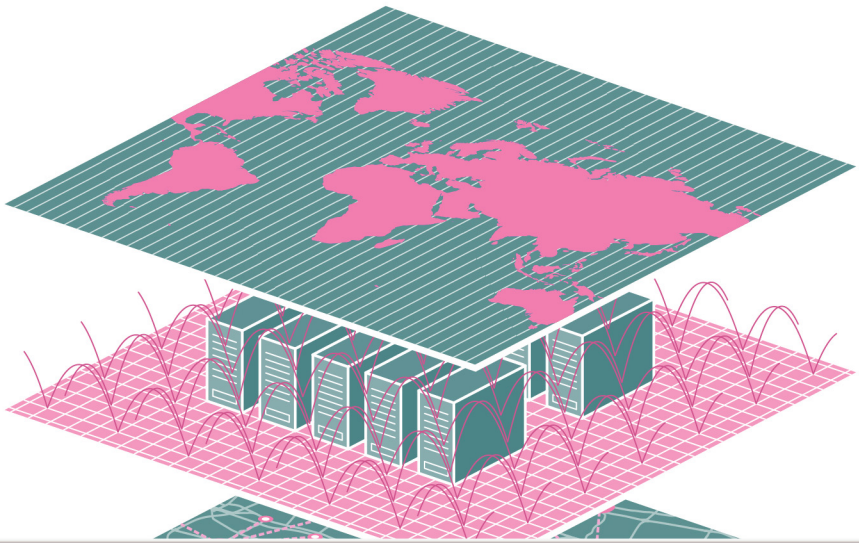

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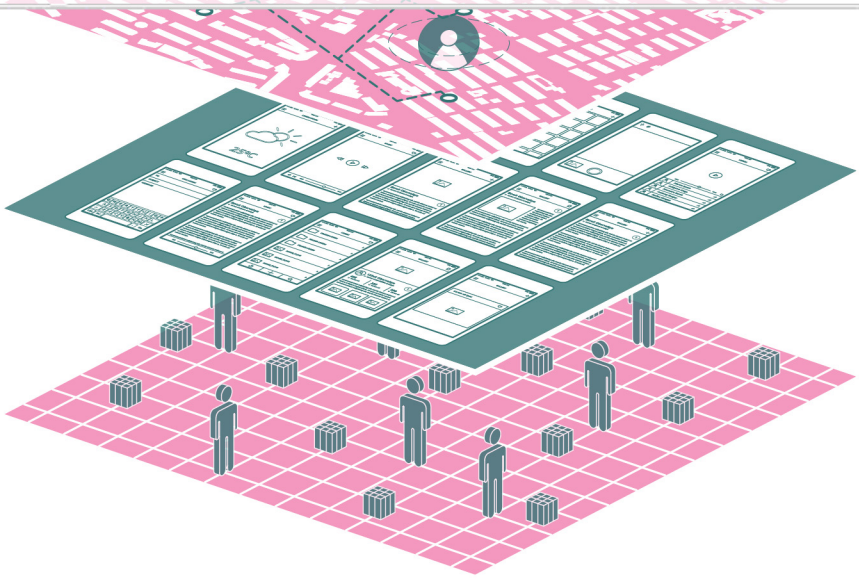
Digital Biopolitics

Exploring Customer-Product-Marketplace Relationships within Alibaba's Megastructure

P5 Report
Yu Duan 5979099
Mentors: Gregory Bracken, Victor Muñoz Sanz



Digital Biopolitics

Exploring Customer-Product-Marketplace Relationships within Alibaba's Megastructure

Graduation Project
P5 Report
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Msc. Architecture, Urbanism, and Building Sciences
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Absrtact

With demand expansion and consumption stimulation as fundamental policies for economic growth, China's culture of consumerism has evolved into not only an economic strategy but also a dominant social ideology and a driving force of urban and regional development. In the era of accelerated platformisation, platform corporations exemplified by Alibaba have expanded their influence and established an oligopolistic platform economy that has already reshaped and continues to reshape the culture of consumerism by transforming consumption behaviors, habits, and values. As a result, the production of space and social relations is undergoing a radical transformation.

Building on this premise, this research adopts the Stack as its primary theoretical and design framework to investigate the computational system of the Alibaba corporation in China, with Shanghai serving as a case study. It examines how planetary-scale computation, as manifested through both physical and digital infrastructures, reconfigures geodesign systems across multiple scales, from the territorial allocation of productive resources and the structure and configuration of urban space to human-machine interaction. In doing so, it reveals how Alibaba digital biopolitics facilitates the restructuring of market environments and conditions human subjectivity.

In the design and strategic section, this research further addresses the ethical dimensions of biopolitics within the context of accelerated platformisation. It explores the potential of an affirmative digital biopolitics as a new paradigm, one that centers on the exploration of human futures. In this model, experience becomes a product for customers to consume in the pursuit of a better self, while platform technologies serve as mediating infrastructures that sustain the operational system and enable the enhancement of individual subjectivity. Based on this paradigm, the study speculates a utopian vision of alternative models of production and consumption within the Stack, and envisions future cultures of consumerism shaped by ethical computation and emancipatory spatial and interaction design that foreground situation construction.

Key words: Digital Biopolitics, Platformisation, The Stack, Subjectivity, Culture of Consumerism, Utopianism

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Without the support and encouragement of all these people, this work would not have been possible. I am deeply grateful to each of them.

Contents

Glossary

Accidental megastructure (See also: Stack)

The Stack itself is an accidental megastructure formed, not by a master plan, revolutionary event, or constitutional order, but through the convergence of layered technologies and their unforeseen interactions across technical and social scales. (Bratton, 2016, p.8, p.367)

Accelerated platformisation

Platformisation refers to the increasing prevalence of large digital platforms that act as intermediaries between users, facilitating economic, social, and cultural interactions across both public and private domains. Accelerated platformisation means this process unfolds at an intensified speed and scale, marking a new historical phase that follows industrialisation and informatisation.

Black Box

Refers to a system, device, or process whose internal workings are hidden or not accessible to users or observers. The logic and mechanisms of Alibaba can be seen as a black box, meaning that its algorithms, decision-making rules, and processes operate without transparency, making it difficult to understand how inputs are transformed into outputs.

Culture of consumerism

Hua (2010) argues that the culture of consumerism can better reflect contemporary China. The culture-ideology of consumerism, as defined by Featherstone, has already been established, and a high-consumption value system has become widespread throughout society. However, its practice is still constrained by traditional ethics, moral values, and economic conditions.

Digital biopolitics

Digital biopolitics is a new form of biopolitics, the concept originally developed by Michel Foucault as the governance of life, adapted to the digital age. It is realized through planetary-scale computation and the vertical interoperable layered digital and physical computational system. Through data driven and algorithmic mechanisms, digital biopolitics enables more granular management and control of dividuals, allowing life to be continuously monitored, categorized, and regulated.

Digital capital

Digital capital is a new form of capital accumulation that emerges in the digital age. Building on Dan Schiller's (1999) concept of digital capitalism, where digital technologies enhance value by increasing turnover and reducing costs, digital capital extends beyond traditional industrial and financial capital.

Dividual

The concept of the dividual, proposed by Deleuze, can be used to describe the subject of control in digital societies, in contrast to Foucault's individual in disciplinary societies. While individual implies a self contained and indivisible unit, the dividual is fragmented and subject to division, modulation and tracking. This project argues that dividual better captures the logic of digital biopolitics, where digital technologies profile identity and behavior by breaking human activity into data fragments that are measurable, predictable and governable.

Embodied

Refers to the way ideas, experiences, or identities are expressed or realized through the interaction between the physical body and material presence. In the digital age, this interaction with platforms is often passive, shaped by algorithms that guide the reception of visual and other sensory information. It reflects a technologically mediated perception rather than an entirely autonomous bodily experience.

Experience

Refers to the process through which individuals perceive, interpret, and respond to their environment and interactions in an embodied way. It encompasses bodily, sensory, emotional, and relational dimensions, shaping how people understand and engage with the world.

Exploitation

Exploitation is the mode through which platform corporations make decisions based on existing profiled data to maximize immediate but short-term benefits. In algorithmic systems, this involves leveraging known user preferences to deliver content, recommendations,and advertisements that align with current interests, often aiming to extract users' time, attention, and money.

Exploration

Refers to the process of making decisions that prioritize learning new information, even at the cost of short-term efficiency. In digital platforms, exploration involves showing users unfamiliar or diverse content to discover new preferences and behaviors. This approach may reduce immediate returns but supports innovation, personalization, and long-term engagement.

General data

A term defined by Lan Jiang (2018) to describe everyday personal traces that, when aggregated and processed through technologies such as cloud computing and algorithms, are transformed into valuable data commodities. Though originally tied to individual memory, these data are repurposed by platform corporations for profit, becoming a foundational resource in the formation of digital capital.

Glitch

A glitch is a minor malfunction in a system that signifies moments of breakdown, interruption, or error. It reveals the underlying structures and logics of technological systems. In this project, the glitch is understood as a creative and resistant force. It functions as a design language that disrupts the established megastructure of the Stack constructed by Alibaba. By exposing failures within programmed systems, glitches highlight structural transformations.

Human future

In the context of platformisation, the human future is treated as an object that can be designed, predicted, managed, and commodified. Platform corporations use big data analysis and algorithmic modeling to produce and shape future human cognitions, behaviors, preferences, and identities, deploying them into the advertising market and transforming them into resources for capital accumulation and control.

Institutional form

Institutional form refers to the established structures, rules, or organizations within a society. In the accelerated platformisation era, Bratton (2016, p.44) argues that the platform, as the third institutional form alongside states and markets, combines architectural and computational elements to regulate and control individuals through data protocols and algorithmic standards in a more specific and fundamental way.

Oligopoly

A market structure characterized by a small number of firms that dominate the industry. These firms have significant control over prices and market supply, leading to limited competition. Alibaba can be seen as part of an oligopoly in China's e-commerce market, leveraging platform products and cloud technologies to consolidate its dominance and shape market dynamics as well as consumption habits and culture.

Program

In this project, program refers to the commercial measures Alibaba employs through its platform products, platform rules, and spatial implementation to coordinate and shape the geodesign and interaction design processes. Individuals, platforms, and spaces are all integrated into Alibaba's ecosystem and participate in its capital circulation.

Stack

The Stack is both a technical model for understanding the arrangement of planetary-scale computation as a coherent whole and a conceptual model for examining the contradictory and complex spaces produced in its image (Bratton, 2016, p.375). According to Bratton's definition, it includes six interoperable layers: earth, cloud, city, address, interface, and user layers which together constitute a computational system.

Subjectivity

Subjectivity refers to the individual's personal perspectives, feelings, beliefs, and experiences that shape how they perceive and interpret the world. It encompasses the ways in which identity and consciousness are formed and influenced by social, cultural, and technological contexts.

Utopianism

A philosophical and cultural idea that envisions an ideal or perfect society where social, political, and economic problems are resolved. In this project, utopianism informs the exploration of an altered paradigm of digital biopolitics, as well as the future culture of consumerism and the structured vision of the Stack.

Vaporwave

A visual and musical art style that emerged in the early 2010s, characterized by retro futuristic aesthetics, neon colors, glitch effects, and nostalgic references to 1980s and 1990s pop culture. In this project, vaporwave is used as a collage visual language to suggest the spatiotemporal conditions of human-space-computer interaction, evoke a sense of digital surrealism, and serve as a vision for future culture of consumerism.

1

Introduction

1.1 Context

Culture of Consumerism and Compacted everyday life

Delirious consumption dream

Since 1992[1], with the formation of the market economy and mass society, the culture of consumerism[2] has grown into a dominant social and cultural circumstance in China (Hua, X., 2010). Over the long term, the Chinese government has embraced the model emphasizing fundamental role of consumption in economic development[3] (Zang, X., & Yao, J., 2024), and has adopted domestic demand expansion and consumption stimulation (Wang, K., et al., 2025) as fundamental strategies for promoting economic growth.

The values and concepts of consumption have then permeated the overall social structure (Hua, X., 2010), influencing various aspects of politics, economy, society, and culture. The corresponding rise of consumerism is an integral part of the transformation of China's social structure and also serves a certain political function (Wang, N., 2007). The consumption dream has always been not only about fulfilling the desires of individuals, especially those who have experienced prolonged material scarcity and long for material goods and a better life, but also serves as an economic development and stability maintenance strategy for the state and government.

Moreover, due to the late start of modernisation, regional development imbalanced, concentrated infrastructure construction, and the influence of traditional ethics and consumption values, the delirious culture of consumerism of the whole society, both in behavior and culture, has emerged and will persist in the long term. As a result, a significant portion of social life in China is organized around consumption, and urban renewal and development is also centered on it.

[1] The 14th National Congress of the Communist Party of China was held in 1992, where the economic system reform was outlined.

[2] The original author states that the culture of consumerism can better reflect China: the culture-ideology of consumerism, as defined by Featherstone, has already been established, and a high-consumption value system has become widespread throughout society. However, its practice is still constrained by traditional ethics, moral values, and economic conditions.

[3] The Keynesian economics model, which advocates for government-led intervention in the economy and social life, is exemplified by initiatives such as the 2008–09 Chinese Economic Stimulus Plan and the 2022-35 Expansion of Domestic Demand.

Ecstatic architecture and cities

Contemporary consumption is not only about fulfilling basic material demanding and shaping social and individual identity (Featherstone, M., 1991) but also serves as a fundamental driving force and foundation for economic and political dynamics in China. The conquest and integration of space have become the primary means by which consumerism is maintained (Lefebvre, H., 1992). Hence, the delirious culture of consumerism of the whole society plays a major role in building activities and results in an architectural and urban carnival (Hua, X., 2010), resembling what Charles Jencks (1999) describes as ecstatic architecture—stimulating, holistic, and overpowering. Through the stimulation of physical pleasure and the expansion of experience, culture of consumerism manifests itself in architectural and urban practices.

As previously mentioned, one of the distinctive features of China's culture of consumerism lies in its late start to modernisation, with urban infrastructure development starting later, yet technological advancements being well-established. Since the 1990s, pilot urban complex projects have been introduced and since 2008[4], urban renewal and development projects have witnessed an explosive growth of urban complexes. The highly concentrated organization of urban functions has been widely adopted in cities, driven by agglomeration effects and economies of scale. The comprehensive coverage of daily needs and mixed-use nature of urban complexes enable everyday life to be compacted within their controlled environment and intentional design. Moreover, consumption spaces have been extensively involved in shaping contemporary urban forms, leading to a state of "quasi-consumerisation", where non-consumption spaces are heavily permeated by consumption activities, undergoing essential transformations (Han, J., 2014).

This transformation of Chinese society into a consumer society has fundamentally reshaped the overall environment of urban and regional development (Zhao, Y., & Zhang, J., 2009), influencing land use patterns, industrial distribution, and more. Consumption serves as a key driving force for urban and regional development, not only by promoting consumption through high-value-added service industries but also by generating a ripple effect that stimulates the regional economy.

In conclusion, under the guidance of economic policies, the shaping of social ideologies, and the spatial practice, everyday life in China are largely structured around consumption, and urban development transition is also constructed around it. Consumption has become an ecstatic carnival for the entire society.

[4] In 2008, Hangzhou proposed the plan to build 100 multi-functional urban complexes for the first time. In the following nearly 10 years, the construction of urban complexes entered a rapid expansion phase nationwide.

Fig. 1.1, Shanghai image experiment under consumerism. Photo by, Xie Rende

Platform Urbanism and Oligopoly

Acceleration of platformisation

In the Post-Fordism era, China's consumption carnival faces growing changes of digitalisation and virtualisation. As the platform economy emerges as the dominant global economic model, characterized by an oligopolistic structure, it has profoundly transformed the scale, structure, and patterns of consumption (Zhao, Y., 2024), marking the acceleration of platformisation. The government also aims to promote the development of platform economy[1], with the goal of innovating consumption scenarios and enhancing consumer capacity to stimulate domestic demand. This can be seen as a new phase in the culture of consumerism and the consumption carnival of the whole Chinese society, driven by virtual and digital platformisation.

The culture of consumerism, as a dominant value system, has profoundly influenced architectural and urban practices. The shift to consumerism under platformisation integrates digital platforms into the shaping of urban governance, economies, experiences, and spatial dynamics (Caprotti, F., et al., 2022). Sarah Barns (2019) argues that platform urbanism not only reshapes urban economic and social activities but also influences infrastructure development and governance models, making it an essential factor in contemporary urban development.

[1] The State Council's executive meeting on November 22, 2024, focused on advancing the development of the platform economy. The meeting emphasized that the development of the platform economy is key to expanding domestic demand and addressing issues related to employment and people's livelihoods.

Growth and monopoly

The business model of the platform economy focuses on both growth and monopoly. Growth refers to the expansion of key performance indicators, while monopoly involves establishing industry barriers (Li, K., et al., 2017). This model is also evident in China's platform economy, leading to the emergence of an oligopoly.

It is widely recognized that the oligopoly structure of internet corporations began to take shape in 2003[2]. Over the next two decades, despite changes in the composition of the oligopolies, the overall structure has remained consistent[3]. The platform companies have maintained dominant positions in their respective fields, leading to a monopolistic environment characterized by data, traffic, and algorithm monopolies (Li, Y., 2021).

Alibaba, originally founded as an e-commerce corporation and later transforming into a technology-driven platform company, has become the most influential entity in responding to and shaping the culture of consumerism, as well as in defining and alienating the space of consumption. Due to the everyday nature of consumption, the public is able to engage in the process of Alibaba's capital accumulation and

[2] The SARS outbreak in 2003 can be seen as a catalyst for the development of the Chinese Internet industry. In that year, Baidu became China's preferred search engine, Alibaba began developing C2C e-commerce, and Tencent launched a casual gaming community platform. Since then, these three companies have become the first generation of internet giants, known as BAT.

[3] The BAT structure has gradually dissolved, with emerging players like ByteDance, Meituan, and others gaining prominence. However, despite these changes, Alibaba and Tencent remain the top two largest internet companies in China through 2025.

expansion. At the same time, it also aligns with the policy response to stimulate consumption and promote domestic demand for economic development. Now Alibaba has successfully adapted to and accelerated the culture of consumerism, transforming the Chinese public into highly dependent digital consumers and redefining the geographical environment to support its e-commerce business. Through its regulation, ideology, and pervasive product and service ecosystem, Alibaba seamlessly integrates individuals into the capital accumulation system of the platform economy, collectively shaping a new generation of the consumption carnival.

In conclusion, the oligopolistic platform economy has already become, and will continue to be, the dominant force in the future production of space. As a result, future architectural and urban forms and spaces, as projections of consumption behavior and culture, will undergo new changes that are not yet foreseeable.

Hence, this project will focus on Alibaba corporation as the case study to explore the outcomes of platformisation, the culture of consumption, and the transformation of space.

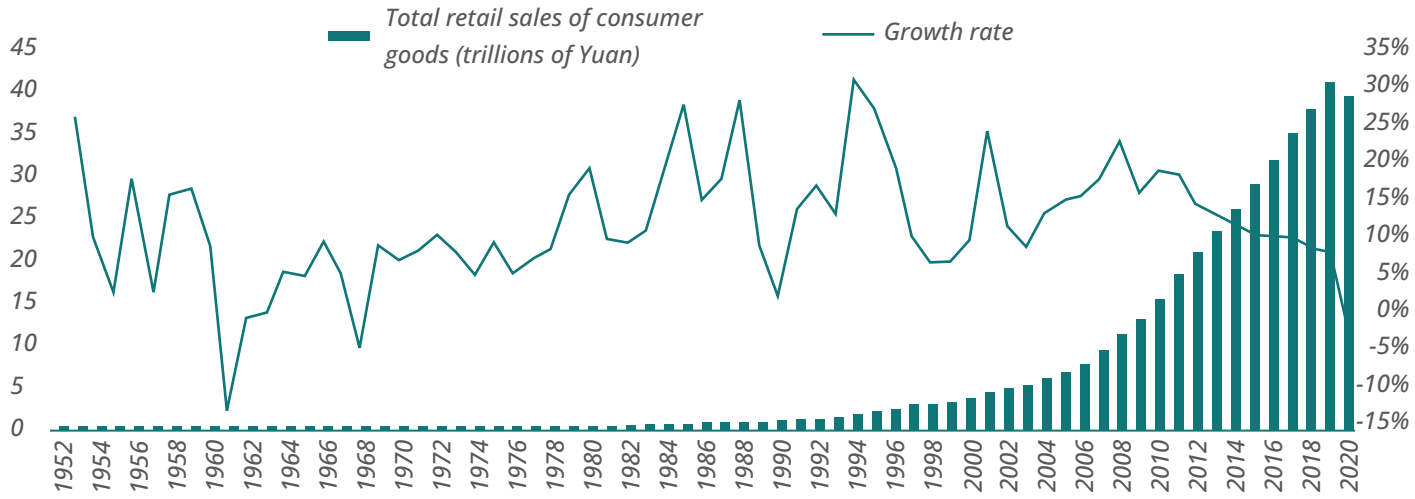


Fig. 1.2, Total retail sales of consumer goods and growth rate since 1950s in China

Customer, Product, and Marketplace

While the public is immersed in the new consumption carnival of the whole society, they remain uncertain about the ongoing tension between physicalisation or virtualisation. In October 2016, Jack Ma, co-founder of Alibaba, introduced the concept of New Retail[1], aiming to drive the seamless integration of online and offline commerce, as well as cross-industry collaboration, through continuous supply chain restructuring and logistics innovation (Zhao, X., Xu, X., 2017). Zhang Yong, CEO of Alibaba Group, further elaborated that the success of new retail depends on the reconstruction of three key commercial elements: Customer, Product, and Marketplace[2], and its ability to drive greater efficiency. Since then, these three elements have been widely discussed in both academia and the business sector in China.

[1] In October 2016, at the Hangzhou Yunqi Conference, Jack Ma stated: "The era of pure e-commerce will soon end. In the next ten or twenty years, there will only be 'New Retail.' That is to say, online, offline, and logistics must be integrated to create true 'New Retail.'"

[2] The three key commercial elements proposed by Zhang Yong, Ren-Huo-Chang (人 - 货 - 场), do not have a formal English translation. In this project, they will be interpreted as "Customer, Product, and Marketplace." Customer refers to a purchaser of goods or services (Oxford University Press, n.d.), representing every individual who can engage with Alibaba's capital system in the role of a customer. Product denotes a substance or service that is manufactured or refined for sale (Oxford University Press, n.d.), encompassing not only physical goods but also services, software, and virtual experiences which align with Alibaba's diverse offerings. Marketplace is defined as an open space where a market is or was formerly held (Oxford University Press, n.d.), covering both physical retail stores and online e-commerce platforms, making it well-suited for discussions within the platform economy context.

Generally speaking, the traditional relationship was centered around a fixed marketplace where retail transactions occurred. In contrast, under data-driven systems, the core shifts toward the customer, whose needs and desires become the primary drivers of consumption. As a result, both consumption scenarios and product production have become increasingly decentralized and responsive to demand. This project will also adopt the perspective of the customer, product, and marketplace, and their evolving relationships, as the perspective to study the culture of consumerism.

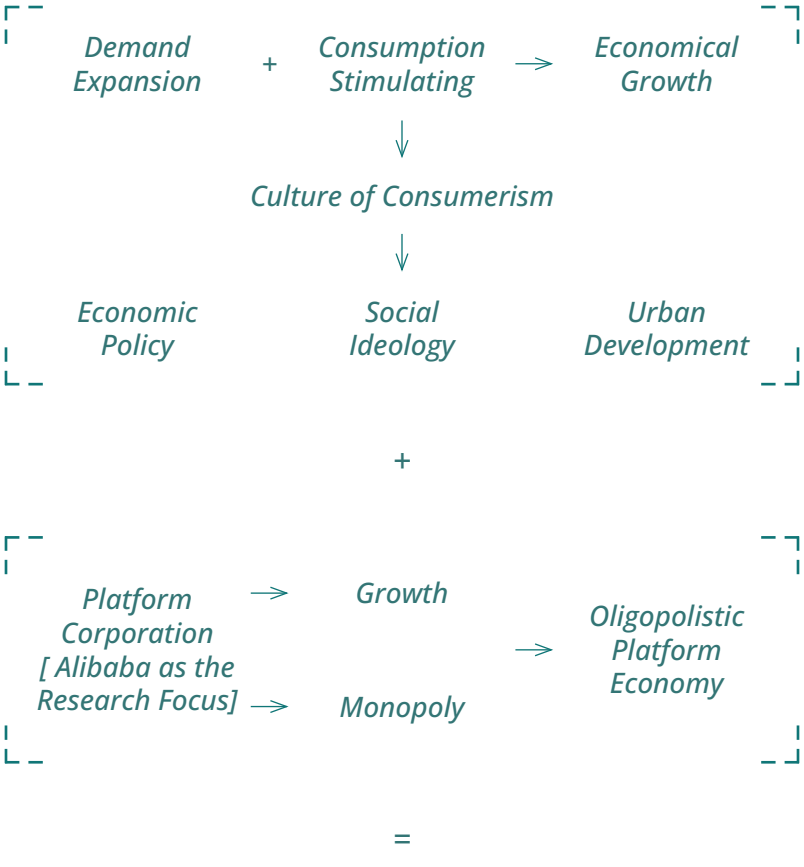


Fig. 1.3, Context framework

Fig. 1.4, Shanghai image experiment under consumerism. Photo by, Xie Rende

1.2 Context analysis

Phasing of Platformisation

To begin the research, it is essential to examine the historical evolution of consumption culture, behavior, and environment in China, with a particular focus on Alibaba, to understand what has truly happened and shaped today's consumption landscape.

