the small garden inside the 363 Lane on the way is a space for neighborhood interaction, recreation and rest, and also provides effective space for disaster prevention, evacuation and evacuation.



Figure 17. Semi-public semi-private node and landmark



Figure 18. Semi-public semi-private street network



Figure 19. Semi-public semi-private regional form

- 3) Semi private space is the space between the residential building blocks of courtyard space or a staircase, aisle and platform of public higher limit, suitable for preschool children's communication, is the ideal place for residents in the building of social intercourse activities in the neighborhood[13]. Users of this kind of space usually have the characteristics of authentication and so on. Because of their security and other characteristics, they are also the places with higher residents' sense of belonging and higher utilization rate.

For example, in the entrance hall of the 16th building of lane 363, there is the information board which is closely related to the residents' living in the whole building. It is the place where the residents exchange and exchange information.

- 4) Private space refers to the private space owned by the tenants and has the highest sense of domain, which is not allowed to be infringed by other people. It is generally not used for public purpose.

The above four spaces are spatial types which are clear in space, public and residential. Among them, public spaces are relatively independent of the neighborhood committees because of their clear affiliation (within the scope of government co-ordination or full commercial space).

Semi-public space and semi-private space is the main space defined in this paper the old residential community, within the community residents and between people closer social contacts in the community, the space environment has a higher frequency of spontaneous and social activities, and has the right to autonomy category high. It is also the key space discussed in this chapter.

The public space contains the form and function of city space format most abundant and all the city physical space form, road, region, boundary, node and landmark in the community; in the streets of main roads, public green garden, cell wall, corner space, public and community supporting commercial facilities etc. The morphology and function of city space form semi-public space contains more complete; in the community is small internal roads, fire exits, fire green, residential buildings, residential entrance signs, residential building access control etc. City space form a semi private space contains the most lower level elements, as reflected in the community, building aisle space, stair platform, walls, bulletin board, door, space function formats the level of the most important spatial fuzzy, social interaction between residents at the same time. Because of its completely private nature of space, private space is not considered in the category of urban spatial physical form, but it does not exist without developing its potential public conditions[14].

Therefore, this paper classifies from these four types of space in the physical boundaries.

2. Sample analysis of public space

Community public space should be defined to accommodate community public life space, further attributes based on the scope, content, form and the life of the community Chinese community, community public space should be summarized as functional facilities, service facilities, special function facilities, administrative management of five parts processing facilities and the environment space. These five are not a single spatial relationship, but a "functional one space" system of relations, in order to meet the needs of community residents.

3. Sample analysis of semi-public and semi-private spaces.

Semi-public and semi-private space in this paper discussed emphatically, firstly, because the spatial range to a certain extent can be used as a community boundary definition, namely in the removal of private space outside the Commission within the community, the public although subject to certain restrictions, but the various elements as the city physical space is complete and rich; secondly, as mentioned above, the two types of space in a large number of neighboring areas at the junction of the transition zone, namely the edge of space, and the space is ignored by designers and managers, but also can promote each kind of activity is the focus of excitation lies; third, in the current China city community management system in the two space is the best play Community Residents Autonomy and community building sites, but also stimulate the vitality of the community is the key.

In the category of such spaces, there is one kind of space lack of sense of space and lack of definite meaning, whether it is large or small, whether it is a point space, a linear space or a surface space. For example, the community wall is the critical point of the public space and the semi-public space. The corridor space in the residential building is the key point of the semi-private space and the private space. The fringe space is also a place where people use it frequently and are happy to stay because of their rich forms, various kinds and changeable nature. For example, around the district square, the seat next to the road, the river bank, the shade of trees, etc., without

deliberately designed, naturally formed space. The influence of adjacent space on it cannot be separated from them and not fused into them. Digging the value of the marginal space can create more value for the residents of the community, and become an important place to promote community vitality and public participation.

4. Present situation of spatial morphology and feasibility analysis of its utilization

1) Public space form and its utilization feasibility analysis

Road: intra space in the community, street shops, street life as a community public life of the protagonist, is not only connected with two locations of the channel, a large extent, it is a platform of public life, is a comprehensive reflection of the literati elements of the city. Features: a large number of passers-by; rich leisure activities; rich commercial activities; linear activity space; informal public activity space.

Public green space: Features: the number of stay is large; leisure activities are rich; dotted, linear and interwoven with space; can do formal or informal public activity space.

2) Semi-public and semi-private space types and their feasibility analysis

a) Community road: Residential road is a continuation of urban roads, but also one of the end of urban roads. The road is the key to spatial experience. Residential area traffic environment affects residents daily travel behavior, the residents travel purpose, travel mode and travel frequency, as well as residents' neighborhood association, leisure walking and entertainment are closely related to.

b) Multidimensional Road: "water pipe" road form, in addition to meet traffic functions, but also to provide residents with rest, walking, contacts and other activities possible. Extend the resident's outdoor stay, and increase the frequency of communication: (1) increasing interest in walking,(2) the road can provide conditions for the next step,(3) road and place change[15].

c) Courtyard space in a residential area: Neighborhood communication will be very easy to form Months and years pass by. consistent use of space consciousness. Green around the role definition of courtyard house semi private space is very strong, can strengthen the residents of a range of residential area around the sense of belonging, factors conducive to strengthen mutual exchanges and mutual infiltration is leading people to contact.

d) Corridor communication space: The corridor space is similar to the air streets on different stories heights. Besides the traffic function, the corridor is convenient for people to contact, maintain the community safety, and bear the children's game grounds. Corridor space is a place where residents' social behaviors are frequent, which can give them diversity functions like streets, and create more convenient and comfortable conditions for neighborhood activities.

In addition, mini agriculture, container agriculture, vertical flower trough or wall, hydroponics, planting and other forms of agriculture

can be developed in the corridor, and become an important topic of neighborhood exchanges open form.

- e) Communication space in front of the door: The space between the entrance door and the corridor is the transition space between the public space and the private space within the residential building, and it is also the most sensitive space for the neighborhood interaction.

According to the above, there is a complex space community edge space of residential exterior public space, it can enrich people's life, increase the harmonious interpersonal relationship, meet the people's emotional communication needs. Through environmental design appropriate measure, the "people-oriented", learning behavior, psychology, human engineering theory, build a harmonious, comfortable, convenient, safe and rich cultural heritage of the residential area to meet the requirements of occupants, enrich the space environment of residential area, the increase in people's outdoor space for emotional communication, people lacks of outdoor intercourse places the shortcomings, fully embodies the care for human mental health.

- 3) The types of private space and its feasibility analysis

According to the above, the construction of old residential area is relatively old, indoor living environment improvement limitations, while the external form of living space living area is relatively rich, become an important space for residents' exchanges, is also an important place for the community residents, so the private space is generally not taken into consideration. However, for the establishment of community neighborhood system in response to the requirements of Shanghai City, such as the widespread Siping Road in the community in the form of a single, residential neighborhood under the long building system, has become an important form of organization of public participation of residents. Floor length system from a single building and building residents one floor as long as the residents, and upload regularly organize duties.

In the case of such a community system, the development of potential private space for residents to become public venues, there is a breakthrough. The form may have: the integration of the whole building residents' balcony form a unified facade farming system; by building long lead organization building residents, food recycling resources sharing; regularly personal living room into activities, neighborhood Contact feelings, enhance the vitality of the community.

- 5. Construction status of "edible community" on Siping Road Street

In the field research and user interviews, the author observed and recorded several old residential communities on Siping Road Street, taking Fushun road 363 lane as an example:

Community public space: this district is a closed residential area, with totally enclosed and semi enclosed walls separated from the outside, and there is a buffer space outside the residential area, which is opposite to the main entrance to the community activity center. The availability and integration of the public space is feasible.

Community public space: the semi semi-private small plane to fishbone lane, a garden center, residents' utilization rate is higher, however the activities and personnel structure is relatively single, idle space and space is more important, the space between the green house and residents exchanges. Among them, a number of buildings for Party demonstration, civilization building, corridor space has been part of urban agriculture attempts. The district has the existing space promotion part, and the edge space can integrate into the community overall space system feasibility, has created the foundation for the community vigor construction.

