

MADE IN [the city of] CHINA

Street market as infrastructure to create conditions for inclusive urbanization

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Contents

CHAPTER 1 1 – Introduction & thesis statement

- 1.1 – Introduction
- 1.2 – Concept & interpretation
- 1.3 – Issue statement
- 1.4 – Thesis objective
- 1.5 – Research questions

CHAPTER 2 Theory review & research framework

- 2.1 – Literature review
- 2.4 – Methodology framework

CHAPTER 3 Case study, design principles & toolbox

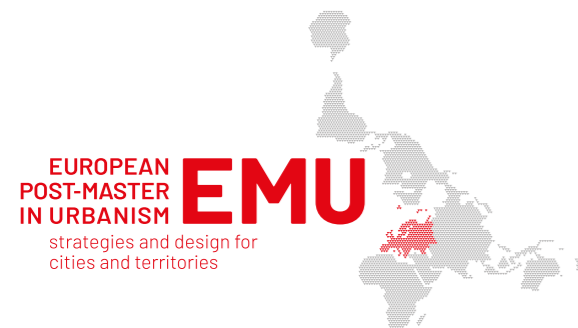
- 3.1 – Case study approach overview
- 3.2 – Design principle & legends under four themes
- 3.2 – Toolbox development

CHAPTER 4 Design & application

- 4.1 – Research by design overall structure
- 4.2 – Design principle application by theme
- 4.3 – Design deliverables & evaluation

CHAPTER 5 Conclusion & Reflection

- 5.1 – The conclusion
- 5.2 – The reflection



CHAPTER 1

Introduction & Thesis statement

1.1 - Street market, supply justics & inclusive urbanization

The thesis conducts spatial explorations through design and discusses the possibilities of using the street market as infrastructure to facilitate collective making and create conditions for inclusive urbanization through achieving supply justice.

The street market is a spatial vehicle that can deliver the thesis goal. Supply justice as a development strategy can incubate and mobilize the collective networks carried by the street market to practice inclusive urbanization.

The collective making and street market as two symbiotic urban networks are potent instruments in promoting supply justice. Together, they can trigger collective actions in the urbanization process and effectively address the challenge from the dominating supply companies. The thesis categorized four themes to explore the street market's capacity and transferability as infrastructure for inclusive urbanization.

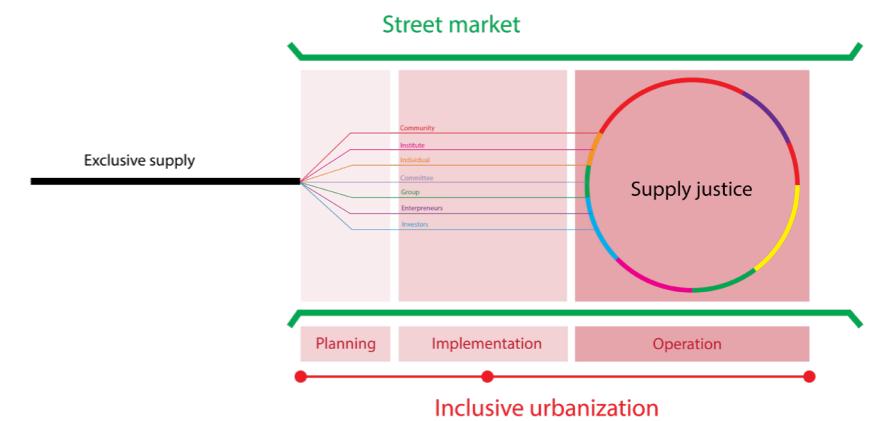


FIG. 1.1 Diagram of the relationship between street market, supply justice and inclusive urbanization



1.2 - The issue of monopolized supply

Over the years, the minority supply companies dominated the Chinese supply chain and wiped out local collective making by their non-responsible mass production. The suppression of local collective making and selling dramatically threatened the supply network's resilience and robustness. As a result, a large portion of streets with their attached productive neighborhood became an urban slum.

The diagram shows the portion of supply agencies involved in the supply chain of Qingdao, China. Only 18 purchasing companies control over 10 million population's consumption choices. The research will explore alternatives in the city context that will release the supply threshold through collective actions and achieve inclusiveness for the bottom billion.



FIG. 1.3 Street market in Dali. - Credit to Wangfu. Zhong



FIG. 1.4 Gitect glass cutting factory- Credit to Robotics business review



FIG. 1.5 Hong Kong Lady's market- Credit to Hsm.Therdo



FIG. 1.6 Alibaba automated logistic distribution system - credit to Shandong daily newspaper

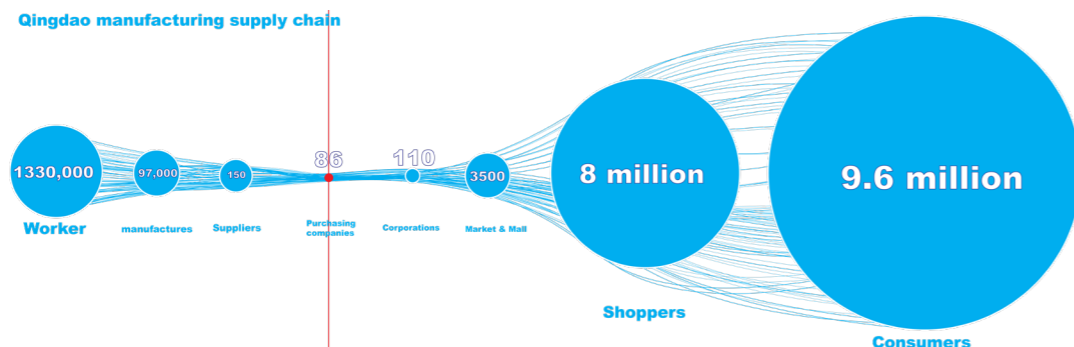


FIG. 1.2 Qingdao supply structure diagram, based on the 2019 city supply data analysis report

Credit to PBL Netherland Environmental Assessment Agency & Chinese national stastic agency

FIG. 1.7 The "Milk Scandle" at 2016 in Hunan province. The police are destroying the poison milk powder on city dumping site. [Credit to Ynagzi newspaper]



FIG. 1.8 The unregulated instant pork box destory on site in Han dan, Hebei. [Credit to Ynagzi newspaper]



Issue 01 - Food production safety

According to the data collected by Chinese agricultural & food supply institutions, over 6.4% of the food produced domestically failed to match the national food security & healthy standard. Every year, more than 18 tons of disqualified supply has been captured and destroyed.

FIG. 1.9 The centralized labour driven factory are producing sleeve at one cloth industrial park at Huangdao, Qingdao



Credit to Qingdao daily newspaper

FIG. 1.10 The labour market at Qingdao shandong Rd. are processing over 20,000 applications per day.



Credit to Qingdao daily newspaper

Issue 02 - Labor inequality & overload

The monopolized supply companies demand cheap labor to reduce the operation cost. It deconstructed the knowledge-driven city labor structure. Thus, young educated people are losing their market values. These actions lead to the outflow of talents and the decrease of local social capital mobility. The gap between the poor and rich is dramatically enlarging over the past ten years. The city labor structure is at the edge of the break.

FIG. 1.11 The declining of Huang dao Rd. street market since 2002 in Qingdao



Credit to Qingdao daily newspaper

FIG. 1.12 The neighborhood which used to the productive community that support the street market are deconstructing with the declining street market



Credit to Qingdao daily newspaper

Issue 03 - Urban productive neighborhood degeneration

The local neighborhood, which used to be part of the supply chain, lost its productive function and financial input, residents are suffering from economic exclusion. The direct impact is more than 80% of the local traditional neighborhood has degenerated into urban slums. The diversity of social structure also destructed because of the population's lossing. The city is divided after the east city planning launched in 2012 with the commercial center, cultural facilities, and residential development shifting to the east. The enlarged city disparity accelerated the west town's decline. The west town's living environment is facing a challenging situation.

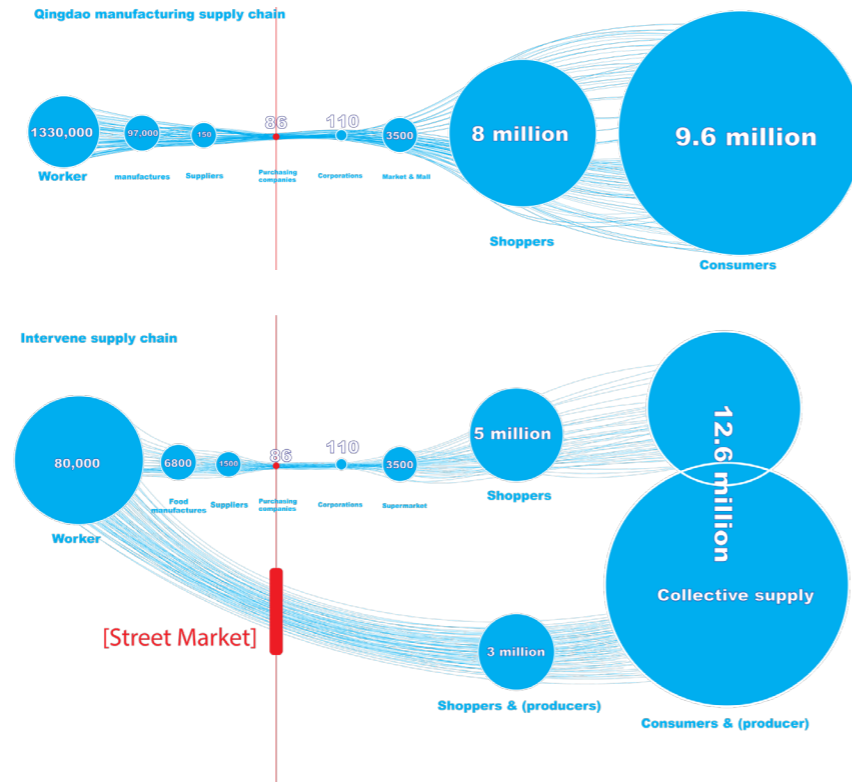


FIG. 1.13 The street market functioned as a channel that reframed the structure of supply and provided a chain network across social, economic and spatial dimension

【自由市场】

The street market

1.3 - Create conditions for inclusive urbanization as objective

The thesis objective is **exploring the spatial possibilities through design of the street market as infrastructure to facilitate collective making and create conditions for inclusive urbanization by achieving supply justice.**

Supply justice is the fair and equitable distribution of opportunities and choices to the actors that evolved in the supply chain. Its practice is driven by collective actions, consensus, and collaboration across sectors, which indicates a tight connection with inclusive urbanization theory.

The study seeks a breaking point that can release the threshold and transform the linear supply structure to a loop eco network. Among the many, the Street market displays its unique capability in facilitating collective production, responsive consumption, inclusive living, and collaborative business.

It is a multi-dimensional spatial network that across the block to urban scale. Socially, it is a social capital hub that can trigger collective actions. Economically, it is a productive commercial supply entity that collaborates formality and informality.



1.4 - Research questions

The study organized four types research questions to achieve the research goal. First, it starts with why the street matter as an understanding question to understand the rules of its existence through the socio-economy view.

It is followed by inspiration questions to answer what spatial conditions are crucial for its performance through case studies. After that, application questions focus on exploring the approach of transferring these performances through spatial intervention in a specific context. In the end, reflection questions are raised to review the process and indicate future research.

[Understanding question]

- How can the street market operate as infrastructure to create conditions for city development?
- How to active the collective making by using street market?

[Inspiration question]

- What spatial conditions are crucial for a good practice of street market?
- How to evaluate a street market performance?

[Application question]

- How to reproduce good practice of street market performance in different context?

[Reflection question]

- Dose the thesis approach work or not, and how?
- What is missing in this thesis?

CHAPTER 2

Theory review & Research framework

2.1 - Inclusive urbanization theory & literature review

The inclusive urbanization theory first introduced at 1970s. It emphasized the 'shifting of focus from planning outcome to planning process' (Dürr and Jaffe, 2012. P117). It combines the ideas from participatory planning, transactive planning, communicative planning.

There are successful cases such as Neza transformation in Mexico city and Hal 5 habitat project in Brussel that revealed its profound potential in 'initiating collective action and mobilizing social capital as an essential force to achieve inclusive urbanization' (Hummel, Calla, 2017. P31). Thus, the theory has its unique advantages in transforming the current planning structure to a more open and collective platform.

2.1.1 - The current inclusive urbanization as theoretical framework

The current inclusive urbanization theory mainly focused on the framework and strategic level discussion. It emphasized 'the power of collective actions and the credibility of informal' (Duhau, Emilio, 2014, P158). Urbanization is not a prerogative action but a process powered by the bottom billion. Most governments and institutions began to take this theory as the main framework to explore alternatives for future urbanization.

2.1.2 - The gap between inclusive urbanization theory and practice

Over the years, the inclusive theory still limited its practice on public engagement at the design outcome review stage. The idea itself has been hijacked and misinterpreted by political ambition. Urban planning is an evidence-driven practice which requires a strong link between theory and implementation.

Yet, the missing practice framework that can translate inclusive strategy to community-scale projects leads most of the inclusive plannings to a failure or low-performance situation. Rather than a political statement, it is a tool that can guide the entire planning process, from its concept construction to the project self-sustaining after completion.

2.1.3 - Inclusive urbanization as practice approach

The importance of this study is to investigate alternative options of initiating collective actions to guide the planning. This thesis used the street market as a spatial media to explain how collective making can be the driving force to trigger inclusive urbanization.

2.2 - Network approach & research by design methodology framework

The thesis methodology framework is composed of two parts. The first part is the layers & network approach. It will be applied to explore the street market as a system in the city context. It is based on four networks themes, including production network, consumption network, living & social welfare network, and business collaboration network. The second part has followed the research by design approach. It explores and examines the thesis research by applying first stage findings in the city of Qingdao.

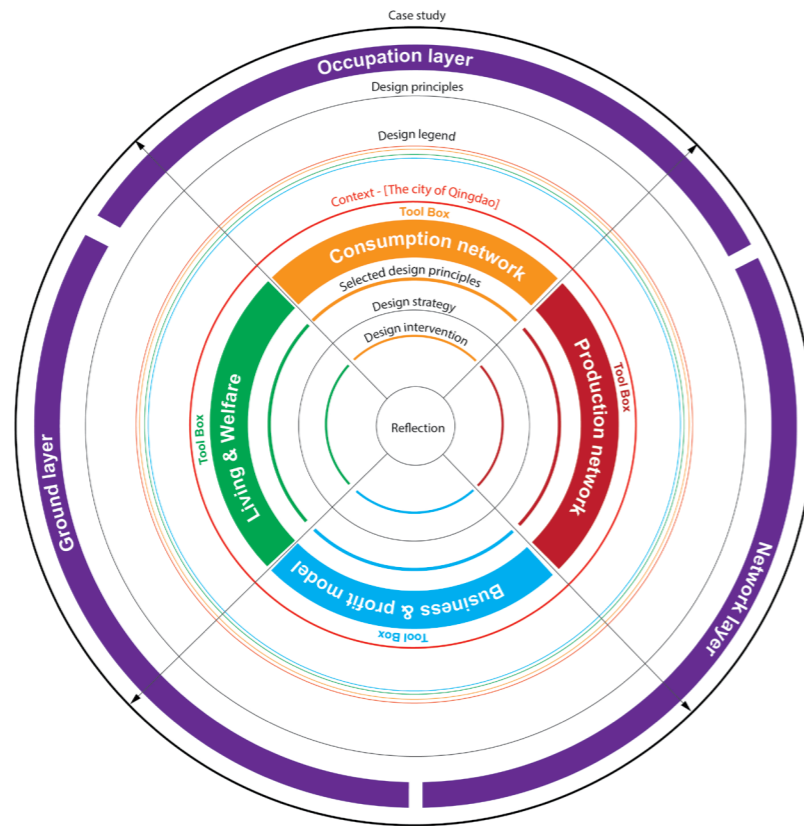


FIG. 1.14 Research approach overall structure

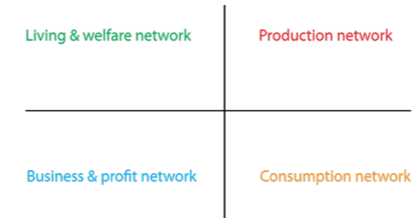


FIG. 1.15 Networks under four themes

In these two stages, a category of spatial factors under four themes are guiding the research focus:

- **Production network**
 - [Productive space topology]
 - [Productive infrastructure system]
 - [Waste management system]
 - [Logistic system]

- **Consumption network**
 - [Consumption space system]
 - [Consumption infrastructure system]
 - [Consumption facility system]

- **Living & social welfare**
 - [Sanitation system]
 - [Neighborhood infrastructure space]
 - [Vegetation & ecology condition]
 - [Community sharing space]
 - [Public space system]
 - [Public transportation network]

- **Business model & collaboration network**
 - [Individual business pattern]
 - [Formal business collaboration pattern]
 - [Informal & formal business collaboration]
 - [Social capital support pattern]
 - [Collective actions pattern]

By following this category, the case study in the following chapter will investigate each case through these networks and explore the street market's performing mechanism.

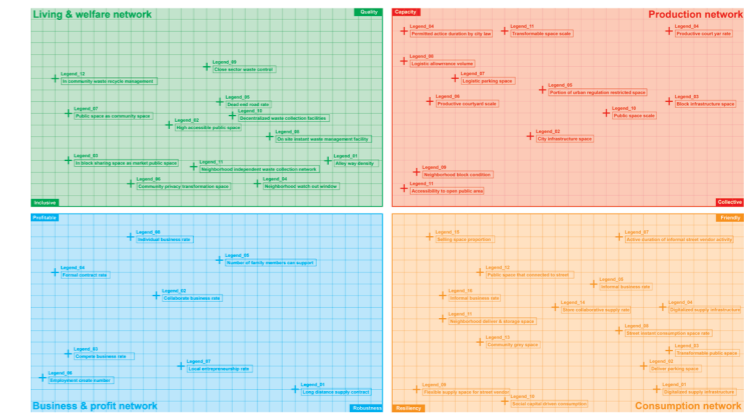


FIG. 1.16 Networks under four themes

CHAPTER 3
Case study, design principles & toolbox

3.1 - Case study research structure & overview

This chapter’s overall research structure included four parts: the case study selection, summarize design principles, extracting design legends, and constructing design toolbox.

Design legends are the key spatial elements from each principle that equips the street market with a certain socio-economic impact. The design toolbox is a four theme chart which composed of design legends. This chart can identify street market issues, explore possible solutions and modify the design principles in a specific context.

The deliverables from this chapter included:

- I. Design principles learned from the case study.
- II. Design legends extracted from these principles.
- III. A four theme chart that evaluates, categorizes, and dissects design principles and legends.
- IV. Design toolbox with four themes composed by the design legends.

Terminology

[Design principle]

A spatial pattern of the street market represents a particular feature or operation mode.

[Design legends]

It’s a set of crucial spatial elements of a design principle that can deliver certain high socio-economic performance.

[Four theme design toolbox]

A chart system that composed of design legends to evaluate and guide design focus from production, consumption, living, and business model aspects.

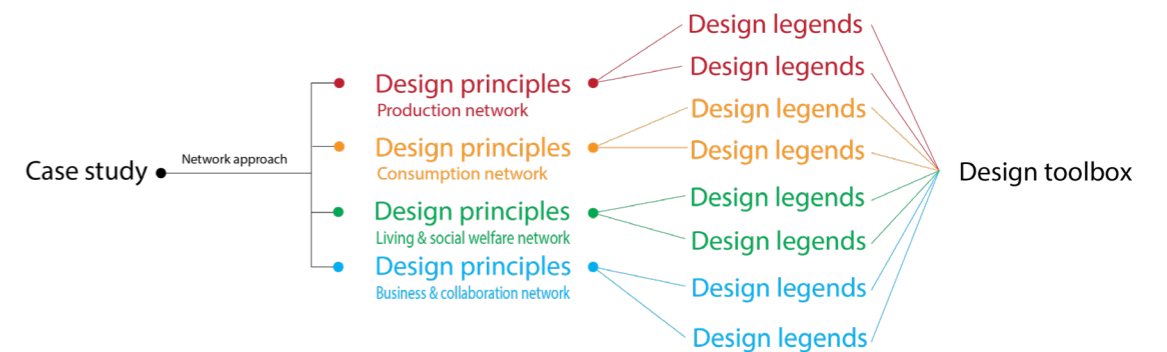


FIG. 1.17 Overall research structure of case study chapter

3.1.1 - Case selection

The study selects both international and domestic cases to ensure the conclusion's universality and transferability in a different context.

Also, the selected cases have comparability regarding their spatial scale, business model, production and consumption volume. As a result, eight among the many are selected.

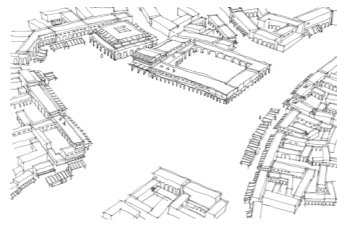


FIG. 1.18 Jemaa el-Fna market in Marrakesh, Morocco

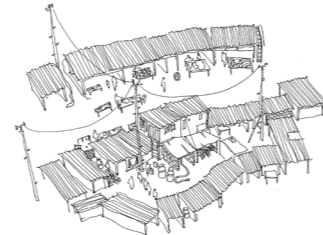


FIG. 1.19 Olympia market in Kibera, Kenya



FIG. 1.20 Huang tai Rd. Street market, China

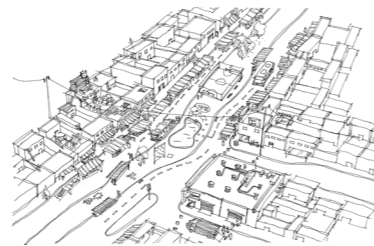


FIG. 1.21 Angela St. Market in Neza, Mexico city

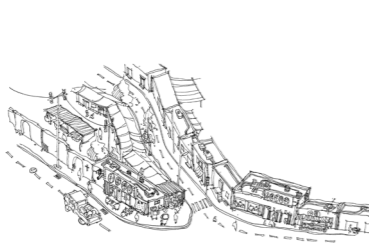


FIG. 1.22 Shanghai Rd. Street market, China

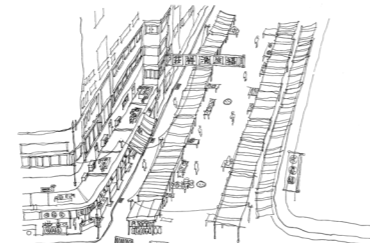


FIG. 1.23 Lady's street market, Hong Kong

3.1.2- Design principles overview

Through the case study, the study summarized 17 design principles under four themes. Each of them focused on a different theme but also has a corresponding impact through the other themes. The selection of qualified design principles is to see if their impact reaches a balanced performance in all four themes. To protect the overall performance of the street market, any potential design principles that have a dramatic negative impact on other themes cannot be selected.

The chart below located the principles in their focused quadrant. The visualized principle chart can make it easier to organize the solution package in further steps.