Drawing insights from 4th Consumerist by Miura Atsushi, Bian (2024) categorizes China's consumer society into three stages[1] since the launch of the Reform and Opening-up in 1978. And he suggests that China is currently in the mid-to-late phase of the third consumption society, marked by the rise of diversified and personalized consumer demand. However, it faces challenges such as demographic shifts and has not transitioned into the low-desire fourth consumption era.

In this chapter, drawing from Bian's definition, the study focuses on the transition of the relationship between customers, products, and marketplaces under the influence of platformisation. The phases are divided into three stages: 1978-2003, the first wave of consumption growth brought by the reform and opening-up; 2003-2017, the era of "mass production, mass consumption" (Bian, Q., 2024) and the start of platformisation; and 2017 to the present, which marks the acceleration of platformisation following industrialisation and informatisation.

[1] Bian categorizes the three stages: the first generation (1978-2000) marked the initial phase of economic growth, driven by early industrialization and urbanization. The second generation (2001-2017) saw accelerated economic expansion. The third generation (2018-present) represents the post-industrialization era, characterized by consumption upgrading.

Pre-Platformisation

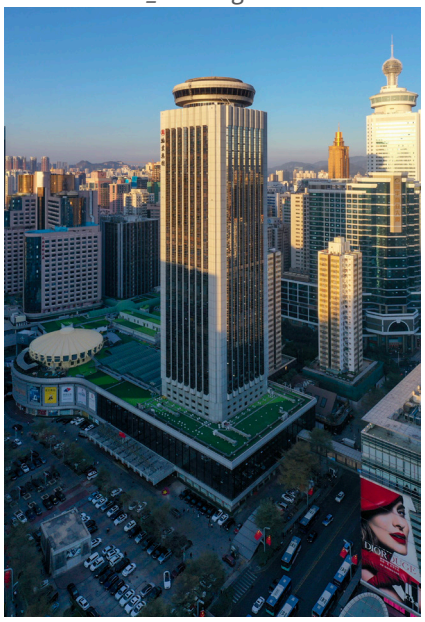
Controlled environment and commodity fetishism

In the traditional space for consumption in the pre-platformisation era, the relationship between customers, products, and marketplaces follows a sequence where businesses first establish stores, then stock products, and finally sell them to customers through conventional marketing methods. From the customers' perspective, they visit physical marketplaces to shop and purchase the products they need.

It is architecture, urban design, and technological advancements that have driven this relationship. Since the 1980s, China has progressively developed a number of commercial complexes[2]. And the entire 1990s saw the rapid growth of supermarkets and hypermarkets in China, which became widely distributed across urban commercial districts, established neighborhoods, and suburban new towns (Wu,Q. ,2017).

With the advancement of HVAC, plumbing, electrical, and structural technologies, new spaces for consumption including urban complexes and shopping malls have created a controlled inner public space (Chung, C. J., et al., 2000), enabling a wide range of urban activities, including consumption, leisure, and social interactions. These spaces have

[2] Fig. 1.5, The Shenzhen Guomao Center, completed in 1985, is considered one of the earliest commercial complexes in China. Image source:https://en.wikipedia.org/wiki/Guomao_Building



become the core of everyday life. Meantime, the space for consumption is intentionally designed to disorient customers or encourage them to stay longer, incorporating multiple functions to attract them, encouraging unconscious consumption within this controlled environment. And the presentation of products and the design of circulation paths influence the customer's purchasing journey. In conclusion, the layout of the marketplace determines how customers interact with, perceive, and select products.

The marketplace holds a central position in this relationship. Only by securing prime locations and key channels can businesses satisfy customers and survive. Likewise, only by entering the physical controlled environment can customers interact and shop, whether intentionally or unintentionally. The marketplace has always been the geographical, social, commercial, and cultural core of the city (Yan & Wang, 2023).

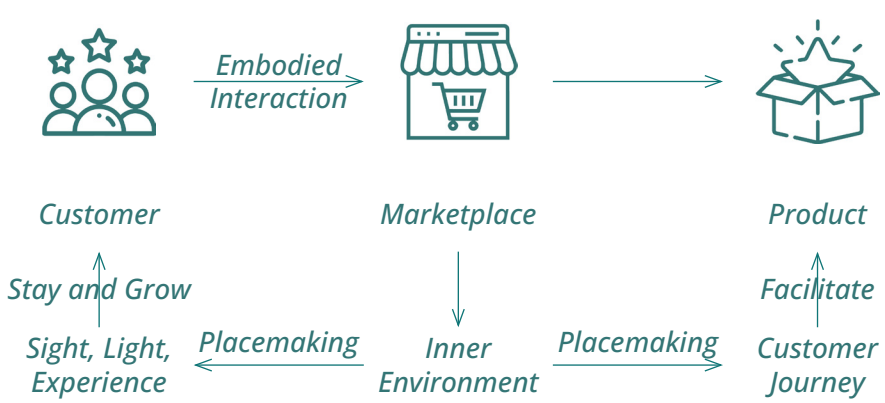


Fig. 1.6, The relationship between customers, products, and marketplaces in the pre-platformisation era

Fig. 1.7, Shanghai 1995. Photo by Gueorgui Pinkhassov, Magnum Photos

Platformisation

Alibaba's e-commerce revolution

Learning from eBay, Alibaba was founded in 1999 by Jack Ma and a group of co-founders. In 2003, it launched Taobao, a C2C (consumer-to-consumer) platform aimed at empowering individual sellers and competing with eBay's entry into the Chinese market. Alongside it, Alibaba introduced Alipay, a third-party digital payment system designed to build trust in online transactions in the absence of a formal regulatory framework. Riding on the digital transformation catalyzed by the SARS outbreak in 2003, Alibaba quickly entered the public spotlight. What began as a small marketplace evolved into a full-blown e-commerce revolution in China.

Within just a decade, Alibaba grew into one of the largest internet giants in China. Its platform model expanded rapidly, incorporating B2B, B2M, and C2C formats, while integrating logistics networks, digital navigation, lifestyle services, and fintech systems, laying the infrastructural groundwork for China's platformized economy.

From planned to instant

Alibaba shifted consumption from traditional physical retail spaces to virtual platforms, making consumer behavior increasingly personalized and fragmented. At the same time, the widespread use of mobile devices, moving beyond just websites, freed consumers from the constraints of time and place[1]. This marked a transition from the rational, planned consumption typical of traditional culture of consumerism toward a more impulsive and emotional mode, reinforcing consumption as a form of everyday entertainment and identity expression.

In its early platformisation, e-commerce served as an extension and supplement to physical consumption. While many consumers still preferred in-person experiences, online shopping became particularly attractive to residents in lower-tier cities and rural areas who were far from commercial areas. Enabled by Alibaba's development of logistics infrastructure (such as the Cainiao logistics network) and the widespread adoption of digital payment and credit systems (like Alipay), e-commerce functioned as a tool to unleash latent consumer potential. In line with state policy to stimulate domestic demand, it activated new markets and enabled broader participation in an ecstatic consumption carnival.

[1] The mobile client made consumer behavior more convenient and portable, as shown by the transition from the website in Fig. 1.8 to the mobile app in Fig. 1.9.

Fig. 1.8, Web-based shopping model of Taobao in 2006, Image source:http://www.360doc.com/content/18/0723/17/170391_772653308.shtml

Fig. 1.9, After 2010, the Taobao mobile client was launched (the version shown is from 2025).

Platformised consumption dream

Meanwhile, Alibaba had shaped a decentralized market where customers are empowered. Unlike traditional retails or department stores, e-commerce provided greater transparency of information and eliminated spatial barriers, allowing customers to directly access a wide range of merchants. This enhanced customers' rights to information and choice, giving them more agency in the consumption process.

At the same time, consumption became increasingly ritualized through festival-style marketing and gamified through various discount activities. This not only challenged traditional consumption habit and tried to alter ethics and moral values but also helped bridge the gap between consumption desire and consumption capacity, ultimately reinforcing the platformized commodity fetishism.

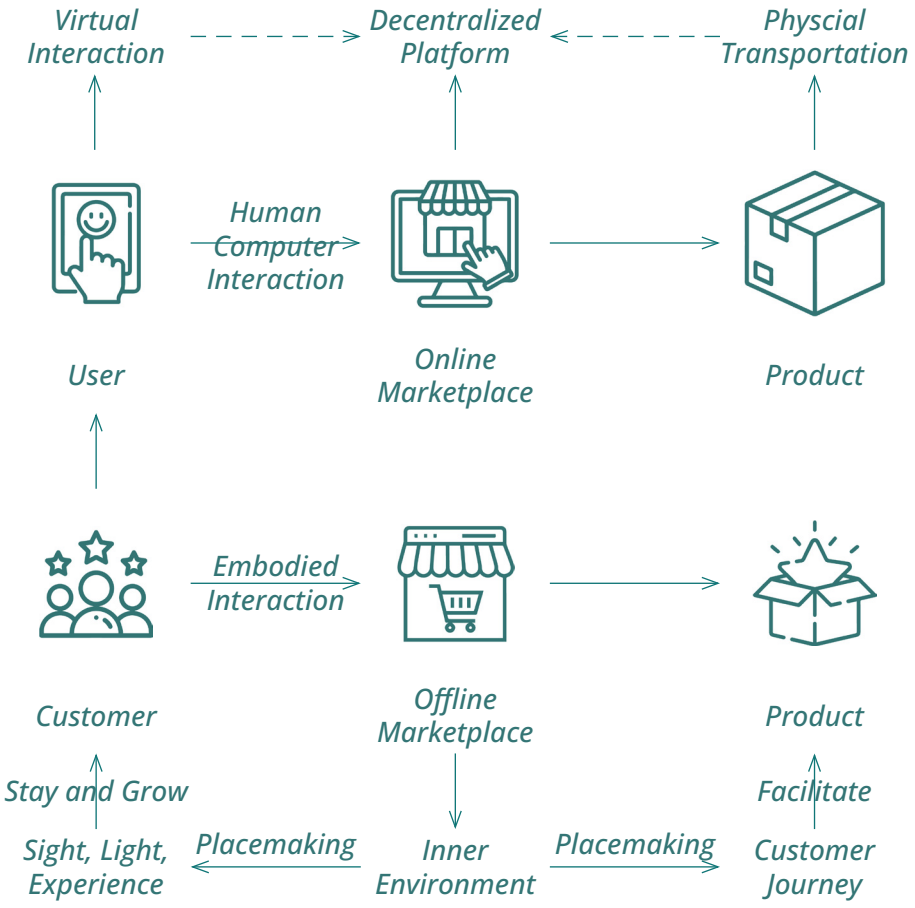


Fig. 1.10, The relationship between customers, products, and marketplaces in the platformisation era

Acceleration of Platformisation

Digitalisation and virtualisation

China's culture of consumption has undergone significant transformations through increasing digitalisation and virtualisation, largely driven by oligopolistic platform corporations, with Alibaba serving as a prominent driving force. These changes involve platform-based products, financial services, and advanced digital technologies. As physical and digital infrastructures have become more integrated and sophisticated, Alibaba's product ecosystem has pervasively infiltrated everyday life, extending from spatial environments to digital interfaces. Its seamless digital technologies and multiple market scale have been deeply embedded into everyday life, successfully transforming individuals into highly dependent digital consumers.

To expand its business scope and scale, Alibaba leveraged its strong user retention and extensive supply chain to penetrate the offline market. Starting in 2016, Alibaba began integrating online and offline shopping, driving offline consumption through online platforms while expanding into the local life services market to identify new growth points. All of this relied on the realization of Alibaba's platform products.

Throughout this process and across Alibaba's various business sectors, every aspect of consumer behavior, including purchasing capacity, consumption habits, and even mobile interaction patterns, has been turned into data and used for targeted advertising to generate profit. This has given rise to an advertising economy that treats the human future as a source of product.

Accelerated platformisation consumerism

Accelerated platformisation has exploited the vulnerabilities within China's evolving culture of consumerism. Rooted in a history of late modernisation and material scarcity, the population has been particularly vulnerable to recommendation algorithms and targeted advertising, which foster compulsive and blind consumption patterns. Meanwhile, Alibaba's pervasive platform and algorithmically shaped consumer culture, exemplified by the recent rise of shopping festivals[1] and political consumerism[2], has challenged traditional moral values of thrift and moderation. This shift reinforces identity-based and emotionally driven consumption, through which Alibaba profits from both e-commerce and advertising markets.

[1] Alibaba has created and dominated various shopping festivals that blend commerce with culture. These include major events such as 11.11, 6.18, 9.9, 8.8, and 3.8, emotionally driven days like 520, and targeted campaigns for pets, parents, or holidays, turning everyday moments into programmable consumption rituals.

[2] Political consumerism in China has emerged as a form of consumption where buyers express social and national identities through their purchases. Alibaba's platforms enable and amplify this by promoting products tied to patriotic campaigns, environmental concerns, or social movements.

It can be said that today's platformised consumption dream has been profoundly reshaped by Alibaba as an oligopolistic force, driven through algorithmic control and data driven technologies. While customers consume products, they themselves simultaneously become products, commodified as predictive data for the human future. As the adage goes, "If you are not paying for it, you're not the customer; you're the product being sold." This culture of consumerism is now sustained by Alibaba's integrated online and offline ecosystems as well as the invisible yet pervasive forces of the digital advertising marketplace.

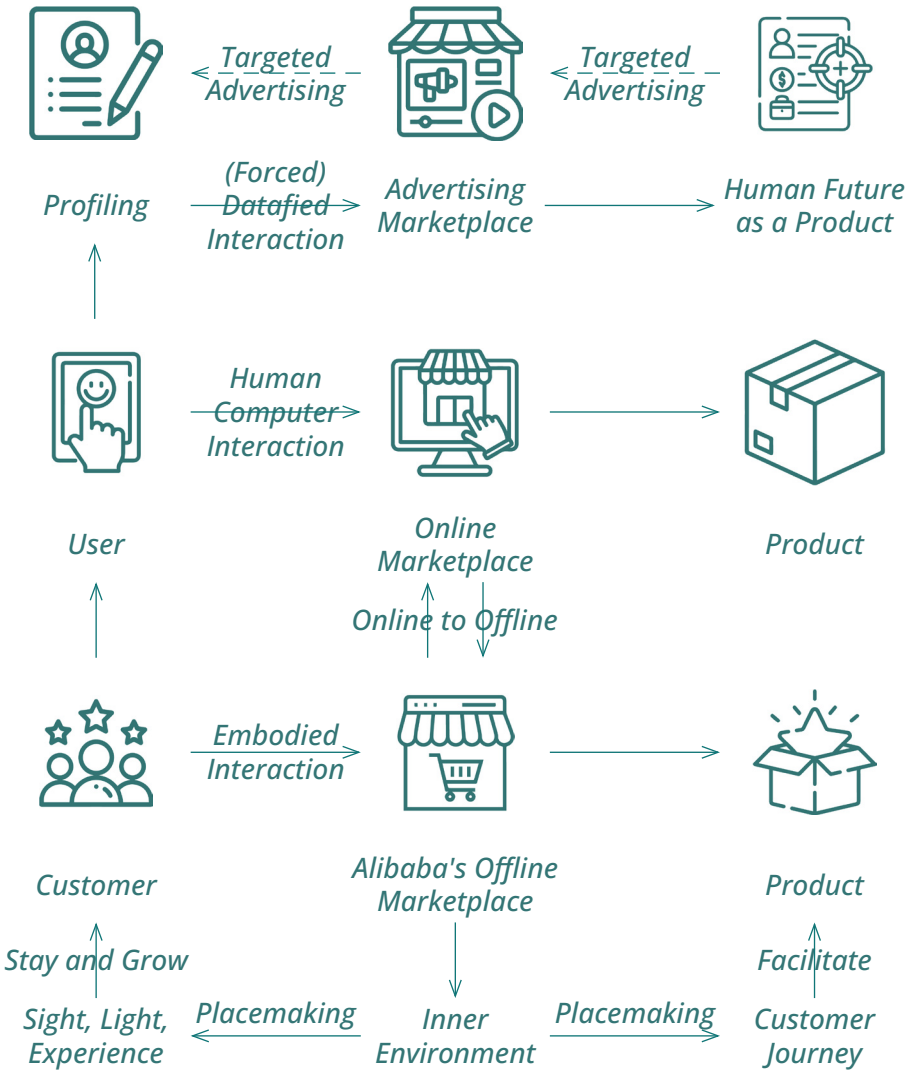


Fig. 1.11, The relationship between customers, products, and marketplaces in the Accelerated Platformisation era

1.3 Problem Field

Human future as a product

Alibaba's e-commerce transforms customers into platform users, commodifying human consumption behavior and reducing identities to data. This data feeds into algorithm-driven advertising marketplaces, enabling precise targeting for profit. In this consumption environment, customers are constantly monitored, with their actions and thoughts controlled by algorithms via platform. This results in a loss of customer autonomy and the homogenization of consumption culture.

Change of physical market environment

Under the government's endorsement and the convenience of Alibaba's e-commerce, the Chinese public has become highly dependent on e-commerce. This shift has led to the decline of traditional marketplaces like department stores, resulting in more homogeneous and alienated spaces shaped by consumerism and influencer culture. Offline marketplaces are increasingly "McDonaldized" and "Disneyfied," prioritizing efficiency, predictability, and spectacle over diversity and authenticity.

What to consume in the future

Traditional retail is struggling to compete with online shopping, while consumption culture and customer demands are becoming increasingly diverse. With the rise of trends like the experience economy and symbolic consumption, the question emerges: What will the products of future consumption be? Will they focus on the body, emotions, identity, desires, relationships, or something entirely different?

The future culture of consumerism

Since online shopping currently dominates, but there are still a large number of physical shopping malls. How can we balance the relationship between online and offline spaces in the future, meeting the diverse needs of customers and aligning with future consumption trends?

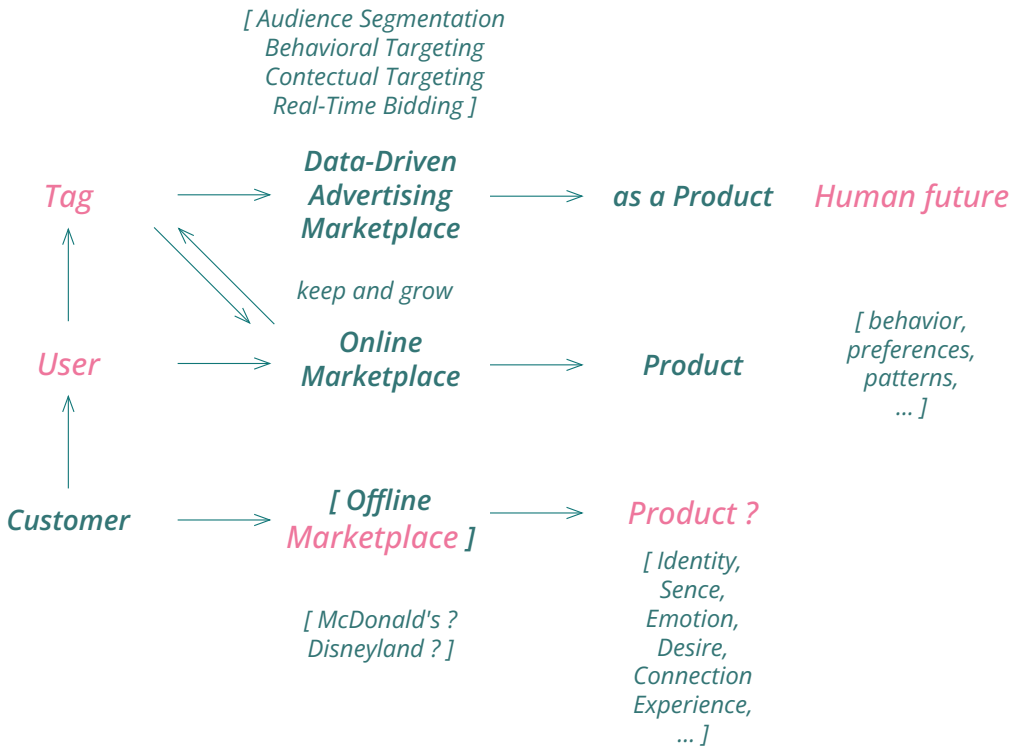


Fig. 1.12, Problem field of the relationship between customer, product, and marketplace

1.4 Problem Statement

Originally founded as an e-commerce corporation, Alibaba has undergone a transformation into a technology-driven platform corporation, with e-commerce remaining its core business. Over the past two decades, Alibaba has emerged as one of the leading oligarchs of China's platform economy, successfully reshaping the Chinese public into highly dependent digital consumers. Its digital capital, represented by platform capital, now mainly guides industrial and financial capital, establishing the platform corporation as a new institutional form.

With its business blueprint centered on e-commerce, Alibaba has expanded into living services and cloud technology, fundamentally permeating everyday life. This transformation has both intentionally and unintentionally reshaped the relationship between customers, products, and marketplaces.

For example, its wide commercial expansion, growing power, market dominance, and profit-driven strategies have squeezed individual and small businesses, resulting in a monopolistic competitive environment shaped by Alibaba. Additionally, Alibaba's cloud technologies, including algorithm and big data, have significantly influenced consumption culture and habits, accelerating consumerism while impacting human behavior and cognition (biological effects) as well as social identity and norms (disciplinary effects). Within urban environments, Alibaba corporation, often with government support, has reshaped the spatial and geopolitical landscape by constructing new infrastructures aligned with its business goals to redefine the flow system. These developments have altered the spatial configurations of cities and regions, and alienated traditional public space and marketplaces.

The challenges arising from platformisation need urgent and critical examination. At a broader level, questions need to be addressed regarding the role of platform technology and its effects on human behavior, cognition, and ideologies, and what is the future of cities and regions, particularly as the status quo that consumption activities are the main publicness in China. This project will offer insights into the potential for platforms to support more equitable and adaptive urban and human futures.

Platform = City

User = Citizen

Fig. 1.13, Shanghai image experiment under consumerism. Photo by, Xie Rende

2

Research Foundation

2.1 Research Aim

Research Aim

The necessity of focusing on Alibaba corporation as a case study of platformisation lies in its role as one of the largest data generators in China, involving nearly every individual. This is driven by the deep entanglement of public life with digital consumption and the influence of digital platforms. Through such consumption, individuals, acting as both users and customers, are increasingly integrated into the mechanisms of the capitalist system.

While in Chinese academia, especially in the field of architecture, there is much discussion on topics like digital governance, platform applications, and data analysis such as mobile signaling data, but there is limited critical reflection on how large corporations have truly transformed the city and social structure. Therefore, this research aims to be grounded in a theoretical and reflective view to explore these changes.

Shanghai as a Case Area

Over the past two decades, the culture of consumerism, consumption habits, and the spaces for consumption have undergone significant transformations. This research and design project selects Shanghai as the case area to investigate how Alibaba corporation has influenced and reshaped China's culture of consumerism.

Shanghai is chosen for its role as the economic center of China and as a critical operational hub for Alibaba, which has carried out extensive commercial practices and promotional activities in the city. Although Alibaba's headquarters is located in Hangzhou, its close proximity to Shanghai further underscores Shanghai's strategic relevance.

As a city that represents the complexities of China's evolving consumption landscape, Shanghai has a long and distinctive history of commercial development and cultural trends. As one of the earliest sites of commodification in China, it possesses a unique legacy of retail and culture. On one hand, the city showcases concentrated zones of luxury and high-end consumer experiences; on the other, it reveals the decline of some of the earliest physical retail spaces. These cultural tensions and spatial contradictions make Shanghai a compelling site for analyzing shifting patterns in consumer behavior and the broader transformation of consumption consciousness under platform.

Fig. 2.1, Nanjing road pedestrian street in the post-millennium era, Photo by, Xie Rende

2.2 Theoretical Underpinning

Theoretical Framework

As Chapter One has shown, the relationship between customers, products, and marketplaces has significantly transformed due to the influence of technology and capital driven by the e-commerce corporation Alibaba. Contemporary discussions on platforms span various disciplines: political economy focuses on how platforms reshape economic systems and power structures; technological philosophy examines ethical issues such as the relationship between humans and technology; and architecture and urbanism explore how platforms redefine spatial organization, urban forms, and the use of architecture. Accordingly, this project centers on investigating Alibaba's mechanisms and impacts while proposing spatial design responses. The first step is to draw conclusions from the extensive and mature research and debates in these fields. This analysis will offer insight into how these dynamics operate within the Anthropocene's complex interplay of human systems and planetary processes.

It is worth mentioning that in the field of technological philosophy, Stack theory is considered a work of political philosophy, architectural theory, and software studies, and even science fiction, as well as a design brief that outlines a design problem and invites new interventions (Bratton, 2016, Preface). As it offers a spatial perspective within a techno-geopolitical framework, therefore, seeing it as a theory for architecture and urbanism is appropriate.