Private space: the area of community residents in the balcony, door, floor, door open space and space platform, using a variety of such as planting box, flower pots, flower planting form, has been reflected in a growing demand; the peace building, often have the collective activities in the family living room space focus: reading, cooking and other forms of activities.

Space study in Siping Block -- Fushun road #363



Figure 20. Community outside space of Fushun Road #363



Figure 21. Space organization form and human traffic distribution



Figure 22. Potential of edible community in Siping quarter

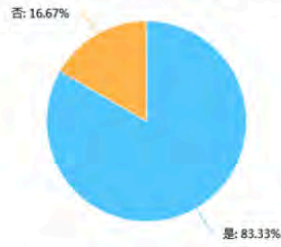
- Phase II: User research

1. Questionnaire survey and analysis

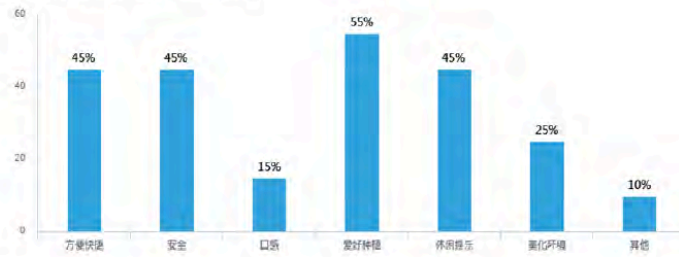
The author uses the electronic questionnaire issued questionnaires on the web site and the questionnaire, mainly for the first group research object, namely, Siping Road within the community life of the public, including had and now or never had the experience of urban agriculture group. After effective screening, 82 valid questionnaires were finally recovered. Of these, 35 were electronic questionnaires, and 47 were community based questionnaires. The majority of respondents were women, with to 35-60 years old, and 58% with income under 8000, respectively. (75%) respondents expressed their experience in rural life.

Food demand

Those who have had food or agriculture related experiences



The demand factor for planting



Leisure planting demand

The importance of natural education



Contents and Forms of Natural Education

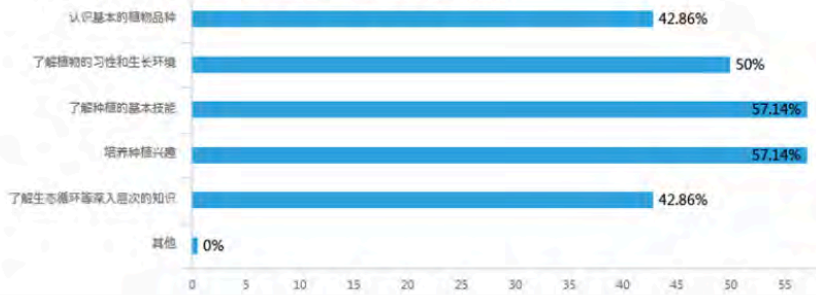
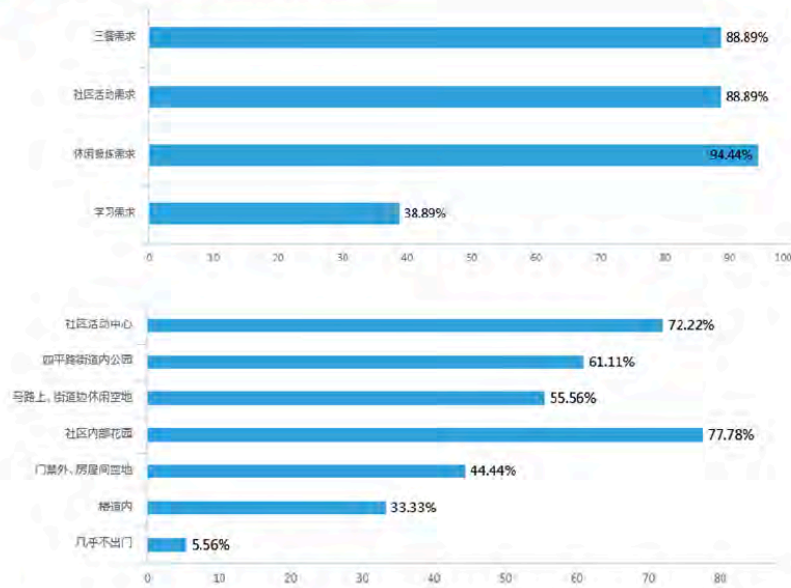


Figure 23. Questionnaire Data

■ Pension demand



■ Education demand

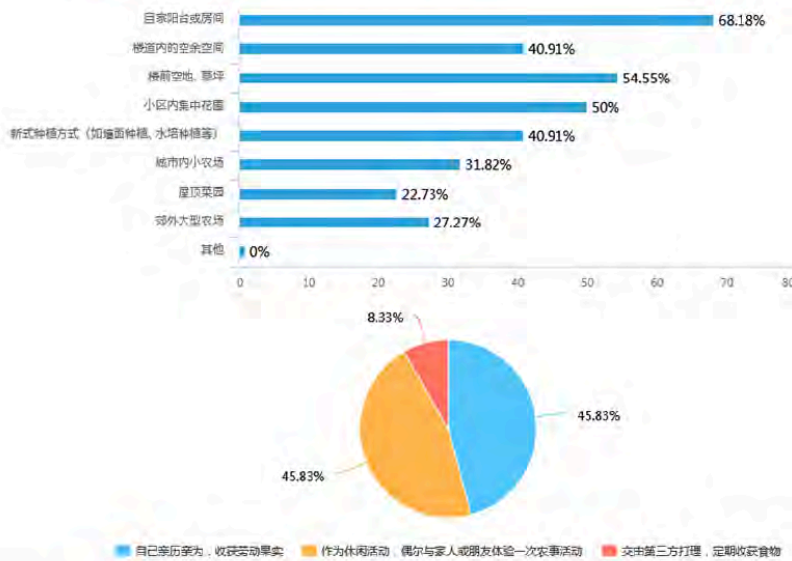


Figure 24. Questionnaire Data

2. Field research and non-participant observation

Based on the 39 previous survey in the community site, according to the 39 different age, gender, family relationship of the residents, were selected by using stratified sampling method 3 planting and urban food systems have a higher interest, representative individuals were observed with the shadow.

3. In-depth interviews and analysis

62 copies of the questionnaire based on the 62 different age, gender, family relationship of the residents, using stratified sampling method to select a planting experience or engaged in food related work, representative individual in-depth interviews.

Respondents: 1 community garden creation experts, 1 practitioners and 1 community

workers. The first is the founder for clover and "2040 food forest plan" Liu; second is the "BaiCaoYuan project planner Ms. Li, third is Anshan Village neighborhood community sanitation department responsible person.

Interview method: interviews with experts in the interview (Expert Interview) conducted in-depth interviews on the object, through his personal experience in the research and practice of the system level to give insights, or from a professional organization, the paper puts forward the technical guidance or inspiration. The author mainly carries on the thorough investigation and analysis from the plan, the starter, the start-up time, the existing mode and the project operation, the feeling and the feedback.

Objective: this group interview expert interview aims to further study and reasons for different types of residents of urban agriculture contact surface, the nature of the excavation and the expected value of demand, explore "activities and emotional based food community building, refining the typical user.



Figure 25. Expert interview

Examples of interviews are as follows:

1 when did you start working on the urban food system? 2. What motivates you to open the 2040 food forest program? 3, what types of projects do your team currently launch? 4. What are the operational models of profitable and non-profit projects? What types of users or participants do they have? 5, what are the biggest difficulties you have encountered since opening the project (policy, funds, personnel, technology, users)? 6, what media and methods do you use to advertise? 7, what is your team's current profit situation? What are the main funding channels? 8, what are your views on the "edible community" service system?

Answer log:

1, from the summer vacation began in 2016.

2. Because of the career of landscape architects and teachers, I have a strong sense of responsibility for the landscape and natural education in the city. Through the investigation of the basic data, the main city of Shanghai has 10 districts, each district has about more than 10 streets, each street about 20 residents, all more than 2000

Shanghai quarter, so the germination of 2040 community garden ideas.