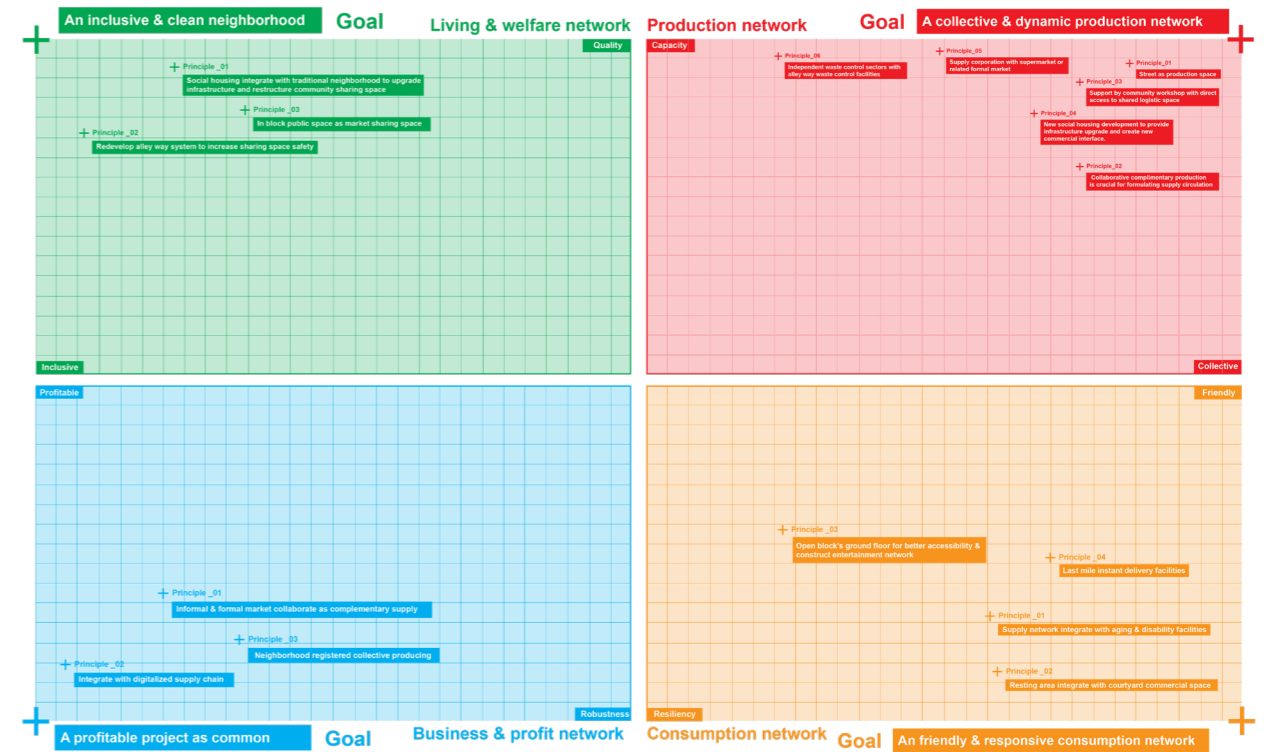


FIG. 1.24 Networks under four themes

3.1.3 - Design legends overview

Design legend is the crucial spatial element that affects the design principle's spatial performance. The extraction procedure transformed the principles to constructible spatial factors and prepared them into one toolbox. Although some principles have similar design legends, this process will also identify the shared legends and simplify the toolbox.

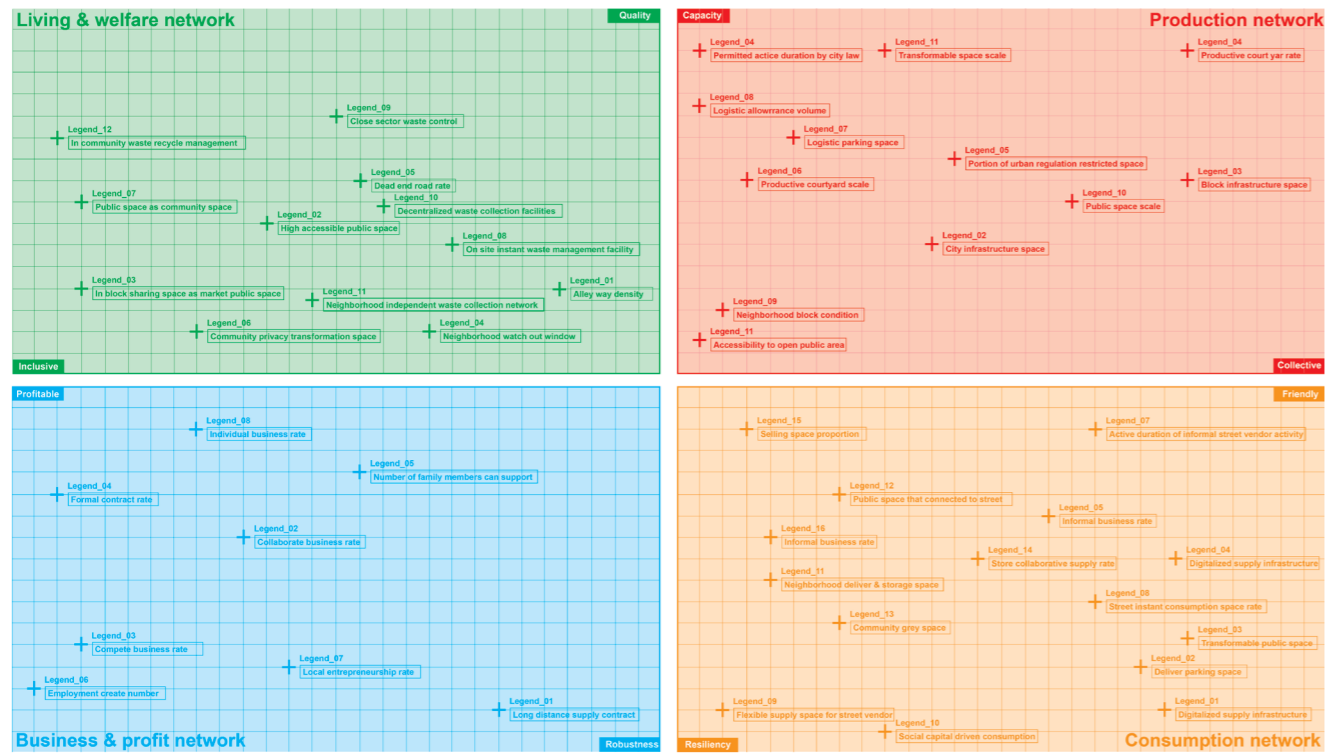


FIG. 1.25 Networks under four themes

3.1.4 Design toolbox overview

The principle toolbox is a chart system composed of design legends to identify issues and address them by applying concluded principles. It will select possible solutions across the four themes (production/consumption/living/Business) and evaluate the expected performance.

The applications of the toolbox include three parts:

The application in identifying issues:

Locate the possible issues that conclude from early-stage analysis in the chart, and evaluate its performance to confirm them as manageable challenges.

The application in constructing strategy:

By confirming the issue's location on the chart, relevant design legends can be selected. The combinations of challenges and possible solutions will help to frame the scenario and strategy.

The application in modifying design principles:

The design principle only provides standard consultation in a general manner. They still can be modified to combine relevant design legends from other principles and form a complemented design principle that fits into a specific context. This is one of the key processes as a principle translation procedure.

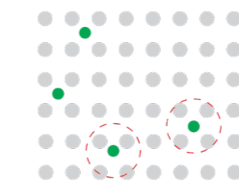


FIG. 1.26 Identify issues

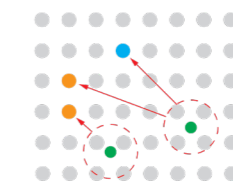


FIG. 1.27 Construct strategy

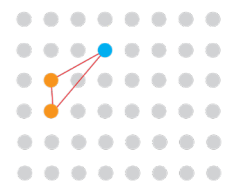


FIG. 1.28 Modify principle

3.2 Design principles under four themes

This sector will explain the approach of identifying and summarizing principles from case study in detail, including the spatial indication of each principle, the supporting case as evidence, design legends, and their impact.

- 3.2.1 Theme I. [Production network]
- 3.2.2 Theme II. [Consumption network]
- 3.2.3 Theme III. [Living & social welfare network]
- 3.2.4 Theme IV. [Business & collaboration pattern network]

01 - Production network theme introduction

The production theme focuses on the street market's production capacity and its process. The capacity refers to its performance in addressing rush hour production demands and transformation capability. The collectiveness means the corporative way of making, the shared infrastructure system, street space redistribution, and neighborhood support.

02 - Production network theme principle & legend overview

The production theme legends are evaluated by group. The other three quadrants (Fig.1.28) also assessed the performance of production theme legends to provide an overall performance review.

The production theme design principle typically has relatively low performance in the other three themes (Fig.1.29). Therefore, it is crucial to use different themes principle to balance these negative impacts.

FIG. 1.29 The chart of production design legends and its impact in other themes. The design legends are organized by group to maintain their design principle logic structure. The visualized legends chart is one important step to construct design toolbox in the next chapter.

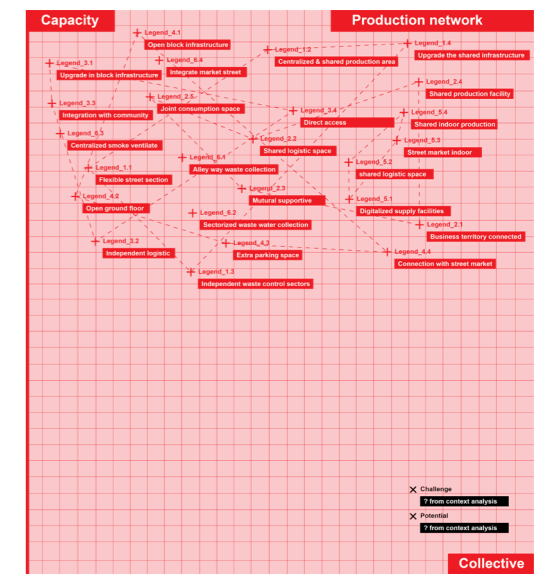
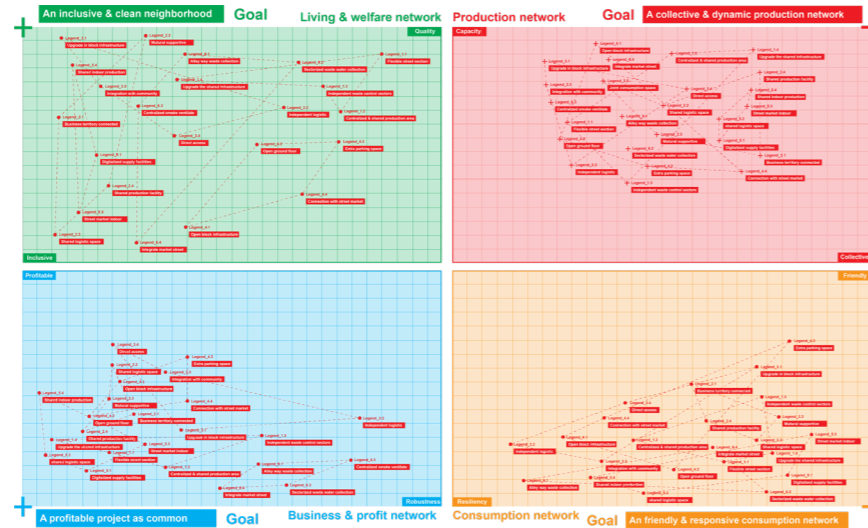


FIG. 1.30 The evolution of production design legends in the four theme chart.



[Principle 01] Street as production space

Using street space to organize the production and optimize its capacity and waste control. The street has the unique advantage of spatial flexibility and social openness to incubate a dynamic production form.

[Legend]

- Flexible street section with access to public space
- Centralized and shared production area
- Independent waste control sectors
- Upgrade the shared street infrastructure

[Principle 02] Collaborative complimentary production is crucial for formulating supply circulation

A group of stores that composed a closed supply chain should locate near each other and develop a collaborative supply scheme.

[Legend]

- Business territory connected
- Shared logistic space
- Mutual supportive neighborhood
- Shared production facilities
- Joint consumption space

[Principle 03] Collaborative complimentary production is crucial for formulating supply circulation

A group of stores that composed a closed supply chain should locate near each other and develop a collaborative supply scheme.

[Legend]

- Business territory connected
- Shared logistic space
- Mutual supportive neighborhood
- Shared production facilities
- Joint consumption space

[Principle 04] Support by community workshop with direct access to shared logistic space

Neighborhood collective logistic and productive space will support the market's street production.

[Legend]

- Upgrade in block infrastructure capacity
- Independent logistic distribution route
- Integration with community sharing space
- Direct access with street market major supply space
- Integrate market street space with terrain

[Principle 05] Support by community workshop with direct access to shared logistic space

Neighborhood collective logistic and productive space will support the market's street production.

[Legend]

- Upgrade in block infrastructure capacity
- Independent logistic distribution route
- Integration with community sharing space
- Direct access with street market major supply space
- Integrate market street space with terrain

[Principle 06] New social housing development to provide infrastructure upgrade and create new commercial interface.

Develop new social housing with commercial ground floor and updated infrastructure network to replace certain old blocks.

[Legend]

- Open block infrastructure interface with the street market and community production space
- Open ground floor for new commercial & entertainment space
- Extra parking space for consumers and logistic parking
- Connection with street market major supply space

Examples for [Production network] theme design principles

[Design principle 01] Street integrated with slow lane system as production space

[Design principle 01] Street integrated with slow lane system as production space

The market street space has a better connection to city infrastructure and supports large-scale production. Secondly, it is the crucial spatial media that connects productive neighborhood courtyard and urban public space. Both of them are critical transformable spaces that respond to the intense production demands during the rush hour. Thirdly, street production is one of the most efficient ways to attract consumers. So, it is essential to develop and protect street production.

[Design Legend]

[Legend 1.1] Flexible street section with access to public space

Street without strict zoning rules. It allows the market can respond to the changing consumption pattern and transform its production territory accordingly.

[Legend 1.2] Centralized and shared production area

The centralized and shared approach will regulate the production activities in certain areas to ensure the efficiency.

[Legend 1.3] Independent waste control sectors

It requires the waste management facilities to locate within each street production zone and dissolve the waste without spreading or redistributing it to other areas.

[Legend 1.4] Upgrade the shared street infrastructure

Street production heavily relies upon on-street infrastructure and can be much more intense comparing to indoor's during rush hour. The capacity of street infrastructure determined the cap of overall production.

[Design principle 01 evaluation]

This street production principle has high performance in three quadrants except the living & social welfare theme. Street production took place in the open air where typically has less infrastructure support comparing to indoor production. The smoke, leftover oil, and wastewater severely polluted the surrounding neighborhoods. The application of the street production principle needs living and social welfare-related principles to optimize accordingly.

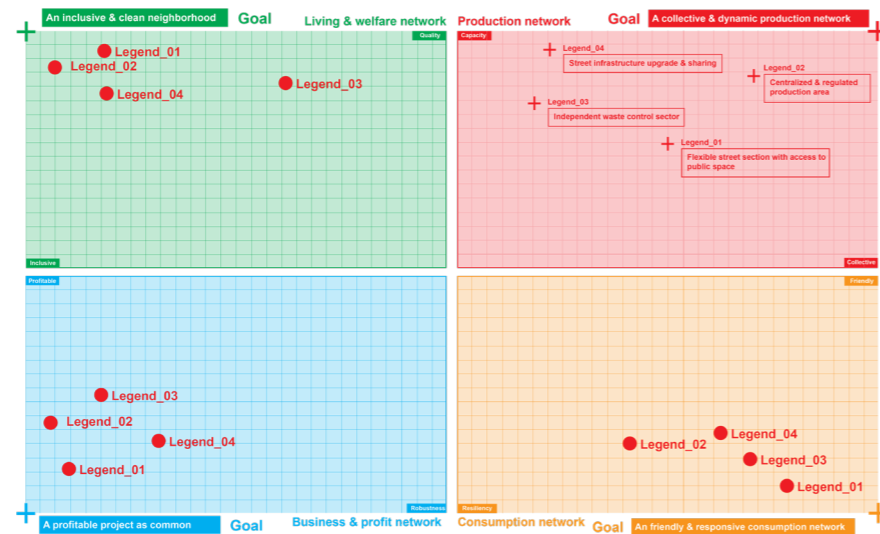


FIG. 1.31 Evaluation of four legends under principle 01.

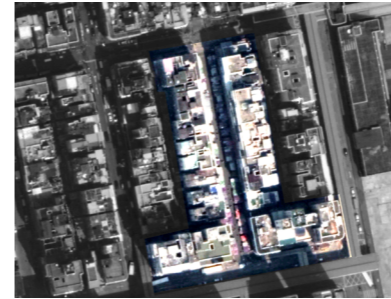


FIG. 1.32 Lady's market in Hong Kong has a 5 tons / per hour cargo loading capability. The passenger flow volume is 70,000 per day in average between 2015 Jan -2016 Jan.

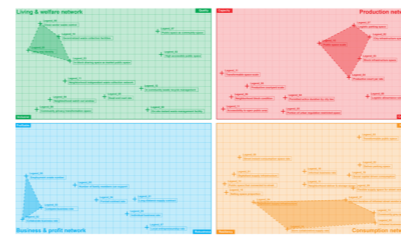
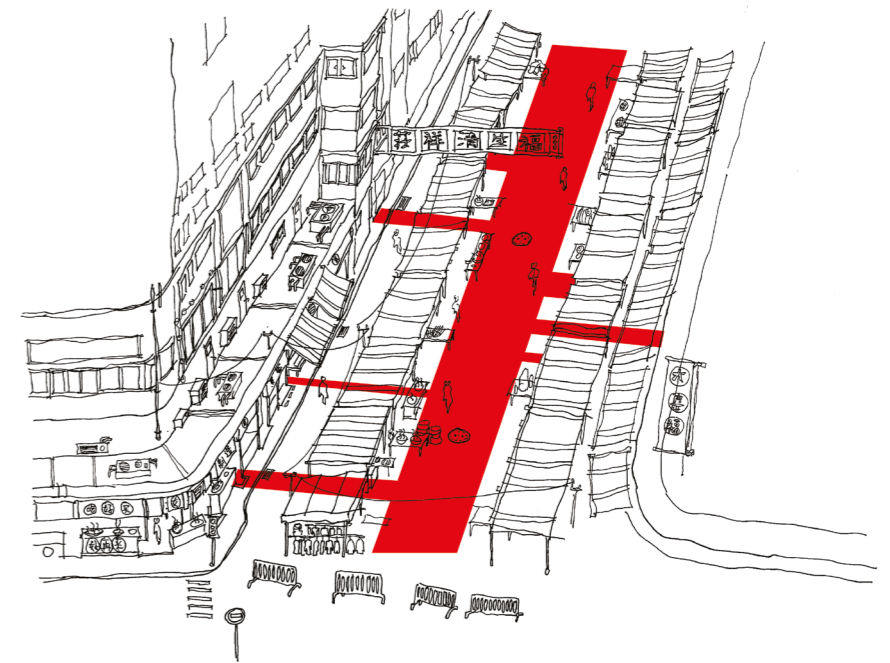


FIG. 1.33 Evaluation of principle 01 in the case of Lady's market in Hong Kong

Supporting case - 01 - [Lady's street market in Hong Kong]

With the consumption volume and type change through the day, this case illustrates the transformation of street production accordingly.

[1:00am to 4:00 am]

During this period, the street will be closed and mainly function as the logistic yard. The sellers will collect, distribute, and clean the cargo, then move them back to the store. They conducted the initial food process on the street before they moved back to the neighborhood for storage or in-store cooking. The street shifted its function to logistics & production before 6 am and after 8 pm.

[06:00am to 08:00 am]

This is the rush hour period for instant street consumption. Produce on the street is the most efficient way to scale up the collective production process. For example, The fried food store prepared fried breadstick, work with soft tofu soup store, and baozi store as the breakfast combo supply. All fried production activity from the baozi and tofu shop is taken in this store.

[Rush hour]
The morning breakfast selling & instant consumption

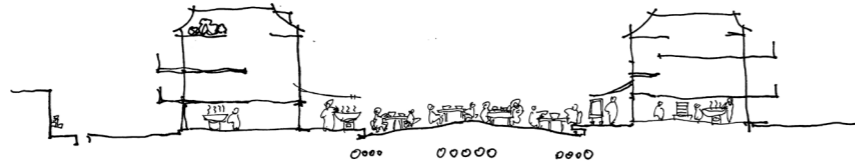


FIG. 1.34 Morning time 6:00 am - 9:00 am

[Normal hour]
The between rush hour preparing period

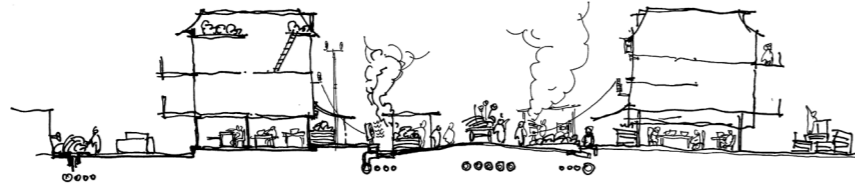


FIG. 1.35 Day time 9:00 am - 6:00 pm

[Night rush hour]
Neight market busy period

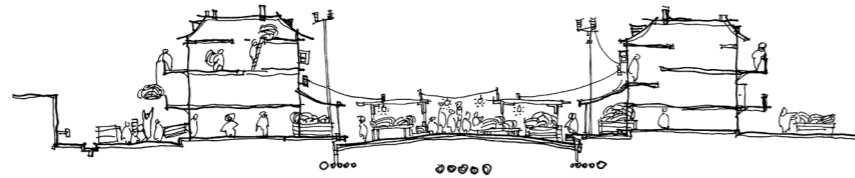


FIG. 1.36 Afterwork time 6:00 pm - 9:00 pm

[Late night hour]
Logistic unloading & first stage processing period



FIG. 1.37 Late night time 9:00 pm - 3:00 am

Examples for [Production network]
theme design principles

[Design principle 02] Collaborative complimentary production is crucial for formulating supply circulation

Street transformation pattern

It reviewed the pattern of function transformation. The street market is shifting its spatial layout between production and consumption to adapt to the dynamic flow of urban demand.

[Design principle 02] Collaborative complimentary production is crucial for formulating supply circulation

This principle illustrates how to organize collaborative production between individuals by providing a set of micro-circulative-producing spatial patterns. It is one of the crucial features that street market will trigger collective actions. These actions play a major role in equipping the market with high responsive transformation capability.

[Design legend for principle 02]

[Legend 2.1] Business territory connected

It indicates the spatial distance between corporate stores. It should be controlled in a convenience distance to ensure the combo product supply.

[Legend 2.2] Shared logistic space

Sharing logistic space can reduce the production cost and incubate business trust and efficiency.

[Legend 2.3] Mutual supportive neighborhood

Each neighborhood has their own protection area, it will be beneficial to get common support from both sides community.

[Legend 2.4] Shared production facilities

Shared facilities such as heating system, ventilation system can dramatically reduce the operation cost and simplify the collaboration process.

[Legend 2.5] Joint consumption space

In general, the street business distribution is consumption oriented. Joint consumption space means several stores use one consumption space to sell their products as combo supply.

[Design principle 02 evaluation]

The four theme evaluation chart shows the five legends under this principle have a high positive impact in all four themes. Especially the [Legend 04] shared production facilities is the key factor.

The [Legend 03] supportive mutual neighborhood has relatively low performance, but it is still necessary because of its impact on living and social welfare.