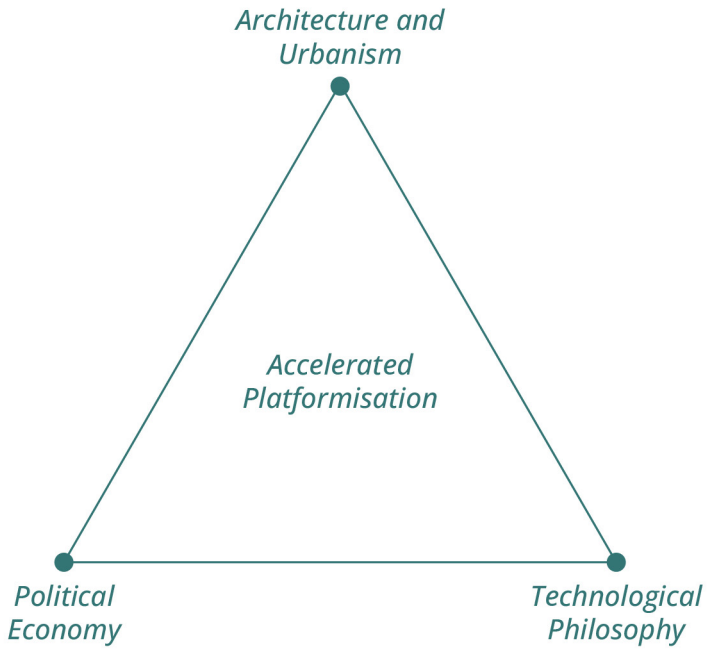


Fig. 2.2, Theoretical structure

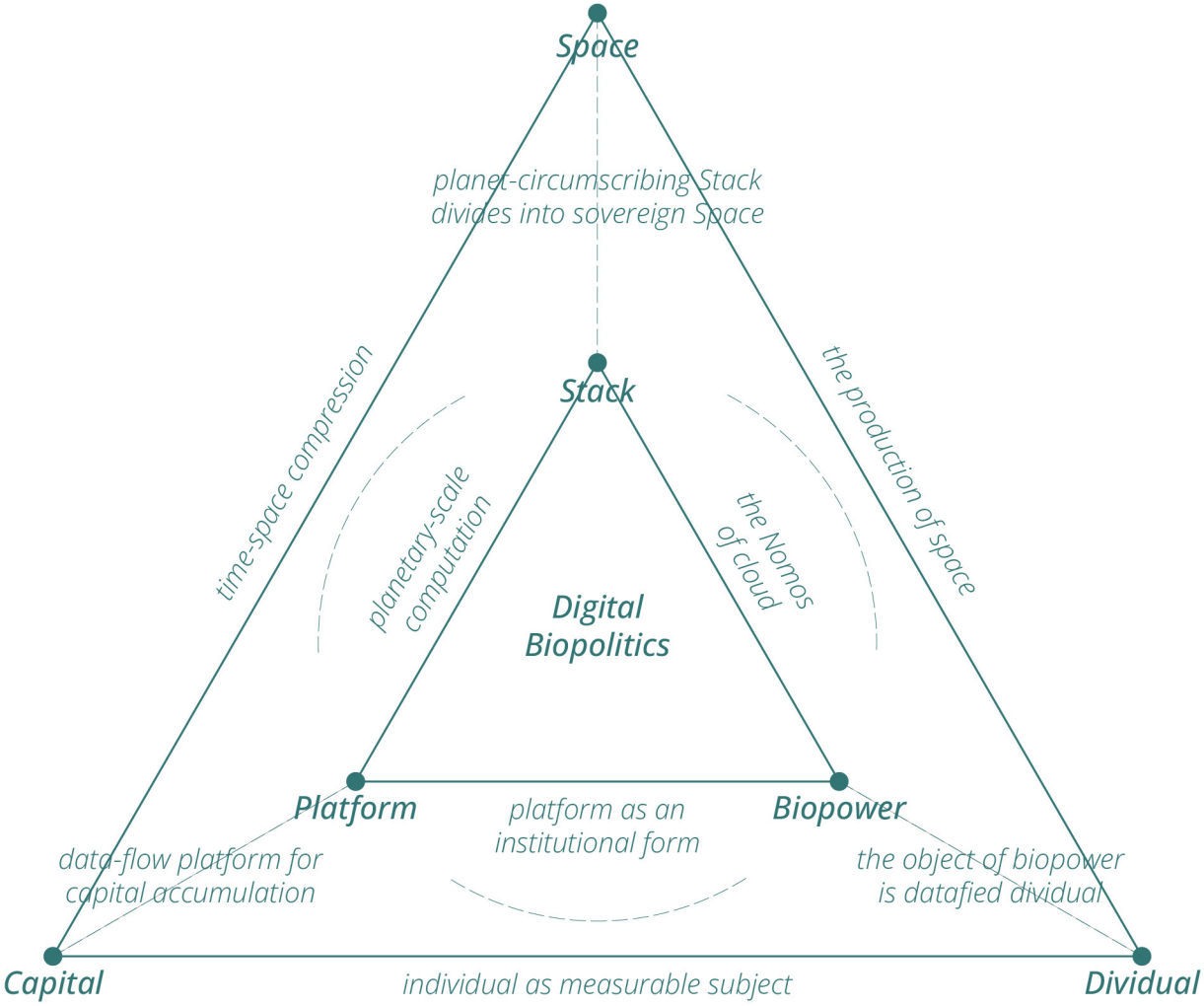


Fig. 2.3, Theoretical framework

Platform-Driven Capital Accumulation

Digital capital as a new form of capital accumulation

In the beginning of information age, Dan Schiller(1999) defines the digital capitalism which relies on digital technology to increase turnover rates and reduce costs, thereby achieving value-added growth. There has been extensive discussion on digital technology and capital accumulation. With the arrival of the accelerated platformisation era, new technologies, organizational forms, modes of exploitation, types of jobs, and markets have emerged, collectively constructing a new logic of capital accumulation (Srnicek, 2016). Now, digital capital is the new form of capital accumulation, expanding beyond industrial and financial capital. Meantime, the various enterprises operating on Alibaba's e-commerce platform have established a close connection between production capital and financial capital. Through Alibaba's data platform, these enterprises are able to leverage big data and cloud computing analysis to adjust their production strategies and attract investment capital. It can be said that the intervention of digital capital effectively guides industrial and financial capital, maintaining a dominant position (Lan, J., 2018).

General data that forms digital capital

The core of digital capital lies in the collection and analysis of data, which enables the flow, exchange, and accumulation of digital capital. In the digital age, the production of data has expanded the concept of production. Modern digital production no longer requires a fixed space, everyday life connected to a platform with internet and GPS access can complete a production activity. An individual using a navigation map, clicking, searching, or interacting with the platform contributes to data production, which can be defined as the creation of raw material for data (Bilić, P., 2021). Lan Jiang (2018) defines this everyday data as general data. As an individual, every trace of daily life serves only function with personal memory. However, when these traces are accumulated and processed as statistical data under the influence of various digital technologies such as cloud computing and algorithm, it transforms into valuable general data, which can be repurposed and utilized as a commodity. These general data, which are generated by individuals as raw material, are privately appropriated and monetized by corporations with technological power, such as Alibaba. This process transforms the data into digital capital, which is exploited for profit by these corporations becoming references for capital accumulation.

General data comes from the everyday life of individuals. This collection process requires platforms, which now subtly colonize every individual in the digital age, enabling this transformation. So, digital capital is primarily presented as platform capital.

Platform as an Institutional Form

Biopower under algorithmic governmentality

In the transformation process of general data, the individual's identity shifts from being a social persona or a form of recognition by others to that of biological data (Agamben, 1995). This shift is crucial in understanding the nature of digital capital. The target of digital capital is no longer the individual as a whole, but rather their biological data. This biological data, along with the individual's body, re-enters the political sphere in the form of biological data and records, becoming the fundamental component of political governance (Lan, J., 2022). In this context, Foucault's concept of biopolitics, which governs the precise individual, becomes increasingly possible in an era characterized by advanced intelligence and digitalization. Biopower under algorithmic governmentality enables the management and control of individuals, reducing them from social beings to biological data points. Their behaviors, identities, and interactions are shaped and regulated by digital platforms and algorithms, enabling a more direct form of governance.

Dividual as the object of digital biopolitics

The dividual represents the new object of biopolitics (Lan, J., 2022). Digital technology enables the profiling of individual identity and behavior, transforming human activities into divisible fragments that can be calculated and predicted, such as purchasing records, behaviors, clicks, preferences, geographic locations, and other data points. Governance is then achieved through the precise positioning and calculation of dividuals, thus enabling control over society as a whole.

Platform as the third institutional form

As Bratton (2016, p.44) argues, the platform, as the third institutional form alongside states and markets, situates the convergence of its architectural and computational forms in a more specific and fundamental way. Platforms produce general data, and platform users adhere to specific protocols and standards. In this sense, platforms function as the cities of the digital age, with users acting as its citizens.Platforms, as spaces for general data transformation, serve as tools to ensure the precise management and control of the dividual. They embody the characteristics of an institutional form.

Planet-Circumscribing Stack

The Nomos of cloud and planetary computation

To achieve a form of digital biopolitics that governs the dividual, planetary-scale computing, powered by big data, provides the necessary computational, technical, and infrastructural foundation. As platforms emerge as a new institutional form distinct from the state and the market, we need a new architecture for this new world (Bratton, 2016, p.3).

The concept of the nomos of the cloud by Bratton signifies a fundamental shift in political geography, as the cloud becomes a domain of data flows and algorithmic regulation. This new space must now be incorporated into the scope of political governance, where an order is established for the cloud domain just as previous orders were established for land and sea.

Stack, the accidental megastructure

Planetary-scale computation has so thoroughly and fundamentally transformed the logic of political geography in its own image that it has produced new geographies and new territories that can enforce themselves (Bratton, 2016, p.375). In this context, The Stack is a technical model for thinking about the technical arrangement of planetary computation as a coherent totality, as well as a conceptual model for thinking the contradictory and complex spaces that have been produced in its image (Bratton, 2016, p.375). Based on this, planetary-scale computation derive geopolitical architecture (Bratton, 2016, p.5), and divided the world into sovereign space (Bratton, 2016, p.110) on a planetary scale. It shifts the foundations of governance and control from traditional territorial logics to those nomos of cloud.

The Stack is divided into six vertical interoperable (Bratton, 2016, p.52) layers, both hard and soft, and from the global to the local, from geochemical up to the phenomenological (Bratton, 2016, p.66): Earth, Cloud, City, Address, Interface, and User. It imagined the new city as a landscape of vast multilayered networks and as continuous territories of ludic interfaces and opportunities, defined not by relation to a master ground plane but to the horizontal and oblique vectors of movement up and down the exploded sectional program(Bratton, 2016, p.53).

Biopolitics, Affirmative or Negative

Digital biopolitics

Biopolitics, under the influence of the accidental megastructure of the Stack, the nomos of cloud, and planetary-scale computation, has taken on a new form in the digital age. The convergence of global technical infrastructures, data-driven governance, and algorithmic control reshapes the mechanisms through which life is profiled, managed, and reshaped, shifting from population-level control to the micro-governance of dividuals through digital platforms.

Foucault's concept of biopolitics inherently contains two opposing developmental tendencies (Lan, 2022). One tendency leads to an affirmative understanding of biopolitics, which does not view biopolitics as bleak; instead, it sees biopolitics as a potential alternative to capitalism's future. On the contrary, the other trajectory sees biopolitics negative, emphasizing its entanglement with surveillance, regulation, and the control of life.

Negative biopolitics

The negative biopolitics is marked by its alignment with control of life. In the context of surveillance capitalism, digital platforms exploit personal data to predict and manipulate behavior, thereby undermining individual freedom and weakening democratic structures (Zuboff, 2019). Simultaneously, Agamben's conception of bare life reveals how modern states normalize the state of exception, stripping individuals of political agency and reducing them to mere biological existence subject to arbitrary power.

Affirmative biopolitics

In The Revenge of the Real (2021), Bratton proposes a positive reading of biopolitics and discusses both the necessity and the potential of instrumentalizing technology to reshape the way we, as a planetary species, organize our politics, economics, and preferences (Bratton, 2016, p.50). This is a call for a form of biopolitical governance that necessitates the cultivation of planetary-scale computational and modeling capabilities within infrastructure, in order to heal a wounded species and its damaged habitat. affirmative biopolitics advocates for a new governance opportunity aimed at ensuring and safeguarding the value of biological life.

2.3 Theory Research and Justification

Theory Transferability

Digital capital, dividual, and biopolitics offer a critical perspective for understanding the relationship between capital accumulation, biopower, and the digitalisation. and the Stack theory offers a framework for describing the multiple, vertical, and interoperable layers that constitute computational systems on a planetary scale. As Bratton (p.53) states, "Stack architectures are also conceptual strategies for design, not just for description, and they are not only conceptual architectures, they are models for actual architecture as well." First introduced in 2015, The Stack remains an evolving theoretical model that continues to inspire extensive discussion and critique.

Lovink (2020) provides a critical response to The Stack, describing the book as a "media theory classic" that is "inspiring to disagree with". He argues that the theory lacks a perspective on individual and community power, suggesting that the Stack could exacerbate social and economic inequalities. Lovink introduces the concept of stacktivism as a democratic and ethical technological solution to address these issues.

In the application of The Stack theory, Sheikh, H. (2022) uses layers inspired by but not identical to Bratton's: the resource, chips layer, network, cloud, intelligence, applications and connected device layer to understand the digital capacities of the EU. De Seta, G. (2021) has proposed three additional layers: Gateways, Sieves, Domes, to understand China's role in planetary computation within discussions of the stack as emergent planetary-scale computation. Pizzi, G. (2020) applies The Stack concept to the automotive field, analyzing the connections from resource extraction to the digital transformation of smart vehicles and their integration with cloud services, smart cities, and user interactions.

In Chinese academia, discussions on the Stack are limited and primarily focused on philosophy, particularly biopolitics. For example, Lan (2022) discuss the concept of affirmative biopolitics by analyzing the arguments of the Stack. In the field of design, Han and Guo (2023) applied the Stack framework to analyze the technological system, architecture, and social governance logic of contemporary digital twin cities.

The application of Stack theory is broad and adaptable, extending across diverse disciplinary contexts such as architecture, philosophy, political science, and engineering. In this project, which examines consumption and production under Alibaba's platformisation within the fields of architecture and urbanism, Stack theory is made more spatially practical and aligned with the context of Alibaba in China by first addressing its limitations and then exploring ways to further develop and refine it.

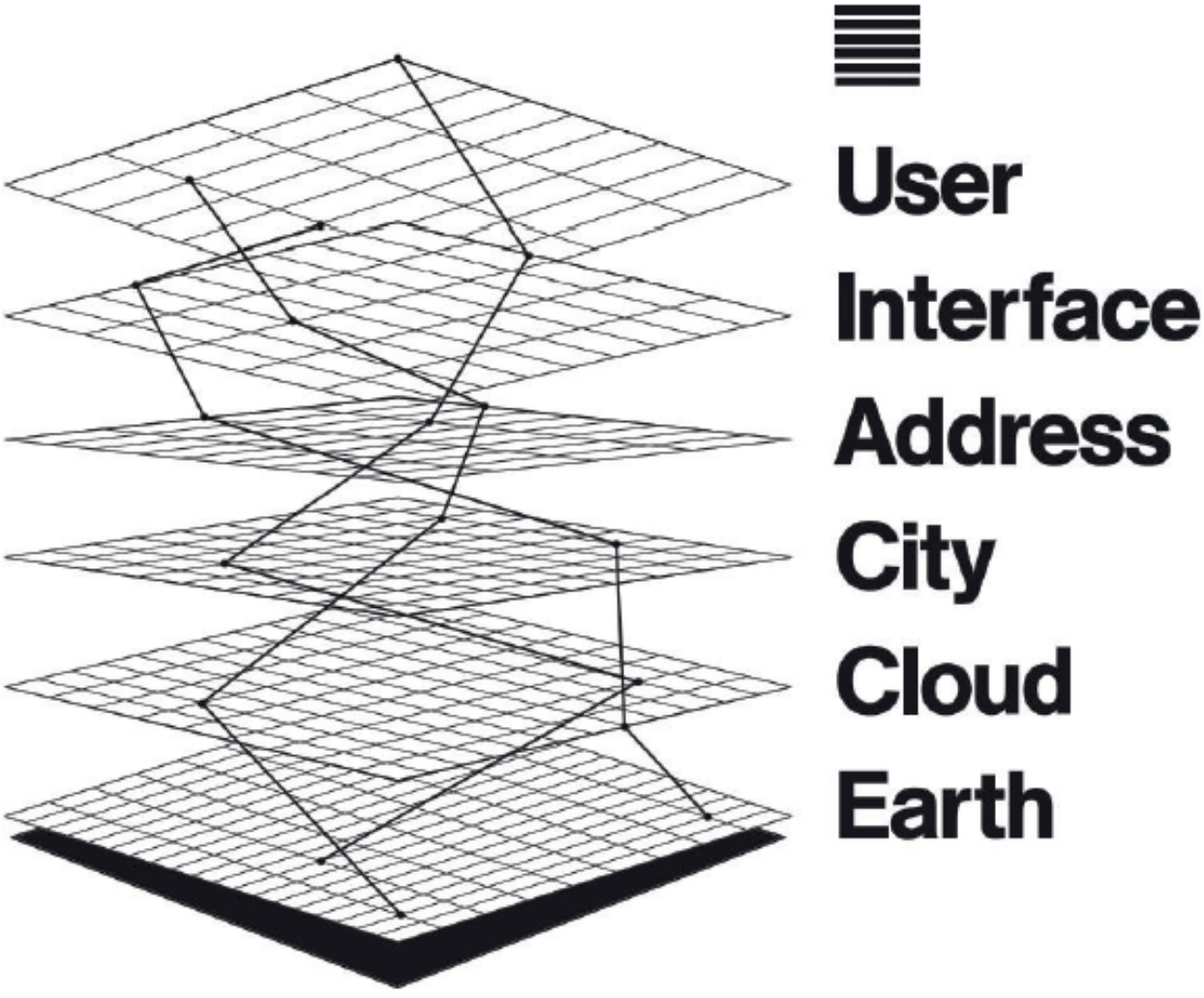


Fig. 2.4, The Stack layers by Bratton,
image source, Bratton, B. (2016). The Stack: On Software and Sovereignty.

Theory Limitations

Tendency

Bratton is often associated with a form of technological optimism. While The Stack offers a powerful framework for understanding the global architecture of technological systems, it provides relatively limited discussion of critical issues such as data monopolies, algorithmic discrimination, and social inequality.

Spatial practicality

The Stack theory describes the operational logic of contemporary technological systems from a holistic perspective, yet offers limited discussion on human–space interactions and the complexity of social dynamics. It also does not provide actionable solutions or strategic approaches. While Bratton (2016, p.70) calls for further and more deliberate geodesign, the framework lacks a practical spatial perspective and remains insufficiently applicable to addressing specific spatial and social issues.

Locality

The Stack is grounded in a largely U.S.-centric geopolitical and technological context, with limited attention to the cultural and regional specificities of other regions. This makes it difficult to directly apply the framework to the Chinese context, where state policies, government-corporate relations, regulatory environments, and platform economies shaped by companies like Alibaba operate under distinct socio-political and cultural logics.

Timeliness

Since its introduction in 2015, the pace of technological development has accelerated rapidly. Emerging technologies such as AI, AR, and blockchain are reshaping platform dynamics in ways that challenge the layered model of the Stack. Therefore, the theory requires refinement to remain relevant and responsive to contemporary technological shifts and complexities.

Stack within Alibaba e-commerce context

To better spatially analyze and understand how Alibaba's e-commerce platform influences contemporary Chinese production and consumption systems, a new vertically interoperable technological stack system, adapted specifically for Alibaba e-commerce business in China, has been developed. The new system comprises the following layers (see fig. 2.4, and fig. 2.5):

The first two layers are the Earth and Cloud layers, which offer the foundational physical and technical necessity for planetary-scale computation. In the context of Alibaba, the concept of the Earth layer remains consistent, representing the essential geographical environment, energy and resources that operate all other layers. The Cloud layer, however, extends beyond hardware infrastructure and cloud services to include the uniquely Chinese model of government-corporation dual management in regulation-making and market supervision, as well as the strategic use of data as a means of production.

The remaining layers are divided into two parts: layers for programming production and layers for programming consumption. The former operates at regional, city, and neighborhood scales, reconstructing the production system by dividing it into sovereign spaces structured around Alibaba's business models, including Taobao Villages, new retail hubs, and pickup stations. This leads to a new spatial system configuration that redefines the product lifecycle, including production, distribution, and customer delivery, shaped by redistribution and reconfiguration of labour and employment. The latter focuses on everyday consumption, driven by big data, algorithms, and platform technologies that ensure products are delivered to customers with precision and efficiency, while generating potential profit through recommendation and advertising mechanisms during this process. These two parts interact in a dynamic and interoperable manner.

In conclusion, the Stack within the Alibaba context has been reconstructed (see Fig. 2.5). It remains a system of vertical and interoperable layers, which together constitute the computational system of Alibaba's business operations.

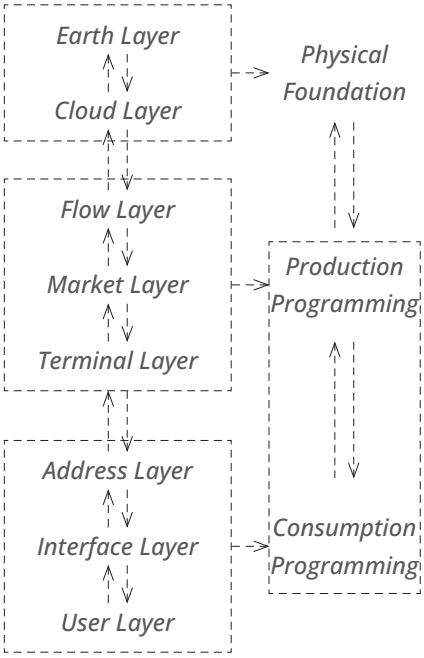


Fig. 2.5, Justified Stack layers

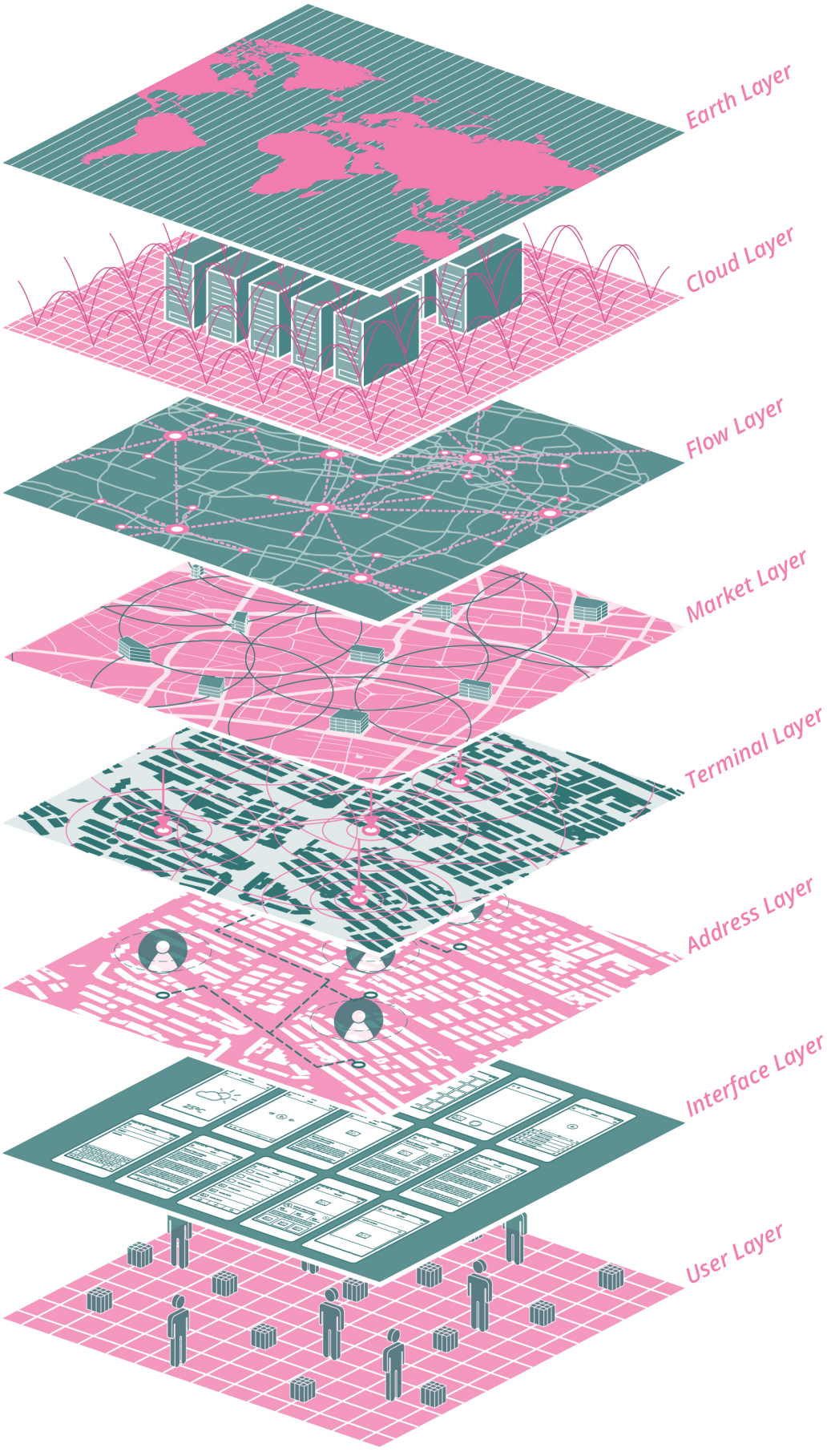


Fig. 2.6, Alibaba Stack layers

Earth Layer

Bratton (2016, p.115) describes the mega-infrastructure of the Stack as the hungriest thing[1] in the world, inherently resource-intensive and requiring a constant and massive supply of energy to sustain its operations. Based on this, Bratton (2016, p.70) defines the Earth layer, as the substrate from which physical foundation such as land, power, energy, metals, and minerals are drawn and extracted, enabling stable functioning of all other layers.

The Earth layer has three main elements: the geographical environment, including the built environment and ecosystem, that grounds the Stack; power and energy that ensure computing and programming operations; and natural resources like water, metals, and minerals that are used to maintain operation and produce precision electronic components.