3, the "Siyecao Room" has always regarded himself as a welfare based on earnings supplemented by social organizations, aims to cultivate the public nature and ecological awareness from a professional point of view. Now the "four cottages" done mainly in several branches: "Friends of the community garden" and "garden community foundation". "Community Garden Friends" is a team of design and training, and the community garden foundation serves as a funding pool to mobilize resources in all its resources.

4, Nonprofit projects are a major part of the 2040-food-forest program. Through the four villages such as Anshan "garden" and "garden train", "Powerise agricultural garden", "Healing Garden drifting" demonstration project to promote, the whole process can be divided into: planning and construction and implementation, operation and maintenance, design, community autonomy. Customers are generally streets, users are residents of the community; and the street is mode of cooperation, training and guidance of the existing street community, led them to create, design, operation and maintenance of their own community garden, basic funds are after the first operation present to get the effect of project funding, there is no profit; profit project temporarily not much, no profit, the basic cost of professional teachers received money enough to maintain employment. Gradually, our customers have also begun to enrich, and began to have schools, units, etc., we need to establish a different scale garden, or the need for relevant technical and operational guidance, and so on.

5, neither capital nor technology is the most difficult part, because the user selected base is different, the biggest difficulty is the staff, especially the practical experience and the ability of community workers into the community, social organizations and the community as a communication facilitator, the training of such work is very long, but the effect is significant.

6, there are three main forms of propaganda: the WeChat group and the public on line, the line is mainly in the community residents of mouth, propaganda and mobilization and street third is the neighborhood committee report. Now that the project is bigger, there will be media interviews, tracking, publicity.

7, the team almost no profit. But this is a problem to be solved, we are trying to cooperate with the enterprises and units, mainly divided into two categories, one is resource suppliers, such as tree tools suppliers, they will be at cost to support the community garden, but also open the market for them, the other is the community surrounding the unit, let the community garden has certain degree of opening, can also make these units involved in the claim and maintenance.

8, first of all, for the user, the old residential district personnel structure is relatively complex, the corresponding active RC power is high, a high degree of participation, executive ability is also very strong, but the average quality is not too high, also increased the pre-training and maintenance work. Secondly, planting, harvesting, processing and sharing of the act itself is not difficult to achieve, it is difficult to improve the operation mechanism, so the designer in the whole service system of the role is very important, how to correctly guide, guide to what extent, how to coordinate

all aspects of power and resources, how to make the community really started their own trial and error, when to let go. And so on.

4. Persona

There are four types of target users in Siping Road quarter: the type of single office worker, the type of housewife (with children), and the type of retired person. The author sets up the corresponding user roles for each type.

Analysis of the importance of typical target user demand

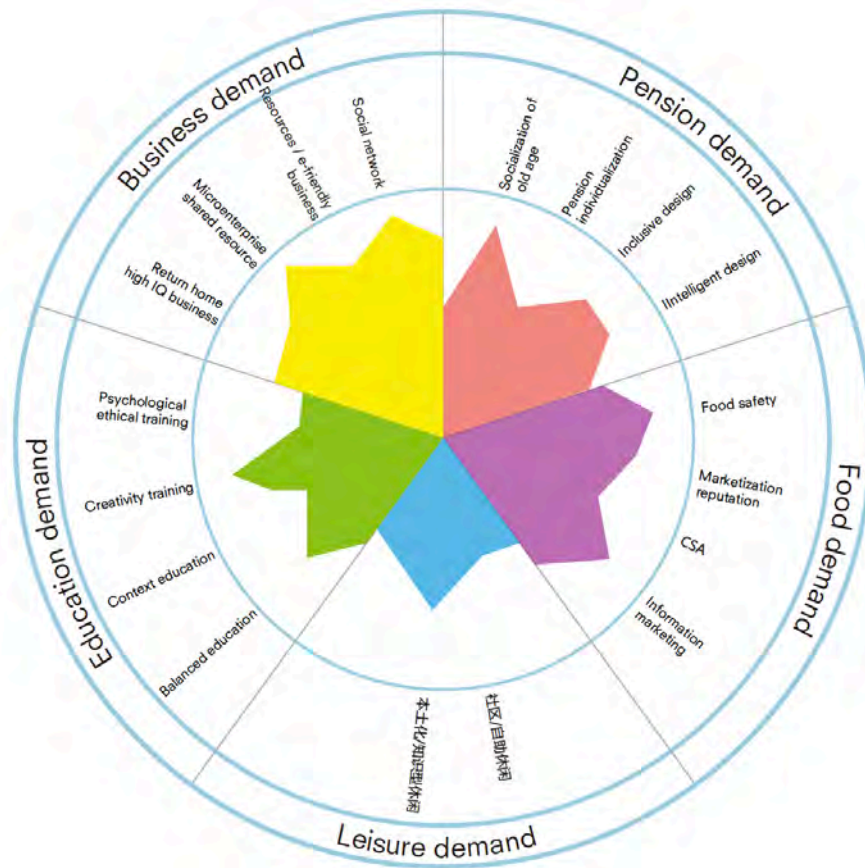
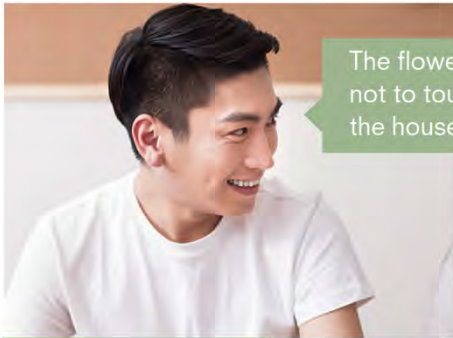


Figure 26. User needs analysis of "Shanghai people on rural demand research" workshop

1. User demand for agriculture

According to the 2009 design consulting firm IDEO and related teams to Shanghai area as a sample collection source, conducted a "Shanghai people's rural needs research" workshop. Research in primary and middle school students, college students, office workers and retirees four on behalf of the group, the study concluded that the demand trend of Shanghai residents on agriculture mainly focused on pension, food, leisure, education and entrepreneurship five.

Behavior patterns and requirements classification of users of different age groups.



The flowers and trees inside the district are not to touch, I can only own a little plant in the house.



Mr. Zhang

age 26
 address Fushun road #363

marital single
 child no
 house shared rent

job interior designer
 Salary 12K/month
 education BA

About him

Hometown for other provinces and cities, graduating from Tongji University, 23 years of age after graduation into the design institute work, busy. Three meals a day almost all go out to eat or take away, the weekend will buy their own food to cook, invite friends to eat together. Holidays will go to Songhe Park or the outskirts of the experience of nature, relax; or about friends with the movement, and occasionally participate in some manual workshops.

hobby

- Like planting flowers, from time to time will care for flowers sooner or later;
- Keep a puppy Nick, often take a pet out for a walk;
- Like to experience nature and relax;
- friend sport together;
- Like interactive and interesting activities;
- Occasionally participate in some manual workshops.

motivation

- work is busy
- No time to take care of three meals a day;
- Want to get a sense of belonging to the community while maintaining independence.

expectation

- relax
- fast
- Both public and individual

Daily behavior

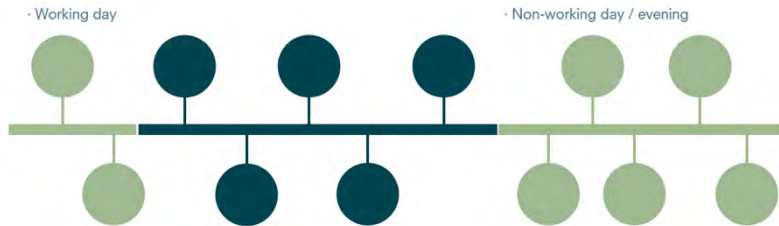


Figure 27. Mr Zhang--Single



Children want to play with small partners, like running around in the district, I am not at ease.