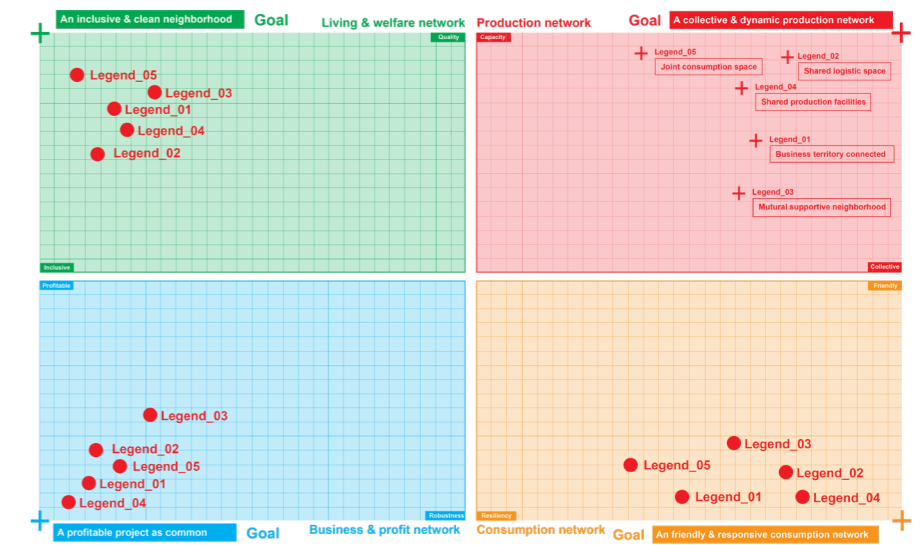
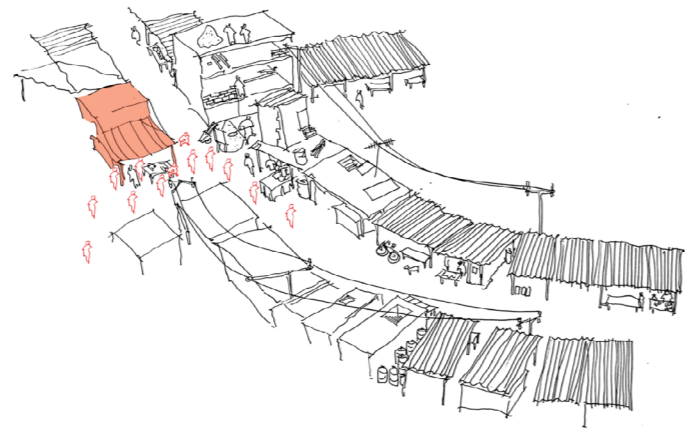


FIG. 1.38 Evaluation of five legends under principle 02.



FIG. 1.39 As the biggest market in Kibera, along with other 3 street markets, they contributed 65% (UN habitat city prosperity report 2017) of income for the local communities. The supply network and social capital network are well integrated with the market's spatial structure. It incubates the collective actions in between the city and slum, which laid the foundation to further transformation.



Supporting case - 01 - [Toi street market in Kibera, Nairobi]

This case located at Mabilia tribe territory, east side of Toi market, the study chooses a fish restaurant and a fresh fish store to illustrate collaborative business's advantages.

In this case, the fish restaurant opened at morning rush hour to provide cooked fish. After the rush hour, the fish store opened. The restaurant moved its morning leftover cooked fish to the store and used its space to sell. In the evening rush hour, both stores are busy. After 7 pm, the fish store will be closed, and leftover fish will be moved to the restaurant and cooked for the following day.

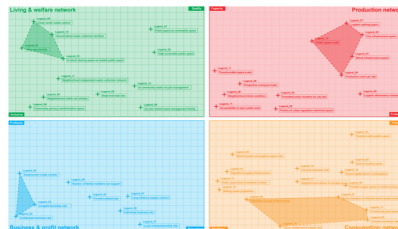


FIG. 1.40 General evaluation of fish store collaboration performance

[07:00 am]



[12:00 pm]



[19:00 pm]



[05:00 am]

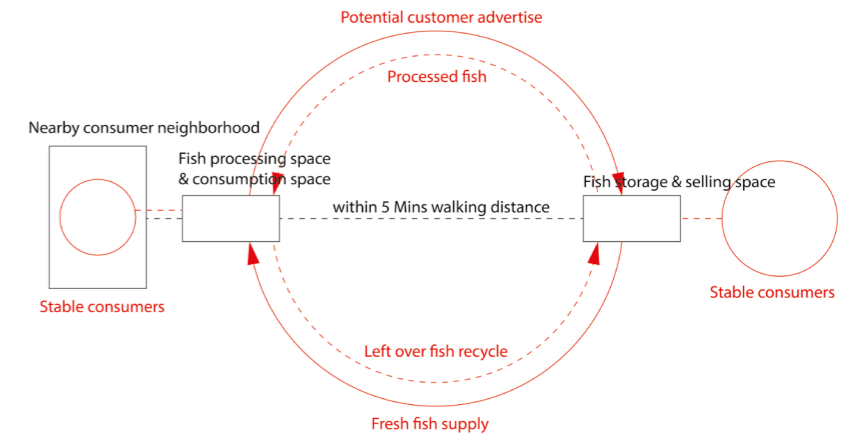
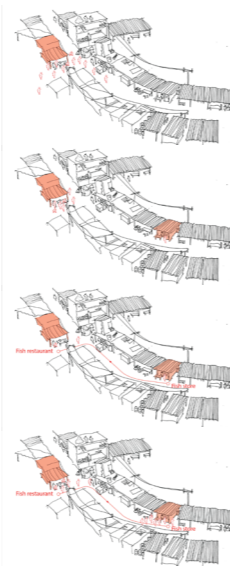


FIG. 1.41 The micro circulation of production & consumption between two stores

These two stores interlaced their production and consumption activities. This corporation provides the possibility of product exchange [Fig.1.12]. The end of the supply chain also connects to another store's beginning of the chain.

In the meantime, the collaboration is also reflected in the time dimension [Fig.1.13]. In this case, the fish selling store's rush hour is around noontime, and the fish restaurant is morning. This pattern provides more flexibility for the store owners to extend their collaboration.

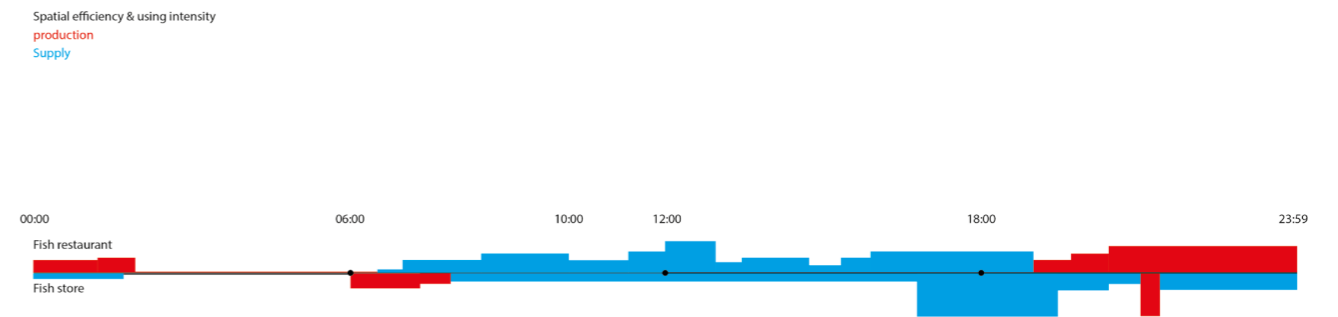


FIG. 1.42 The time pattern of supply circulation

- 3.2.1 Theme I. [Production network]
- 3.2.2 Theme II. [Consumption network]
- 3.2.3 Theme III. [Living & social welfare network]
- 3.2.4 Theme IV. [Business & collaboration pattern network]

01 - Consumption network theme introduction

The consumption network theme's discussion focuses on the street market's consumption resilience and equity. Resilience refers to its capability and efficiency in addressing the dramatic changing consumption pattern throughout the day. Regarding equity, it mainly focuses on the service quality for the socially vulnerable group that composed a large portion of a street market's population.

02 - Consumption network principle & legend overview

The consumption network design legends have a very tight connection with other themes. It directly influenced the production layout and business model practice. They aim to build a friendly consumption environment and resilient responding mechanisms. Its investigated area included public space, community sharing space, and so on. Most of the spatial key factors are also related to living & social welfare networks.

FIG. 1.43 The summarization of consumption network design legends chart

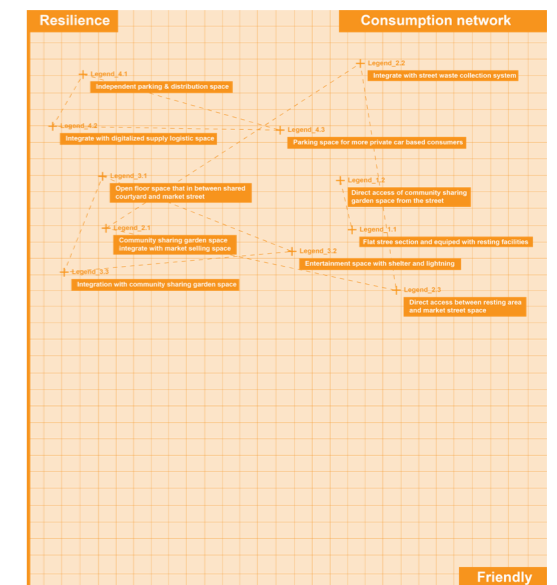
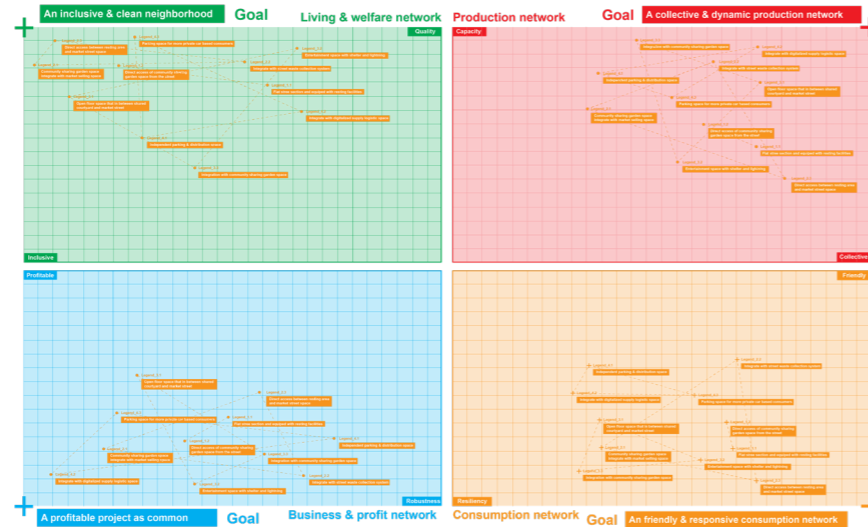


FIG. 1.44 The impact evaluation of consumption design legends in other themes



[Principle 01] Supply network integrate with aging & disability facilities

As aging and the social vulnerable group composed a large portion of street market customers, the supply space needs to integrate with caring facilities.

[Legend]

- 1.1 - Flat stree section and equipped with resting facilities
- 1.2 - Direct access of community sharing garden space from the street

[Principle 02] Resting area integrate with courtyard commercial space

Develop a slow consumption network that can combine social caring and business.

[Legend]

- 2.1 - Community sharing garden space integrate with market selling space
- 2.2 - Integrate with street waste collection system
- 2.3 - Direct access between resting area and market street space

[Principle 03] Open block's ground floor for better accessibility & construct entertainment network

The street market's gound floor normally not suitable for living. Opening the ground floor can create a new connection between block space and the market.

[Legend]

- 3.1 - Open floor space that in between shared courtyard and market street
- 3.2 - Entertainment space with shelter and lightning
- 3.3 - Integration with community sharing garden space

[Principle 04] Last mile instant delivery facilities

The independent traffic system of the street market is crucial to connect households with customized services.

[Legend]

- 4.1 - Independent parking & distribution space
- 4.2 - Integrate with digitalized supply logistic space
- 4.3 - Parking space for more private car based customers

Example for [Consumption network] theme design principles

[Design principle 03] Direct access to main traffic street with major public transportation hub

[Design principle 03]

Direct access to main traffic street with major public transportation hub

The majority of the consumer population is lower middle class, which requires public transportation support. The station is the critical factor that decides whether the market can survive. In the meantime, according to the Qingdao daily newspaper report, the fact that most street markets have issues of parking which became the number one reason for the upper class's consuming populations to grow.

Design legends

- [Legend 01] Public transport station close to market entrance
- [Legend 02] Caring facility for aging and disability group
- [Legend 03] Sub transport system to connect the bus station with major centers of market
- [Legend 04] Public space near the entrance for circulating station commute population

Evaluation

The principle has a balanced performance in all themes. Normally, the street market consumption can generate severe issues to the quality of living space, such as waste dumps in the neighborhood park and public space.

FIG. 1.45 Impact evaluation of Legends from Design principle 03

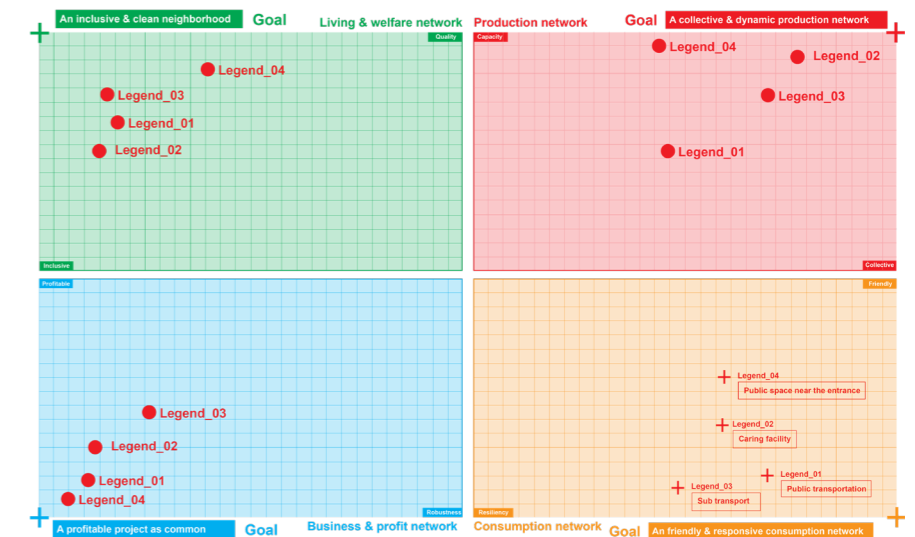




FIG. 1.46 During the shut down period, it has a 5 tons / per hour cargo loading capability. According to the research at Hong Kong urban design institution 2016 yearbook, the passenger flow volume is 70,000 per day in average between 2015 Jan -2016 Jan.

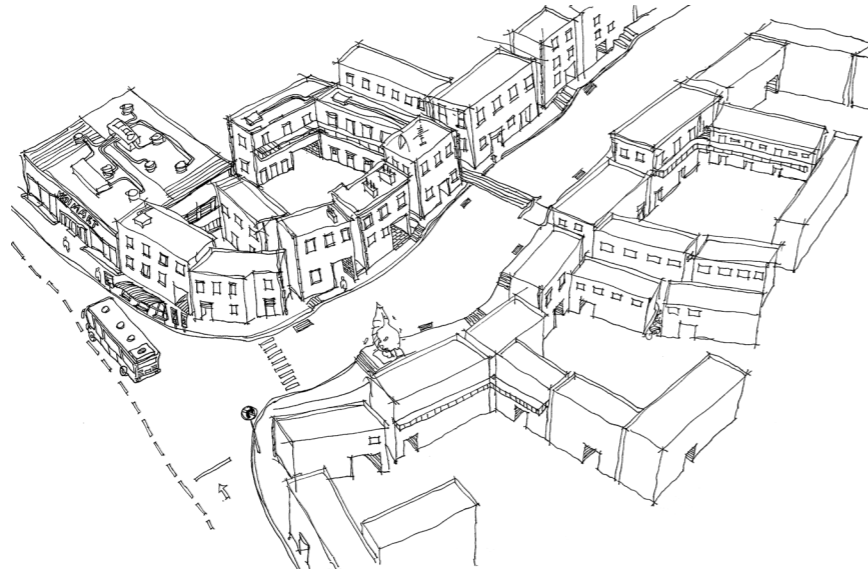


FIG. 1.48 Dalian Rd. Street market. Jinan, China



FIG. 1.47 General evaluation of pingdu street market performance

Supporting case - 01 - [Da lian Rd. Market]

Unlike other cases that close down the entire street for supply, the Dalian street market only shuts down one sector of the road and limited certain types of traffic to incorporate the simultaneous city supply. The market doesn't allow private transport to pass through. Only public transportation has the permit during its operation hour (6 am - 10 pm) to pass at low speed (15mph). Beyond its service time, the street restriction facilities will be removed, and logistic trucks begin to come in.

This traffic control pattern is well integrated with the public transportation network in this case, especially the aging and disability groups. Public transport has three different kinds:

1. Large volume intercity bus, has one stop right before the market entrance.
2. Small volume interdistrict bus. Its goal is to carry the consumers in between Jinan sub-city districts.
3. Individual running "hop-on" bus. Small volume truck that normally carries 8 - 10 passengers with negotiating stop.
4. Individual running motorbike. It's informal transport that targeted last-mile delivery.

FIG. 1.49 Integration

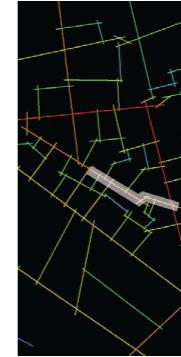


FIG. 1.50 Seg depth

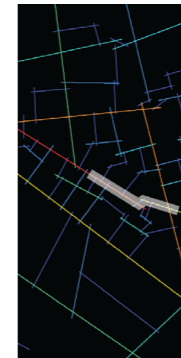
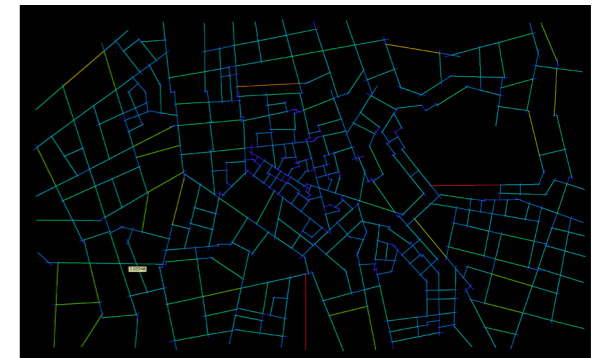
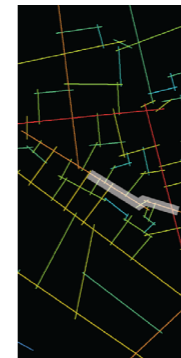


FIG. 1.51 Seg length



The analysis shows the street market has a close connection with the city's main traffic street and the public transportation hub is located on the main road. The alleyway system also creates series direct access to the station from the market.

Example for [Consumption network] theme design principles

[Design principle 04] Connect alley way network as supply circulation system

[Design principle 04]

Connect alley way network as supply circulation system

The alleyways are crucial for the market to integrate with urban networks and circulate its supply consistently. Its function includes organizing sanitation facilities, resting and storage areas for street vendors, street consumption spaces, and daytime logistic supply. The alleyway network is one of the vital supporting networks for the street market.

Principle 04 design legends

- [Legend 01] Open ground floor space for alley way safety
- [Legend 02] Open end alley way
- [Legend 03] Resting facility at alley way
- [Legend 04] Clean section and connect to main city street

Principle 04 evaluation

The alleyway system is efficient for circulating production and consumption. The development of quality consumption space can increase the residents living quality at the same time. In the production quadrant, it can balance the space occupation between production and consumption.

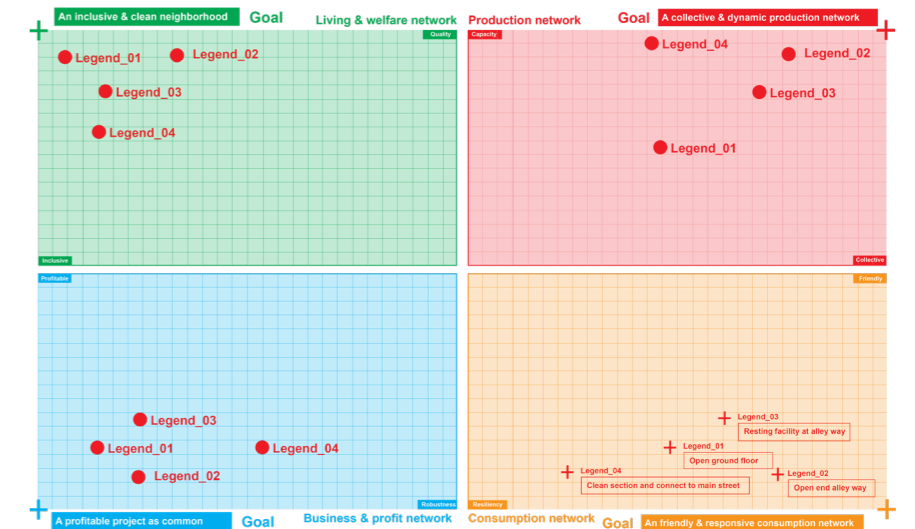
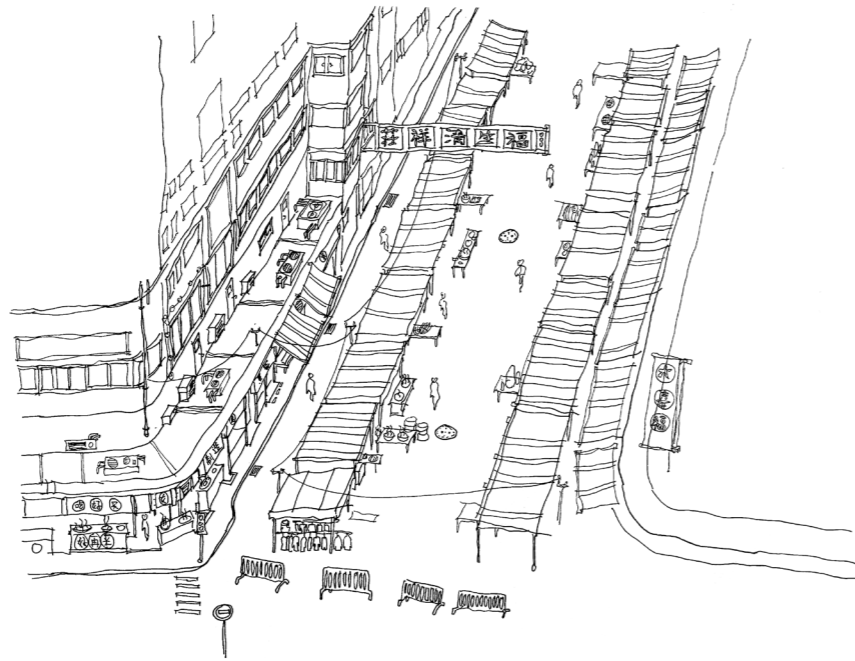


FIG. 1.52 Impact evaluation of Legends from Design principle 04



FIG. 1.53 During the shut down period, it has a 5 tons / per hour cargo loading capability. According to the research at Hong Kong urban design institution 2016 yearbook, the passenger flow volume is 70,000 per day in average between 2015 Jan -2016 Jan. The large amount of flow gives unique opportunities and challenges and shaped a extreme well integrated system.