Alibaba's corporate strategy focuses on digital transformation, with a data-centric approach driven by innovation and iteration (Su, C., 2023). Alibaba's massive cloud platform and global blueprint require significant amounts of land to expand its spatial implementation, such as building CDN infrastructure, as well as natural resources like water for cooling and electricity to support its operations. The immaterial computing behind it is supported by material production and corporeal labor, enabling the operation of the digital earth. While China has abundant rare earth resources, crucial metals like cobalt and copper[2], which are used in the production of semiconductors and electronic products, rely heavily on imports, mainly from countries like the Democratic Republic of Congo (DRC) (Lu, Y. et al., 2022). Therefore, Alibaba's Earth layer is not limited to the scale of nation but also participates in the global competition for natural resources.

[1] Bratton compares the stack to the hungriest entity in the world, as data storage and related operations consume vast amounts of natural resources. For instance, cooling water usage data shows that data centers, on average, use 1.8 liters of water per kilowatt-hour.

[2] Bratton cites metals mining in Africa: In the east of the Democratic Republic of Congo (DRC), for example, big chunks and little pebbles of tantalum (coltan), cassiterite (tin), wolframite (tungsten), and gold are pulled by hand from cold, sludgy mountain rivers, often by children, and eventually they make their way into the device component supply chain.

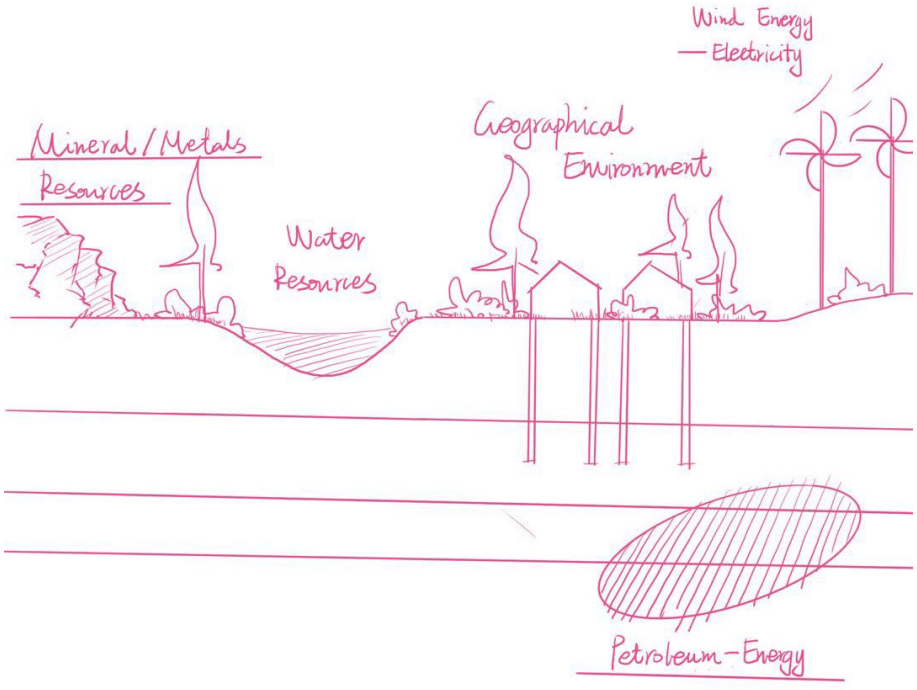


Fig. 2.7, Elements in justified earth layer

Cloud Layer

Cloud layer includes the computing and transmission hardware on which the Stack software depends and cloud platforms which provide cloud services (Bratton, 2016, p.369). While thinking the Stack system in China, the hardware infrastructure is same, while the cloud services are always corresponded with dual management from both corporation and government.

The hardware infrastructure in China is largely standardized. It includes geosynchronous satellites, data centers, edge data centers, transmission cables, communication towers, wireless network devices, and so on. The hierarchical and distributed arrangement of these infrastructures enables the implementation of communication systems, intelligent transportation, the Internet of Things (IoT), and other technologies. It provides crucial technological support for other layers, including facilitating the efficient extraction and utilization of energy within the earth layer.

The Cloud layer itself is a terraforming project, as cloud infrastructure's energy and water demands necessitate specific landscape accommodations (Bratton, B., 2016, p.116). Alibaba's data centers[1] are indeed the core infrastructure for providing cloud services and processing data. Data centers are often situated in both rational and unconventional locations, such as areas with cheap energy, cheap space, lax data storage regulations, and minimal risks from earthquakes or floods (Bratton, B., 2016, p.116). These are typically in remote or urban fringe areas. In contrast, on premises data centers are strategically located closer to end users, often repurposing spaces like abandoned warehouses, office buildings, or underground parking garages, to minimize latency and enhance network performance. Therefore, the Cloud layer's information transmission network enables the most economical and efficient comprehensive coverage of the entire planet.

[1] Alibaba Cloud CDN operates over 3,200 nodes worldwide, with more than 2,300 nodes located in mainland China.

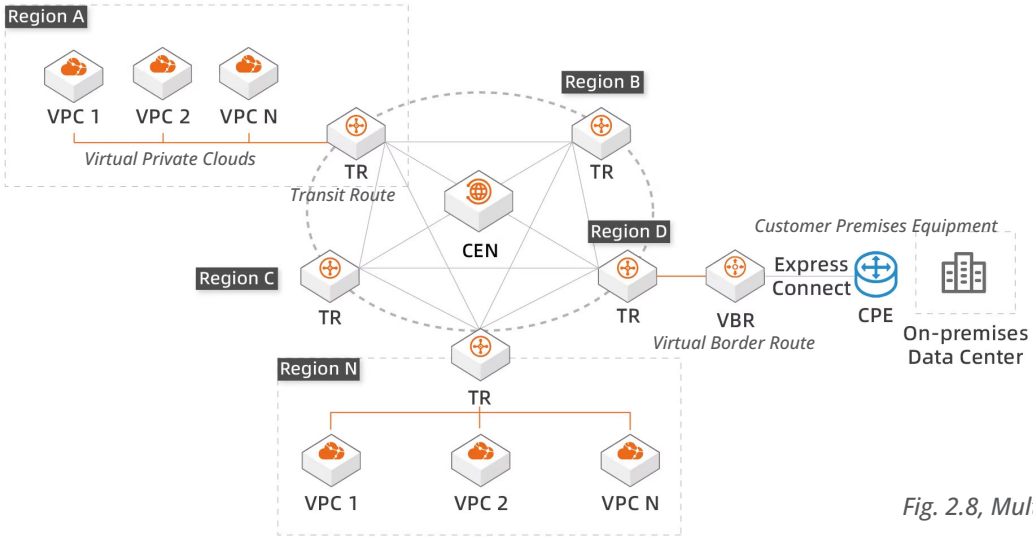


Fig. 2.8, Multi-region cloud network topology

Based on computing and transmission hardware, cloud services can provide comprehensive coverage. Alibaba's cloud services include data processing and analysis, Internet of Things (IoT) applications, and so on. They are widely used across various industries for big data processing, intelligent applications, cross-regional enterprise networks, content distribution, and security protection. These services enable connections between individuals, business, and governments, providing the foundational conditions and software-hardware support for programming production and consumption.

At the same time, Alibaba's platform-based products establish platform rules to regulate, supervise, and ensure security. Legal regulations and policies also constrain both platforms and individuals. For example, in Alibaba's e-commerce, the platform sets rules for merchants to join, defines user rights and regulations for platform usage, and implements security mechanisms for third-party digital banking. Meanwhile, the government effectively intervenes in the formulation of platform rules, directly participating in internal management, such as in pricing decisions.

In conclusion, hardware infrastructure, cloud services, and regulatory frameworks together constitute the key components of the Cloud layer.

Earth - Cloud

In conclusion, Alibaba uses the earth's foundational geographical environment and natural resources to establish its cloud infrastructure, which serves as the base for launching cloud services with distinct Chinese characteristics at the cloud layer. This forms the foundation for programming in production and consumption, influencing all the other layers of the Stack.

Flow Layer

Bratton (2016, p.70) defines the City layer beyond the Cloud layer as megacities that integrate human settlement and mobility within both physical and virtual environments, enabling user flows. In the context of e-commerce, the City layer can be further divided into Fow, Market, and Terminal layers. These layers facilitate Alibaba's production programming and align with its business expansion blueprint.

The stable technological functioning of the Earth and Cloud layers ensures the efficient exchange of information flows, logistics flows, and human flows. Manuel Castells (1997) distinguishes between the space of places and the space of flows[1]. The former emphasizes geographical locations and physical spaces, while the latter highlights that, in the context of globalisation, space is no longer a fixed framework. Instead, it is a dynamic network of flows and social constructs formed through transmission networks, nodes, and the spatial organization[2].

Thus, as the space of flows represents a horizontally and vertically interconnected network system, it reshaped the spatial logic (Ai S. 2010) and reorganizes and redistributes existing resources and labour. In China's e-commerce system, it encompasses four primary flows: labour, knowledge, goods, and cash.

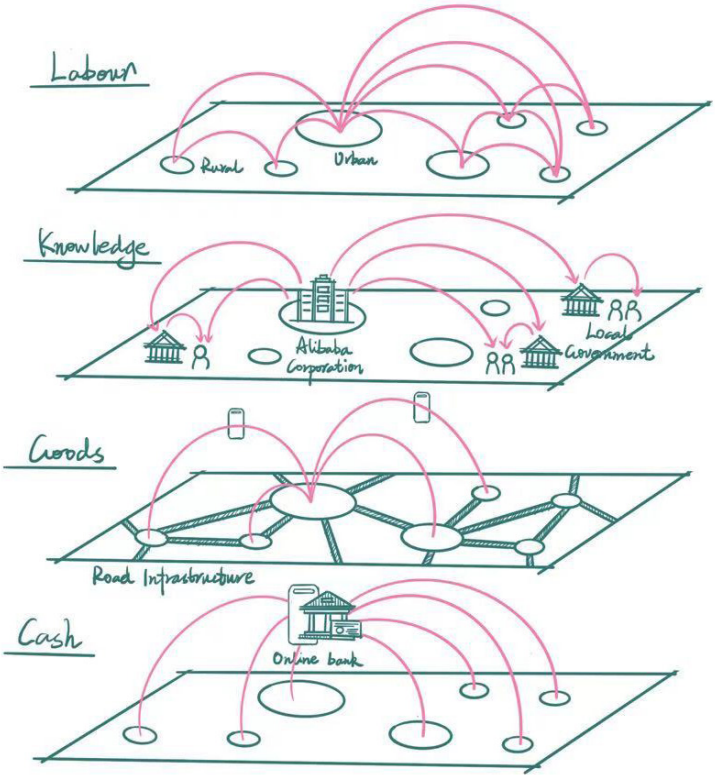
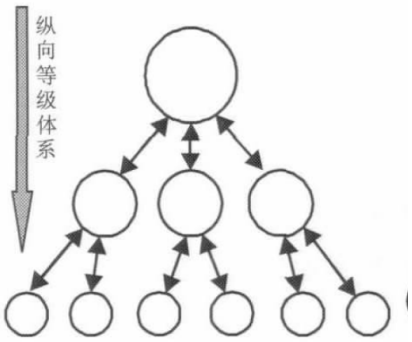
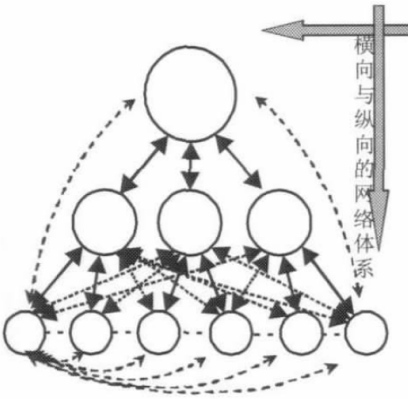
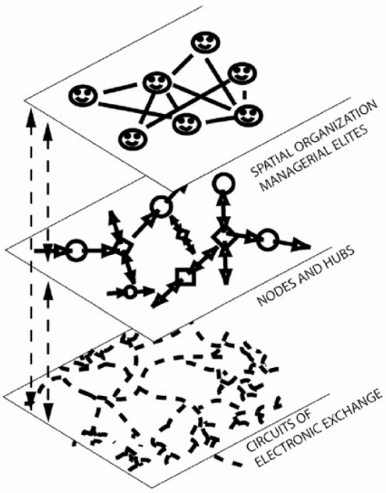


Fig. 2.9, Justified flow layer





[1] Fig. 2.10, Space of Place and Advanced Network of Space of Flows (Shen, L. et al,. 2012)



[2] Fig. 2.11, Space of Flows Castells (Van Schaick, J. 2009)

The labour flow refers to the redistribution of labour resources by e-commerce. E-commerce is a "dynamic movement" built on the foundation of the space of flows. With the widespread use of the internet and the improvement of logistics systems, many Taobao villages[3] have rapidly transformed their rural functions within this grand context (Chen, H., & Zhang, J. 2018). After 2009, Alibaba first identified Taobao villages, marking the transformation of rural areas into Taobao villages as a new trend. Today, the "smart village" has emerged as a new model for e-commerce, often mentioned in planning documents. This model aligns with the low-barrier and low-cost entrepreneurial environment of e-commerce, along with simple product processing (Luo, Z., & He, H., 2017), making it suitable for low-income rural areas with low-risk development

Under the redistribution of resources, the urban-rural relationship has shifted from a binary opposition to a two-way flow in terms of functional and structural positioning. The urban areas provide markets and information to the countryside, while the rural areas leverage their labor force advantages for production. This decentralized production model has given rise to new forms of employment, including online store operators, logistics personnel, and live-streaming salespeople, with a large influx of labour into the e-commerce industry. The functions of rural areas have transformed, and production efficiency has greatly increased.

Meanwhile, The knowledge flow is the efficient exchange of information enabled by cloud infrastructure and cloud services. Taobao villages and local governments aiming to develop into Taobao villages organize basic knowledge training on live-streaming e-commerce and offer policy incentives to operators. As a corporation, Alibaba also supports the promotion of Taobao villages by providing e-commerce skills training and financial subsidies. Under the influence of the space of flows, the transparency of production resources and ease of information dissemination further facilitate the layout of e-commerce in the flow layer.

[3] A Taobao Village refers to a rural area where the number of active online stores accounts for more than 10% of local households, and the annual e-commerce transaction volume exceeds 10 million RMB. Since the first three Taobao Villages were identified in 2009, they have become a new model for rural development under the support and collaboration of local governments and Alibaba. By the end of 2022, there were 7,780 Taobao Villages.

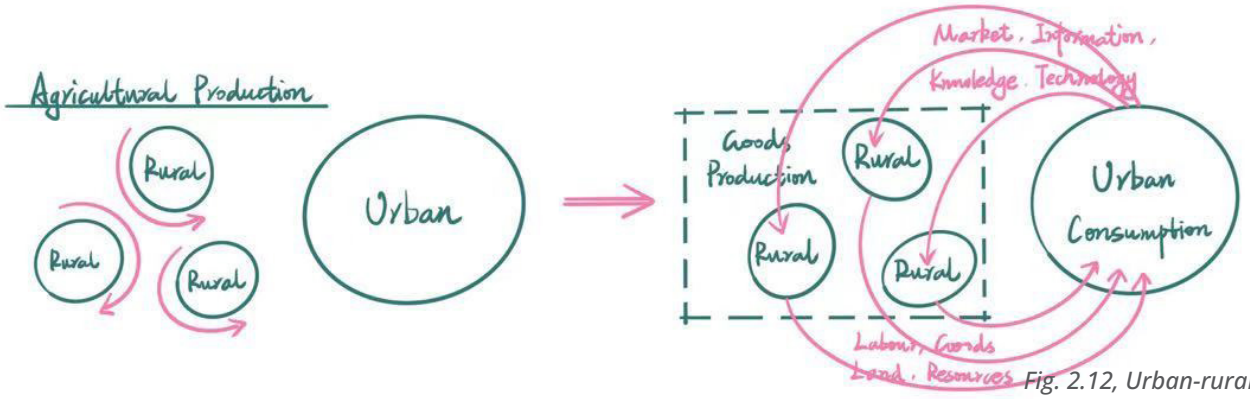


Fig. 2.12, Urban-rural relationship

The goods flow is established through the development of the logistics industry, where road infrastructure, storage facilities, sorting systems, and data supervision collectively form the foundation of goods exchange. The logistics network not only organizes the ground but also extends vertically into airspace. For instance, the concept of the low-altitude economy[1] aims to develop drone-based logistics and transportation systems.

Besides, Alibaba's sub-product, Alipay[2], has served as a third-party online payment platform since 2003, allowing for secure cash exchanges. In this way, every transaction can be conducted via the platform.
In conclusion, the flows of labour, knowledge, goods, and cash collectively sustain the product lifecycle and shape the conditions for production and exchange within Alibaba's e-commerce system, facilitating the circulation of productive resources. This system is grounded in the computational infrastructure of the Cloud and the material foundation of the Earth. Under the combined influence of corporations and governments, this system has established the foundational conditions necessary to sustain continuous flow.

[1] The concept of the low-altitude economy was proposed in 2010 to facilitate the planning of a three-dimensional transportation network.

[2] Alipay, a third-party payment service platform under Alibaba, was established in 2003. It has evolved from a simple payment tool into an open platform offering multiple services, including payments, lifestyle services, government services, social interactions, wealth management, insurance, and philanthropy, gradually covering a wide range of industries.

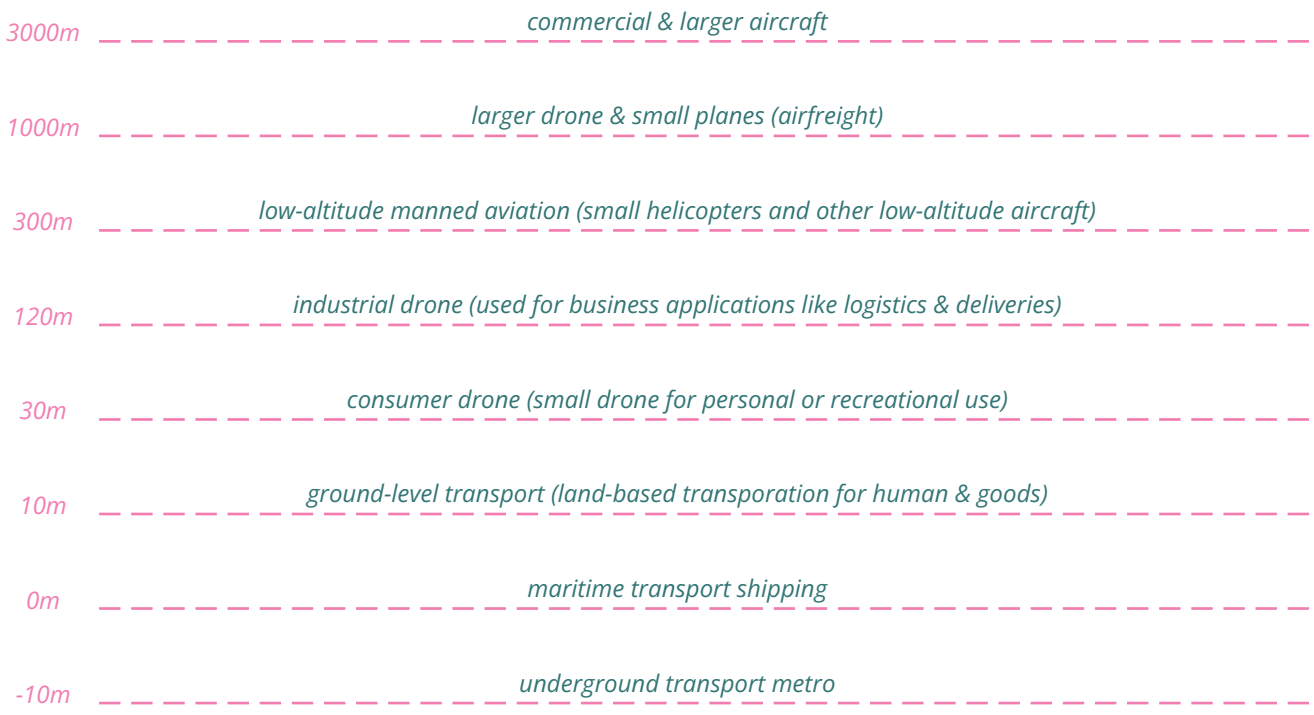


Fig. 2.13, Low-altitude network

Market Layer

The Market layer represents the spatial implementation of Alibaba's digital business and advertising operations. While the Flow layer facilitates e-commerce processes from production to transportation and distribution, the Market layer engages customers through multi-sensory, online-to-offline integrated business activities. Using advertising and experience economy strategies, it strengthens the public perception of the Alibaba Group and its e-commerce brands. From a business planning perspective, the Market layer embodies Alibaba's vertical expansion. It leverages the comprehensive supply chain established in the Flow layer and integrates physical spaces to diversify business types and drive capital accumulation.

The market layer includes the advertising city. From early 2000s, Koolhaas (2000) studied consumption culture and proposed the idea that "mall = city, city = mall." Spaces that were once unimaginable as commercial venues, such as museums, hospitals, schools, and train stations, have been reshaped by the mechanisms and spaces of shopping. Shopping has infiltrated and even replaced nearly every aspect of urban life. In Chinese cities, this phenomenon is particularly evident, where consumption is deeply intertwined with everyday life. Alibaba's platform business is omnipresent, seamlessly integrated into various aspects of urban living. Even when users are not directly shopping on Alibaba's platforms, activities such as navigating intended places, checking reviews, or paying online often involve Alibaba's services. Through these interactions, the platform collects user data for front-end personalized recommendations and back-end preference analysis, enabling targeted advertising for future consumption.

The reliance on platforms for urban functionality also transforms the city into a vast advertising stage. Physical advertisements, including pop-up events and flash marketing campaigns, further extend Alibaba's presence. As a result, the entire urban environment becomes embedded with Alibaba's advertising strategies, making everyday life itself an avenue for the platform's influence.

Besides the entire city space becoming an advertising city, the Market layer also includes three specific components: department Malls, Online-to-Offline (O2O) retail, and community stores, which have been Alibaba's primary business expansion directions in physical commerce over the past decade.

Alibaba acquired Intime Department Store[3] in 2014, marking its ambition to move beyond e-commerce and reshape traditional retail by digitizing and modernizing physical spaces. Moreover, Alibaba leverages the brand influence of malls and their complete supply chains to create a new consumer ecosystem.

[3] In 2014, Alibaba invested in Intime Department Store (a Chinese department store chain), and by 2017, Alibaba privatized and acquired Intime for 17.7 billion RMB (approximately 2.321 billion euros). CEO Daniel Zhang stated that Intime Department Store bears the mission of serving as a platform for the transformation and upgrading of online and offline retail in the department store sector.

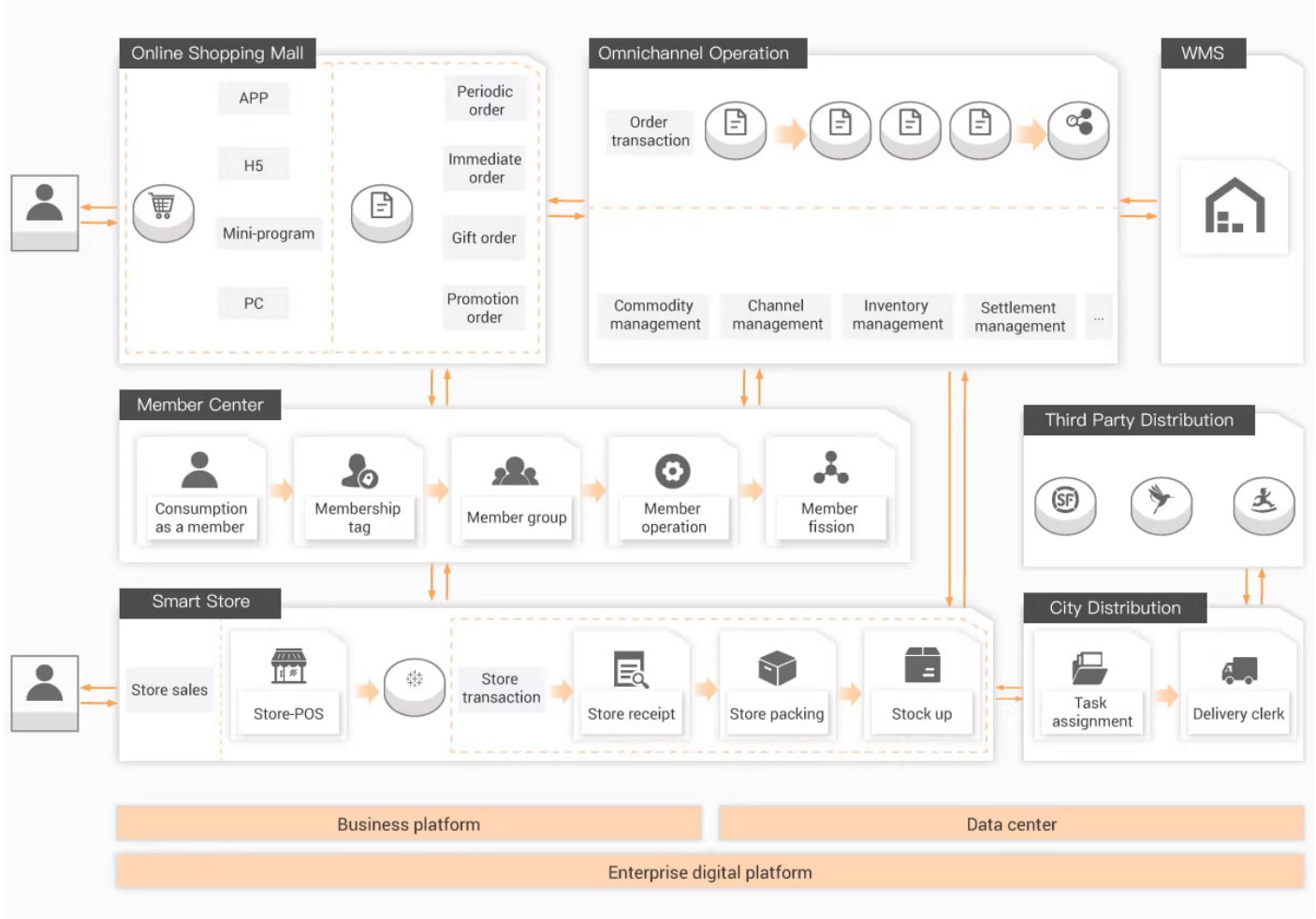


Fig. 2.14, Alibaba e-commerce business, source image: https://www.alibabacloud.com/en/solutions/ecommerce_retail?_p_lc=1

In 2016, Alibaba launched Freshippo[1], focusing on online-to-offline (O2O) retail in large and medium-sized cities. The platform combines online shopping with offline experiences, such as product trials and dining. In recent years, Freshippo has expanded its offerings to include outlet stores and neighborhood businesses, targeting lower-tier markets.