Ms. Li

age 35
address Fushun road #363

marital married
child 6-year-old son
house 1

job housewife
Salary /
education BA

About her

Settled in Shanghai, full-time at home. Take care of her children, doing housework, love cooking. Planted a lot of flowers, and a small amount of onion garlic chili and other ingredients, good use of Taomi Shui, eggshell and other waste resources. Holidays to the Communist Youth Forest Park or suburbs and occasionally go to the farm music experience pastoral life. Every week with children to participate in various interest classes or groups.

hobby

- Cooking;
- Like to study the cultivation, food health and safety information;
- Like to go to the park or suburbs to play;
- fl.Like planting;
- Like to participate in various interest classes or interest groups;
- Occasionally participate in some manual workshops.

motivation

- Family is the focus of life;
- Pay attention to the quality of three meals a day;
- Focus on the quality of children's training.

expectation

- Food safety is healthy and convenient
- Identity and sense of accomplishment
- Leisure and education both important

Daily behavior

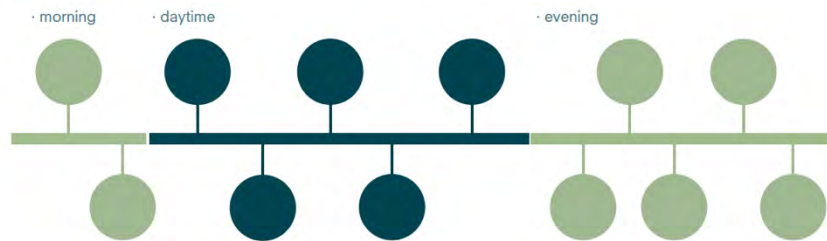


Figure 28. Ms Li-- Mother



Children want to play with small partners, like running around in the district, I am not at ease.



Ms. Liu

age 45
 address Fushun road #363

marital married
 child 12-year-old daughter
 house with yard

job bank manager
 Salary 18k
 education MA

About her

Settled in Shanghai, husband are full-time office workers, weekend occasional overtime. There is a 68-year-old man (Ms. Liu mother), a 12-year-old daughter. Usually work busy, not too much time to take care of the elderly and children, no time to buy food to cook. At home, usually almost no one to eat together at the time, the elderly one at home alone lunch, the elderly at home will be home to dinner, or wait for the couple to work outside after dinner. Weekend Ms. Liu iat home to rest with the elderly to accompany the main children. Sometimes shopping together ort ravel. At home on the first floor there is a small courtyard, but because no one care and idle, into the debris collection.

hobby

- Reading
- Movie

motivation

- busy woek;
- three meals' quality ;
- Focus on the quality of children's training.

expectation

- Food safety is healthy and convenient
- High quality family parent time
- Leisure and education both important
- Relax
- Safe old age

Daily behavior

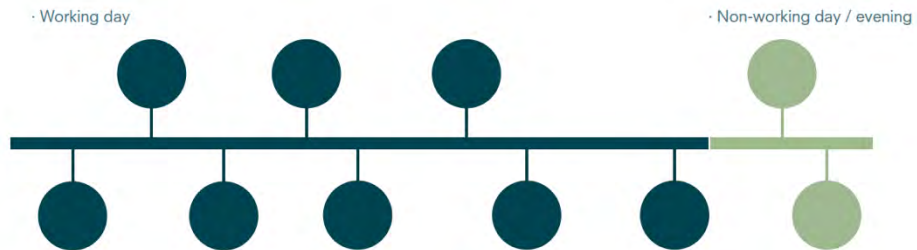


Figure 29. Ms. Liu



Children want to play with small partners, like running around in the district, I am not at ease.



Grandpa. Wang

age 66
address Tongji Xincun

marital married
child grand son
house with yard

job retire
Salary 6k
education College

About him

Shanghai people, and his wife live in two, children live in Yangpu District Wujiaochang street, there are grandchildren two, all on primary school, and occasionally visit. Retired for 6 years, more leisure time, love planting flowers, raising birds and fish, to participate in various interest groups within the community. As a resident of the corridor, often organized corridor communication or activities, the family is often one of the activities, and residents are very familiar with the same time is the community.

hobby

- Love to plant flowers and plants, raising birds and fish;
- Like to participate in various interest classes or interest groups;
- Stay close with neighbors;
- like to sharer;
- Love work;
- Regular participation in community activities.

motivation

- More leisure time;
- High frequency community activities;
- Get along with grandchildren for a long time.

expectation

- Food safety and health
- Identity and sense of belonging
- High demand for events

Daily behavior

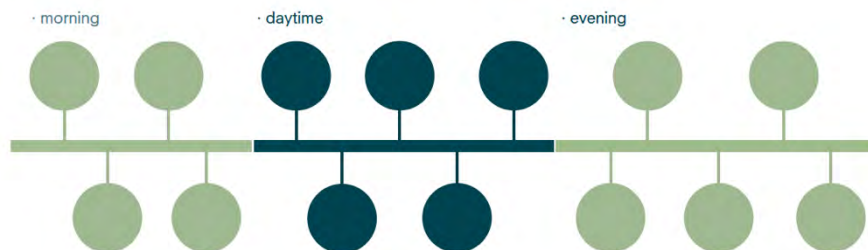


Figure 30. Grandpa Wang

2. different age groups of user behavior and needs classification

3. Analysis of the importance of typical target users

In the second interview to interview subjects, the author according to previous research, prepared 30 a card, mainly from the space requirement, behavior and emotional needs in three aspects, using the card sorting method (Card Sort), the weight level to interview object demand point, and as a typical summary according to the important degree of the target user demand.



Figure 31.

5. Co-design:

1) identify users involved in collaborative design:

Through questionnaire survey, field investigation, non-participant observation and in-depth interview, the author selected two groups of residents, building 363, District 16, Fushun Road, 20 building and Benxi road district. The selection criteria are user participation and user typicality. Members involved in collaborative design include at least one building leader, and a resident or family that conforms to a typical target user.

2) coordinate the design purpose, method and process, arrange the communication space and prepare the needed articles.

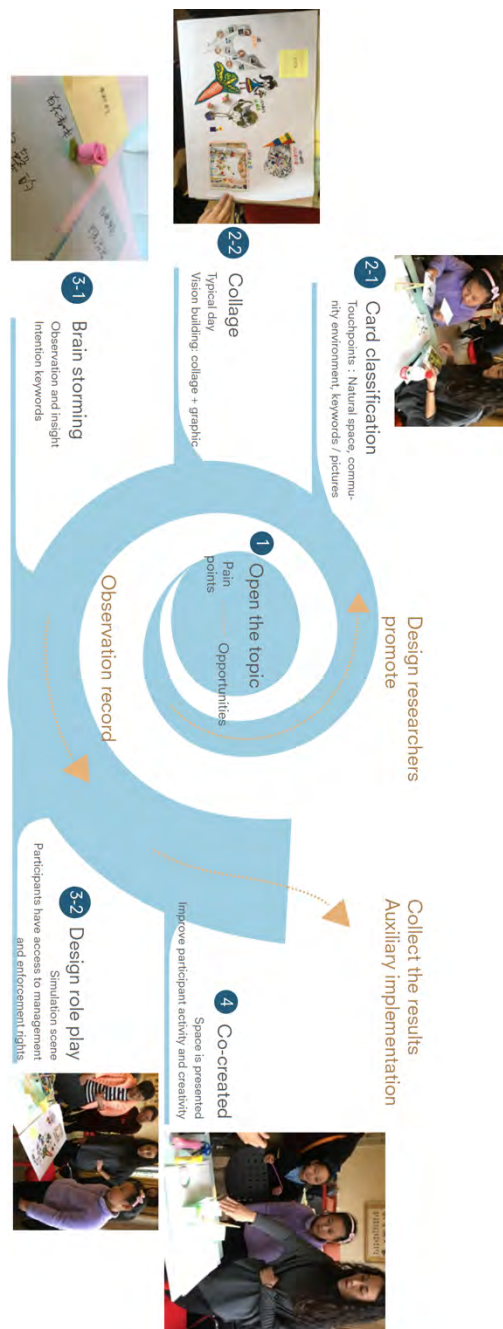


Figure 32. Co-design process

6. Opportunity analysis of "edible community" service system
 - 1, food opportunity analysis (what to eat): quality and source of food: community, urban agriculture (cropping, harvesting and distribution, processing and cooking).
The community on the dimension of the modern agricultural service mode: the use of the Internet platform to create a new form of auxiliary urban agriculture, the main purpose for community mutual and self-sufficiency in the form of performance, a lease system, community market, food distribution, food sharing, agricultural experience activities such as the combination of form, stimulate more value.
 - 2, consumer opportunity analysis (where to eat / eat with whom): Community kitchens and restaurants
Food ecosystem model of community dimension: starting from the factors of food safety and food fair, a short chain in the range of food distribution, distribution, storage, processing, cooking, celebration, nutrient recycling and waste management, integration of food and agriculture system into a sustainable community and city planning.
 - 3, value-added opportunities analysis: education, leisure, pension, entrepreneurship
Enrich the necessity of community on the dimension of spontaneity, social activities and improve the quality of experience, the basic conditions of Agricultural Pastoral creations experience model, old-age leisure service mode, ecological literacy education mode, community social circle.
7. Stakeholders