Supporting case - 01 - [Lady's street market in Hong Kong]

The lady's market is located in south town, Hong Kong. Routinely, The street spaces will suspend the pedestrian priority, allow mobile transportation to come in. The street shifted its function to logistics & production before 6 am and after 8 pm. They gave the initial food process on the street before moving back to the neighborhood for storage or in-store cooking.

The street is closed between 1 am to 4 am. During this period, the road mainly functioned as the logistic yard. The sellers collect, distribute, and clean the cargo, then move them back to the store.

During the rush hour for instant consumption, produce on the street is the most efficient way to scale up the consumption capacity. The fried food store prepared fried breadstick, work with the soft tofu soup store, and baozi store as the breakfast supply team. All fried production activity from baozi and tofu shop are taken in this store. In the noontime, it will change to sweet potato cake fry. It will prepare condiments for the milky tea store and noodle store to complete the lunch supply.



FIG. 1.54 General evaluation of pingdu street market performance

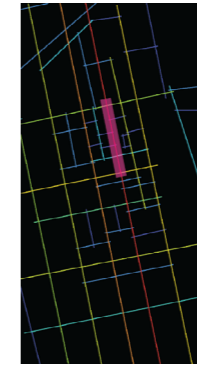


FIG. 1.57 Integrate

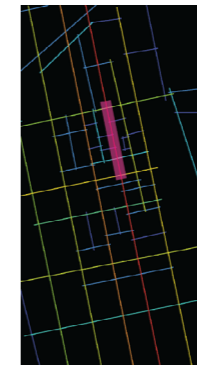
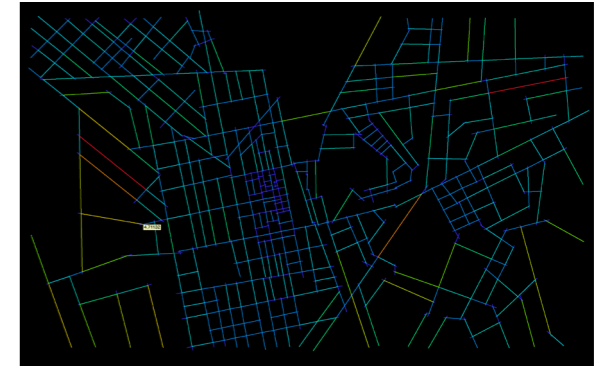


FIG. 1.55 Integrate _ R3 _ BS

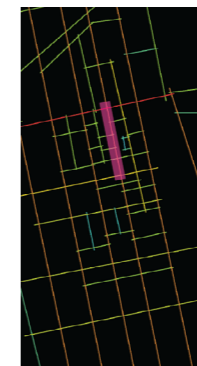
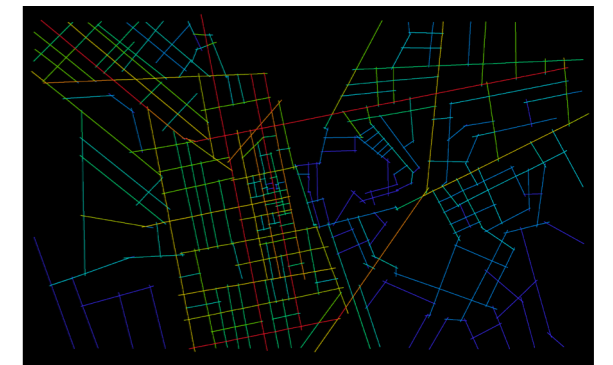
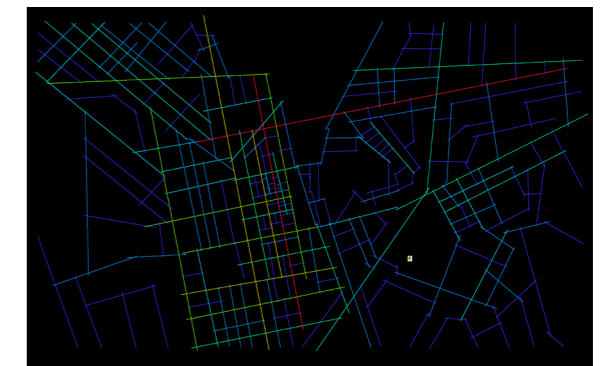


FIG. 1.56 Connectivity



- 3.2.1 Theme I. [Production network]
- 3.2.2 Theme II. [Consumption network]
- 3.2.3 Theme III. [Living & social welfare network]
- 3.2.4 Theme IV. [Business & collaboration pattern network]

01 - Living & social welfare theme introduction

This theme ensures the street market also can function as a habitat. In the past, the street market typically only provide a minimum quality of living due to its lousy sanitation management, and safety matter from a high volume of customers. This theme's principle aims to create a balanced and productive ecosystem for residents, producers, and consumers.

02 - Living & social welfare theme design principles & legends

It is crucial to evaluate the other themes legends impact in the living and social welfare theme. In the end, the living condition should not be compromised to production or business operation plan. On the contrary, it should benefit from the development process and ensure the overall benefits came back to the hands of people.

FIG. 1.58 The living & social welfare design legends summarization

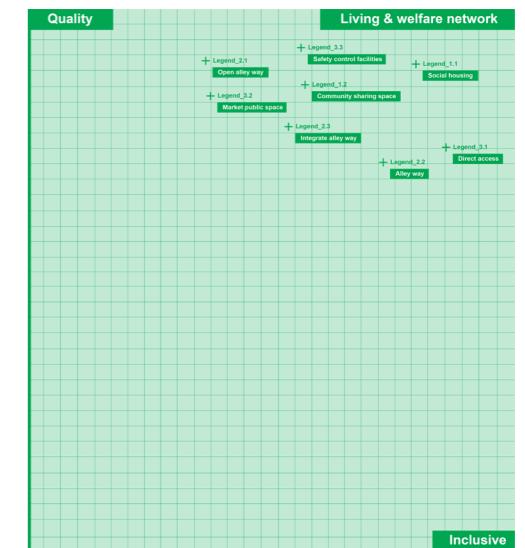
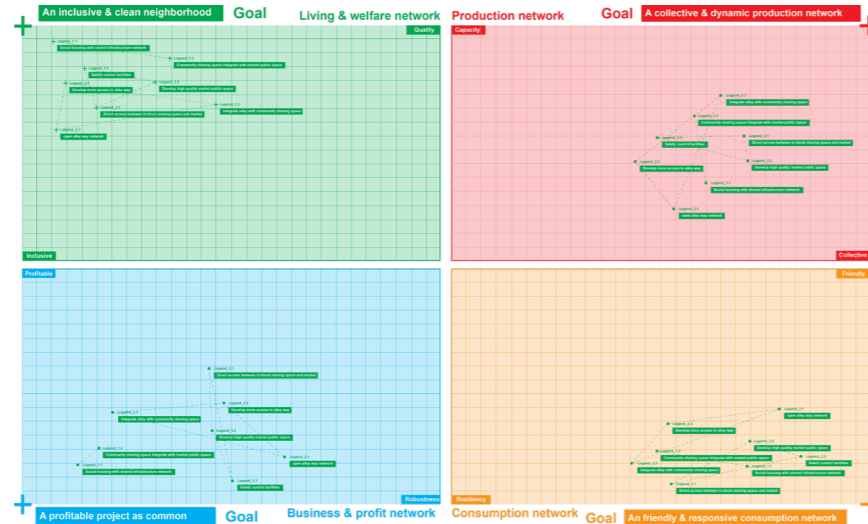


FIG. 1.59 The chart of living & social welfare network and its legends evaluation in other themes



[Principle 01] Social housing integrate with traditional neighborhood to upgrade infrastructure and restructure community sharing space
 The new social housing project will improve the living condition for current social vulnerable groups and generate new community public space.

[Legend]

- 1.1 - Social housing with shared infrastructure network
- 1.2 - Community sharing space integrate with market public space

[Principle 02] Redevelop alley way system to increase sharing space safety
 Usually, the street market is located in a city area with a high-density alleyway network. These narrow and dead-end ways generate safety issues for both residents and consumers. Creating specific openings along the alleyway can dramatically increase its network impact and safety.

[Legend]

- 2.1 - open alley way network
- 2.2 - Develop more access to alley way
- 2.3 - Integrate alley with community sharing space

[Principle 03] In block public space as market sharing space
 With restrictions to certain types of business, the market social activities, in general, can activate community sharing space.

[Legend]

- 3.1 - Direct access between in block sharing space and market
- 3.2 - Develop high quality market public space
- 3.3 - Safety control facilities

Example for [Living & social welfare] theme design principles

[Design principle 03] In-block space as market sharing space

[Design principle 03]
 In block sharing space as street market open space

The in-block community sharing space can be the logistic market space, commercial yard, and aging group caring facilities at the same time. The advantage of these networks' overlaying can create multiple new social interaction layers.

The sharing space in the neighborhood can help circulate and buffer the consumer flow. During the rush hour, it can transform into a contemporary consumption space. In the normal period, it functioned as a caring facility for aging group and facilitate entertainment activities.

Design principle 03 legends

- [Legend 01] Accessible courtyard
- [Legend 02] Open ground floor space
- [Legend 03] Market instant consumption space
- [Legend 04] Entertainment space for residents & aging group

Design principle 03 evaluation

This group of legends has high performance in all four themes. A certain principle like this case can give priority to be selected in the strategy-making procedure.

FIG. 1.60 The evaluation of principle 03 design legends's impact in other three themes

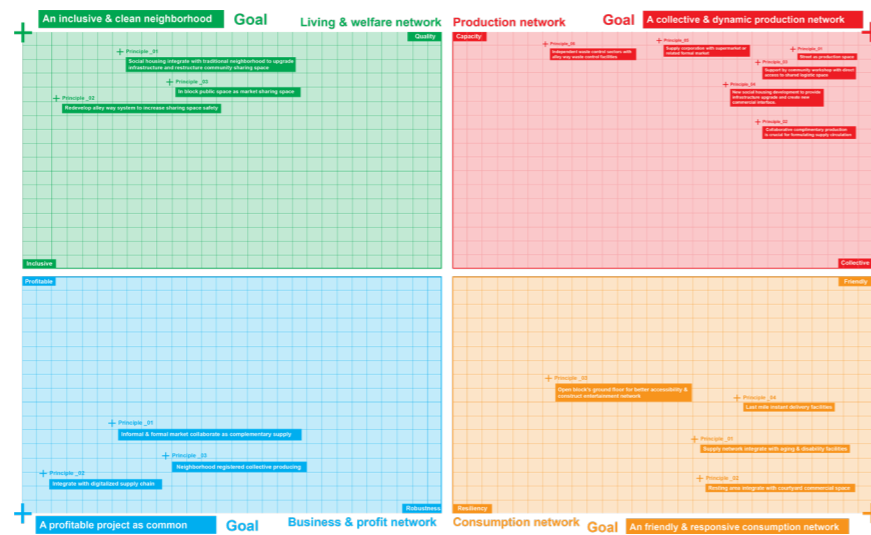
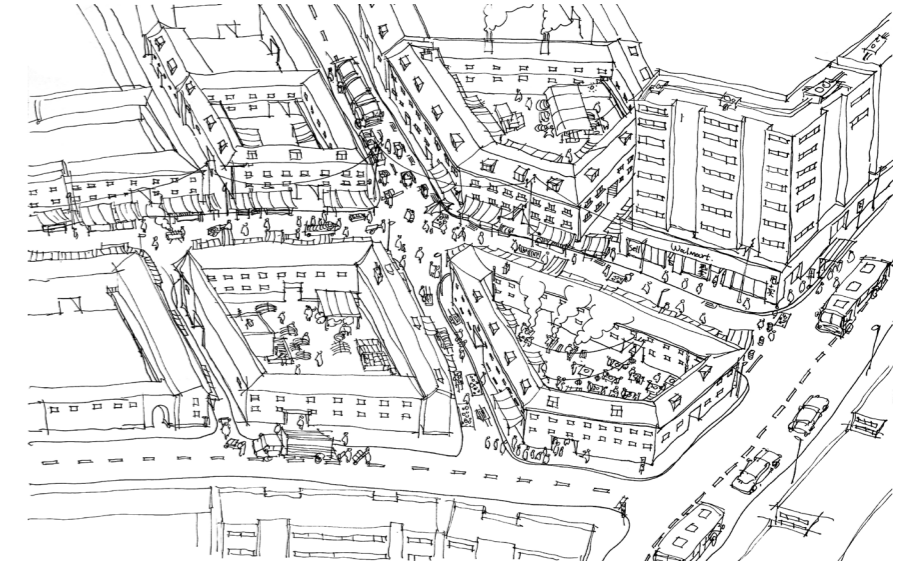


FIG. 1.61 Huangdao street market is the largest market in the west town of qingdao. Its located in the traditional colonial block territory. The local neighborhood are the main force to operate this market



Supporting case - 01 - [Huangdao street market]

Huangdao street market's logistic network, production network's operation heavily rely on the community's collective action. The layout of the street market business closely depends on the specific neighborhood's allocation. Each of them is responsible for different sectors of business operation. Also, corporation between communities is a common practice that constructed a resilient and responsive supply network.

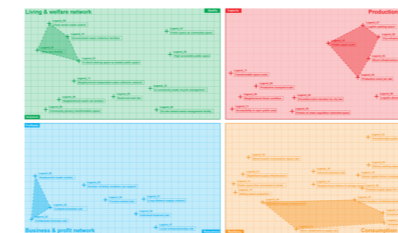


FIG. 1.62 Design principle 03's performance in the case of Huang dao street market



FIG. 1.63 Community logistic allocation and street market business layout



FIG. 1.64 Support neighborhood location and street market business payout

- 3.2.1 Theme I. [Production network]
- 3.2.2 Theme II. [Consumption network]
- 3.2.3 Theme III. [Living & social welfare network]
- 3.2.4 Theme IV. [Business & collaboration pattern network]

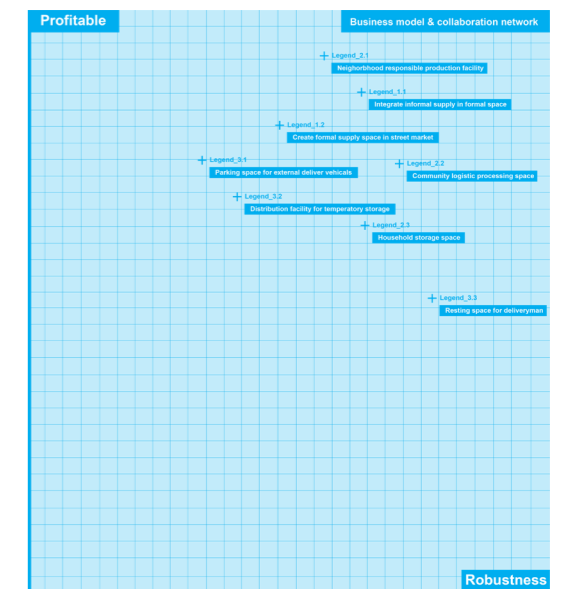
01 - Business & collaboration network theme introduction

The business network theme focuses on the typologies of the street market business model and the spatial conditions that facilitate them. The business types can be categorized as an individual, formal collaboration, formal and informal collaboration. The diverse business models can construct a robust local economy mechanism.

02 - Business & collaboration design principles & legends

It is an essential theme to test whether a certain principle is practicable. Besides the function of testing and evaluating, these theme legends also play a crucial role in exploring new business models by combining existing operation typologies to serve specific contexts more efficiently.

FIG. 1.65 The summarization of business and collaboration network's legends



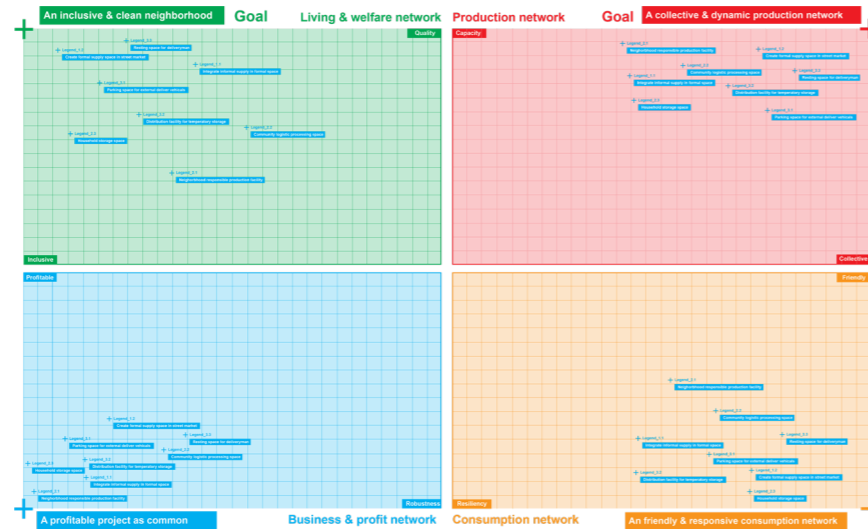


FIG. 1.66 Evaluation of business network legends in other three themes

[Principle 01] Informal & formal market collaborate as complementary supply

Organize different business types to transform competitors as collaborators

[Legend]

- 1.1 - Integrate informal supply in formal space
- 1.2 - Create formal supply space in street market

[Principle 02] Neighborhood registered collective producing

A community-responsive business model can shape the social identity and develop the city of making as a neighborhood common.

[Legend]

- 2.1 - Neighborhood responsible production facility
- 2.2 - Community logistic processing space
- 2.3 - Household storage space

[Principle 03] Integrate with digitalized supply chain

The integration with online supply can extend the street market's productive period with more customized service capability.

[Legend]

- 3.1 - Parking space for external deliver vehicals
- 3.2 - Distribution facility for temperatory storage
- 3.3 - Resting space for deliveryman

Example for [Business & collaboration] theme design principles

[Design principle 06] Integrate with digitalized supply chain

[Design principle 06]

Integrate with digitalized supply chain

The digitalized supply chain is uprising and begins to integrate with residents' daily life. There are over 72% of the consumer group is shopping through online platforms. The integration between street market business and digital supply platform is necessary and urgent. Otherwise, without a corporation, the online platform will compete with the street market business with its advantages in door-to-door delivery, customized service package, and lower price.

The digital supply transformation to the street market is a milestone regarding reorganizing the supply space, production typology, business strategy, and stakeholders group. More individual entrepreneurs and corporations can be incubated through this action.



FIG. 1.67 Shanghai Rd. Street market is located at the center of west town. The scale of this market is relatively small and only operate to serve the nearby neighborhood. But it's practice in digitalized supply is quite successful which can out compete with surrounding supermarkets.

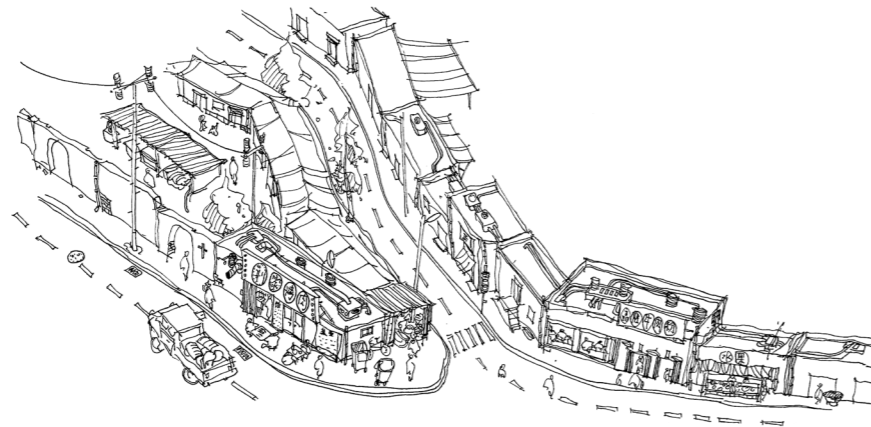


FIG. 1.68 General evaluation of Shanghai Rd. street market performance

Supporting case - 01 - [Shanghai Rd. street market]

The digitalized supply operation pattern in this market can be concluded into four types. The first one is highly customized service for the individual household, corporative supply for formal markets in east town, formal contract with nearby hospital and schools to deliver lunch, and city-wide ordering through online platform.

The market's production capability and resilience dramatically improved through the integration. With the profit rising, the community began to renovate the infrastructure and support a higher capacity of living and supply.

3.3 Design principle & legends to design toolbox

A chart system composed by design legends to identify issues and address them by applying concluded principles.

3.3 - Design principle & legends to design toolbox

The design principles and legends are the conclusions on which a market design should focus. Visualizing them through a chart will be efficient in linking possible solutions with site issues. The chart is divided into four theme quadrants. Each quadrant is responsible for particular capability and impact. It's a tool that can use throughout the entire process by identifying site issues, shaping design focus, searching for possible solutions, and constructing design strategy.

The four themes covered the general features of inclusive urbanization aspects. By following these application steps, an overall design structure can be concluded:

[Step 01]

Identify site issues by themes and locate them in the chart.

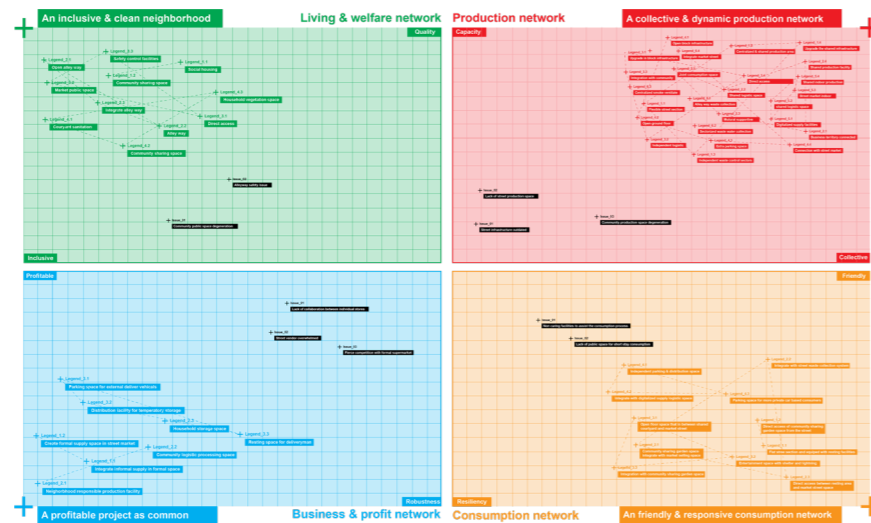


FIG. 1.69 Toolbox application in issue identifying procedure

[Step 02]

Select related design legend as design focus to explore the design potential and challenge.