Following the disruptions caused by the pandemic, community relationships gained greater importance in the Chinese context. In response, Alibaba introduced Taocaicai[2], a community-based retail model emphasizing online shopping with in-store pickup. Additionally, Taocaicai stores function as community service hubs, offering services like delivery and top-ups.

In conclusion, the Market layer leverages a comprehensive business network and extensive user segmentation through physical commerce and everyday advertising to enhance market influence and value. This approach supports Alibaba's platform in achieving its engagement, growth, and advertising goals.

[1] In January 2016, the first Freshippo store opened in Shanghai. The physical store focuses on the high-tech new retail concept, emphasizing online and offline integration (O2O model). Even when customers are in the store, most transactions and shopping activities are closely linked to the Freshippo app.

[2] In September 2021, the first Taocaicai coommunity store opened in Changsha, focusing on expanding into lower-tier markets. It specializes in community-based services, with stores featuring pickup points, groceries, delivery stations, top-up stations, and community service corners.

Terminal Layer

As the Flow layer influences the foundational conditions for programming production, the Market layer consciously provides a more informed basis for such programming. Meanwhile, the Terminal layer acts as the interface for programming, enabling direct interactions between customers and products, as well as the businesses and corporations behind them.

Learning from Alibaba's logistics product, Cainiao[3], it demonstrates that to establish a logistics network covering every corner of China, their business plan involves setting up stations for parcel collection and distribution in campuse, community, and countryside, ultimately achieving comprehensive e-commerce coverage. In this way, the terminal layer encompasses these three components.

These three areas primarily operate through a franchise model, establishing or adding parcel stations on the ground floors of residential buildings or commercial podiums. Located within a fifteen-minute living radius, these stations act as a medium of communication between consumers and merchants, serving as the endpoint of production programming.

[3] Alibaba's Cainiao logistics network aims to establish delivery stations that connect communities, campus, and countrysides, enhancing efficiency across the supply chain.

Flow - Market - Terminal

In conclusion, the new Flow-Market-Terminal layers can describe how Alibaba programs the production system through spatial planning and implementation. This process spans from the reorganization and redistribution of resources to strategic positioning at the urban and region level and comprehensive coverage of e-commerce lifecycle.

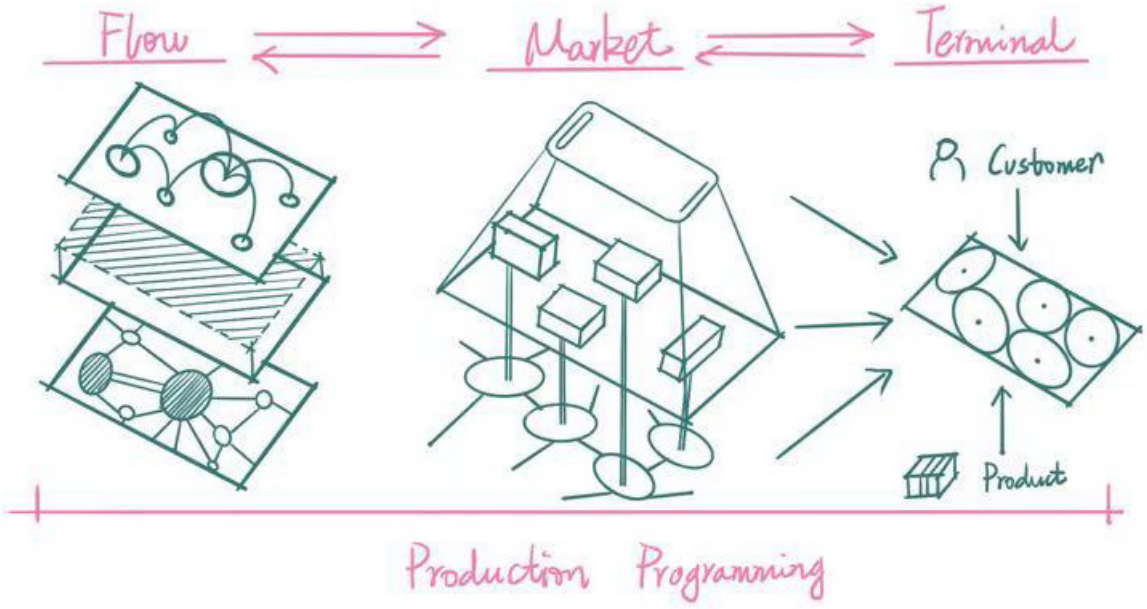


Fig. 2.15, relationship between Flow, Market, and Terminal layers in Alibaba Stack

Address Layer

From Bratton's definition, the remaining Address, Interface, and User layers are phenomenological (Bratton, 2016, p.67). To make it more spatially operational and aligned with the Alibaba e-commerce context, these three layers can be used to describe how consumption patterns are programmed related to human and everyday life from what users perceive and where users act, correspond to the flow, market, and terminal layers, respectively, which are programming the production. So the following layers are to think about how conusmption programming is processed and achieved.

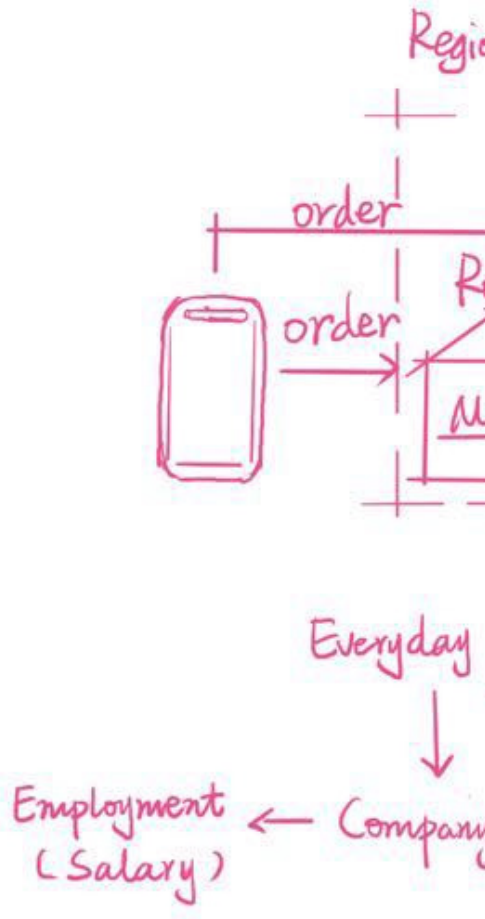
The Address layer is between the City and the Interface layer. As defined by Bratton(2016, p.191), the Address layer involves the act of addressing and identifying every item within this vast system, whether it be individual units of life, shipping containers, mobile devices, or locations of datum in databases. It establishes a global network where computation happens not just at the large Cloud level but also at the micro-level of individual objects, serving as a communication medium, enabling every "thing" to send and receive information (Bratton, B., 2016, p.192).

Simply put, the Address Layer is an address information system, such as IPv6[1] (Internet Protocol version six). Alibaba Cloud supports IPv6 technology, enabling each device, user, and cloud service to have a unique address, achieving comprehensive connectivity and data transmission through cloud services. In Alibaba's logistics supply chain, each order, package, transport vehicle, and route is assigned a unique address code. Users can utilize identifiers like QR codes to track the location and movement of items, facilitating interactions at the terminal level.

The Address layer seems to create an organized network in e-commerce. The communication facilitated by this layer enables the establishment of a transparent and precise product lifecycle tracking system. However, for the customer, the platform's role extends beyond location-based precision delivery services. Everyday life increasingly involved in communication through platform devices via the Address layer. To support its profit-driven model based on targeted advertising, the platform collects general data from daily activities to profile users' identities, including their interests, shopping habits, and preferences. This identity is then reinforced through continuous algorithmic content delivery. As a result, the interaction between the city and digital interfaces generates a unique blend of identity and spatial information for each user.

At the same time, the location and identity are shaped by each other. For example, As the Terminal layer has shown, the campus, community, and countryside represent the exact location citizens are living, which also reflects geographical context, housing condition and value, linked to salary and consumption ability. The Market layer illustrates that the

[1] IPv6 (Internet Protocol Version 6) is the sixth version of the Internet Protocol, designed to provide unique IP addresses for devices on a network, solving the address exhaustion problem of IPv4 and enabling a larger scale of device connectivity and data communication.



entire city is a market full of advertisements integrated into everyday life via platforms, generating general data. This data is then processed into flows, which contains potential value that can be targeted with advertisements. For example, when a person uses Alipay to buy a ticket to an art museum, it indicates that the person is a potential art lover.
Based on this data, the targeted products or advertisements could be more tailored to their interests in art.

This process illustrates how the communication between users and devices in Address layer, by processing user geographical location and spatial behaviors. Beyond the communication, the location and identity persona created through processing general data in cities can become more representative in the address layer. The Address layer is the cyberspace Alibaba creates that determines "who" and "where" customers are or are supposed to be, a reality the user may not even be aware of themselves.

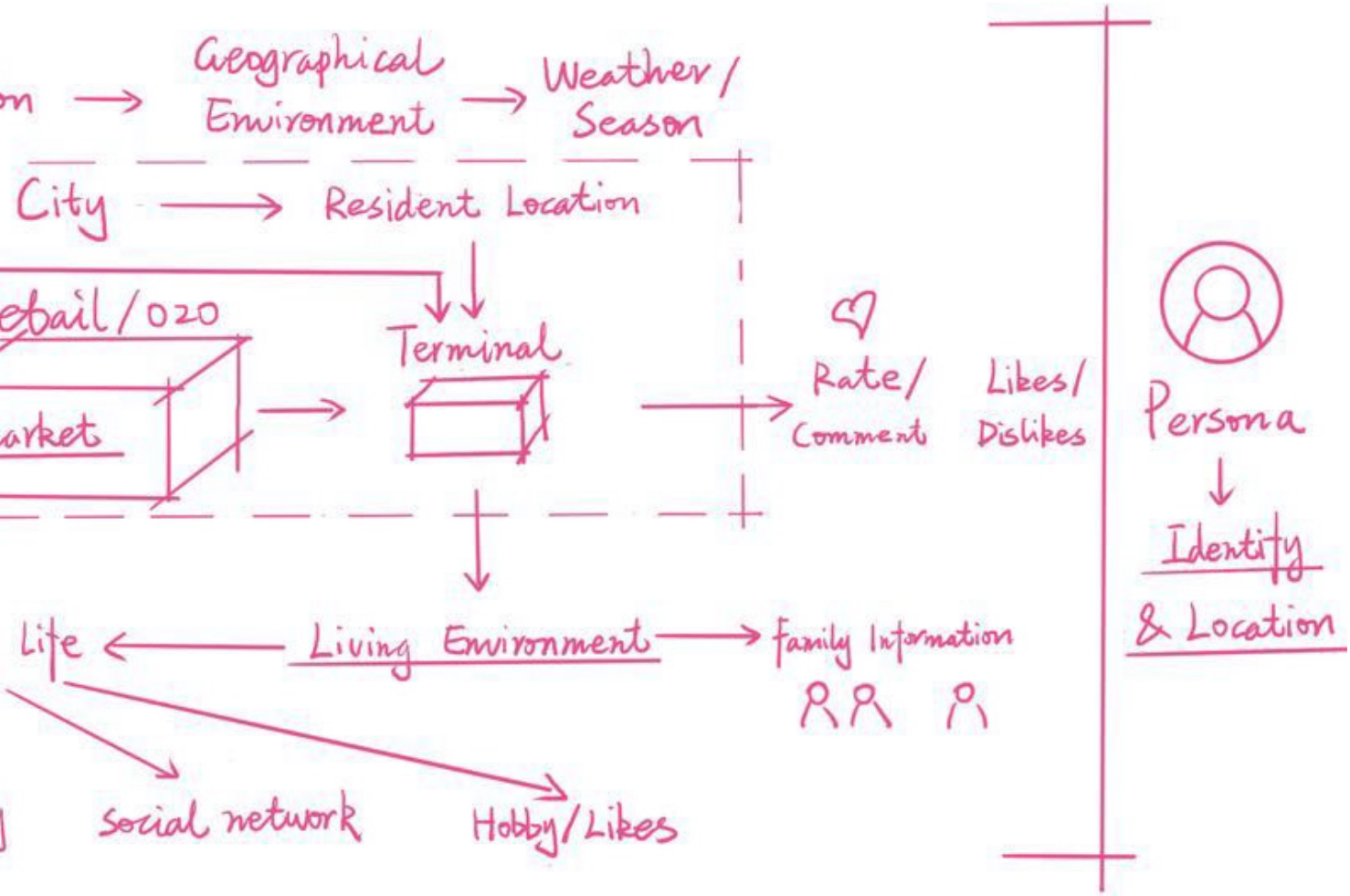


Fig. 2.16, identity and location in address layer

Interface Layer

Interfaces are the membrane through which the Stack addresses and is addressed by Users. The Interface layer describes the projective, perceptual cinematic, semiotic layer on a given instrumental landscape, including the frames, subtitles, navigable maps, pixelated hallucinations, and augmented realities through which local signification and significance are programmed. (Bratton, B., 2016, p.71).

The Interface layer is where visual, auditory, and metaphorical elements are presented through devices represented by platforms, facilitating perception, communication, and interaction. Culpepper (2019) categorizes platforms into three main types: goods, services, and information. Based on this, the Alibaba platform can also be categorized into a goods platform, comprising customer-business-manufacture networks; living services, which permeate everyday spatial and social life together with map navigation; and an information platform, primarily focused on financial credit and data processing.

As the persona is established at the address layer, the interface layer on the platform utilizes this persona to create personalized user journeys, guiding individuals to take actions across both physical and virtual environments.

As a result, the Interface layer is a perceived world that Alibaba designs and constructs through its platforms. For platform users, this world may appear infinite, but in reality, everything they see and think about is carefully designed and curated, leading to a fixed and influenced experience. Much like an information cocoon, the perceived space becomes highly homogenized, repeatedly exposing users to the same content. It forms a bubble that filters and prioritizes information based on positive responses from similar groups, reinforcing existing patterns.

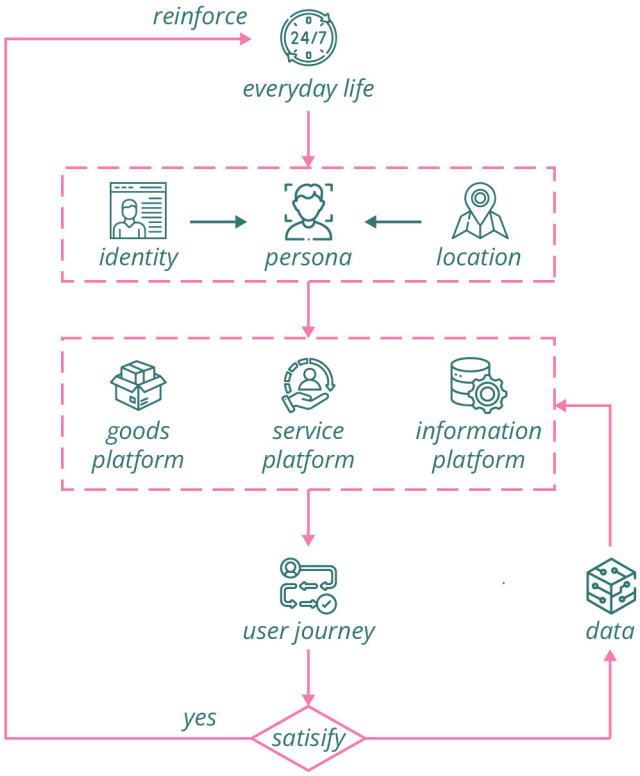


Fig. 2.17, Interface layer in Alibaba Stack

User Layer

Bratton defines the user as both human and nonhuman (p.252), including humans, animals, or machines. This layer outlines how users interact and perform specific actions or behaviors with the Interface layer in the Stack, initiating chains of interaction through its layers (p.375). In the context of the Alibaba stack, the User layer is specifically defined as the final point of interaction for the e-commerce business, where the transaction of goods is completed. It represents the customer and product.

In the Alibaba Stack, the concept of the customer has been redefined. The focus is now more on human-computer interaction, specifically user behavior and interaction patterns such as screen dwell time, clicking habits, and preferences. Since platform products can be accessed anywhere, spatial constraints are no longer a factor. At the same time, the customer also exists as a product for the human future in the form of data. Their behavior, preferences, and routines are fed back into the data-driven advertising marketplace. Customers are targeted with designed advertisements, which further reinforce their existing habits and preferences.

The product is also unique in the User layer, as it is no longer just a commodity. Now embedded with information, the product represents the lifetracking of the item, further linking the manufacturer, seller, and logistics company. Through mechanisms like QR codes or other technologies, users can track the product's status, understand how it is produced, and know when and where it can be delivered. Additionally, users can rate and comment on the product, building a network with other users through the product.

Address - Interface - User

In conclusion, the Address-Interface-User layers can describe how Alibaba programs the consumption system through through user experience design driven by technological operations based on geographical and human identity data. This process shapes consumption patterns by defining human cognition and behavior through platform-mediated interactions.

2.4 Research Question

Research Question

Main research question:

How can the future culture of consumerism evolve with spatial and interaction design interventions in the accelerated platformisation era.

Sub questions:

SQ1: Research
What are the logic and mechanisms of Alibaba ecosystem?

SQ 2: Research
What are Alibaba's implications and impacts on Shanghai's social and spatial dynamics?

SQ 3: Strategy
What is the possible future of production and consumption system in Shanghai?

SQ 4: Design
What spatial and interaction design insights can be drawn from Shanghai's culture of consumerism?

Analytical Framework

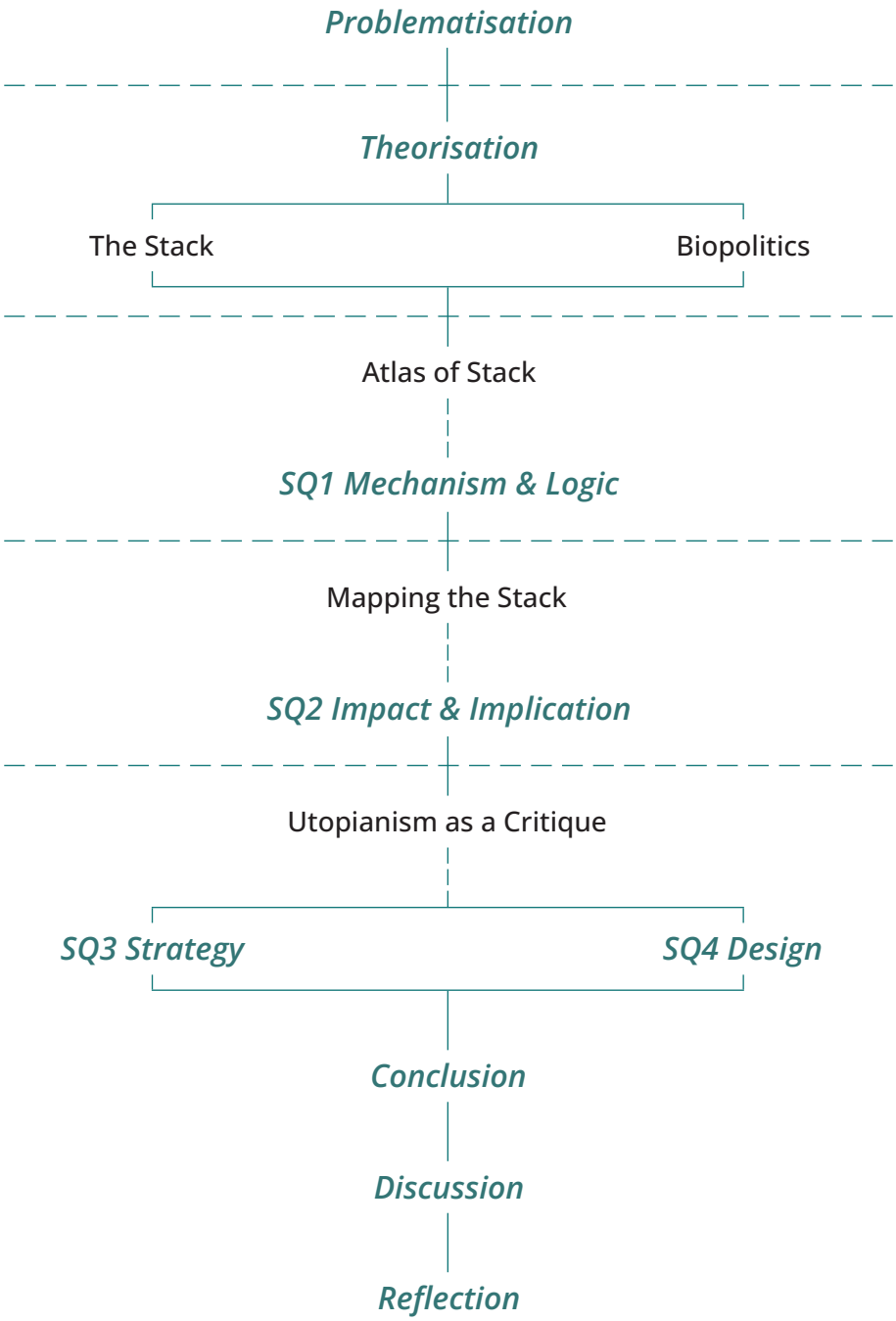


Fig. 2.18, Analytical framework

RQ1 Approach: Black Box Model

As the theoretical research has shown, the Stack is an accidental megastructure, constructed both deliberately and inadvertently, and in turn shaping us in its own image (Bratton., 2016, p.5). Similarly, the Alibaba Megastructure is characterized by its complex mechanisms, wide-ranging components, integrating of finance, politics, technology, and other domains. Due to the difficulty of accessing comprehensive information and the partial lack of open-source transparency, the complete structure of the system remains challenging to discern.

Hence, to analyze the logic and mechanisms of the Alibaba ecosystem, the first chapter adopts the black box model[1] for analysis and modeling. In this approach, the internal structure and operational mechanism of the system are treated as a black box with the focus placed on examining the inputs and outputs of the system (Kenton, W., 2024). Based on these inputs and outputs, the internal logic and mechanism of the system are then inferred and deduced.

[1] Black Box theory is wider in application. Ashby (1956) described: The child who tries to open a door has to manipulate the handle (the input) so as to produce the desired movement at the latch (the output); and he has to learn how to control the one by the other without being able to see the internal mechanism that links them. In our daily lives we are confronted at every turn with systems whose internal mechanisms are not fully open to inspection, and which must be treated by the methods appropriate to the Black Box.

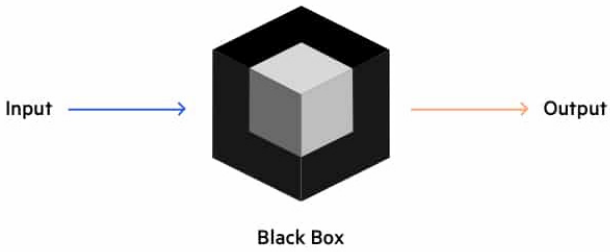


Fig. 2.19, Black box model, image source: https://www.nititest.com/types-of-black-box-testing-techniques/

In the context of Alibaba ecosystem, the inputs could include the evolving business blueprints influenced by policies, technological advancements, temporal factors, market demands, and so on. The outputs include platform products, platform regulations, and infrastructure generated by Alibaba's business operations that collectively shape the megastructure. Both inputs and outputs can be observed and analyzed through the perspective of the Stack layers.

Moreover, since the Stack consists of multiple interoperable layers (Bratton., 2016, p.67), the outputs of one layer can serve as the inputs for another. For instance, the output of terminal logistics site selection from the terminal layer may become a necessary input condition for location decisions at the address layer.

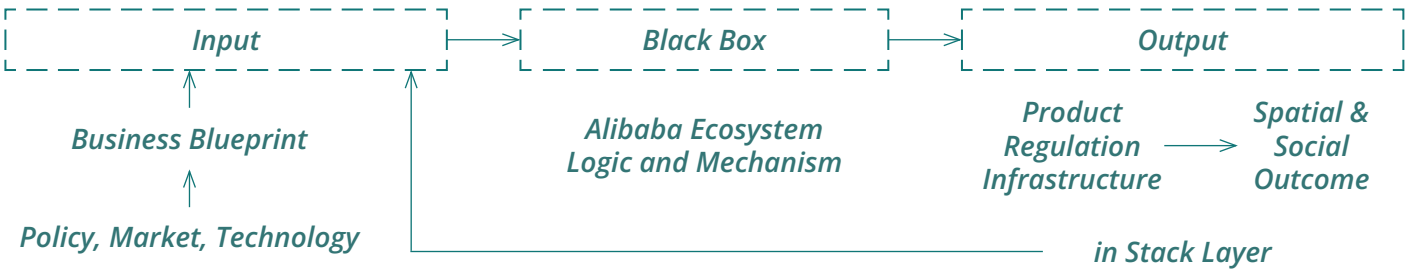


Fig. 2.20, Framework of Alibaba black box model

RQ2 Approach: Mapping the Stack

The Stack offers a framework for geodesign and has the potential to serve as a spatial mapping approach in the context of Alibaba in China. By understanding Alibaba not merely as an abstract e-commerce entity but as a system operating by geographical environments, digital and spatial infrastructure implementation, platform products, policy and regulation across multiple Stack layers, from the Earth layer to the User layer. Therefore the Stack enables a spatial perspective to analyze Alibaba's implications and impacts.