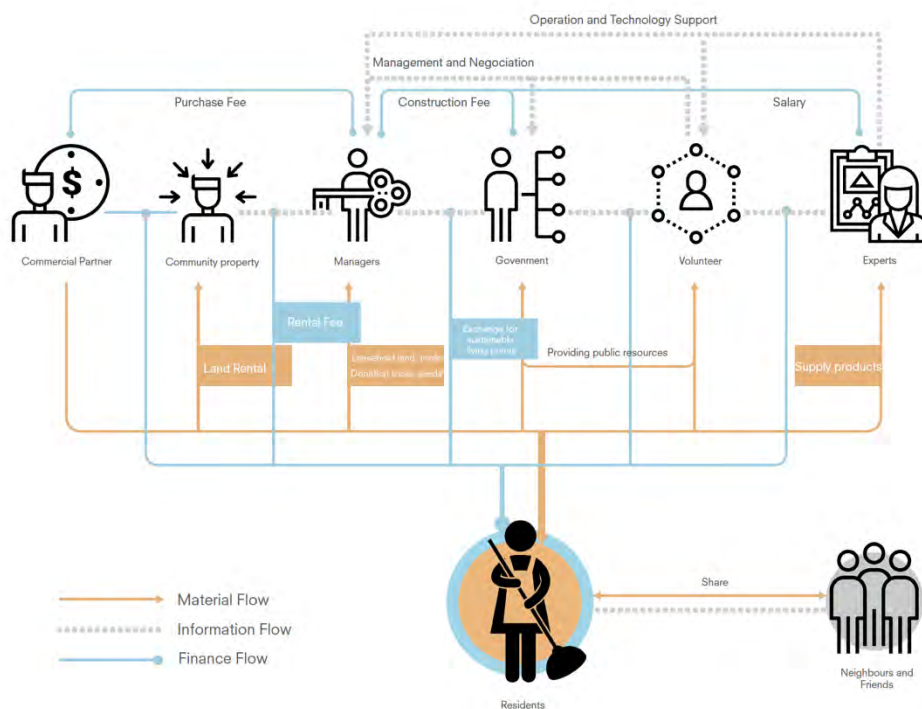


Figure 33. Stakeholders' system map

- Phase III: Service design

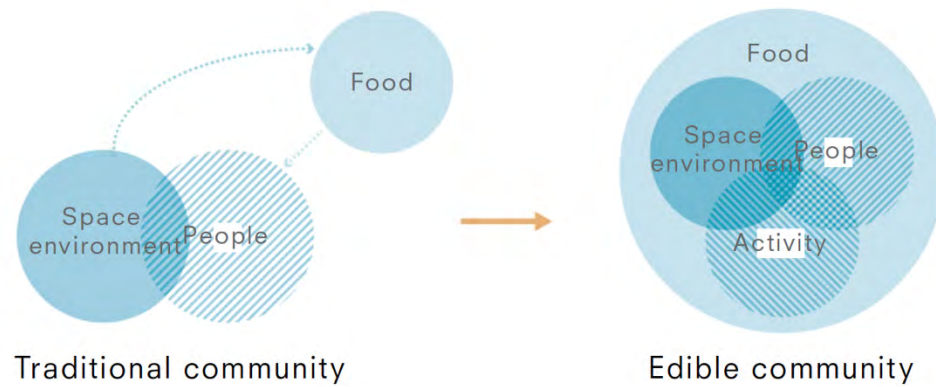


Figure 34. Construction of edible community system

1. Service design vision

- 1) vision 1-"eating community" provides residents with a high quality, convenient, quick and personalized food experience.

The different user groups in different situations for the needs of the community are not the same: the needs of the user experience there are many, the service situation also has many kinds, community space, facilities and activities are also different, so how to cooperate with the various space facilities and activities to meet different use the group needs in different situations, to provide a good experience for its food. This is an important issue that needs to be solved in the "edible community" service system.

- 2) vision 2- "eating communities" creates better community relationships for residents

Community activities with security, mutual aid, three needs emotional communication, interpersonal communication, which requires the premise to guarantee the basic security needs, as much as possible for the community to create a close contact, subject to the interactive cooperation platform, the platform space and activities based on tangible, intangible services through the platform, the residents can through participation, or as a user to complete a collaborative service, so as to promote the emotional communication between each other, improve interpersonal interaction. Therefore, the establishment of a high degree of social relations (social tie), a high degree of interactivity, high intensity of the autonomous community, is an important objective of many community activities and public services.

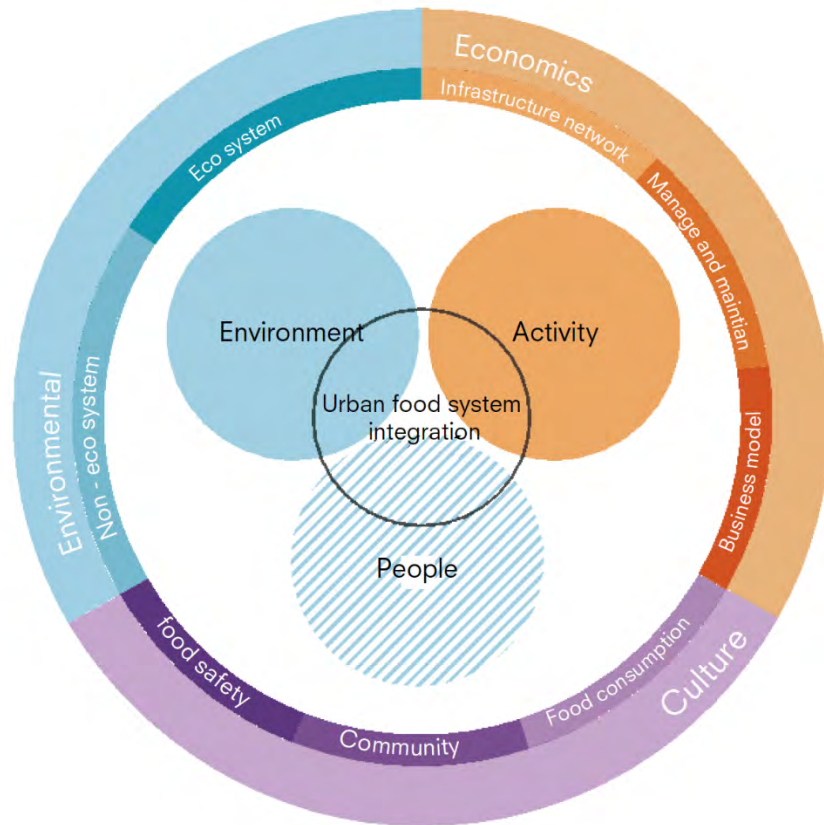


Figure 35. Edible community construction in terms of environment, activity and people

- 3) Vision 3- creating Eco, economic and social integration of sustainable living communities.

The development of urban agriculture in the community, establishing a local food system, real estate sales, transportation, packaging, save the remote storage, preservation and other sectors, effectively reduce the energy consumption of resources and destruction of ecological environment; at the same time, through the "build edible community", in the community space to get a reasonable and effective integration, to improve the quality of ecological environment, and by the resource recycling and other ways to improve the community ecological sustainability. On the other hand, through community cultivation, food sharing, ecological education, community endowment and other forms, effectively promote the sustainable development of the whole community residents Association and community relations, provides more possibilities for the development of community human resource allocation and entrepreneurship and other economic forms. The emotional version of the service design vision is a process that describes the service visually, previews service solutions, and makes its future features more visible.