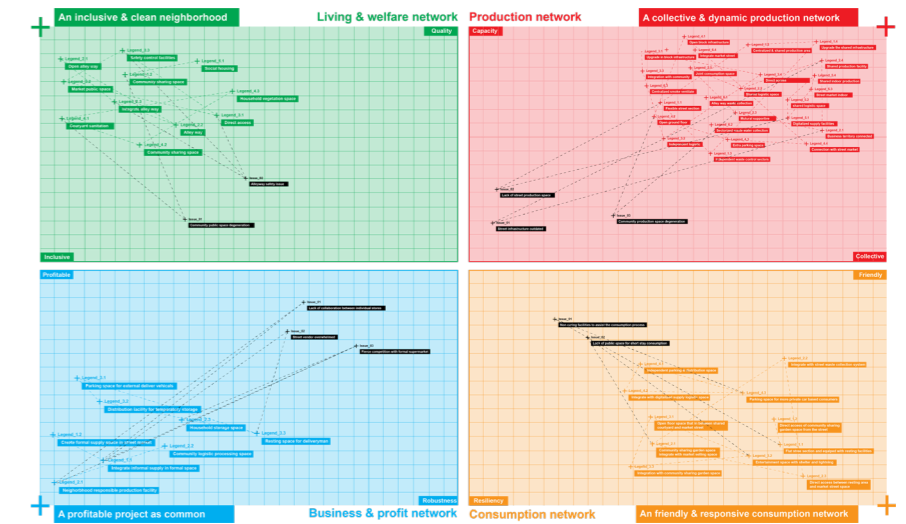


FIG. 1.70 Toolbox application in shaping design focus procedure

[Step 03]

Modify and regroup the selected design legends for constructing scenarios.

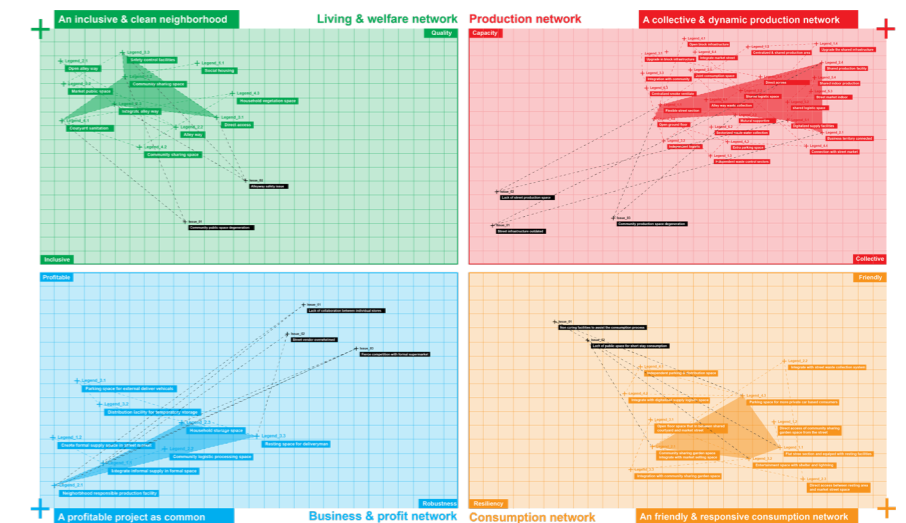


FIG. 1.71 Toolbox application in issue identifying procedure

[Step 04]

Evaluate the scenarios through the chart and explore design strategies

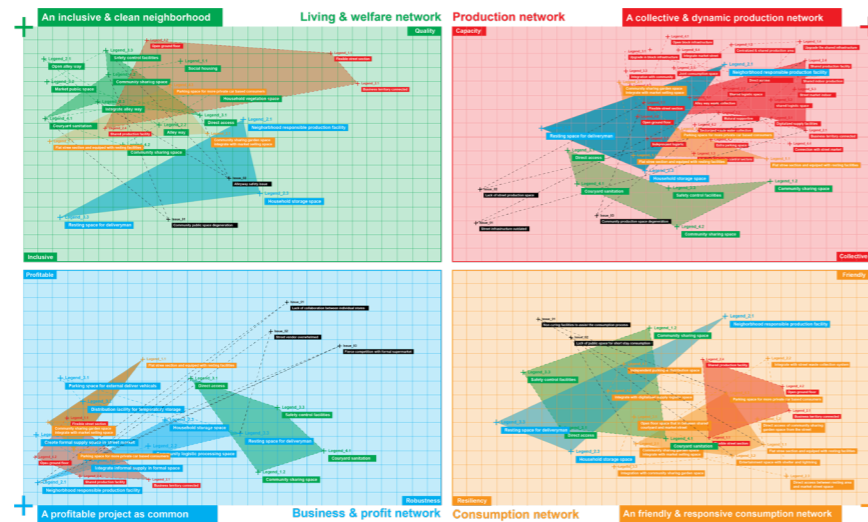


FIG. 1.72 Toolbox application in issue identifying procedure

[Step 05]

Select extra design legends to balance the negative impact and confirm scenario and design strategy

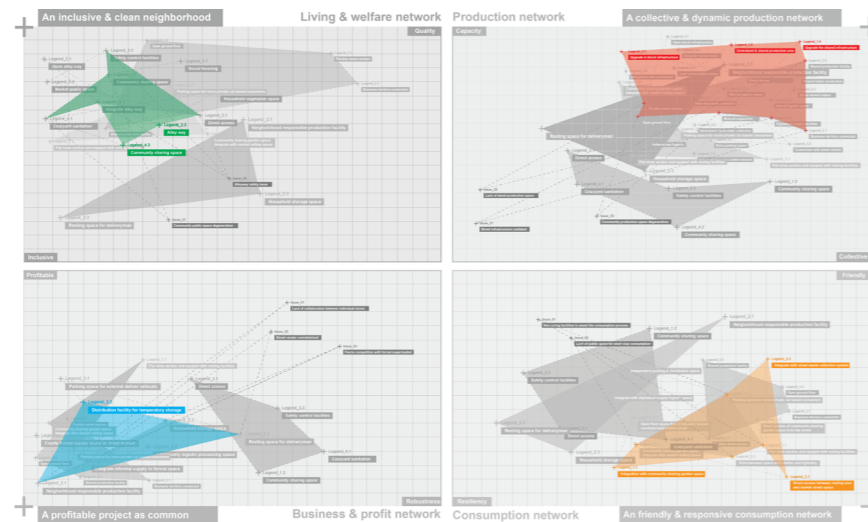


FIG. 1.73 Toolbox application in issue identifying procedure

3.5 - Chapter reflection

In this chapter, the primary research outcome is the design principles, legends, and the toolbox composed by these two.

The case selection is based on the evaluation through four themes. It provided a solid knowledge pool for principle analysis. But as a knowledge pool-driven approach, the amount of cases needs to be enlarged in the future. Also, the first stage case selection procedure lacks a systematic method to guide. The current selection is biased, which mainly depends on subjective impressions.

In the principle summarization part, the four theme toolbox plays the key role in analyzing and selecting. The design principle set is efficient to guide the design and specific site analysis focus as a framework. But the research structure is missing a clear strategy to translate & modify the design principle before deploying them to the particular context.

Besides that, the research needs a clearer strategy and procedure to explore the complementary combination methods among the principles.



CHAPTER 4 Design & application

4.1 - Research by design overall structure

The overall structure of this chapter is applying the street market toolbox to the city of Qingdao and further explore the thesis questions. The design will test the toolbox's effectiveness and develop a more responsive principle modification approach.

[Step 01]

Choose design site by investigating the city street market operation performance.

[Step 02]

Design site issue analysis based on four themes.

[Step 03]

Identify key principle and legends to shape scenario and design strategy

[Step 04]

Spatial intervention by following the design principle package's guidance

Step 01 - Design site selection

A chart system composed by design legends to identify issues and address them through applying concluded principles.

Design site selection

Qingdao, as the largest manufacturing export city in northern China, is particularly suffered from this situation among these affected cities. As a result, it became one of the typical cities in this region deconstructed by the dominant supply.

The Qingdao metropolitan territory includes two inner-city districts and three suburban districts, the south island as industrial and export harbor district, the north island as living and business district.



FIG. 1.74 The city of Qingdao with two inner city districts, and three suburban districts.

The current structure of the inner city is divided into west town and east town. The west town is where most street markets are located. The local neighborhood's primary income was used to gain from collective making and street selling from these markets. But now, the decline of the community production turned over 30% of the community into an urban slum.



FIG. 1.75 The east town & west town of the city are most of the street markets located

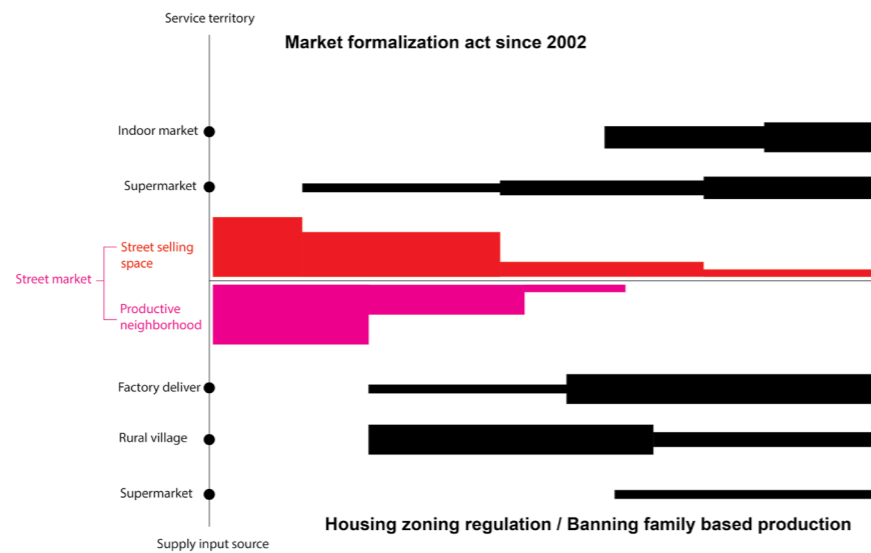


FIG. 1.76 The east town & west town of the city are most of the street markets located

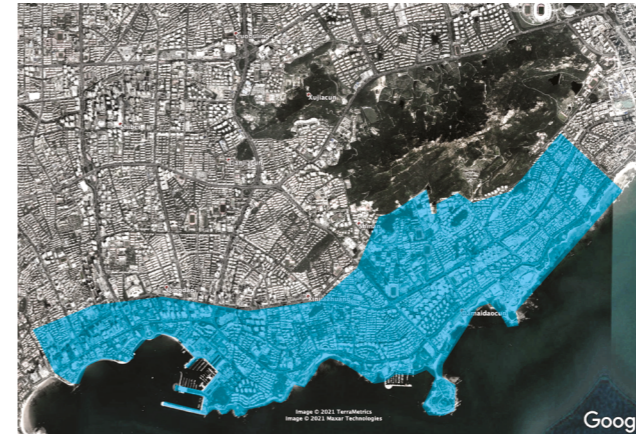


FIG. 1.77 The west town as the city new center

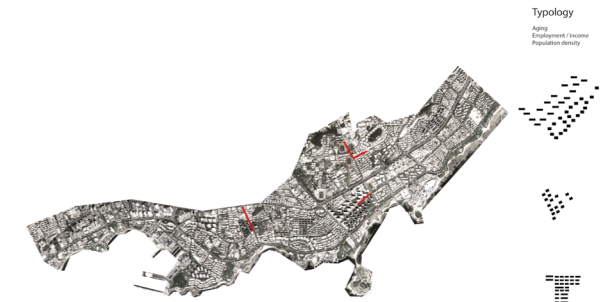
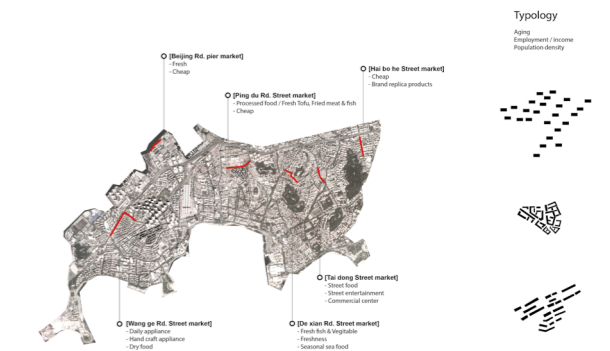


FIG. 1.78 The east town as the city old center



The east town is the new city center. Formal markets and warehouse-based supermarkets occupy it. After 20 years of development since 2002, there are barely street markets left. The west town, as the old city center, still carries the traditional neighborhood living. The street markets system functioned as a significant local supply force. In this case, the thesis analysis and design site selection will focus on the west town.

The mapping of the west town supply territory's spatial redistribution indicated the severe decline of the street market and the urban collective supply it carries. The increasing number of formal markets increased the fierceness of supply competition, which suppressed the street market's growth. Contradict to the logical expectation, the expanding number of individual supply companies enlarged the "supply desert" gap because price competition consistently weakens individuals through years'.

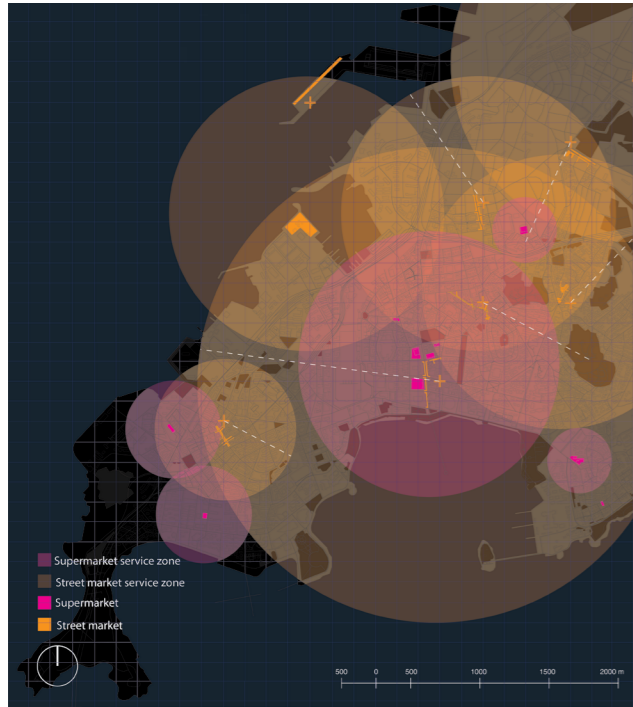


FIG. 1.79 street market and formal markets supply territory in 2002

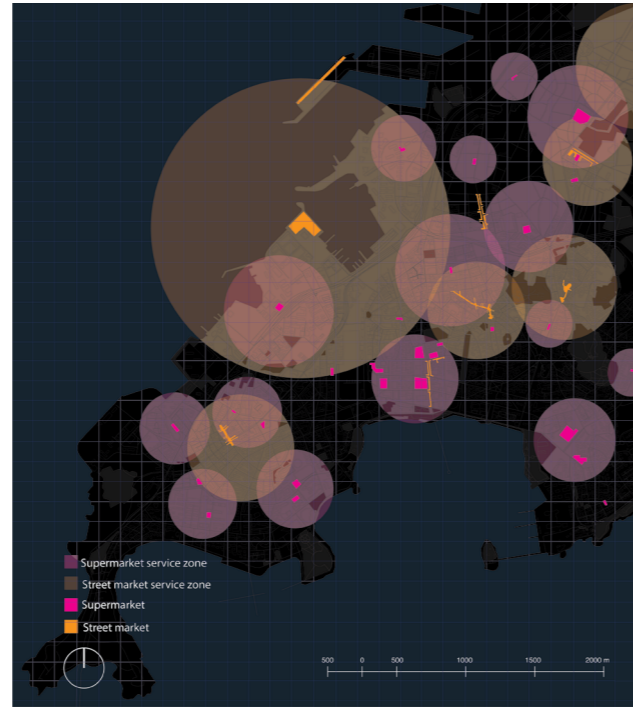


FIG. 1.80 street market and formal markets supply territory in 2019

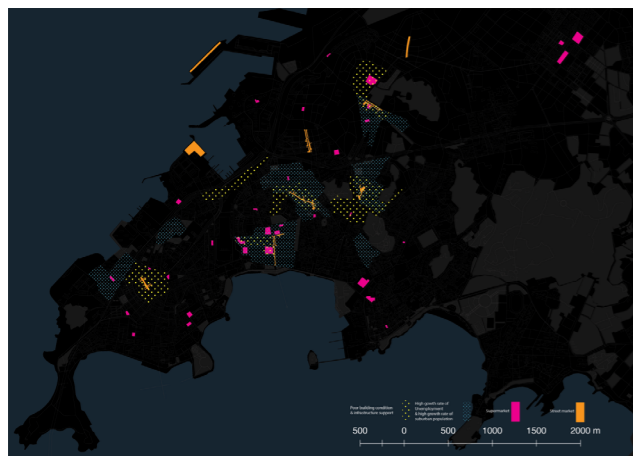


FIG. 1.81 The mapping of spatial relationship between street market and declined urban area

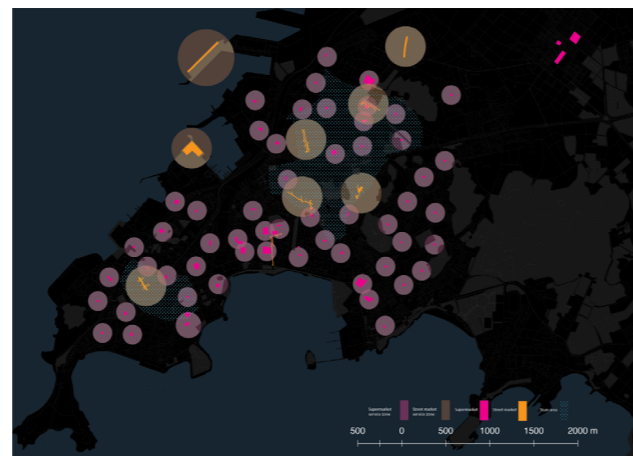


FIG. 1.82 Speculation mapping of the future city supply structure without intervention

Step 02 - Site analysis & Issue identification

Locate the design site and identify issues to apply the design principles

Issue identification

By investigating the general issue and potential, the analysis identifies Huang dao street market as one of the cases that are facing the most severe challenge and also presents the typical problems. It suffered from population loss, infrastructure degeneration, and the investment chain broke. It used to be the most significant and busiest market street in west town but began to decline since 2005. The thesis will use this case to apply the design principles from the last chapter to explore possible solutions and evaluate the effectiveness of the design toolbox.



Design principle selection

Depth analysis has been conducted in this sector to investigate the Huang dao street market's specific challenges and potentials. The research approach will follow the four theme structure, and design toolbox developed to select efficient design principles.

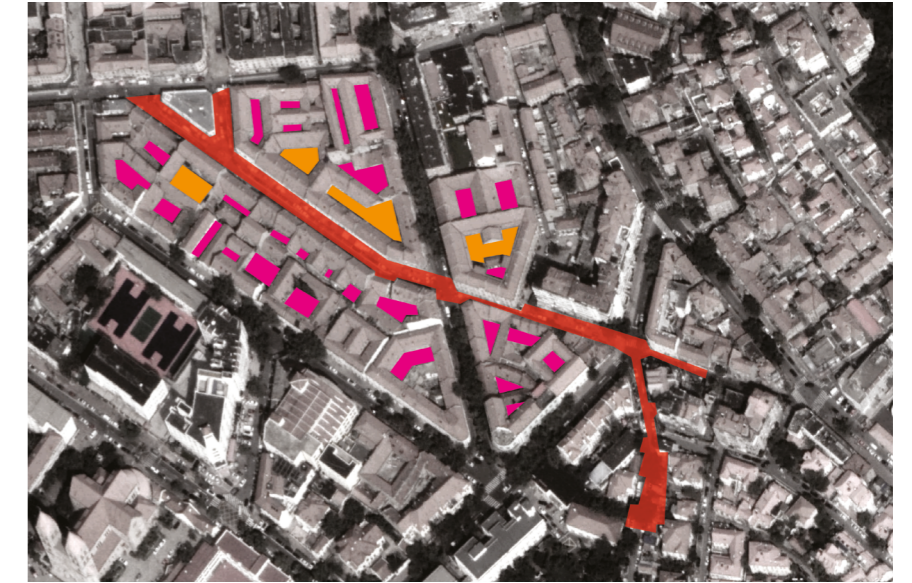


FIG. 1.83 Mapping of the production network

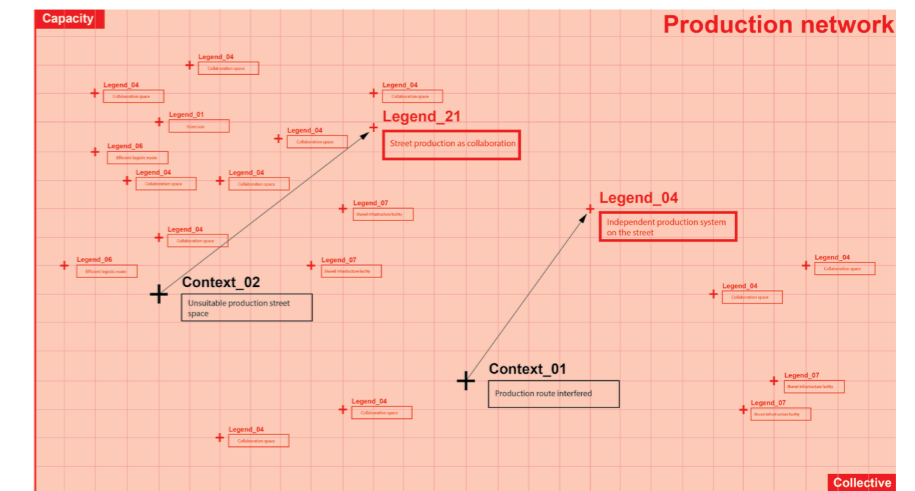


FIG. 1.84 Identified challenges & selected design principles mapping

The production network of this market is threatened by unregulated selling activities and outdated infrastructure facilities. It has to be supported by an upgraded infrastructure system from the city street and a newly developed housing project.



FIG. 1.85 Mapping of the consumption network

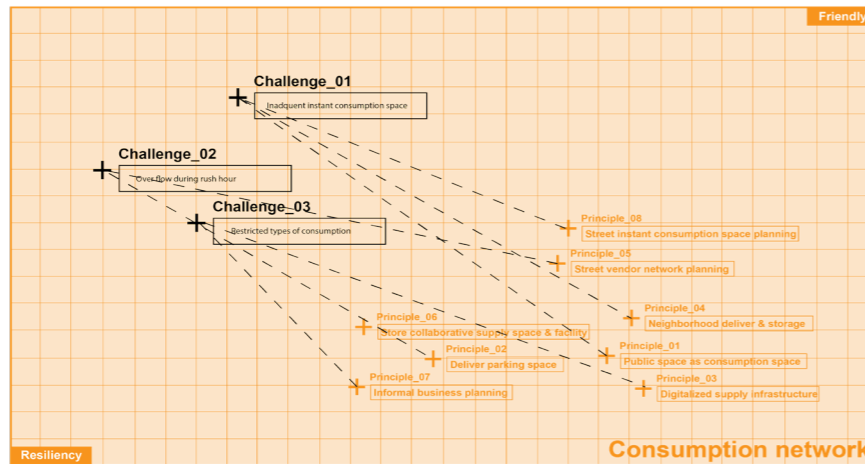


FIG. 1.86 Identified challenges & selected design principles mapping

The market's current spatial structure of the market cannot facilitate too many instant consumption activities due to the lack of public space, unregulated street vendor occupation, and inefficient waste control. The chart shows the need to integrate market consumption space with city public space and develop new neighborhood sharing spaces for the public.