Each layer of the justified Stack can be specifically mapped through Alibaba's territorial and technological operations: the Earth layer forms the material foundation for the Stack's operation, including energy systems, natural resources, and the geographical environment in which Alibaba's infrastructure is embedded; the Cloud layer represents the technological and computational foundation, including hardware infrastructure, cloud services, and regulations and policy that govern the data and platform; the Flow layer ensures the efficient circulation of logistics, labour, cash, and information, coordinating multiple actors within the Alibaba e-commerce ecosystem; the Market layer includes both Alibaba's physical retail spaces and open space supported by its service systems, enabling hybridized consumption; the Terminal layer is structured around a three-tiered logistics terminal system centered on pickup stations that enable last-mile delivery; the Address layer includes identity and location that connect the City and Interface layer; the Interface layer encompasses Alibaba's core platform products; finally, the User layer captures the interaction between products and consumers.

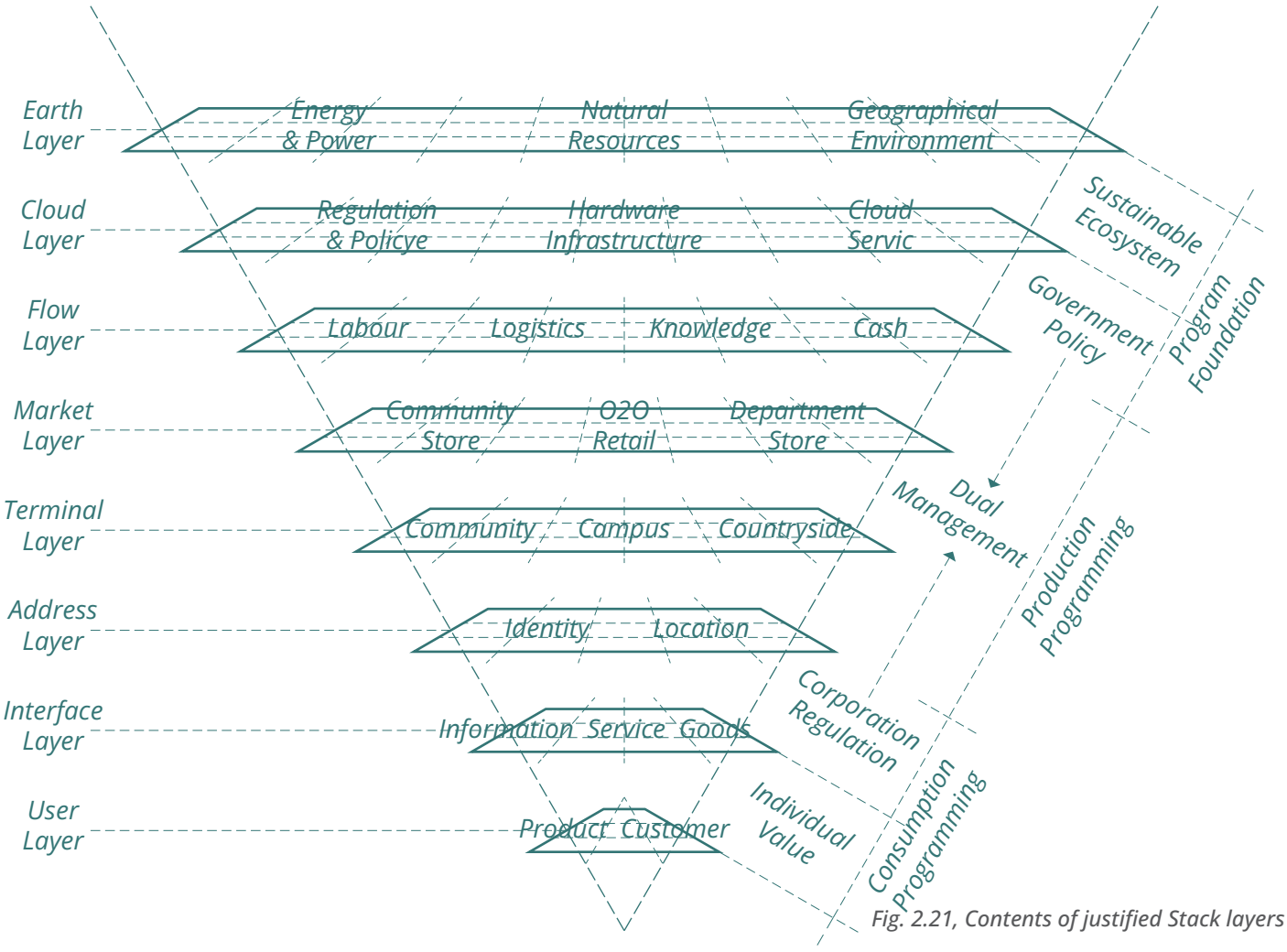


Fig. 2.21, Contents of justified Stack layers

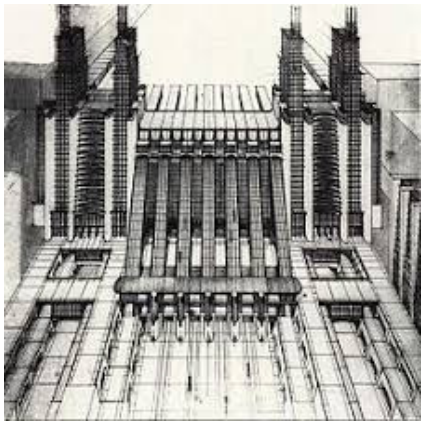
SQ3, SQ4 Approach: Utopianism as a Critique

SQ1 and SQ2 have examined the logic and mechanisms, as well as the impacts and implications, of the Alibaba Stack, with Shanghai as a case area. The findings will argue and examine how Alibaba facilitates digital biopolitics and its implications and impacts on the current relationships between customers, products, and the marketplace within the context of platformisation. And to critically discuss this digital biopolitics and develop strategies and design implementations to respond effectively, utopianism is an approach that offers a robust and realistic perspective that encompasses both a critique of the existing world and alternatives for a better one that can be mobilized in the process of transforming, indeed redeeming, the dark times in which we live ("Utopia as Method: The Imaginary Reconstitution of Society," 2014c).

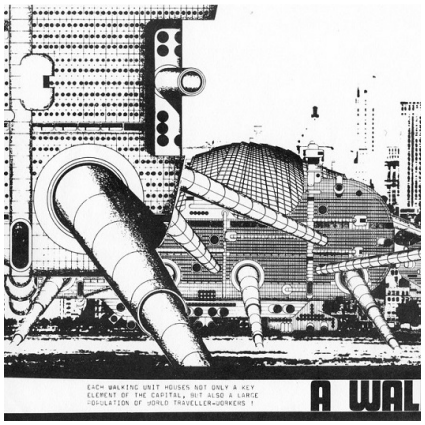
SQ2 will deconstruct the relationships between customers, products, and marketplaces within the framework of Alibaba's digital biopolitics. Building on this, SQ3 and SQ4 will reconstruct these relationships by rethinking and revisiting digital biopolitics through the lens of utopianism. Utopianism serves as a framework for imaginatively rethinking these relationships, offering a deeply original exploration of the connection between utopian thinking and social theory. This approach utilizes architectural and urban metaphors and information to envision alternative futures.

In the fields of architecture and urbanism, utopia design has long been a critical and poetic approach, from the Italian Futurism movement[1] to the 1960s architectural visions represented by Archigram[2], and continuing into contemporary approaches that are more diverse, dynamic, and critical[3]. These designs continue to explore the concept of the ideal city, addressing multidimensional issues that integrate technology, society, and ecology. They serve not only as visionary critiques of present conditions but also as frameworks to reflect on which mechanisms are emerging, which scenarios deserve to be questioned, and which trends need to be interrupted.

In the context of this project, the first step is to redefine the positioning and paradigm of digital biopolitics, clarifying why, what, and how the future of customers, products, and marketplaces will evolve. This involves imagining their roles, direct results, secondary results, and subsequent ripple results. These elements can then be aligned into a comprehensive and interconnected system. Following this, the system will undergo site-based testing and evaluation to assess its adaptability, and impact. This iterative process ensures that the reimagined relationships and structures are grounded in practical applications and can be effectively integrated into real-world contexts.



[1] Fig. 2.22, La Città Nuova, Antonio Sant'Elia, image source: https://nl.wikipedia.org/wiki/Antonio_Sant%27Elia

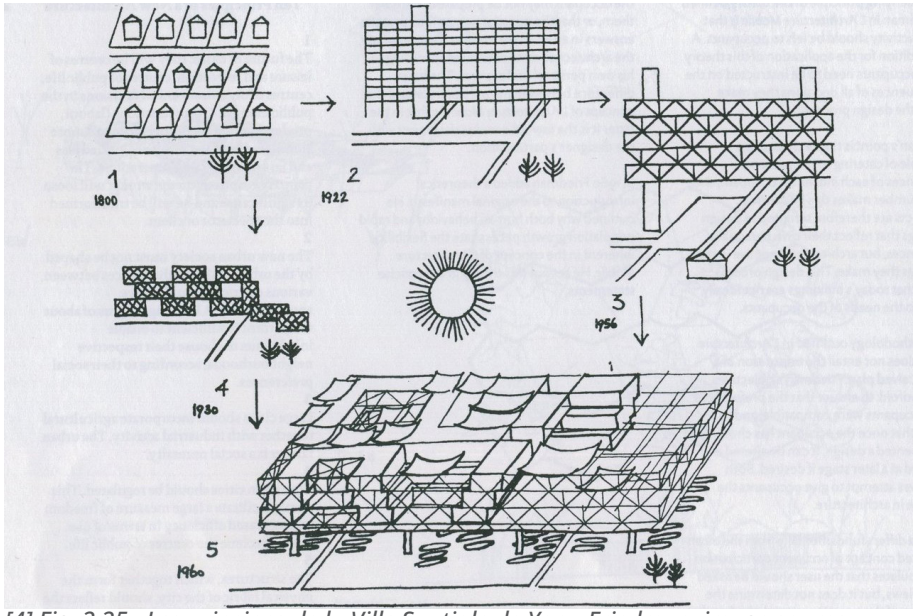


[2] Fig. 2.23, A Walking City, image source: Archigramhttps://harmtilman.nl/tag/denise-scott-brown/

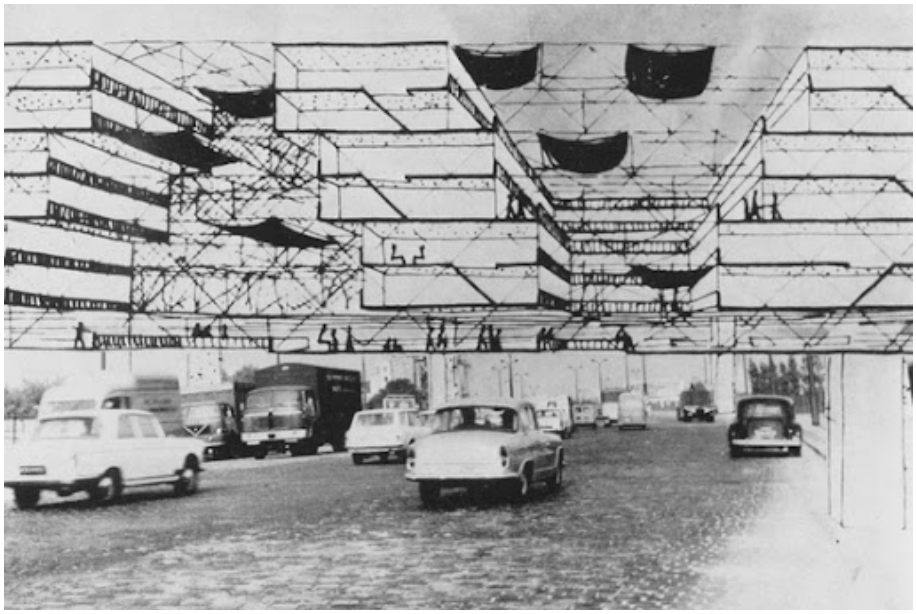
[3] Fig. 2.24, The Line, NEOM, image source: https://bridgetmck.medium.com/imagination-activism-for-life-3cc8041ec60a

Case Study, Ville Spatiale

Larry (2007) introduced Yona Friedman's Ville Spatiale, emphasizing that programmatically, the themes of portability, transportability, movement, and adaptation were of key importance. Equally significant was the insistence on encapsulating a complete repertoire of urban functions within a single massive structure, creating a totally self-sufficient ensemble. Ville Spatiale is based on an elevated three-dimensional network structure forming a participatory and adaptable system, where the spaces beneath are determined and used freely by residents themselves. This design proposes a flexible and non-linear spatial response to rapidly changing social conditions.



[4] Fig. 2.25, Les principes de la Ville Spatiale de Yona Friedman, image source: https://epiteszforum.hu/yona-friedman-mobil-epiteszet-budapesten-kezdodott



[4] Fig. 2.26, Ville Spatiale, A space independent of the original social structure, image source: https://bustler.net/news/tags/academics/23527/4526/2015-carter-manny-awardees-talk-history-in-examining-current-architectural-discourse

Learning from this case, Friedman's vision of modular elements supports the construction of freely combinable and flexible spatial system designs, especially as the technological acceleration of platforms challenges the adaptability of fixed spatial logics.

Moreover, Friedman's concept of user participation and modification in spatial systems, emphasizing community co-creation, can now be realized under contemporary platform technologies. Data serves as the foundation for supporting and regulating these adaptive systems.

Case Study, Situationist International

The Situationist International movement in the 1960s already engaged in critical discussions of humanity, capitalism, and consumerism, with a group of architects, artists, and philosophers offering transformative answers and utopian visions for society.

As the principal founder of the Situationist International, Guy Debord critically examines modern capitalist society in The Society of the Spectacle (1967). He argues that under the prevailing conditions of modern production (Thesis 1), mass media technologies (Thesis 5) transform life into a mere accumulation of spectacles (Thesis 1). In this process, the sense of sight is granted a special preeminence that was previously associated with touch, as it is the most abstract and the most easily deceived (Thesis 6). As a result, lived experience increasingly retreats into mere representation (Thesis 1). Debord further notes that even rebelliousness and dissatisfaction become commodified (Thesis 59). Consumers are filled with a religious fervor for the sovereign freedom of commodities, whose use has become an end in itself. Waves of enthusiasm for particular products are propagated by all the communications media. (Thesis 67).

Debord critiques traditional functional zoning in urban planning and proposes the creation of situations as a solution. This approach begins on the ruins of the modern spectacle. It involves the concrete construction of momentary ambiances of life and their transformation into a superior passional quality (Debord, 1957).

Debord's critique faces renewed challenges in the age of accelerated platformisation. Contemporary digital capital has further intensified the spectacle through emerging media technologies equipped with algorithmic recommendation systems, data-driven consumer profiling. Revisiting Debord's theory is thus instrumental not only in decoding the commodification of everyday life, particularly within the context of Alibaba's e-commerce ecosystem, but also in raising critical questions about the spatial, social, and psychological consequences of such systems.

Furthermore, the solution Debord proposed, the construction of situations, can be used today as a customer-centered strategy to engage with and rethink the culture of consumerism in everyday life. It offers a theoretical and practical framework for reclaiming agency, spontaneity, and lived experience within increasingly programmed and commodified environments.

New Babylon

Architect Constant Nieuwenhuys's New Babylon is a spatial response to the concept of constructing situations. It imagines a modular, elevated, and decentralized urban system designed to provide a free, participatory, and continuously transforming environment for the future Homo Ludens.

Fig. 2.27, New Babylon, Constant Nieuwenhuys, image source: https://www.archdaily.com/340106/the-indicator-on-disappearance-part-1

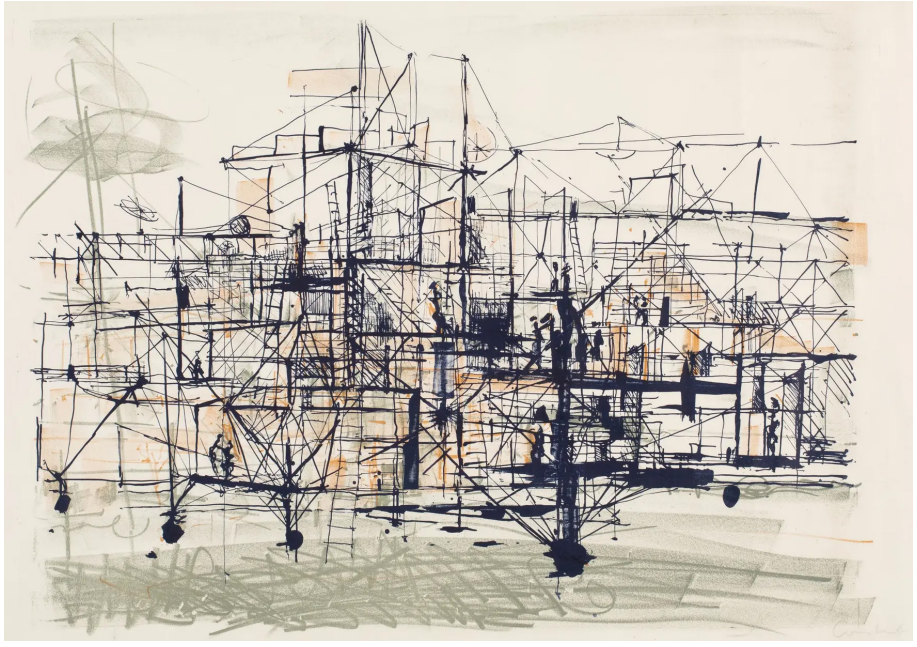


Fig. 2.28, New Babylon, Constant Nieuwenhuys, image source: https://nieuweinstituut.nl/en/projects/work-body-leisure/constant-nieuwenhuys

Architect Constant Nieuwenhuys's New Babylon is a spatial response to the concept of constructing situations. It imagines a modular, elevated, and decentralized urban system designed to provide a free, participatory, and continuously transforming environment for the future Homo Ludens.

Learning from this case, Constant focused on liberating human creativity and playfulness, emphasizing individual autonomy, resistance to excessive control, and spatial fluidity. This approach offers a spatial vision on the ground and a human-centered perspective that can be used as a model in the context of digital biopolitics to respond to individual subjectivity and autonomy.

2.5 Methodology Framework

Research Question	Focus	Approach
SQ 1: *What are the logic and mechanisms of Alibaba ecosystem?*	**Understanding:** *Logic & Mechanism*	*Black Box Model*
SQ 2: *What are Alibaba's implications and impacts on Shanghai's social and spatial dynamics?*	**Deconstruting:** *Implication & Impact*	*Mapping the Stack*
SQ 3: *What is the possible future of production and consumption system in Shanghai?*	**Reconstructing:** *Strategy & Scenario*	*Utopianism as a Critique*
SQ 4: *What spatial and interaction design insights can be drawn from Shanghai's culture of consumerism?*	**Implementing:** *Spatial & Interaction design*	*Utopianism as a Critique*

Method	Expected Outcome
Literature review *Business model analysis* *Photographic analysis*	*Atlas of Alibaba Stack layers* *Anatomy of Alibaba ecosystem* *(to see the relationship between each Stack layer)*
Literature review *Geospatial mapping* *Spatial analysis* *Storyboard*	*Mapping of Alibaba computational system* *(to see Alibaba spatial implementation with Shanghai as a case)* *Storyboard of user interaction* *(to see the human-space-computer interaction within the Stack layers)*
Literature review *Scenario planning*	*Argument on design goals and strategies* *Reconstruction of the relationship between Customer, Product, and Marketplace* *Scenario in Stack layers with metaphor and information*
Literature review *Spatial planning* *Spatial design* *Storyboard*	*Spatial design and planning based on the strategy and scenario* *Embodied presence of human-space-computer interaction* *Storyboard of updated user experience*

Fig. 2.29 Methodology framework

2.6 Conceptual Framework

Value of Future Market Dynamics

As digital governance is deeply bounded with public life due to its close ties with daily activities, government promotion, and rapid technological development, it has become a commonplace concept. Meanwhile, the academic discussions surrounding the relationship between corporations and markets, digital governance (platform urbanism), and biopolitics in the context of China are still ongoing. This project will critically situate itself within broader societal processes, political economy, and philosophy. The following discussions will set the value and frame the research and design, with these topics serving as the main concepts.

In the Chinese context, the collaboration between government and corporations forms a critical institutional framework. This includes corporations providing technological support to the government, while the government is able to exercise direct regulatory control, formulates policies, and sets overarching macroeconomic objectives to guide market operations at a systemic level. At the same time, corporations' business practices significantly influence market dynamics (Zhang, T., 2023). This raises a fundamental question for analysis: What impact does Alibaba exert on the market, and what kind of market environment does the public genuinely need?

Market and corporation monopoly

At the end of 2020, China's State Administration for Market Regulation (SAMR) launched an investigation into Alibaba's abuse of its dominant position in the online retail platform services market in China under the Anti-Monopoly Law. The corporation was accused of restricting competition in the domestic online retail platform services market[1], obstructing the free flow of goods, services, and resources, hindering innovation in the platform economy, infringing on the legitimate rights of merchants on the platform, and harming consumer interests. On April 10, 2021, SAMR issued an administrative penalty decision, imposing a fine of 18.228 billion RMB (approximately $2.41 billion Euro).

It is evident that the increasing power, market dominance and influence of Alibaba Corporation, have undermined market fairness and diversity for profit. The first concern should be its monopolistic position, which enables it to dominate and control the market.

Therefore, the positioning of this project is that although Alibaba's dominant position in the market is the result of market and state decision, and the market has a certain degree of self-regulation, the oligopolistic model in China's e-commerce[2] (He, Y., 2016)remains and leads to various issues. Specifically, e-commerce platforms often prioritize profit over consumer right protection, resulting in product and service homogenization in the market, which limits consumer choice and autonomy. Furthermore, this model exacerbates market inequality, oppresses small and medium-sized business, and undermines market diversity and innovation.

[1] Alibaba's "pick one from two" policy prohibits merchants from selling on other corporations' platforms, and those who violate this rule face penalties, including the removal of all their products from the platform.

[2] The "2019 China Online Retail Market Data Monitoring Report" shows that the three major e-commerce corporations, Alibaba, JD.com, and Pinduoduo, account for 89.4% of the market share, forming an oligopolistic competitive structure. Among them, JD.com are established companies founded in 1998, in the same period with Alibaba, while Pinduoduo was founded in September 2015, focusing on a strategy of viral products and low prices.

Human-centered market environment

Although it is difficult to conclude that Alibaba has directly manipulated the market environment, the current market is characterized by extreme utilitarianism and entrapment in the consumerism trap: Physical stores are continuously closing down, and traditional department stores face significant difficulty in adapting, new shopping mall spaces have become increasingly dominated by entertainment-driven[3], profit-centric trends, often fueled by influencer culture (Kuang, W., 2020). The blind pursuit of consumerist culture, including symbolic consumption and competitive consumption (Yang, J., & Huang, Z., 2022), is heavily promoted on social media. E-commerce and technology corporation Alibaba is deeply intertwined with these trends.

The current market environment is blind and unstable, resembling a fast-money-making machine. A case is the Wenheyou mall[4] in Changsha city, which became a landmark in 2018 by using nostalgic childhood placemaking and social influencer trends. However, during its subsequent commercial expansion, it encountered obstacles. The fast-money influencer economy model cannot serve as a long-term strategy for mall transformation. Whether this fake-feeling approach is a positive value remains debatable.

Human beings are also finite resources, and the over-exploitation of individuals by market forces ultimately leads to unsustainable outcomes. Therefore, this project envisions that future markets could prioritize individual's well-being, future, and authentic connections, moving away from profit-driven, entertainment-centered consumption. Instead, these markets could foster more meaningful consumption experiences that align with individuals' values and interests. This approach would not only benefit customers, but also ensure long-term sustainability for businesses, as it encourages a healthier, more balanced relationship between market forces and society.

[3] The original text draws on the title of Neil Postman's 1985 book, Amusing Ourselves to Death, to describe the concept of being entertainment-driven.

[4] Fig. 2.30, Wenheyou, located in Changsha and built in 2018, is a shopping mall designed with traditional decorations and an inviting atmosphere.

Value of Relationship between Human and Technology

Bratton (2021) published his book The Revenge of the Real in 2021, the post-pandemic era, addressing the inadequacies of governance responses exposed during the global pandemic (p.1) and the fragility of contemporary political orders (p.22). He advocates for an epidemiological model of society that integrates technological tools, such as data analysis and predictive modeling, with public policy to create more effective governance structures. Additionally, he emphasizes using technology to enhance democratic processes (p.34).

Bratton's argument focuses on the fundamental concept of life support. Within the context of this project, which emphasizes consumption and production, the discussion will, as well, delve into the relationship between technology, governance, and democracy, alongside the evolving relationship between humans and technology.