Figure 36. Edible Community Design Vision

2. Service concept

The establishment of "edible community service platform, through the information system integration of public space design and the corresponding physical space within the community, the use of the web and APP terminals and other methods as the point of contact service, to live in Siping Road old residential area residents to provide medium of urban agriculture and urban form, construction of ecological food system in the community dimension; provide vegetables demand of residents in different forms of suitable planting plots, and provide guidance for planting and social sharing functions; meet the overall demand of the residents' food ", enhance the residents' life experience; at the same time, is beneficial to the community and public participation[18].

The system diagram is the visual description of the service technology organization: the different actors involved, their interrelation, and the flow of material, information, and capital through the system.

Through the visual presentation of all access points about the new service system, including through every possible route to provide, and shows have been proposed for all equipment and infrastructure support with the role and function of their experience. Participate in service creation, development, and delivery of participants, as well as their roles and resources. Describing the

system means identifying the main characters involved, deepening the characteristics of actors and their existing relationships, and specifying the activities and goals they participate in the service process.

3. Customer journey map
4. Service blueprint

5. Touchpoints: space and visual system

1) Space design:



Figure 38. Mood board of "Edible Community"

Design of space function module;



Figure 39. Edible Community Design Vision



Figure 40. Edible Community



Figure 41. Edible Community

2) Visual system design
Brand identity:



Figure 42. Visual identity and logo

Website and application:

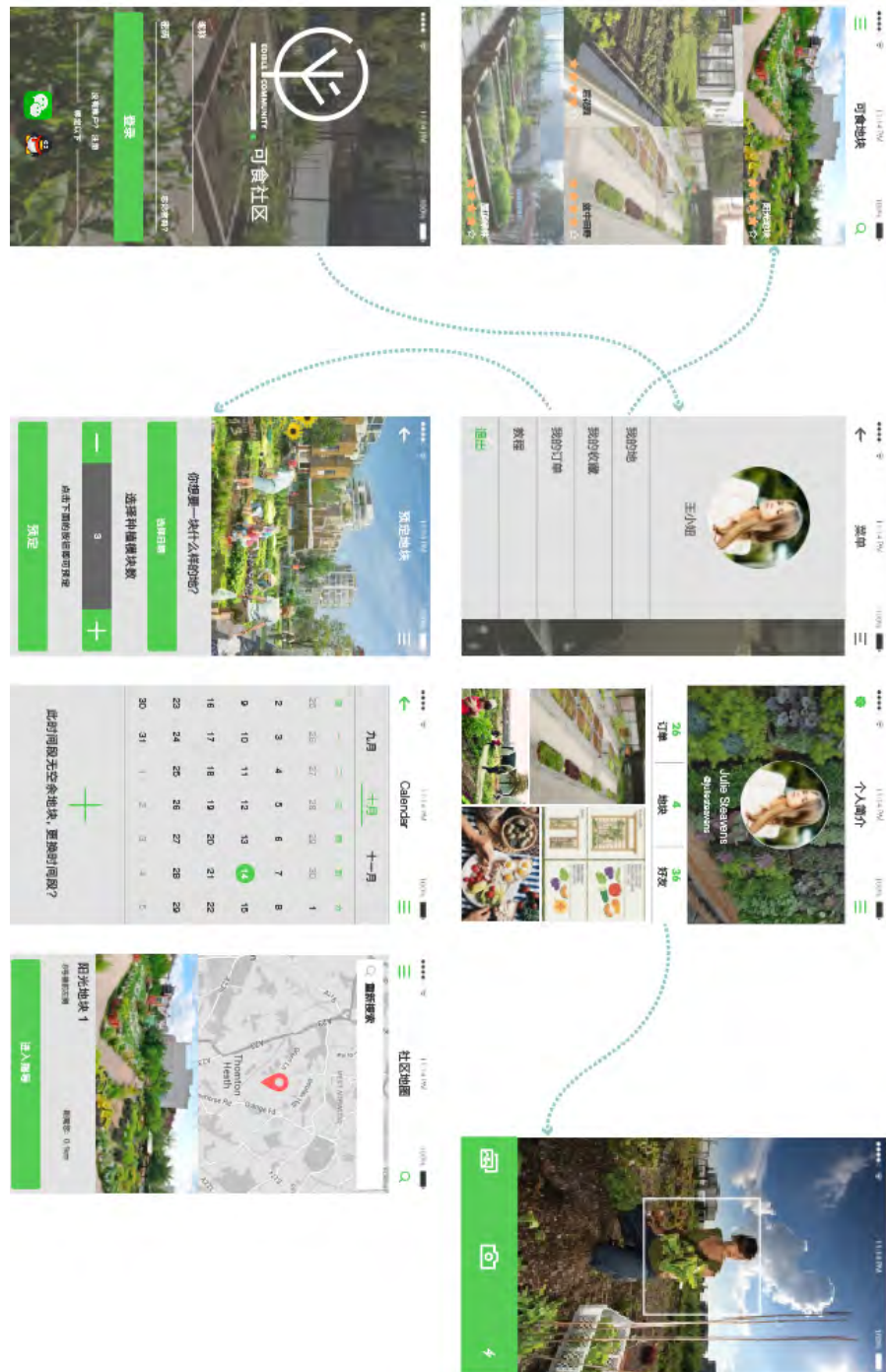


Figure 43. Application interaction

6. Activities:

1) "Good neighbor garden" activities:



Figure 44. "Good neighbor garden" activities
2) "Field restaurant" activities:



Figure 45. "Field restaurant" activities

- Phase IV: Prototype and feedback of service system
 1. Storyboard:



Obtain information

Recently, Mrs.Li has gained interest in planting seeing there are more and more space that are rented by her neighbours for planting. She learns about "Edible Community" through Information Board in the quarter, then she downloads the App, she searches for renting information after registration.



Rent
land

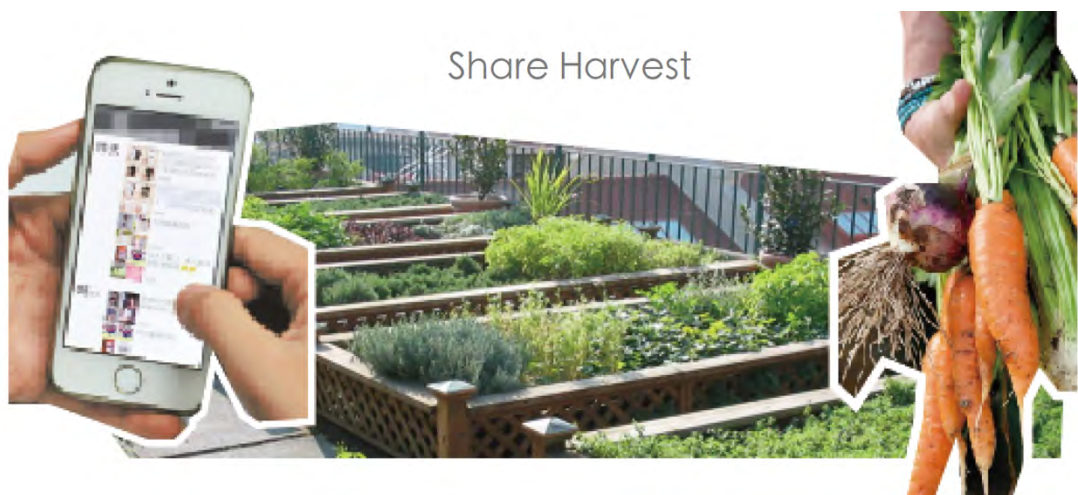
Mrs.Li wants a vertical planting area on the first floor of the residential building where she lives, she reserves the farm and signs the contract. Then the volunteer accopanies her checking the site.