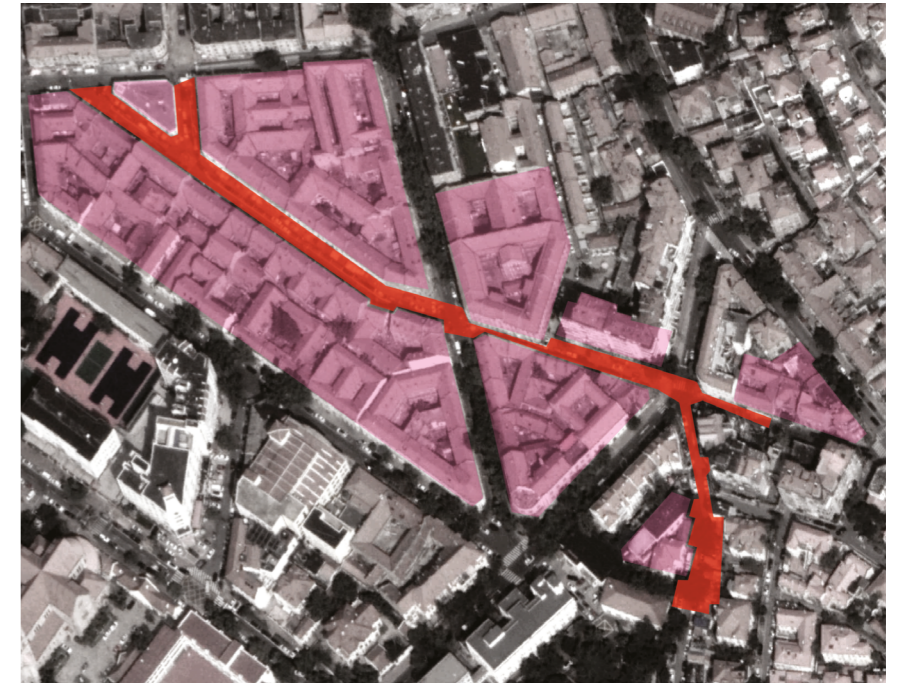


FIG. 1.87 Mapping of the living & social welfare network - [Building & infrastructure condition]

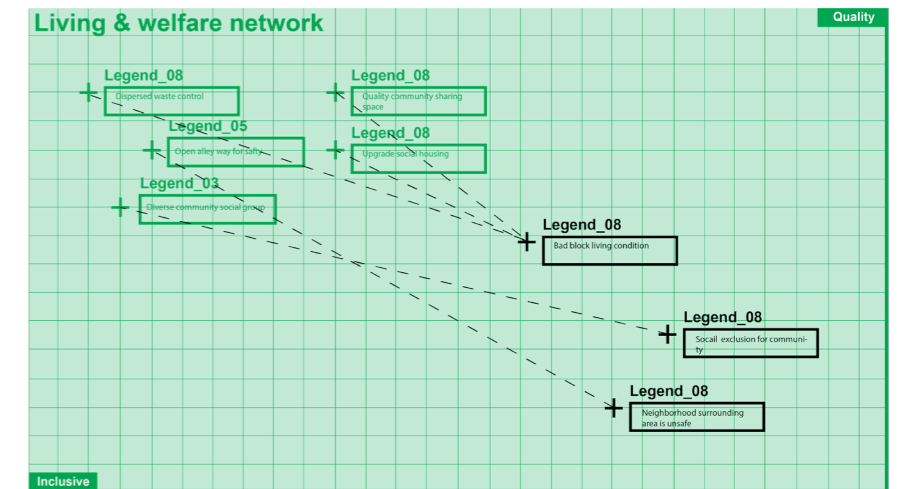


FIG. 1.88 Identified challenges & selected design principles mapping

The living and social welfare condition in the Huang dao street market is severely affected by the low neighborhood facility condition. The alley streets are not safe. The labor structure degenerated the communities' social diversity.

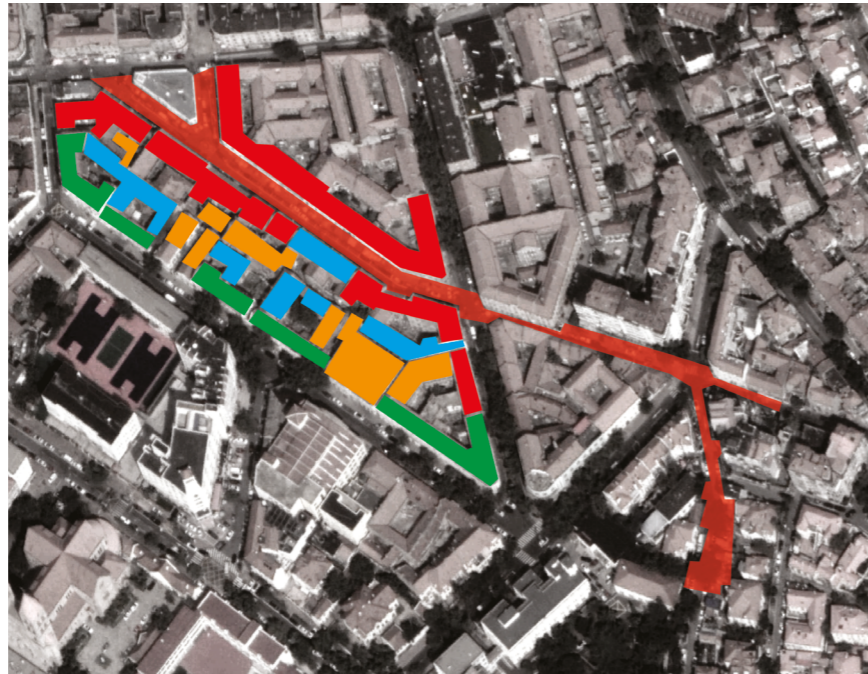


FIG. 1.89 Mapping of the business model & collaboration network

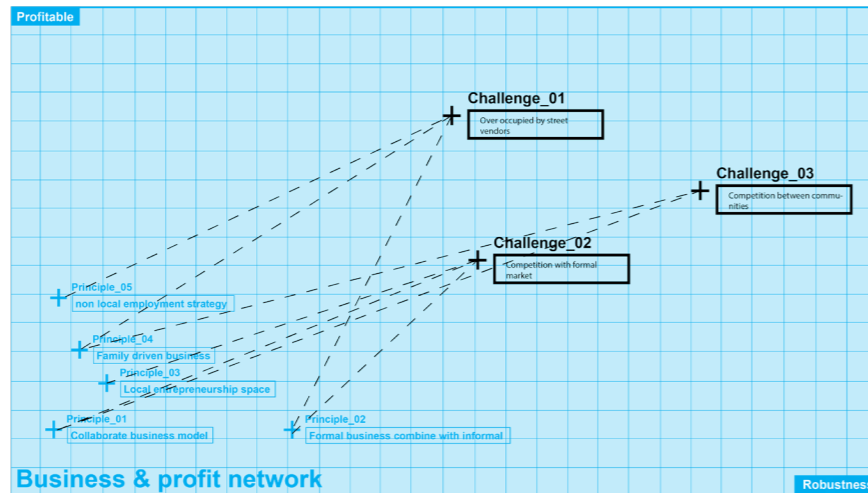


FIG. 1.90 Identified challenges & selected design principles mapping

The majority business model on-site is individual-driven operation. The lack of collective actions made the market lose its advantage when competing with the city's formal market. The design needs to provide collaboration triggering space, such as community workshops, to transform market supply as community common.

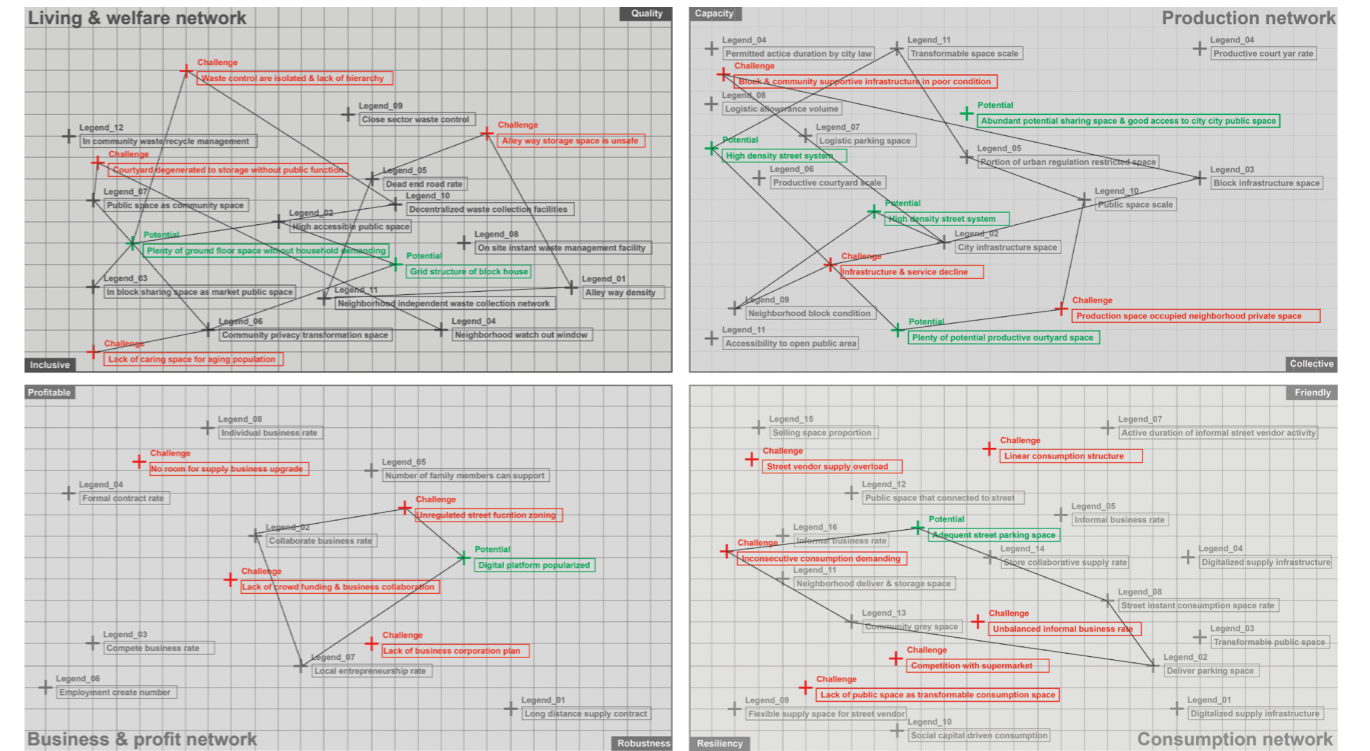


FIG. 1.91 Challenge & related design principles mapping

After researching each theme, the study summarized the design legends into one chart to have an overall evaluation and combine them as a solution package.

Combining principles into one package is a crucial procedure to balance their negative impact crossed the themes. It is a negotiating process among the stakeholders to optimize the overall performance.

Step 03 - Scenario & design strategy construction

A chart system composed by design legends to identify issues and address them by applying concluded principles.

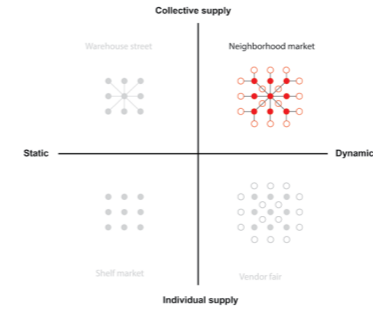


FIG. 1.92 Scenario mapping

Design scenario

The design constructed four scenarios to discuss the impact between collective actions and dynamic operational pattern.

[Warehouse street]

This scenario represented a static operation pattern and a collective supply approach. It has the advantage of supply choices, but the selling procedure only occurs in one restricted spatial structure. The case in real life can be perceived as a wholesale-driven formal market. The disadvantage is this design cannot fulfill the demand for customized supply.

[Vendor fair]

It is an individual-driven and flexible spatial structure framed scenario. The disadvantage is the informal business plays a significant role, and it is hard to control.

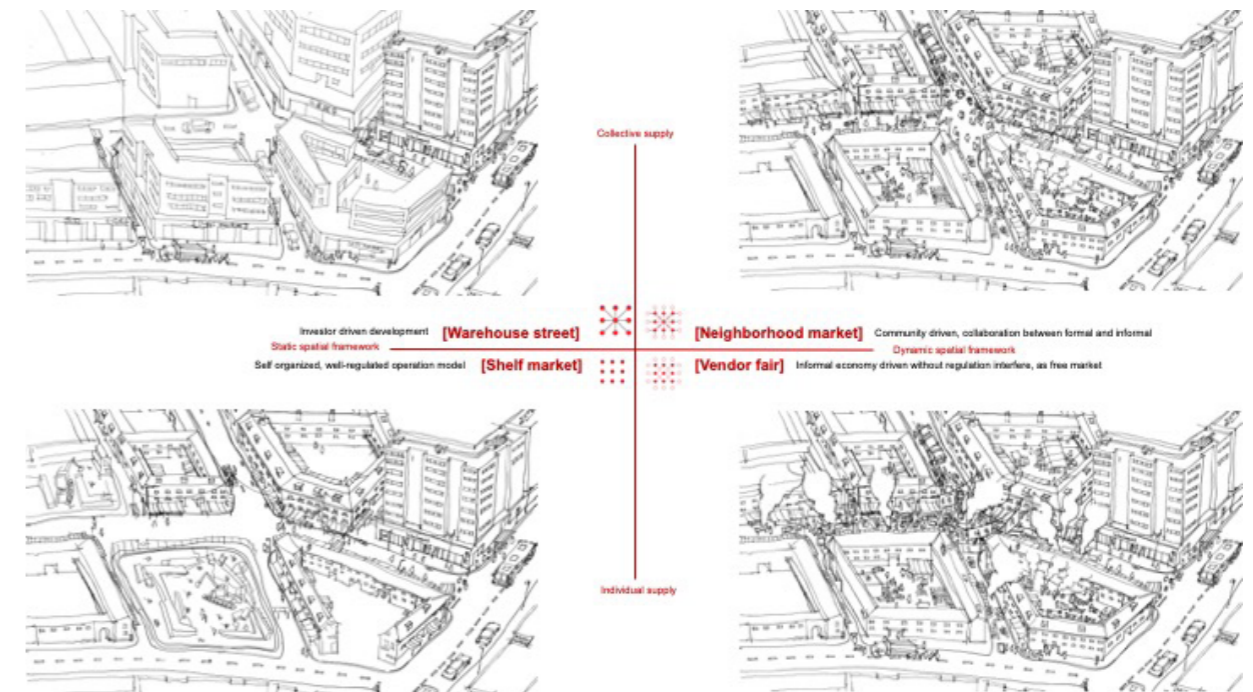
[Shelf market]

Individuals drive its production. The supply is restricted to one rigid spatial structure. It is more refer to the current convenient store market in real life.

[Neighborhood market]

It has the advantage of supply choices within a dynamic spatial structure. The collective actions also provide powerful production capability. It is a balance between flexibility and regulation.

The thesis decides to choose the **[Neighborhood market]** scenario, which is a balance between formal and informal supply activities within a responsive spatial structure.



Design strategy & principle-driven tactics

As a way of practicing inclusive urbanization by achieving supply justice, the strategy is redeveloping the Pingdu street market as infrastructure to facilitate the city's collective making through social housing & productive street transformation.

The four diagrams below show the design tactics that focusing on production, consumption, living condition and business operation.

FIG. 1.93 Street production intergrate with community making

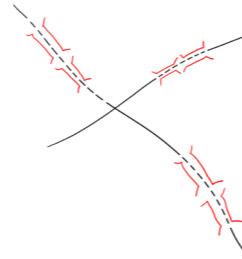


FIG. 1.94 Street consumption integrate with public space network

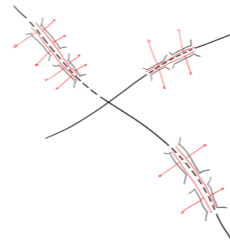


FIG. 1.95 Social housing project initiated infrastructure upgrade and sharing space redevelopment

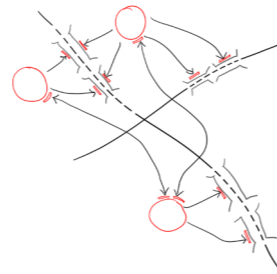
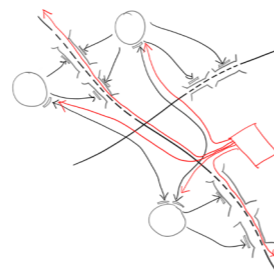


FIG. 1.96 Individual supply network integrate with formal supply entity



Step 04 - Spatial intervention by following design principles

Implement the design strategy through applying principles from four themes

Master plan & network structure overview

By following the design strategy and the design principle selected, the master plan of the Ping du street market (Fig.1.94 & 1.95) shows the upgrades, including housing, street space, and neighborhood space transformation. The following network design illustrated new networks that were constructed or redeveloped through the design toolbox.



FIG. 1.97 The current market plan



FIG. 1.98 The designed master plan



FIG. 1.100 The current street market overall perspective



FIG. 1.99 The overall design perspective

FIG. 1.102 The current logistic network



FIG. 1.101 The logistic network after design



FIG. 1.104 The current commercial network

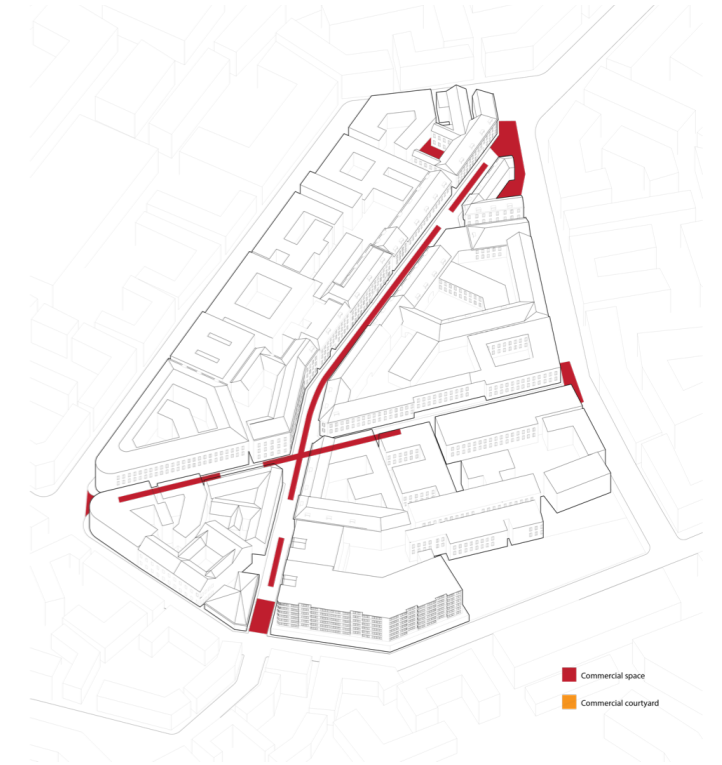


FIG. 1.103 The commercial network after design



FIG. 1.106 The current public space network

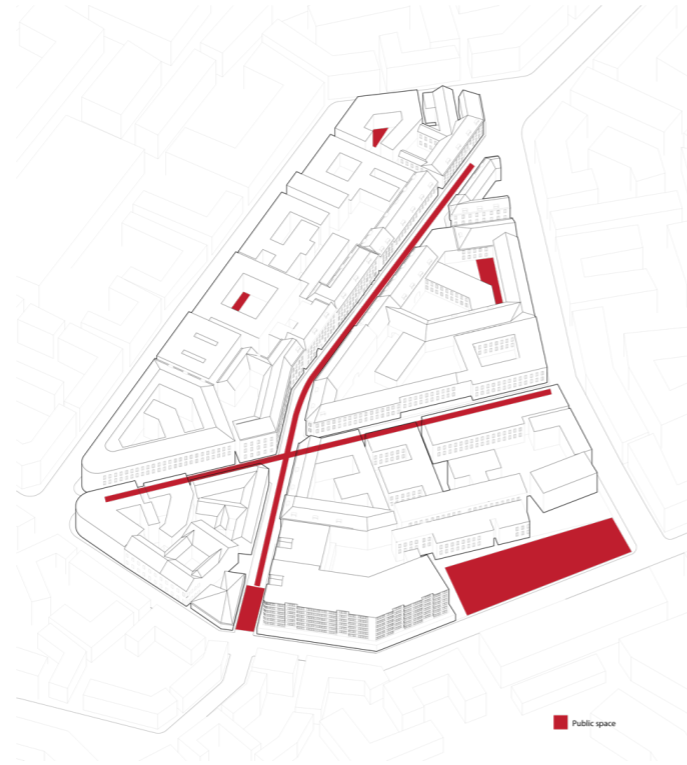


FIG. 1.105 The public space network after design

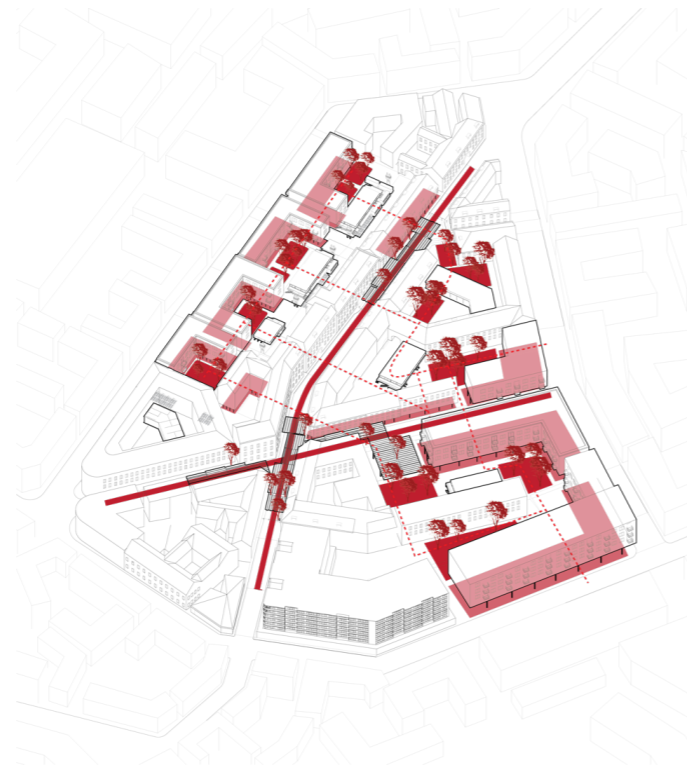


FIG. 1.108 The current collective making network



FIG. 1.107 The collective making network after design



Theme I. - [Production network]

[Production network] design legends application

The production network theme focused on collecting principles that have major impact on production capacity and producing patterns. This theme's legends most likely have certain negative influence on living or consumption. So it is important to evaluate production legends in the other themes.



[Design principle_01]

Street integrated with slow lane system as production space



[Design Principle_02]

Support by community workshop with direct access to shared logistic space



[Design Principle_03]

New social housing development to provide infrastructure upgrade and create new commercial interface.