Bodies in technology

> *The body is the primary means through which humans experience the world, and technology amplifies our perception (Merleau-Ponty, M.,1982). Rather than being separate from the body, technology acts as a mediator for perceiving the world, becoming an inseparable part of human interaction with the environment (Ihde, D., 2001). At the same time, this interaction between technology and the body raises questions about control, dependency, and how technology might alter or diminish human agency.*
>
> *In China's e-commerce and everyday consumption, Alibaba platform products are an inseparable part of daily life. From serving as tools for gathering iformation and understanding the world, to interacting with service providers like placing orders and making payments, Alibaba's platform plays a central role in shaping daily routines. It can breakthrough the limitations of time and distance, ensuring the efficiency and convenience of daily services. However, while using these platforms, the entire process generates general data, which can then be analyzed for targeted advertising. Alibaba's technologies constantly shape our interactions, perceptions, and behaviors. By exploiting human physiological vulnerabilities, such as dopamine-driven pleasure mechanisms, platforms create addictive cycles that prioritize instant gratification and convenience. However, the consequences of these platforms are often obscured by the superficial convenience and satisfaction. In this era of highly mediated technology, human agency and bodily autonomy are increasingly influenced and diminished.*
>
> *In the field of consumption, technology serves as both a regulation and an extension of the body, elevating human experience. Data push notifications can also be seen as a new dimension of perception, offering opportunities to explore one's potential. However, if not properly utilized, it can limit human agency and bodily autonomy, constraining individual subjectivity.*

Smart platform

The project will still regard the platform as a tool that can be utilized.A platform is a programmable digital architecture designed to facilitate interactions between users, including corporate entities and public institutions (Van Dijck, J., 2018). As a direct profit-making tool for Alibaba Corporation, it can, as mentioned earlier, have a positive impact on user exploration of interests when used appropriately. Furthermore, in the context of digital governance, its scalability and interconnectivity offer potential for macro-level feedback and regulation, as well as bottom-up public participation.

This project adopts a positive and critical perspective on platform technology, recognizing it as a crucial consideration for social and urban development, particularly in the Chinese context. It also acknowledges its positive role in reshaping the relationships between customers, products, and marketplace within the realm of production and consumption. For example, platforms, through macro-level data aggregation and analytics, can partially address the production-related blind spots of industrial capital that Sismondi highlighted. Small business can leverage such platforms to access real-time data, receive guidance, and adjust their production strategies and sales directions accordingly. Similarly, users can be empowered to voice their opinions and actively participate through the platform's mechanisms. At the same time, because the platform can break the limitations of time and distance, real-time communication and interaction become possible. These factors together enable future technologies to enhance people's perception and efficiency.

Value of Affirmative Digital Biopolitics

Baidu's Chairman, Robin Li, once claimed that "Chinese people are willing to trade privacy for convenience[1]" But is this really the case? On one hand, digital governance is a widely accepted concept in China, deeply integrated into all aspects of daily life, offering significant convenience, while the risks of privacy breaches are not yet verified or widely recognized among public. This project argues that in the Chinese context, the public's attitude toward privacy is shaped by a limited understanding of privacy issues and their potential consequences, whether positive or negative. This section will then focus on discussing the specific roles of big data, algorithm, and platform technology in digital biopolitics.

Biopolitics in digital age

As the theoretical underpinning of this chapter shows, biopolitics examines how governmental power operates through the management and regulation of a population's bodies and lives, aiming to ensure, maintain, strengthen, enhance life, and organize its order (Foucault, M., 1976). Lan (2022) argues that contemporary society is experiencing a transformation where biological bodies can be fully digitized and controlled by data and algorithmic. It is an era Foucault did not live to see. This governance technique, where intelligent control merges with the digital management of each dividual, has been termed digital biopolitics (Lan, J., 2023).

Digital biopolitics can effectively describe Alibaba's platformisation of China's contemporary production and consumption systems. Through its algorithmic and data control, Alibaba successfully incorporates customers' dividualized personas and social relationships into its commercial ecosystem. This integration maintains and establishes order, as well as ensures the regulation and security of production and consumption system, including redistributing labor and reshaping the ideology of consumption.

Digital biopolitics carries potential problems, such as the concentration of power as exemplified by Alibaba's monopoly on individual data, and the potential asymmetry of power, particularly in terms of social inequality and market competition. However, digital governance also holds potential in the realm of precise algorithmic governmentality. Prozorov (2019) argues that biopolitical governance does not signify the end of democracy, as diverse forms of life can coexist based on their reciprocal recognition as free, equal, and in common. With this perspective, this project will explore the potential of digital biopolitics within an altered paradigm, specifically within the context of e-commerce.

[1] After Robin Li proposed this viewpoint in 2018, the central media in China outlet commented that "When internet companies provide services, they already gain resources such as advertising. Under this premise, users exchanging their privacy for services constitutes excessive exploitation. Moreover, users often only receive limited instances of 'convenience, safety, and efficiency,' while businesses treat users' privacy as a long-term source of profit."

To explore, not to exploit

The exploration-exploitation dilemma is a fundamental concept in decision-making that arises in many domains (Berger-Tal, O., 2014), and it is particularly prominent in algorithmic theory. Exploitation consists of taking the decision assumed to be optimal with respect to the data observed so far and exploration consists of not taking the decision that seems to be optimal, betting on the fact that observed data are not sufficient to truly identify the best option (Rocca, J., 2021).

Exploitation involves leveraging known user interests to extract their time and money, while exploration focuses on discovering new user interests and expanding their perspectives. These two forces are inversely related, requiring algorithms to strike a balance. Greater exploitation yields higher short-term profits but strengthens the filter bubble effect, whereas increased exploration may reduce immediate gains but enhances the long-term user experience.

Unfortunately, short-term visible profits are crucial for capital-driven corporations. Alibaba corporation prioritizes maximizing exploitation by leveraging their all-encompassing platform ecosystem to exploit user pain points and pleasure points. They build detailed user profiles and behavioral models, delivering highly targeted products and services. This approach intensifies the filter bubble effect, further isolating users within personalized information silo.

This project positions technology in algorithms as a tool for self-exploration, helping users discover their interests and personal values. It advocates for leveraging algorithms to provide broader information channels and multidimensional modes of perception in a long-term, sustainable manner.

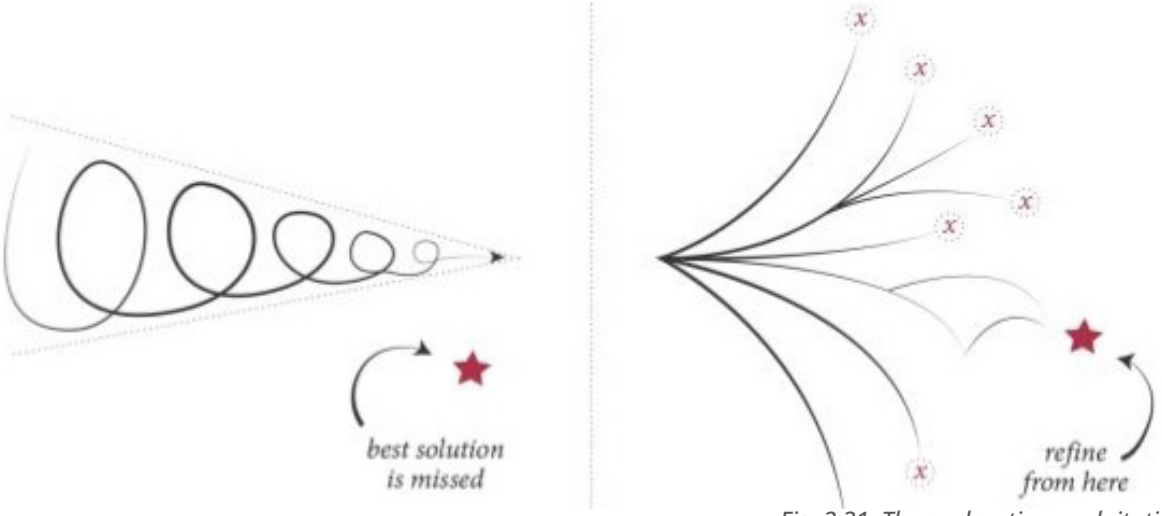


Fig. 2.31, The exploration-exploitation dilemma
image source: https://www.linkedin.com/pulse/battle-exploration-exploitation-mindset-abhishek-singh

Conceptual Framework

This project adopts the Stack as a research and design framework, taking a vertical perspective to examine the contemporary computational system through eight justified layers contextualized within Alibaba's business in China. These layers include the Earth, Cloud, Flow, Market, Terminal, Address, Interface, and User layer. Together, they reveal the systemic transitions from territorial transformation and urban reconfiguration to interaction between human behavior and cognition. In terms of strategy and design, the project embraces an affirmative form of digital biopolitics, aiming to leverage feedback mechanisms, regulatory processes, and social engagement embedded in platforms and other digital technologies to construct an autonomous and dynamic market environment.

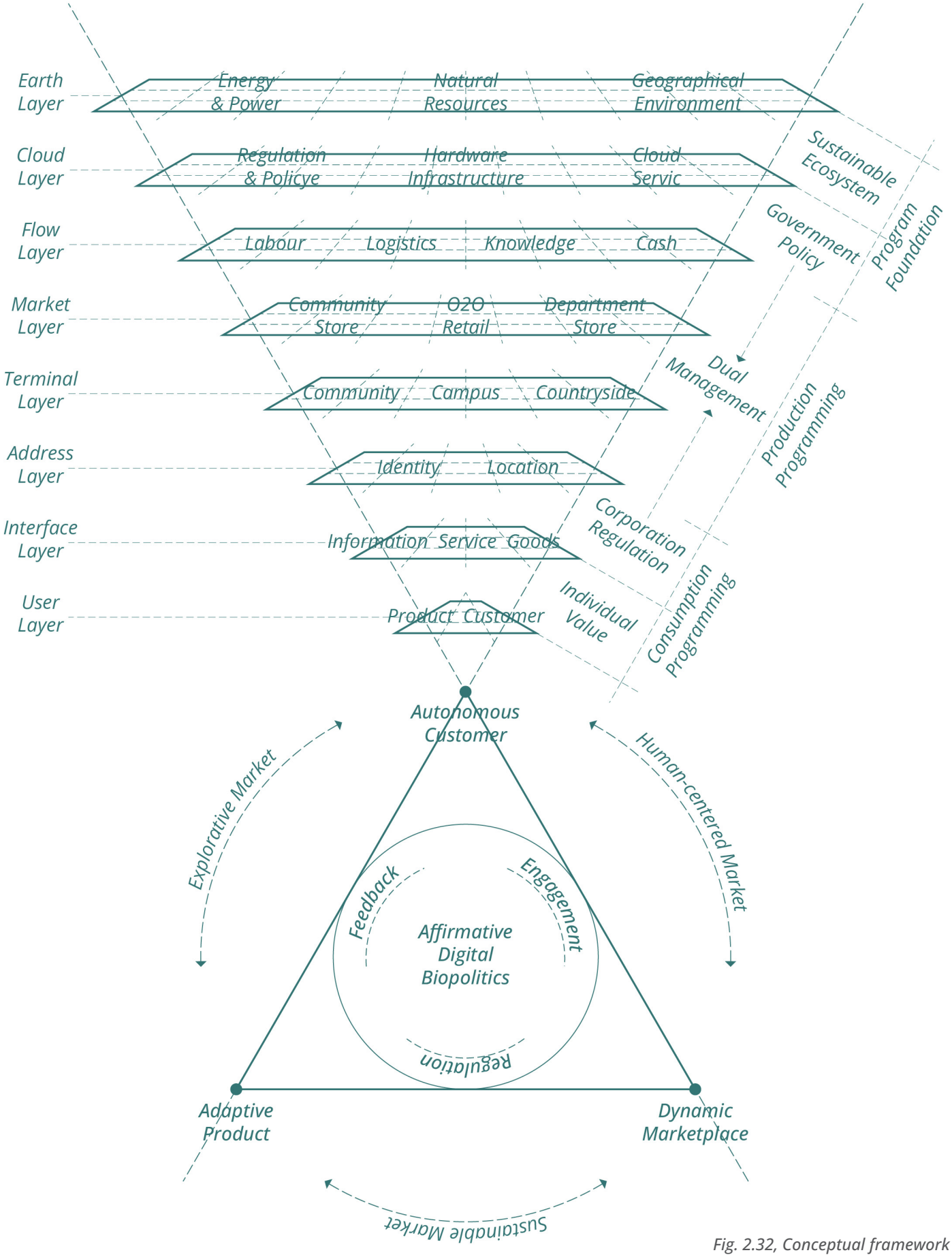


Fig. 2.32, Conceptual framework

2.7 Research Framework

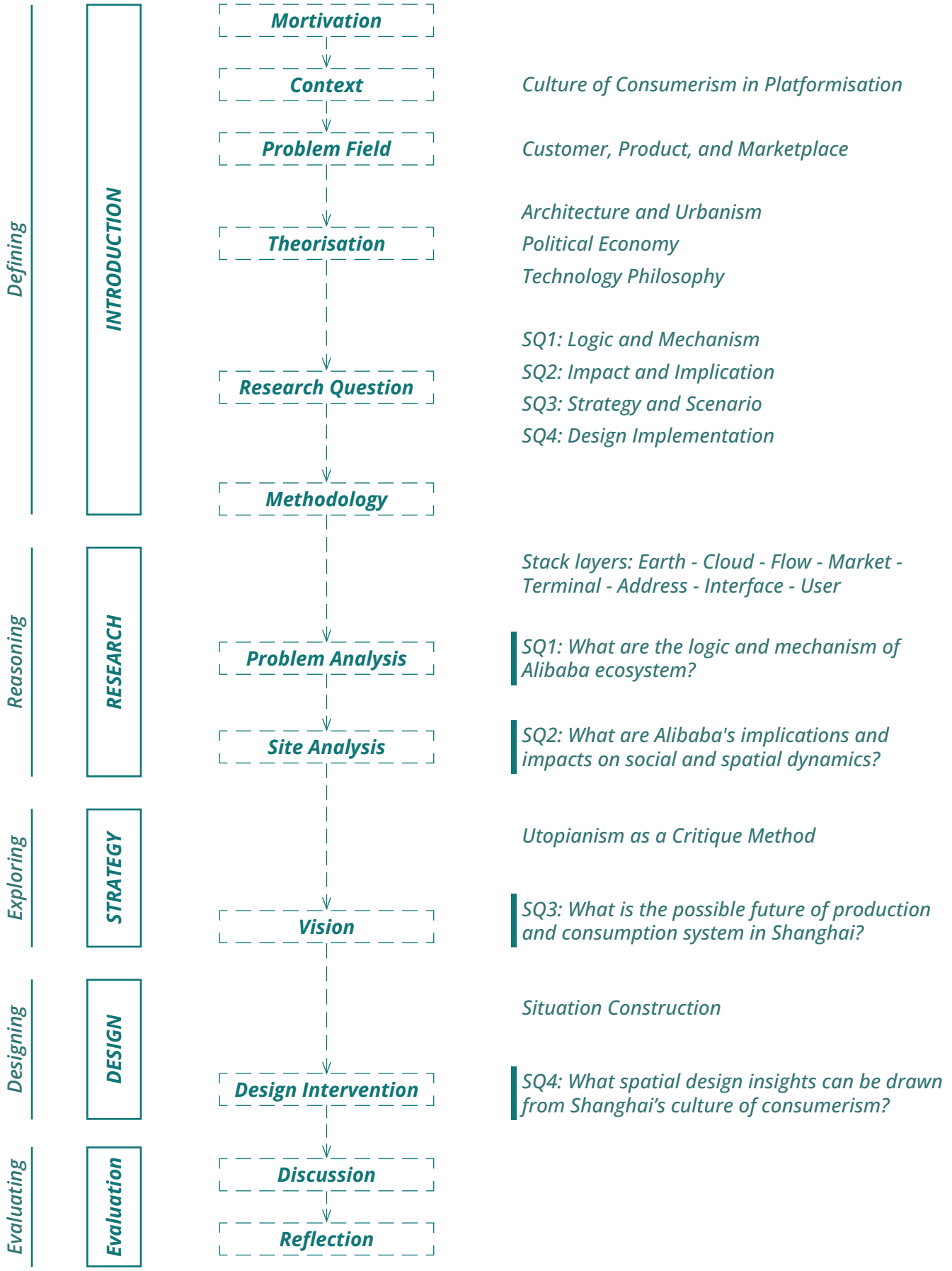


Fig. 2.33, Research framework

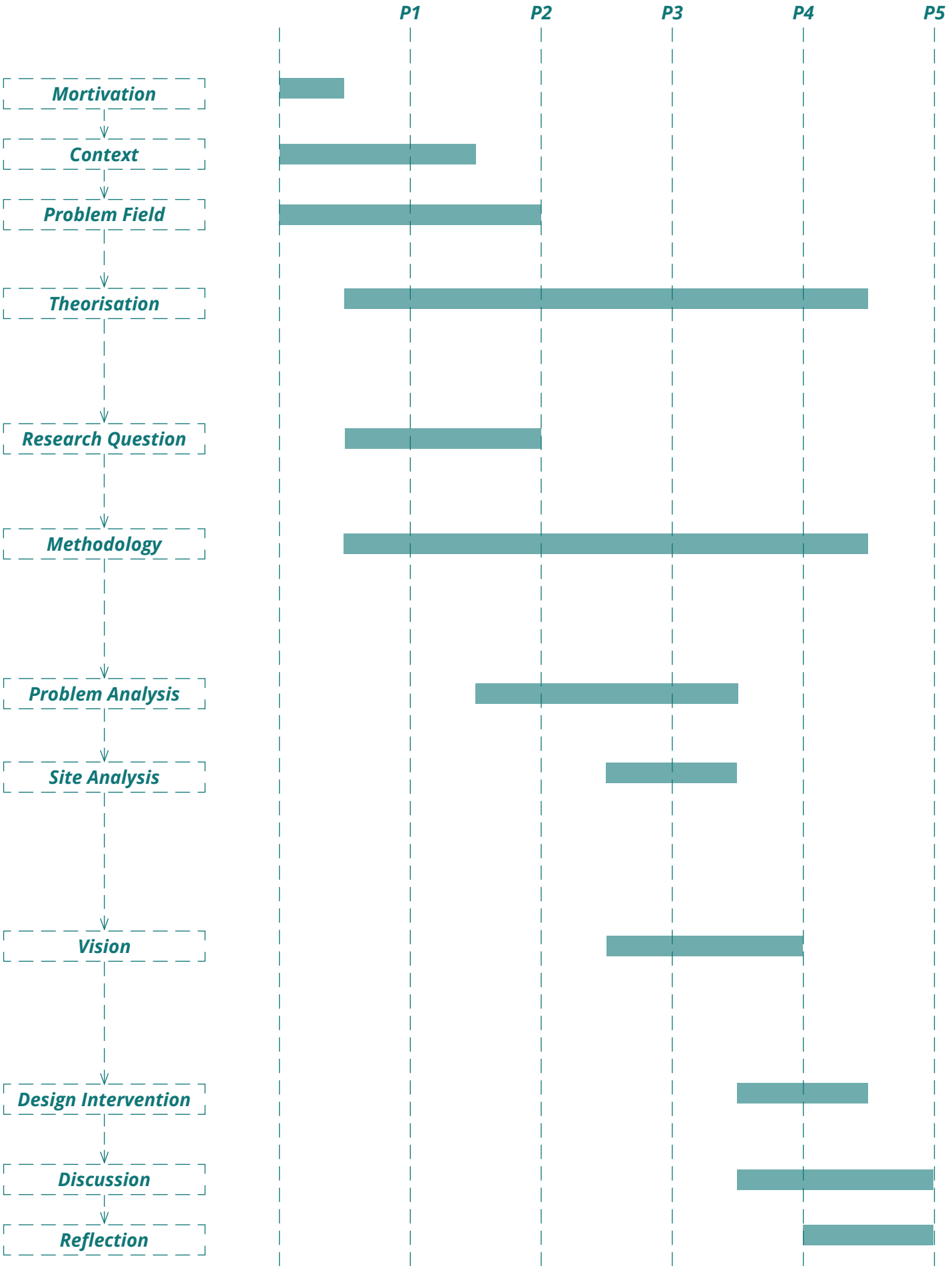


Fig. 2.34, Research timeline

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3.1 Accidental Megastructure of Alibaba Stack

Bratton (2016, p.5) describes The Stack as an accidental megastructure, one that we are building both deliberately and unwittingly and is in turn building us in its own image. Analyzing the logic and mechanisms underlying the Alibaba ecosystem requires a prior investigation into its historical development, which functions as the input for black-boxed operations. The timeline reveals how Alibaba has evolved into an accidental megastructure, characterized by new machines, emerging geopolitical institutions, and nascent social systems (Bratton, 2016, p.5).

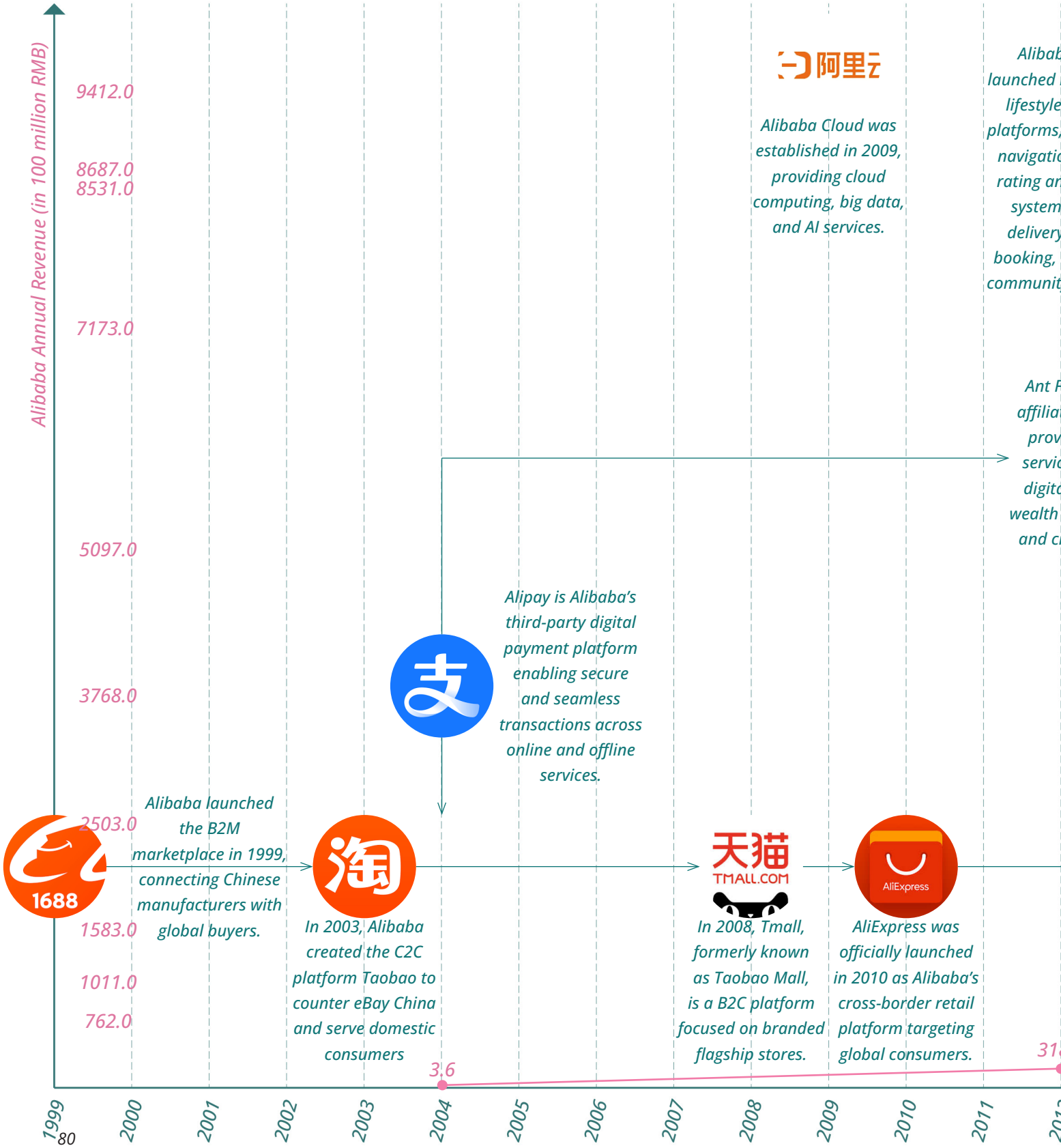


Fig. 3.1 illustrates the development of Alibaba's digital platforms over the past two decades. It began with an e-commerce model inspired by eBay, followed by the integration of logistics and digital payment systems. Over time, Alibaba built a comprehensive e-commerce ecosystem that includes B2B, B2C, C2C, and C2M models, connecting manufacturers, brands, and consumers through digital platforms. In recent years, it has expanded into lifestyle services, financial sectors, and placed increasing emphasis on the technology industry.