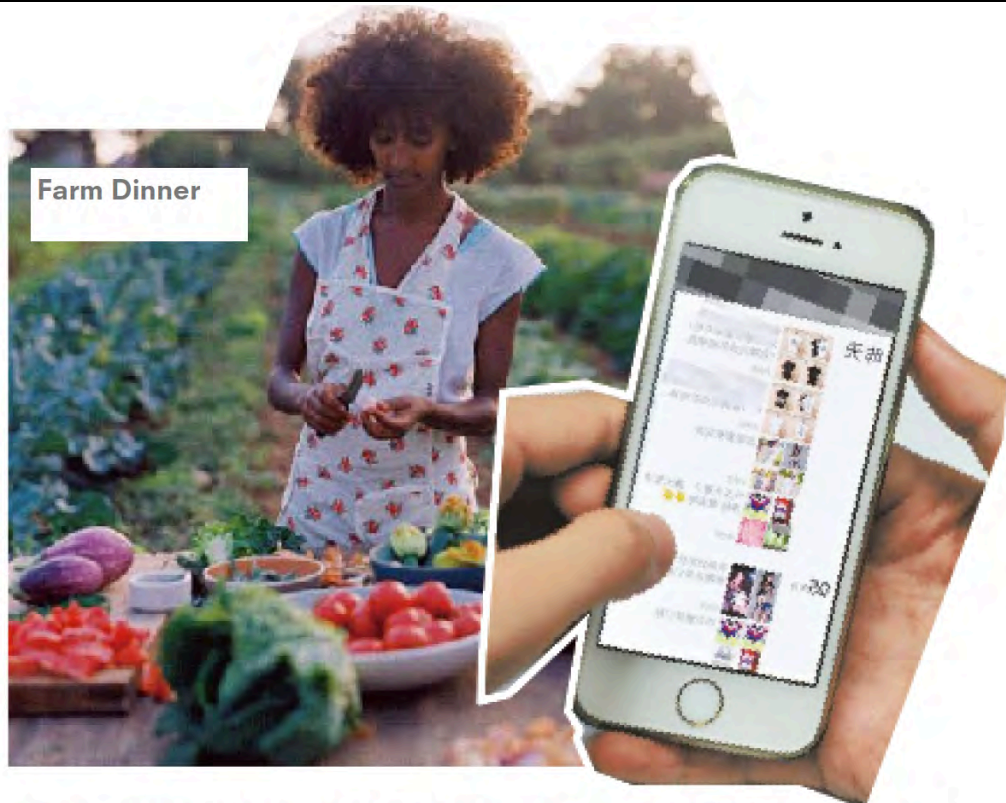
Have rent the land, Mrs.Li purchases seeds and reserves some tools, which are provided by volunteers.



After all the preparation, Mrs.Li starts the planting together with her son, following the instructions and notification via the app. They go to maintain the tiny farmland frequently, where the little boy can learn nature courses.

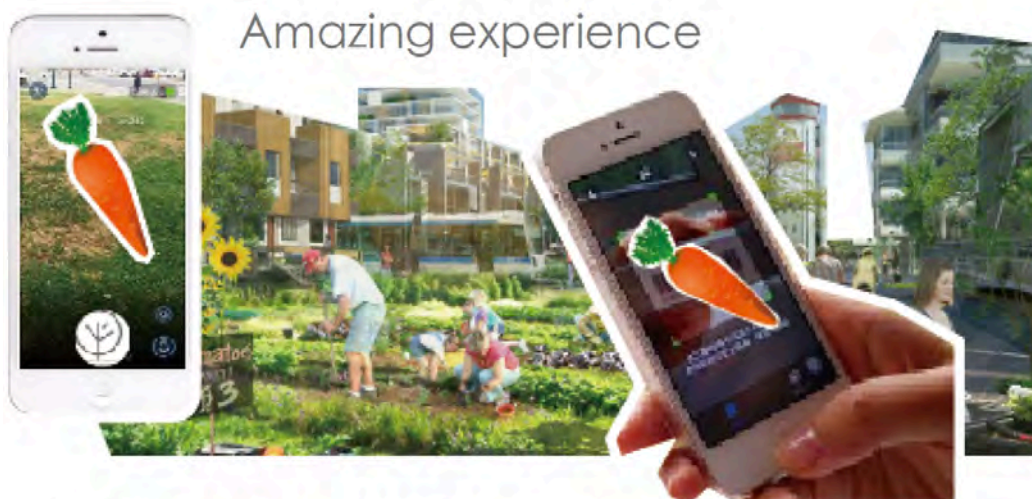


Following the notification and instruction of the App, soon they can harvest the plants, they share what they have harvested via the chatting quarter of "Edible Community".



Farm Dinner

A group of users have obtained their first harvest, Mrs.Li sends out invitations--"Farm dinner" feast on "Edible community" chatting, she soon gains support from volunteers, some of her neighbours and friends bring about their harvest and they cooks together. Everyone enjoys their first farm eating out on the site.



Amazing experience

Every steps are recorded by the platform: watering, weeding, dissection, etc. She gains some sustainability living credits. Mrs.Li is still exploring extensive functions of "Edible Community", such as: VR function on the App, creating amazing activities for kid to explore the nature.

2. Prototype and test:

- 1) The content of the test was to examine whether the two design contacts, the "community garden" service and the offline "field restaurant" activities were reasonable, and whether the service content was attractive to the users.

Test preparation: from the four types of persona analyzed in the fourth chapter, the author selects two representative users to experience and

feedback the two contact points.

1. Mr. Liu, Tongji Design Institute interior designer, and colleagues sharing, live in Fushun road 363 Lane district;

2. Grandpa, retired veteran cadres, hale and hearty, and his wife live in Fushun road 363 lane, a building on the first floor, as a building block, is very enthusiastic about community affairs;

3. Ms. Gu, a nearby primary school English teacher, pay attention to the quality education of students, with her husband, son living in Fushun road 363 Lane district;

4., Ms. Zhao, full-time mother, love flower arranging, planting and other interest activities, weekdays often volunteer activities in the community. With her husband and parents live in Fushun road 363 Lane District, often with young daughter in the community activities;

After determining the test subjects, the author prepared the "edible community" related to the situation of the emotional version of the picture, paste in the test room, to test and to create an "edible community system" , the closest space and information environment, and set the corresponding emotion and experience situation; at the same time, the subjects can watch the system general food community", and by the pictures, verbal text explanation, the whole system has a comprehensive understanding of the service. Through the interface to display the "edible community" application services, detailed reduction specific process and steps, and psychological use real feelings to capture were measured; at the same time through the story version of script, and two students served as facilitator for design scene interpretation, specific and vivid details of the service the whole process, help the subjects more concrete understanding of this service.

Through the visit, three of respondents were in their own point of view to watch their demand pain points "amazing moment in the current plan" (Wow Moment, a new derivative, the research field of Internet users refers to a product or service to provide users the most unexpected moments) and some can continue areas for improvement.

1. "Wow Moment"

(1) "good garden" to make full use of the remaining space in the community and the surplus labor, to grow as a starting point, to community autonomy as the trend of value, expand the community in the field of high participation, the healthy social circle for residents;

(2) the "good neighbor garden" adopts the traditional and new planting methods and techniques, and recycling the resources into the system to fully mobilize resources in various aspects, and is conducive to long-term operation of the system;

(3) the "field dining room" activities can bring food, health, food, justice and sustainable lifestyle into the community, and the service model is novel.

2. status issues

(1) the activities of the "field dining room" are limited and lack of

durability;

(2) the continuity of the "good neighbor garden" service and subsequent social services is not strong;

(3) other shared community services should be added to the concept of "good neighborhood restaurant".

"Good restaurant" can expand the range of services, have more leisure time with the community residents through the service to "good restaurant" to accumulate sustainable life points, provide redeem "good restaurant" meal service, enhance the interaction and communication between residents, and is conducive to improve the "good restaurant service quality and durable operation; or the establishment of" good kitchen "service, residents can provide food processing service appointment of a residential home, buy a certain number through the service provider and its principal ingredients, processed into semi-finished products, at home after work to enjoy home delivery food service, through the payment or exchange integral in exchange for sustainable living service.

3. Feedback:

1. change the "field restaurant" service to part of the "community dining room" service activities;

2. push the public service of "edible community" of other shared and shared "good neighbor" concept to the users;

3., establish a "dot wall" that encourages users to participate in collaborative services optimization and innovation".

4. User participation evaluation

After the service design is completed, the common evaluation methods used to evaluate the degree of participation and interaction of different stakeholders in the overall system are PI Map (Participant Involvement Map) and IQ Map (Interaction Quality Map). The interaction and relationship between each of the two stakeholders in the system is regarded as an evaluation object, the evaluation maps can visually display the satisfaction of each participant needs, but also improve the interaction and collaboration relationship intimacy[24].