[Design Principle_04]

Supermarket sharing logistic & infrastructure facilities



[Design Principle_05]

Independent waste control sectors with shared waste control facilities

[Design principle_01]

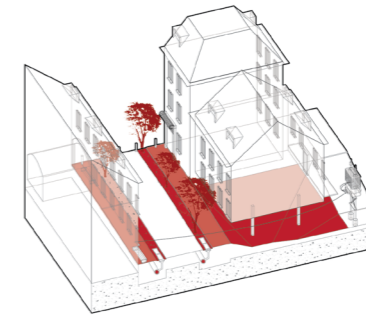
Street integrated with slow lane system as production space

[Design principle - 01]

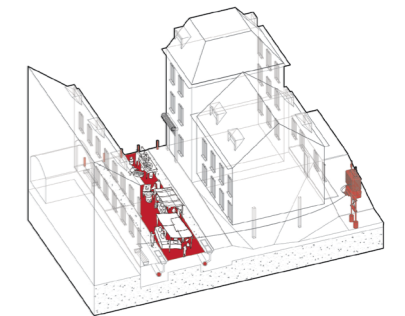
-Street integrated with slow lane system as production space

The street market's slow lane system is the system's backbone. Street production is one of the best attraction approach to guide the consumers. It catches the most consumption population and attracts all kinds of producers. Combining street space and productive activities can speed up the supply flow circulation.

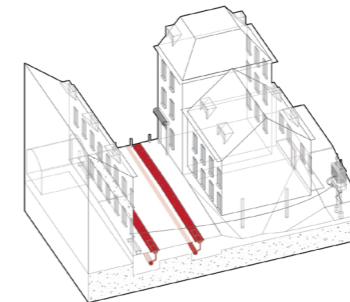
Design principle - 01 design legends



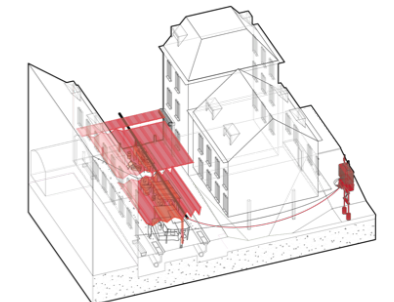
• Flexible street section with access to public space



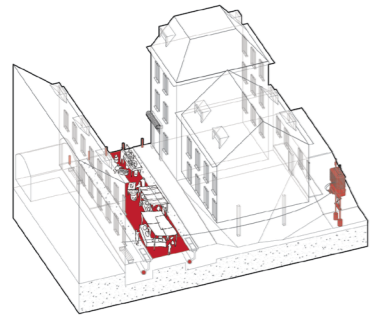
• Centralized & regulated production area



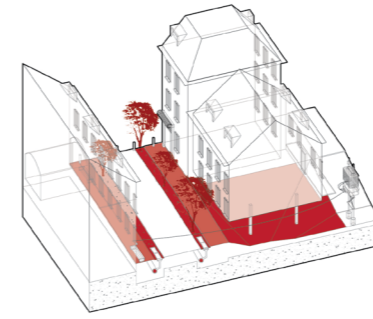
• Independent waste control sector



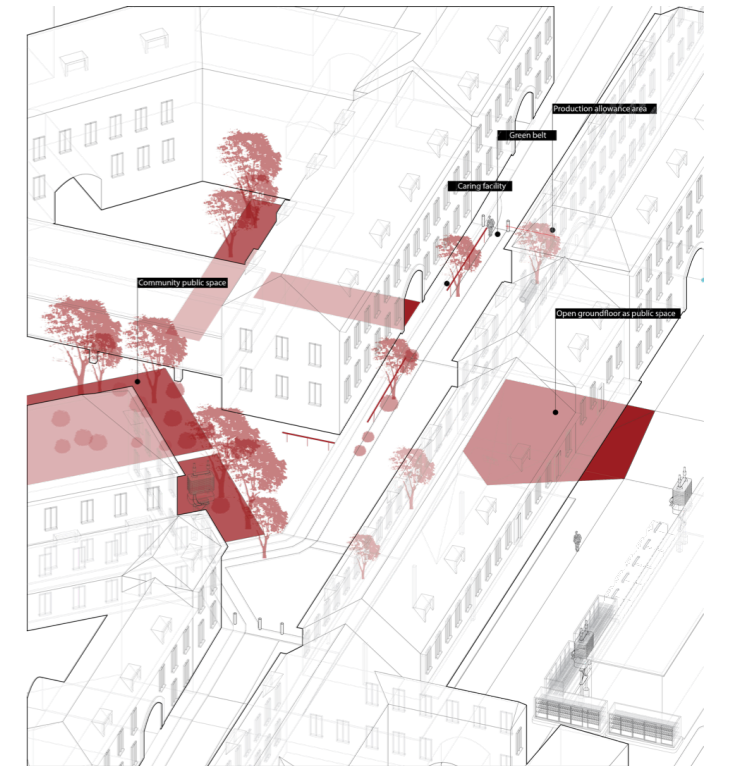
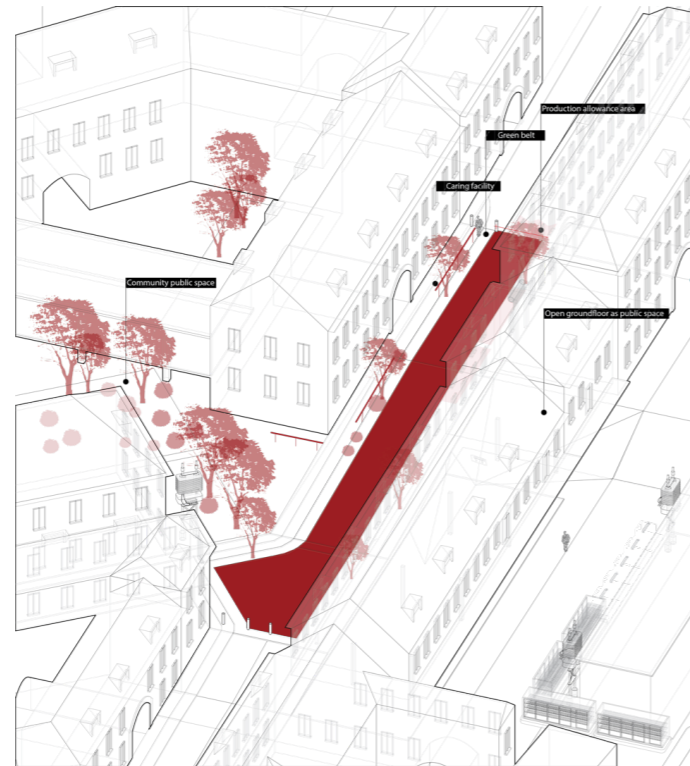
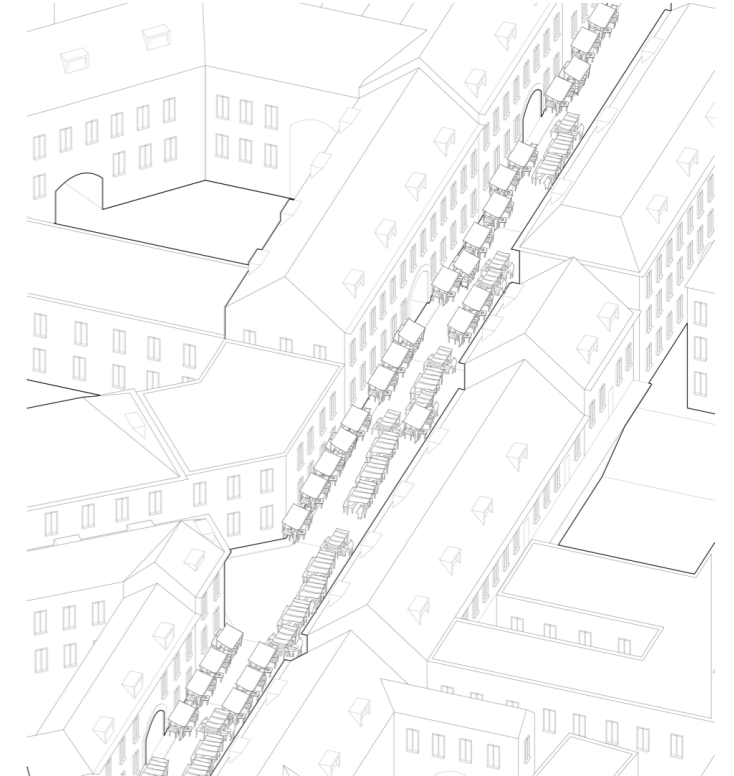
• Street shared infrastructure upgrade

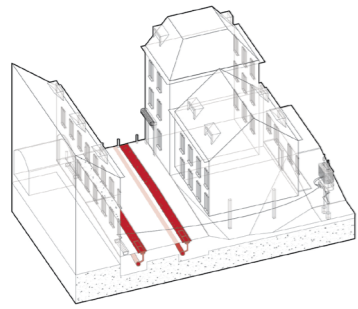


• Centralized & regulated production area

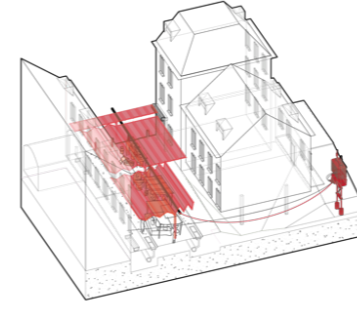
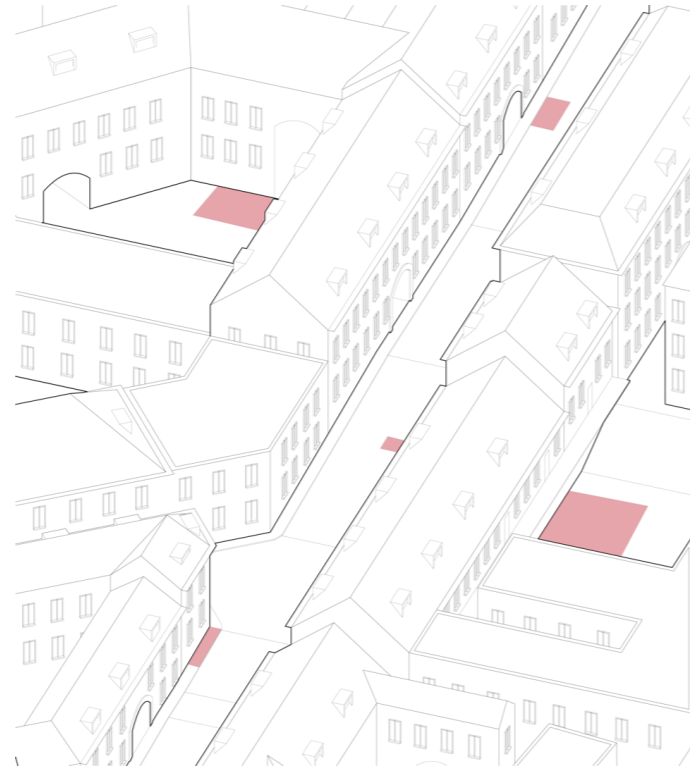


• Flexible street section with access to public space

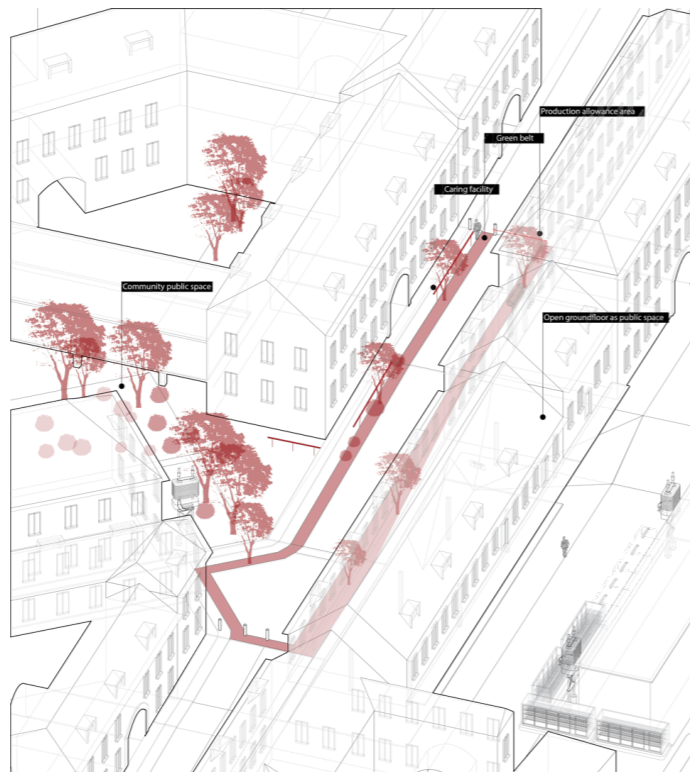




• Independent waste control sector



• Street shared infrastructure upgrade

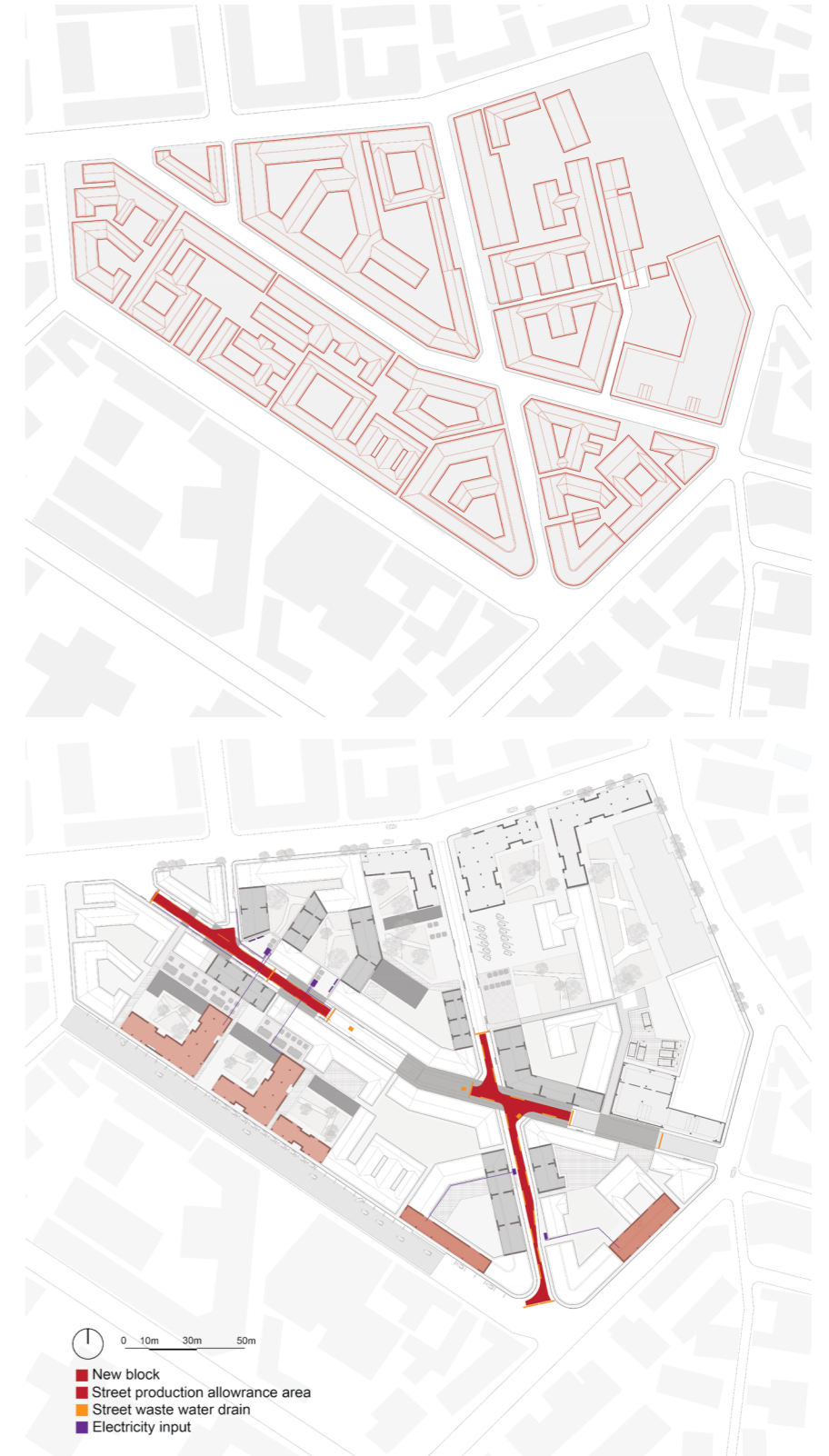




• Current street market plan

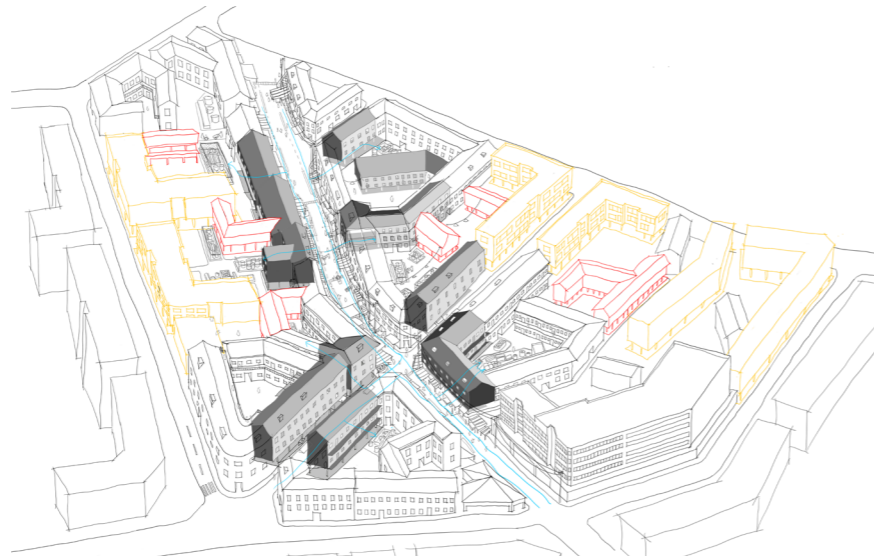


• Spatial intervention by following design principle 01 - Street integrated with slow lane system as production space



[Design Principle_04]

Develop new social housing project to provide infrastructure upgrade and create a new commercial interface.

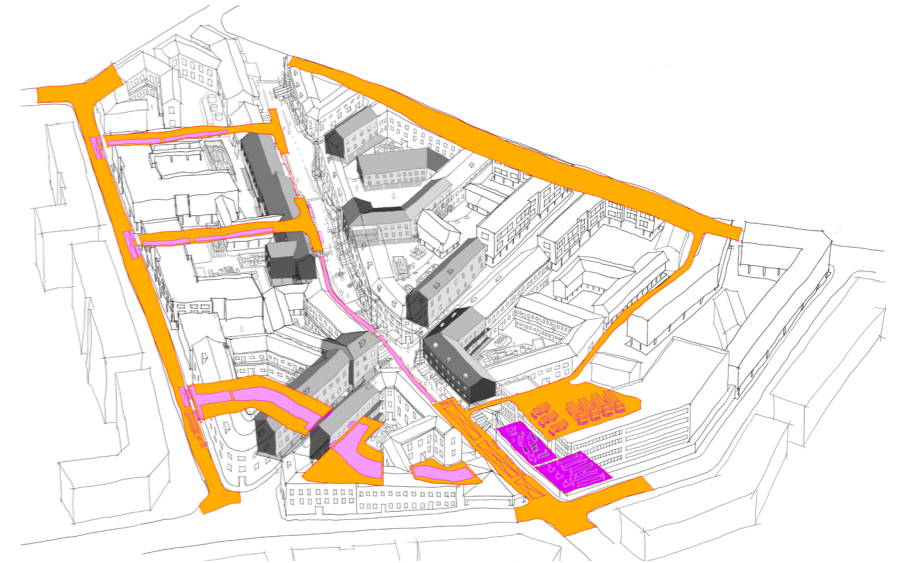


- New block with upgraded infrastructure
- Community workshop



[Design Principle_05]

Share supermarket's logistic & infrastructure facilities

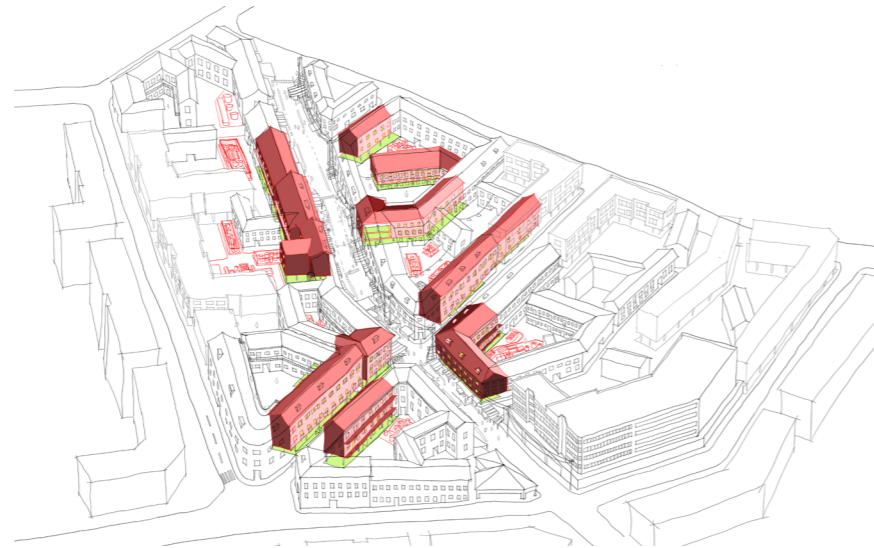


- Supply traffic & docking area
- logistic & redistribution area
- Supermarket



[Design Principle_06]

Integrate logistic space with ground floor and community courtyard.



Theme II. - [Consumption network] principle application

[Consumption network] design legends application

Consumption network theme focus on producing high-quality consumption space by integrating with city public network, infrastructure network, and community resources network. The street market's consumption network is a much more complex system than the other three themes due to its formal and informal feature.