In the "edible community" service system, the author divided the degree of participation and interaction into 5.12 groups: user - user, user - eating community system platform, user - administrator, these three groups.

Participant Involvement Map

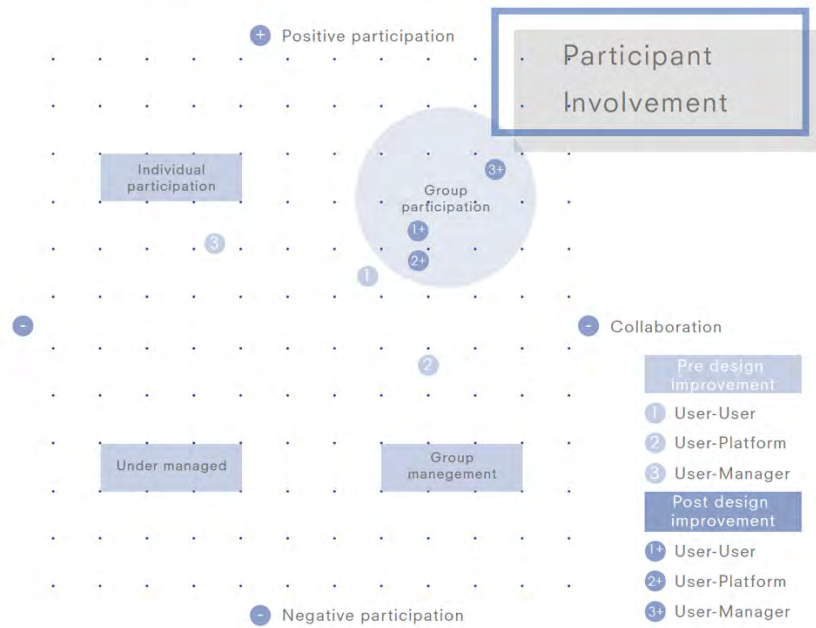


Figure 46. Participant Involvement Map

Interaction Quality Map

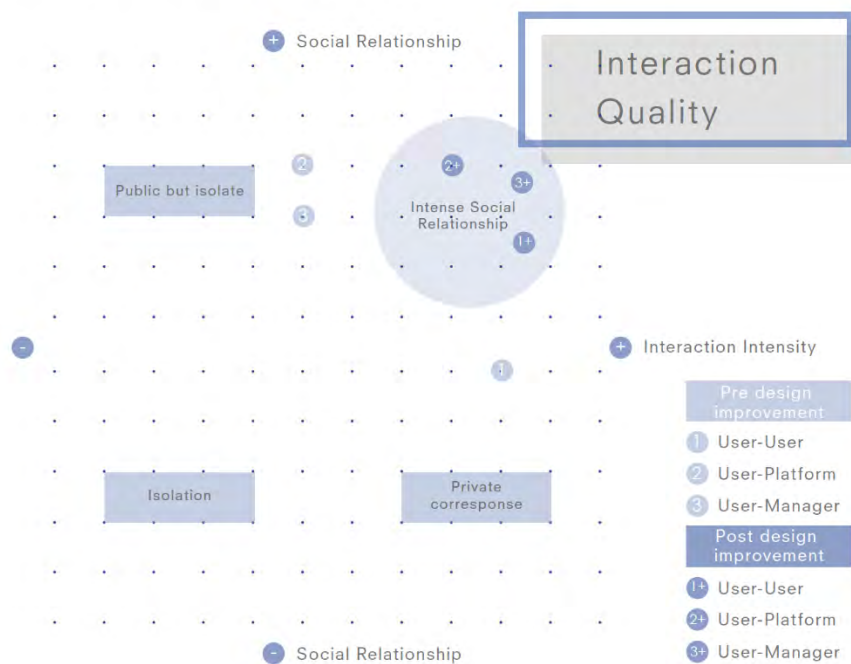


Figure 47. Interaction Quality Map

Conclusion

This paper is to apply to the "service design method of edible community" system to use the service design for the public space in old residential area edible system services

provide the basis for space, information environment, looking for more development space.

1. fully explore and integrate the public space resources of the old residential areas, mobilize human and information resources, highlight the characteristics of the old residential areas, improve the quality of the residential space and information environment;
2. the participants in the "edible community service" to obtain the safe and convenient food and planting, harvesting, enjoy learning, and other related services, improve the "edible" quality of life, behavior experience, emotional memory, narrative experience;
3. in the construction of "edible community" service system process, to provide service participants with more sharing and experience of the basic conditions, activities, opportunities and participation platform, and improve community building.

Appendix:

References:

- [1] Philips A. Designing urban agriculture: a complete guide to the planning, design, construction, maintenance and management of edible landscapes[M]. John Wiley & Sons, 2013.
- [2] Marion B W. The organization and performance of the US food system[M]. DC Heath and Company, 1986.
- [3] Traill B. Prospects for the European food system[J]. 1989
- [4] Cotterill R W. Competitive strategy analysis in the food system[M]. Westview Press, Inc., 1993.
- [5] Lynch K. The image of the city (Vol. 11)[J]. 1960.
- [6] Macmillan : Social relations and spatial structures [J]. edited by J.Urry & D. Gregory Basingstroke, Hampshire, 1985
- [7] Stigliani I, Fayard A. Designing new customer experiences: A study of socio-material practices in service design[J]. 2010.
- [8] Murray R, Caulier-Grice J, Mulgan G. The open book of social innovation[M]. London: National endowment for science, technology and the art, 2010.
- [9] Jégou F, Manzini E. Collaborative services: Social innovation and design for sustainability[J]. 2008.
- [10] Zhuo, Fu. "Review of Edible Cities: Urban Permaculture for Gardens, Balconies, Rooftops, and Beyond." Journal of Agricultural & Food Information 16.3 (2015): 280-281.
- [11] Holben D H. Development of an organic gardening workshop and community engagement activities to develop a healthy, local food system[J]. Journal of Hunger & Environmental Nutrition, 2011, 6(2): 233-235.
- [12] Reilly M, Willenbockel D. Managing uncertainty: a review of food system scenario analysis and modelling[J]. Philosophical Transactions of the Royal Society of London B: Biological Sciences, 2010, 365(1554): 3049-3063.

-
- [13] Manzini E. Small, local, open, connected: An orienting scenario for social innovation and design, in the age of networks.[Abstract of a public lecture]. Glasgow, Scotland[J]. 2009.
- [14] Hartley J. Innovation in governance and public services: Past and present[J]. Public money and management, 2005, 25(1): 27-34.
- [15] Shinew K J, Glover T D, Parry D C. Leisure spaces as potential sites for interracial interaction: Community gardens in urban areas[J]. Journal of leisure research, 2004, 36(3): 336
- [16] Bohn K, Viljoen A. The edible city: Envisioning the continuous productive urban landscape (CPUL)[J]. FIELD, 2011, 4(1): 149-161
- [17] Francis J, Giles-Corti B, Wood L, et al. Creating sense of community: The role of public space[J]. Journal of Environmental Psychology, 2012, 32(4): 401-409.
- [18] Wood L, Frank L D, Giles-Corti B. Sense of community and its relationship with walking and neighborhood design[J]. Social science & medicine, 2010, 70(9): 1381-1390.
- [19] Meroni A. Creative communities: People inventing sustainable ways of living[J]. 2007.
- [20] Sanders E B N, Stappers P J. Co-creation and the new landscapes of design[J]. Co-design, 2008, 4(1): 5-18.
- [21] Bitner M J, Ostrom A L, Morgan F N. Service blueprinting: a practical technique for service innovation[J]. California management review, 2008, 50(3): 66.
- [22] Stickdorn M, Schneider J, Andrews K, et al. This is service design thinking: Basics, tools, cases[M]. Hoboken, NJ: Wiley, 2011.
- [23] Fuglsang L. Bricolage and invisible innovation I n public service innovation[J]. Journal of Innovation Economics & Management, 2010 (1): 67-87.
- [24] Bisset F. Integrating service design thinking and motivational psychology[J]. This is service design thinking. John Wiley & Sons, Inc. 2011:300-307.