[Design principle_01]

Supply network integrate with aging & disability facilities



[Design Principle_02]

Resting area integrate with courtyard commercial space



[Design Principle_03]

Open block's ground floor for better accessibility & construct entertainment network



[Design Principle_04]

Public space as consumption space



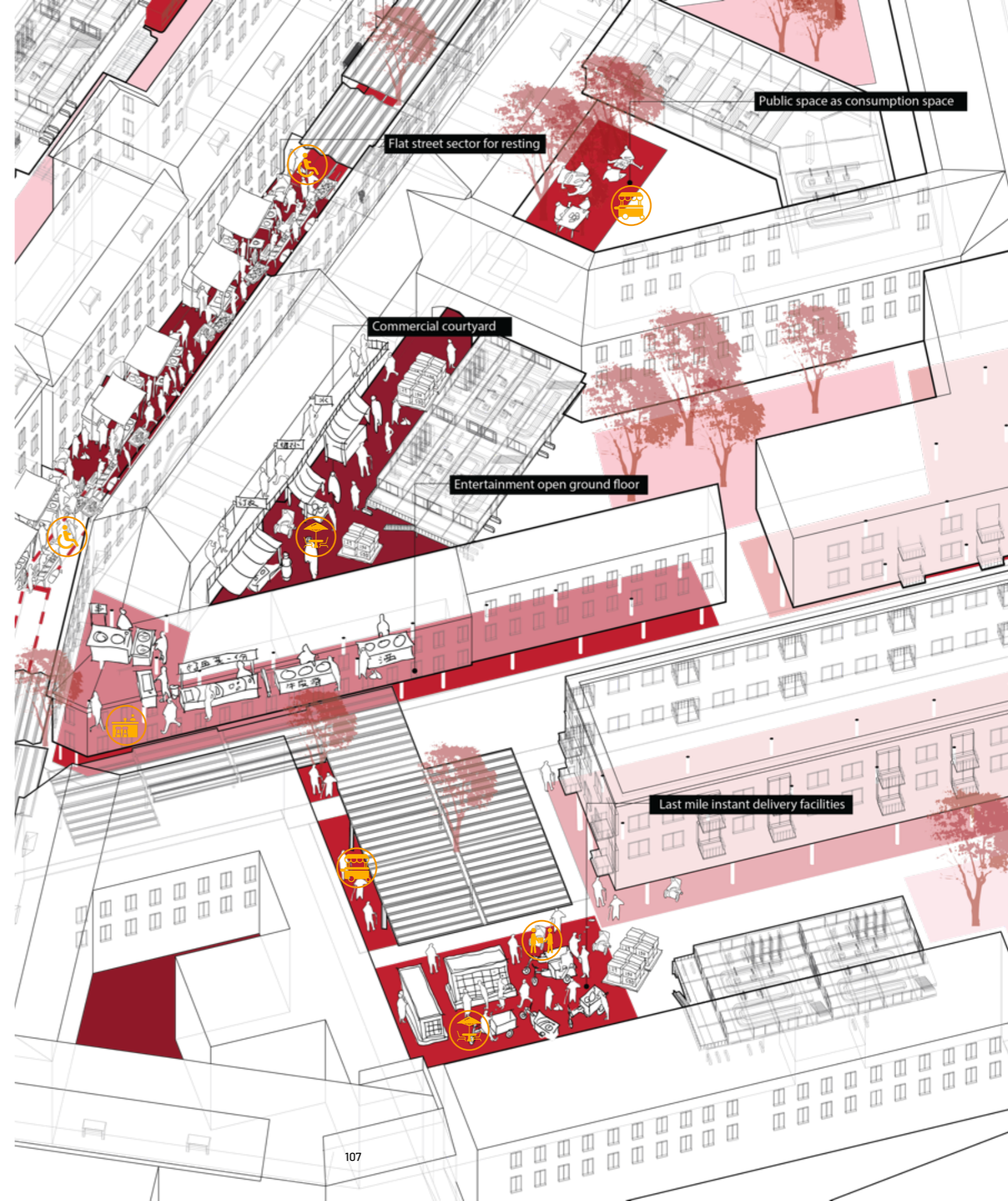
[Design Principle_05]

Last mile instant delivery facilities



[Design Principle_06]

Parking space for more private car based consumers



Theme III. - [Living & social welfare network] principle application

[Living & social welfare network] design legends application

Living and social welfare networks focus on increasing living quality and creating benefits for surrounding communities. It is vital to evaluate the legends from other themes that can potentially generate serious negative influence and threaten the street market's living quality as a habitat.



[Design principle_01]

Social housing with shared infrastructure network



[Design Principle_02]

Community sharing space integrate with market public space



[Design Principle_03]

Integrate alley with community sharing space



[Design Principle_04]

Direct access between in block sharing space and market



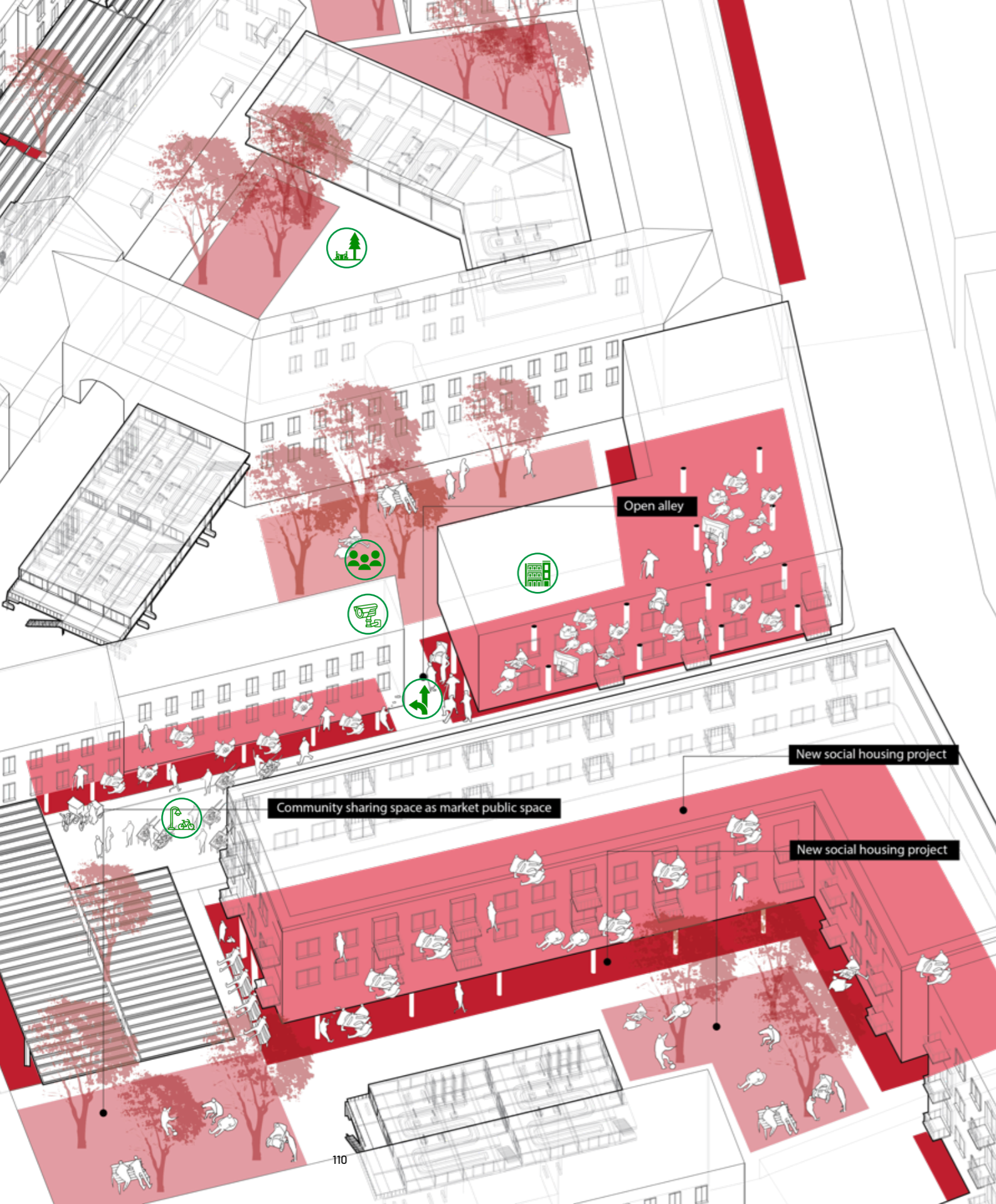
[Design Principle_05]

Safety control facilities



[Design Principle_06]

open alley way network



Theme IV. - [Business & collaboration network] principle application

[Business & collaboration network] design legends application

The business & collaboration network design legends emphasize on the spatial pattern can incubate and facilitate specific business operation. These operations includes individual informal and formal business, collaboration between formal & informal.



[Design principle_01]
Integrate informal supply in formal space



[Design Principle_02]
Create formal supply space in street market



[Design Principle_03]
Neighborhood responsible production facility



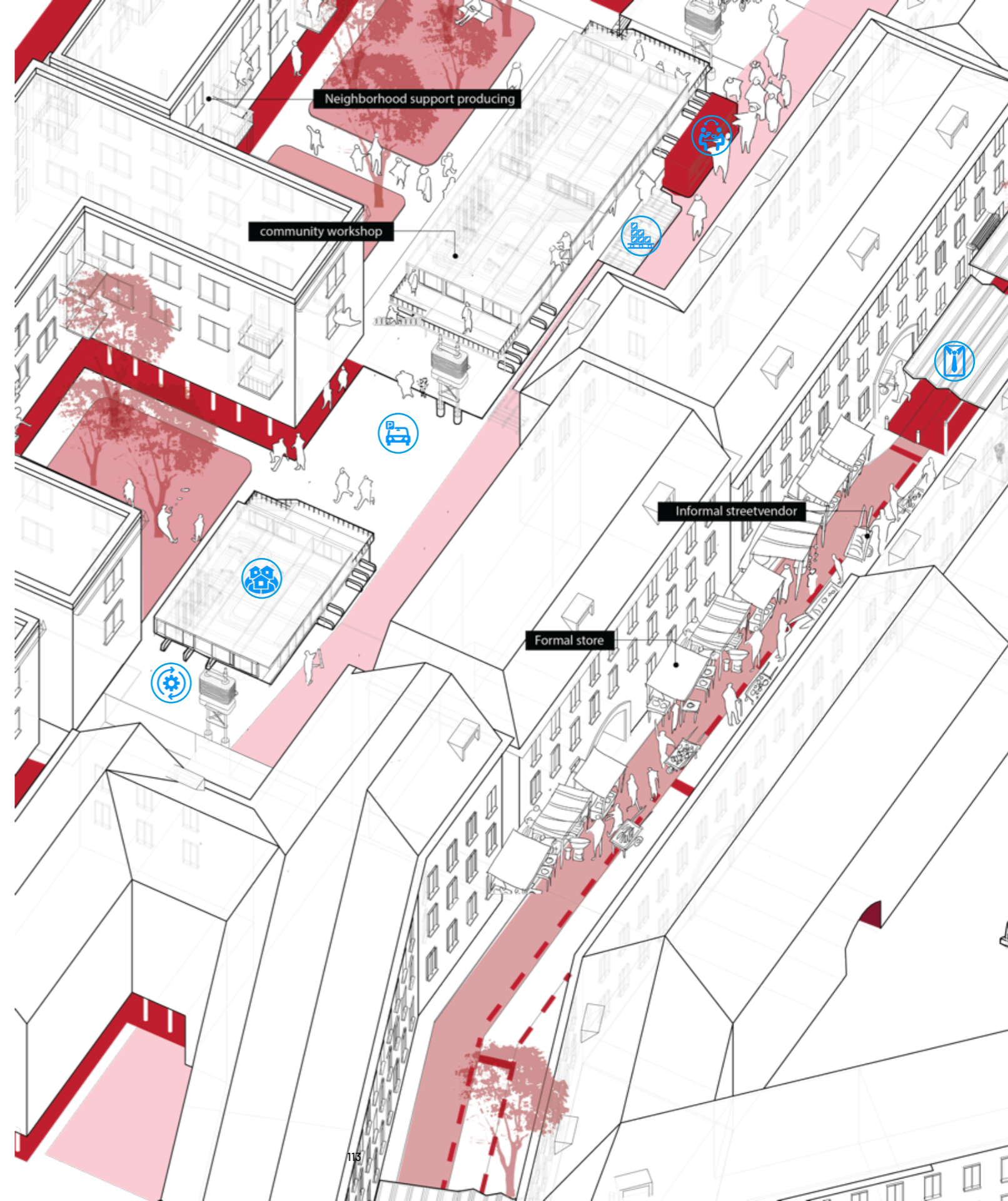
[Design Principle_04]
Community logistic processing space



[Design Principle_05]
Parking space for external deliver vehicals



[Design Principle_06]
Distribution facility for temporary storage



CHAPTER 5 Conclusion & Reflection

5.1 - Conclusion

The thesis revealed the potential of using the street market as infrastructure to practice inclusive urbanization through the process of facilitating the city's collective making to achieve supply justice. It successfully summarized the mechanism of transferring the market performance through a four theme design toolbox. The research process offers insights into bridging the gap between inclusive urbanization strategy and inclusive practice.

Street market as spatial vehical to practice inclusive urbanization

The street market is a production from both collective making and city top-down strategic planning. It's solved the supply justice matter from the supply perspective and provided means to develop the city in a meaningful way. It is rooted with the local neighborhood as community common. The thesis successfully reveals the mechanisms of incubating, organizing, and mobilizing collective actions through the street market planning process. This conclusion sheds light on the topic of street market planning framework can be a tool to integrate and trigger inclusive urbanization practice.

The symbiotic relationship between supply justice and inclusive urbanization determines the street market's crucial role as a spatial vehicle to deliver the goal. So, supply justice is one of the critical stepstones that need to achieve along the journey of practicing inclusive urbanization.

Street market planning as a tool for urban transformation

Street market planning is beyond a product for economy-driven development. It is also an inclusive transformation process that generated quality public space, equitable neighborhoods, walkable streets, caring facilities, etc. It is a sustainable approach that transforms a monotonous city into a vibrant and lovely built environment.

5.2 Reflection upon street market as infrastructure

5.2.1 How can the street market operate as infrastructure to create conditions for inclusive urbanization?

The process of planning, implementing and operating the street market as a system requires. It will generate networks that can provide infrastructure support, sharing resources, social welfare distribution, and investment support.

- Mobilizing social capital & social welfare redistribution

It is a process of mobilizing social capital to generate social trust and incubate collective actions. The street market planning will trigger community engagement and enhance the informal credibility between neighborhoods. The growing social capital is a crucial step for delivering inclusiveness to the entire city development.

This planning process will generate and redistribute social welfare, such as social housing and caring facilities for aging and social vulnerable groups. It established a diverse social background for inclusive urbanization. It is a process of constructing a sharing network.

- Integrating urban networks & establishing infrastructure

The street market system is a hub system that included living, supply, and private sectors' business operations. Spatially, it is the carrying structure that facilitates all the other layers in one spatial system. Therefore, the implementing process of the street market is the necessary procedure of integrating the district's resources. In this way, a well-integrated and comprehensive developing condition can be generated.

The implementation of the street market requires infrastructure updates. Along with the project, public transportation, energy supply, and sanitation network needs to update and install, which established a solid foundation for surrounding developments.

- Business collaboration

The nature of the street market is a business entity. The street market as a spatial framework has the unique advantage of encouraging formal and informal business collaboration. It is not like the formal market that followed a rigid top-down business plan. Instead, it generates a responsive and inclusive platform to invite individual entrepreneurs.

5.2.2 How to transfer the street market's performance as a system?

The street market's performance depends on the network's capacity, integration degree, resilience, and responsiveness. The thesis summarized and categorized these features into design principles that under four themes. The four themes are designed to ensure the concluded principle can balance each other and optimize the final composition.

The design principles has translated to design legends which are the critical spatial intervention aspects. These aspects will guide research and design focus to investigate necessary spatial elements.

The design toolbox will regroup the design legends as a package to optimize the performance as a network design, rather than isolated or unbalanced singular aspect intervention.

5.2.3 - How street market functioned as vehicle to practice inclusive urbanization?

Inclusive urbanization is a process that facilitates planning conversations and decisions from all three sectors. It is a platform and flexible scheme rather than an unchallengeable master plan. In this thesis, street market planning as a carrier to allow communities to engage within the city planning structure. Three essential procedures are selected to illustrate how the inclusiveness is integrated:

- From the planning process

Street market planning can shift the current top-down planning structure to a hybrid system that integrated with a bottom-up and traditional planning framework.

- From the implementation process

It will change the current private sector-driven project implementation to a crowdfunding and neighborhood support approach. The community can protect its sovereignty through financial independence in this street market ecosystem.

- From the operation process

Most of the development initiated by the city is heavily relying on external financial and policy support. The street market project operation is a collective action-driven and neighborhood responsible development. It helps to construct a self-sustained ecosystem to evolve.

5.2.4 - How to endure & evolve the development impact after completion?

In some development cases, once a project becomes highly profitable, the city government will reclaim the operation authority because of the increased land value.

To ensure the street market's collective operation model's endurance, several precaution actions and strategies need to be aware. Firstly, the planning should limit the engagement of the private sector. In this way, the market's stockholder's rights are still in the communities' hands.

Secondly, the city planning institution needs to provide a flexible planning framework to allow collective action-driven transformation to respond to surrounding development.

Thirdly, the municipality should favor the street market's residents with lower taxes. This action can help the residents to stay and attract more individual entrepreneurs.

5.3 - Reflection of research by design process

5.3.1 - The case selection process

Subjective impressions largely influence the case study in this thesis. Its knowledge needs to be further developed and enlarged as a collective pool. Otherwise, the early stage prejudice can heavily limit the valuable design principles' exploration.

5.3.2 - The design principle modification & packaging procedure

The design principle and design legends extraction are concrete steps to translate the street market design knowledge as a network. But the thesis is still missing a clear strategy that can regulate when and how the design principle should be modified according to a specific context. A thorough investigation to the mechanism of principles grouping should be conducted.

5.3.3 - The evaluation approach for toolbox's application

The thesis applied a six-axis chart, questionnaire, and business plan as three methods to evaluate the effectiveness. This framework uses different categories that can provide a new perspective to reveal the possible missing aspects that are not emphasized in the four theme charts.

But, each method in this evaluation package works separately without sufficient connection to exchange the outcome. In the next step, a more integrated approach framework needs to be designed to carry these three or more methods that can work systematically. With this framework's development, the street market toolbox can reveal more valuable information and build up a solid strategy accordingly.

5.3.4 - The future steps for thesis further development

The future steps of the research will start to investigate how the street market planning can function as an independent framework to integrate with current planning practice structure, including planning legal system, city economy scheme and different scales spatial planning.

It needs to develop a more systematic theory structure. The new theory structure needs to support the idea that the process of applying street market planning as a tool to achieve supply justice by integrating city collective networks is the procedure of inclusive urbanization.

5.4.2 - Flexible choices of design legends

The selection of design legends for a possible solution package is flexible and multi-options. The final principle composition should not be considered as the only one. Different design perspectives and focuses can lead to different principle composition package. It illustrated the toolbox's capacity in providing various solutions. For example, the three different design thinking leads to three packages that promote various planning priorities and hierarchies.

FIG. 1.112 Solution 01 - A solution package that emphasized on improving living condition through street market

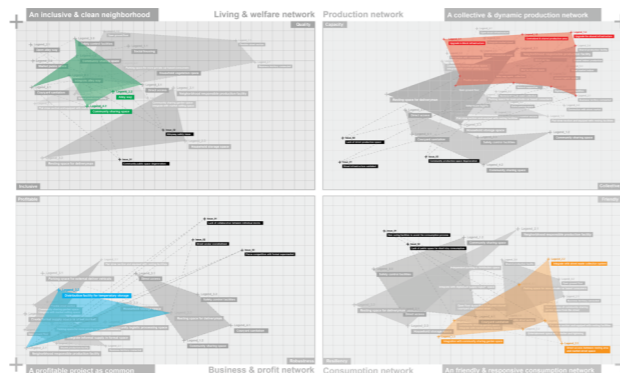


FIG. 1.113 Solution 02 - Emphazied on increasing street market profit and encouraging social housing oriented development

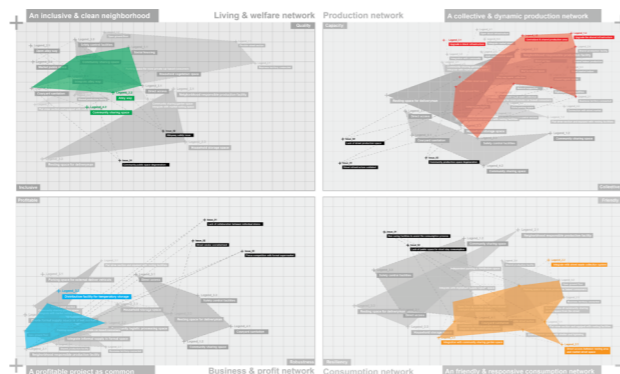
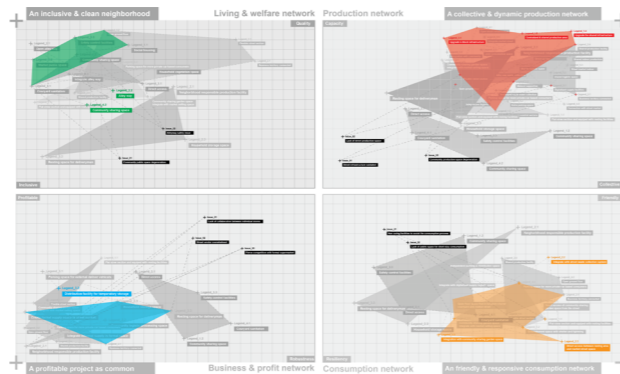


FIG. 1.114 Focusing on using consumption network to stimulate the structure's vitality



5.5 - Reflection of principle-driven design toolbox

The thesis has achieved the initial goal of using the street market as a carrier to achieve inclusive urbanization. The design toolbox located the site issues and provided a solid design principle support package. It explored options that have high and balanced performance across four themes.

This process proved the collective action in inclusive urbanization is a process that can be incubated and transferred by providing the evidence of the versatility and transformability of street market principles.

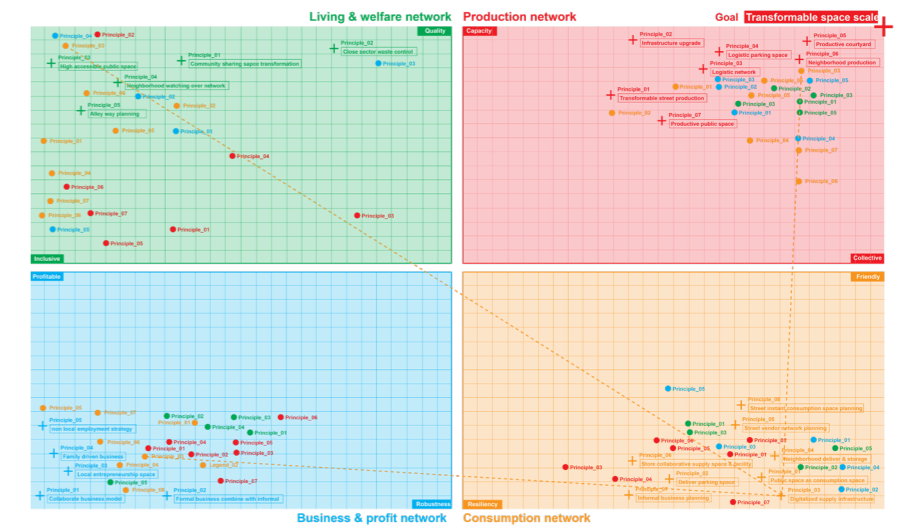


FIG. 1.115 Approach evaluation chart

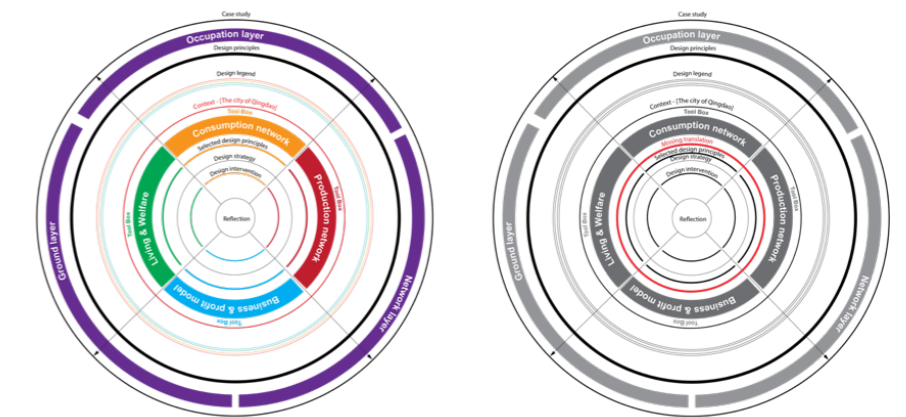


FIG. 1.116 Research overall structure diagram

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