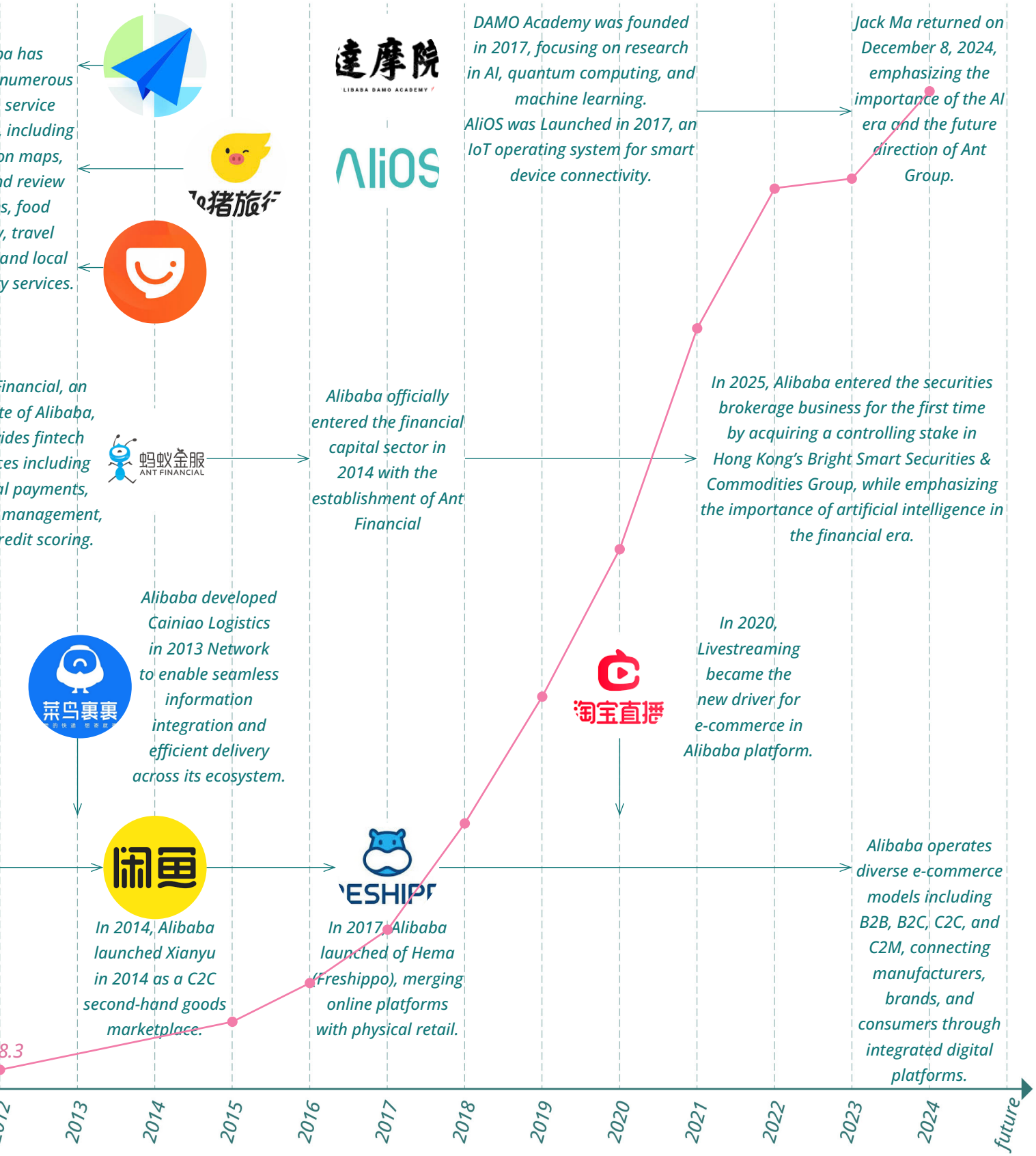
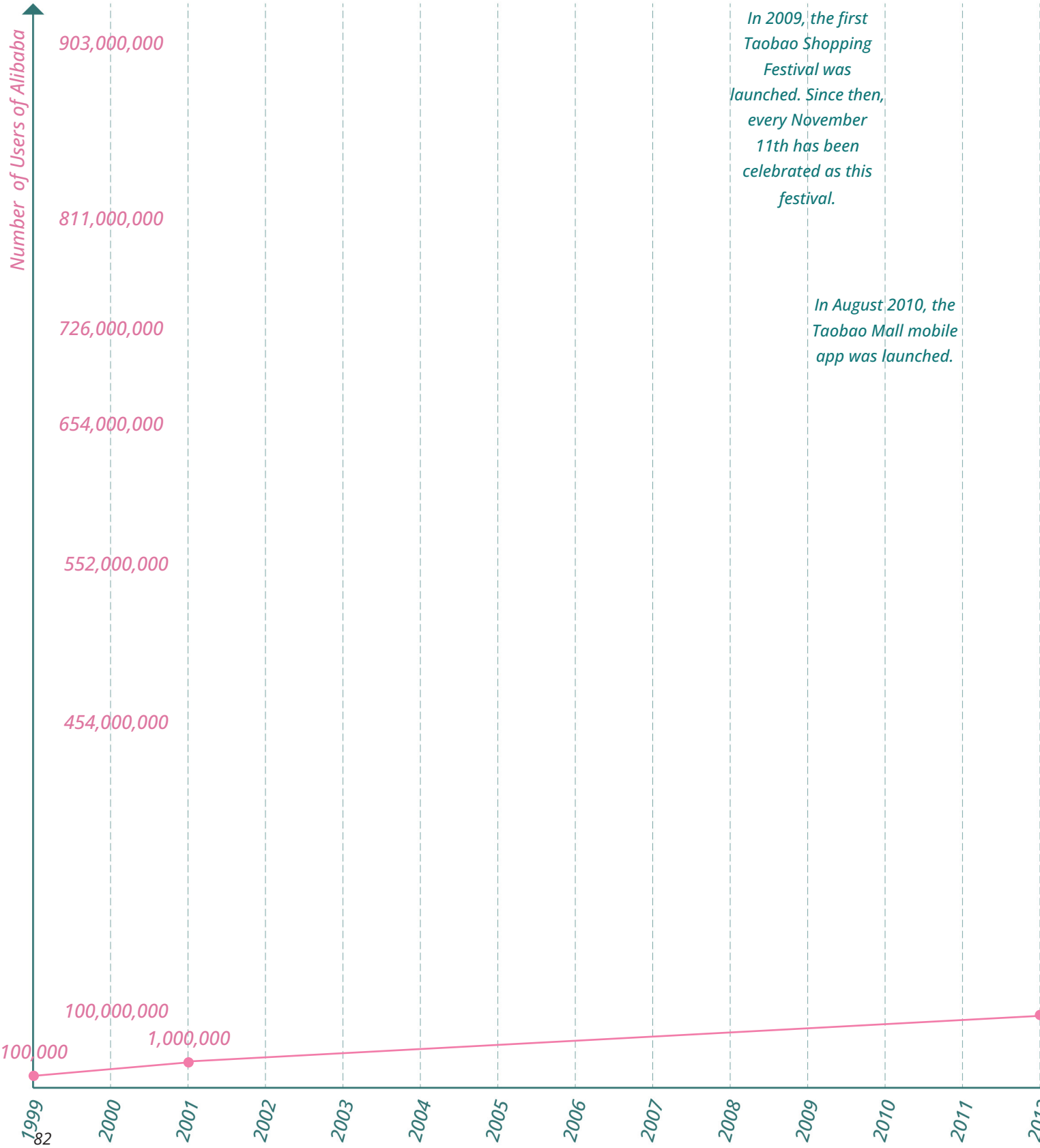


Fig. 3.1, Alibaba's business timeline of platform development

Fig. 3.2 shows that Alibaba achieved initial capital accumulation and user engagement through e-commerce and various promotional activities. Beginning in 2014, the company shifted its focus to expanding into the physical retail sector by developing an online-to-offline (O2O) business model. This model extended into urban life and space, encompassing partnerships with retail spaces and department store brands, thereby integrating and reshaping traditional shopping practices and the spatial organization of commercial environments.



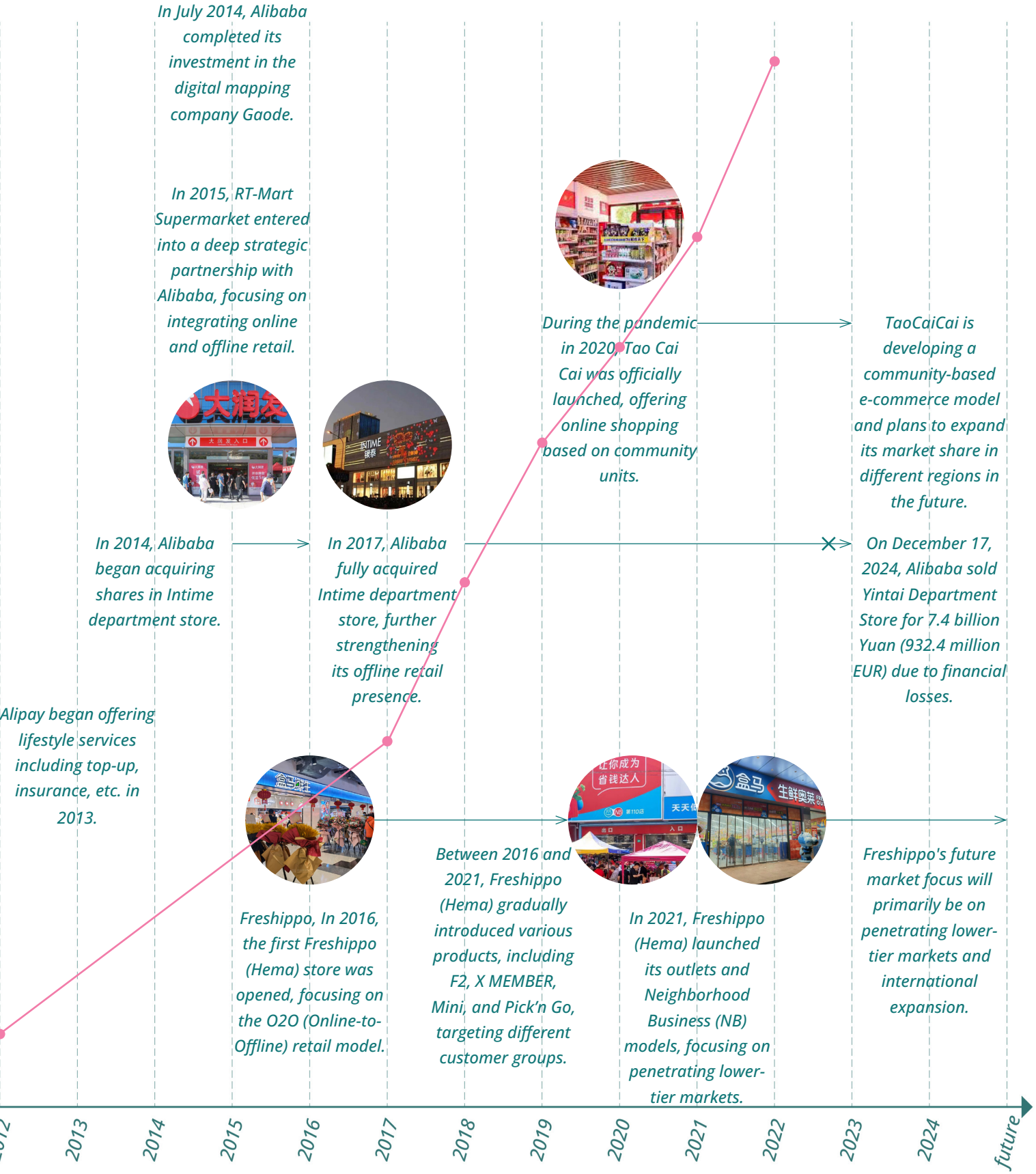


Fig. 3.2, Alibaba's business timeline of spatial expansion

Alibaba Business Model Canvas

The timeline reveals that Alibaba's business development was driven by platform products and spatial transformations. In just two decades, the company progressed from primitive capital accumulation, transforming the public into digitally dependent consumers, to expanding into manufacturing, finance, and technology. In recent years, Alibaba has shifted its focus toward technology fields such as big data, algorithms, and artificial intelligence, leveraging these technologies to enhance its existing business infrastructure. This rapid evolution has culminated in the creation of the largest computational Stack in China today.

Key Partners

Manufacturers and Suppliers:
Provide diverse platform and service products and maintain efficient supply chains across Alibaba's B2B, B2C, and C2C platforms

Logistics and Delivery Providers:
Manage warehousing, shipping, and last-mile delivery to ensure timely order fulfillment

Payment Service Providers:
Enable secure, seamless digital payments through third-party platforms like Alipay

Technology Providers and Developers:
Support Alibaba's AI, big data, cloud computing, and algorithm development

Advertisers and Marketing Partners:
Utilize user data for targeted advertising and promotional campaigns

Government and Regulatory Bodies:
Ensure legal compliance and facilitate business expansion within regulatory frameworks

Entertainment and Media Companies:
Collaborate to provide content and integrate media services within Alibaba's ecosystem like Xiaohongshu, Weibo

Key Activities

Platform Development and Maintenance:
such as Taobao, Tmall, and Freshippo

Data Management and Analytics

Logistics and Supply Chain Coordination:
such as Cainiao logistics network

Marketing and Advertising

Financial Services Operations:
such as Alipay, Ant Financial

Customer Service and Support

Regulatory Compliance

Key Resources

Technology Infrastructure

Intellectual Property (IP)
range of proprietary technologies

Human Capital:
experienced management team, engineers, developers, and operational staff

Brand Equity:
strong brand ecognized and trusted by millions

Partnerships and Alliances

Financial Resources

Value Propositions

For Consumers:
convenient, diverse, and a
range of products and serv
online and offline platform

For Merchants and Ma
a scalable platform to rea
streamline supply chains,
insights to optimize sales.

For Advertisers:
targeted advertising oppor
rich user data and advanc
algorithms to maximize m

For Partners:
collaborative ecosystem en
and technology providers
Alibaba's platform.

To Government:
supports regulatory compl
and digital infrastructure
collaboration and innovati

Innovation and Techno
continuous integration of
such as AI, big data, and c
enhance user experience a

Cost Structure

Technology Development and Maintenance:
cost related to platform development, software updates, AI and big data infrastructure

Logistics and Supply Chain Operations:
expenses for warehousing, shipping, and managing the Cainiao logistics network

Marketing and Advertising
cost on advertising campaigns, promotions, and user engagement activities

Customer Service and Support

Employee Compensation and Benefits

Regulatory Compliance:
costs associated with legal, regulatory, and data privacy requirements

Financial Services Operations:
expenses related to running payment platforms like Alipay and other financial products

Research and Development

This Business Model Canvas draws on ideas from: Gary Fox. (2024). Alibaba Business Model. Retrieved May 30, 2025, from https://www.ga

Following this, the business model canvas (see Fig. 3.3) shows Alibaba's business development blueprint and revenue generation methods. It can be concluded that Alibaba's business model fundamentally relies on the exploitation of human futures through digital technologies, such as recommendation algorithms designed to increase customer dependency on its products and targeted advertising.

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and leverage data-driven

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nabling logistics, payment,
o grow alongside

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development through
ion.
ology:
cutting-edge technologies
loud computing to
nd operational efficiency.

Customer Relationships

Personalisation:
Alibaba uses data and AI for personalized product recommendations and advertisements
Self-Service Platforms:
customers and merchants independently manage their accounts, transactions, and services
Community Building
Loyalty Programs:
provide multi-channel customer service, including online chat, call centers
Buyer Protection

Channels

Online Platforms:
include goods, information, and service platforms
Physical Retail Stores:
include O2O retail and partnerships with offline department stores
Social Media and Live Streaming:
use platform like Weibo, Tiktok
Advertising Networks
Website

Customer Segments

Individual Consumers:
massive base of retail shoppers across China and globally
Small and Medium-sized Enterprises (SMEs):
merchants and brands using Alibaba's platforms to reach consumers and expand their market presence
Large Manufacturers and Brands:
established companies leveraging Alibaba's infrastructure for B2B and B2C sales channels
Advertisers and Marketers:
businesses using Alibaba's data-driven advertising services to target specific consumer groups
Logisctics and Service Providers:
partners who integrate their services within Alibaba's ecosystem to support supply chain and customer needs
Cloud Computing Customers:
AliCloud serves diverse businesses by providing scalable and cost-effective cloud computing solutions tailored to various industry needs.
Government and Regulatory Bodies:
collaborate with Alibaba to promote economic development, regulate digital commerce, and implement policy

Revenue Streams

Transaction Fees:
charges from merchants and consumers for sales completed on platforms like Taobao and Tmall
Advertising Revenue:
income from targeted advertising and marketing services offered to brands and sellers
Subscription Fees:
membership and service fees from merchants using premium platform features
Cloud Computing Services:
revenue from Alibaba Cloud's scalable computing, storage, and data services
Financial Services:
earnings from digital payment processing, loans, insurance, and wealth management products
Logistics Services:
fees for warehousing, delivery, and supply chain management via Cainiao

aryfox.co/alibaba-business-model/

Fig. 3.3, Alibaba business model canvas

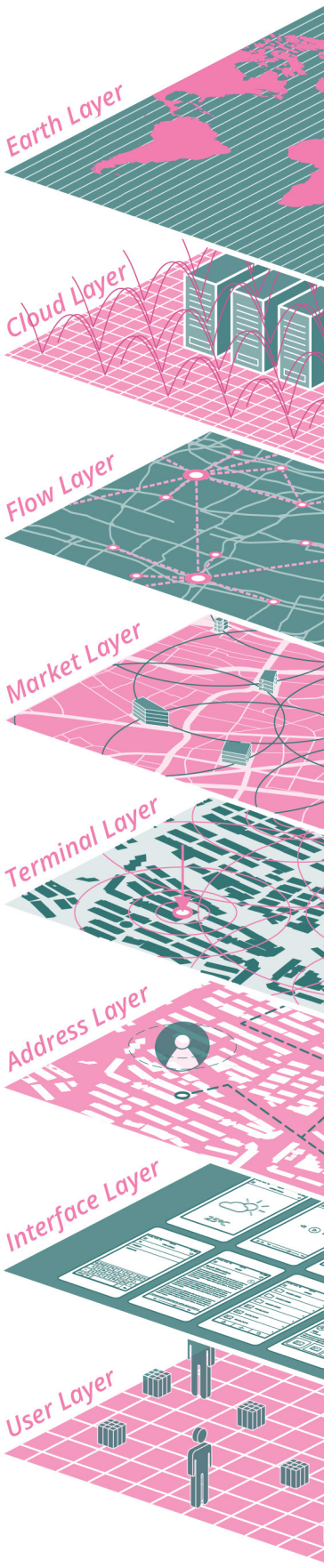
3.2 Atlas of Alibaba Stack

Alibaba Stack Framework

The previous chapter examined the input of the black box. This chapter presents an atlas of the layers that constitute the Alibaba planetary-scale computational Stack, aiming to explore its output through the lenses of architecture, urbanism, and human-computer interaction. It will focus on territorial transformation, urban reconfiguration, architectural spatial implementation, human interaction, and policy and regulatory frameworks, while delving into the specific business and computational logic, design strategies, and cultural dynamics embedded within each layer of the Stack.

As discussed in Chapter 2.3, the justified Stack layers within the context of Alibaba in China begin with the Earth layer, which includes energy and power systems, natural resources, and the geographical environment that provides the physical and spatial foundation. The Cloud layer encompasses regulatory and policy frameworks, hardware infrastructure, and cloud services that together offer the computational foundation.

The Flow layer includes labour, logistics, knowledge, and cash flows, facilitating the movement of resources essential to production. The Market layer consists of community stores, O2O retail, and department stores, while the Terminal Flow layer encompasses pickup stations and last-mile delivery networks in communities, campuses, and countryside areas. Together, these layers support the production program. The Address layer involves identity and location, while the Interface layer comprises interfaces for information, services, and goods. The User layer includes both products and customers. These layers collectively enable the consumption program.



01 Energy and Power
02 Natural Resources
03 Geographical Environment
04 Regulation and Policy
05 Hardware Infrastructure
06 Cloud Service
07 Labour
08 Logistics
09 Knowledge
10 Cash
11 Community Store
12 O2O Retail
13 Department Store
14 Community
15 Campus
16 Countryside
17 Idedntity
18 Location
19 Information
20 Service
21 Goods
22 Product
23 Customer

Fig. 3.4, Framework of Alibaba Stack elements

EARTH LA

Fig. 3.7, Cobalt ore
Cobalt — a critical material for precision-engineered parts.
Image source: https://nai500.com/blog/2025/03/cobalt-prices-surge-a-chess-match-between-china-and-the-us/

Fig. 3.5, Electrical lineworker at height
Extensive manpower in power grid construction in western China.
Image source: https://opinion.caixin.com/2020-06-16/101567851.html

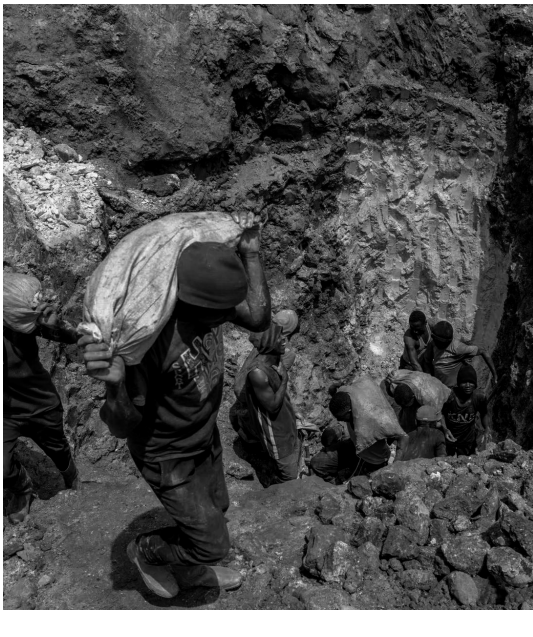


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Fig. 3.6, Wind energy
Low-carbon energy transition in China.
Image source: https://xj.chinadaily.com.cn/a/202204/22/WS62623645a3101c3ee7ad1c9b.html

Fig. 3.9, War for Cobalt
Global scramble for cobalt resources
Image source: https://www.trouw.nl/buitenland/congo-bindt-de-strijd-aan-me vanwege-dubieuze-kobaltwinning~b59ad9474/?referrer=https%3A%2F%2Fww com%2F

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Fig. 3.10, Soil
The foundational stage of human alteration of nature, including mining and construction.
Image source: https://pxhere.com/nl/photo/859156

03

Fig. 3.11, Human Activities
Human transformation, utilization, and governance of nature
Image source: https://www.savills.com/prospects/zh/cities-lowdown-chengdu.html

Fig. 3.8, Cobalt Extraction in the DRC
The Democratic Republic of Congo holds over 70% of the world's cobalt.
Image source: https://www.linkedin.com/posts/callyedgren_how-this-conflict-mineral-gets-smuggled-into-activity-7248666860894707712-iFqy

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Fig. 3.12, Cooling Water Tower
Water supports the operation and production of these infrastructures.
Image source: https://spxcooling.com/zh/applications/

CLOUD LA

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Fig. 3.13, Communication Base Station
Drone-based emergency communication aerial base station
Image source: http://v.china.com.cn/zhuanti/2023-08/03/content_98140444.htm

Fig. 3.15, Data Collector
Data like mapping information requires extensive human resources for collection.
Image source: http://www.xinhuanet.com/2021-02/07/c_1127075877.htm

Fig. 3.14, Alibaba Programmers
Programmers rely on the cloud layer to build, deploy, and manage scalable applications and services.
Image source: https://36kr.com/p/1409631004218757

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Fig. 3.18, Data Center
Data centers serve as the main physical hardware infrastructure for the cloud layer.
Image source: https://www.mdac.tw/news_20210706_1

Fig. 3.16, Cell Tower
Cell towers provide wireless connectivity between users' devices and the broader cloud network.
Image source: https://bbs.zhiyoo.com/zhiyoo/208931.html

Fig. 3.19, Circumplanetary Satellite
Satellites monitor and collect data that enable planetary-scale computation.
Image source: https://trh.gase.most.ntnu.edu.tw/tw/article/content/280

Fig. 3.17, Alibaba new global headquarters
Alibaba's new global headquarters campus in Hangzhou is slated to open in May 2024
Image source: https://it.gmw.cn/2023-12/21/content_37044121.htm

Fig. 3.20, Space Station
Long March-5B completes maiden flight, initiating China's space station construction.
Image source: https://www.globaltimes.cn/content/1187446.shtml

FLOW LAY

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Fig. 3.21, Public–private Partnership
Alibaba collaborates with local government to promote digital infrastructure, rural development, and smart city initiatives.
Image source: https://info.51.ca/articles/765917

Fig. 3.24, E-commer
E-commerce removes t
anyone to apply and op
Image source: https://news.

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Fig. 3.22, Alibaba and rural life
Alibaba and local government encourage a prosperous rural life by promoting inclusivity and economic growth.
Image source: https://www.e-flux.com/architecture/urban-village/169786/put-down-the-hoe-pick-up-the-mouse/

Fig. 3.23, Parcels
The Alibaba e-commerce ships millions of parcels daily.
Image source: https://www.chinadaily.com.cn/bizchina/2014-10/23/content_18788059_6.htm

Fig. 3.25, Logistics Infrastructure
Alibaba integrates logistics infrastructure with digital platfor
delivery services across China.
Image source: https://techsir.com/a/202505/91017.html

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ce at Home
he limitations of time and space, and allowing
pen a store.
southcn.com/node_54a44f01a2/543f01632e.shtml

Fig. 3.26, Taobao Village
Rural settlements in China where a significant portion of the population engages in online retail, facilitated by the Taobao e-commerce platform.
Image source: https://www.sohu.com/a/637625556_362042

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Fig. 3.27, Production in the Village
Rural villages are being transformed into e-commerce production bases driven by Alibaba.
Image source: https://trh.gose.most.ntnu.edu.tw/tw/article/content/280

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rms to optimize supply chains and accelerate

Fig. 3.28, Livestream E-commerce
Livestream e-commerce via Alibaba's platforms has become a major sales channel in China.
Image source: https://www.cbndata.com/information/271277

MARKET LA

Fig. 3.29, Double 11 Festival
Double 11 is the largest e-commerce shopping festival hosted by Alibaba in China.
Image source: https://tech.ifeng.com/c/7rWdR39rUKs

Fig. 3.30, Alibaba Pop-up Stores
Alibaba's pop-up stores create temporary retail spaces that blend online innovation with offline experience.
Image source: https://www.yeeyi.com/news/details/214381/

Fig. 3.32, O2O Retail
Online-to-offline retail Freshippo integrates digital platforms with physical stores to create seamless shopping experiences.
Image source: https://www.takungpao.com/finance/236137/2024/0307/949146.html

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Fig. 3.31, Taocaicai Community Store
Alibaba's community stores integrate digital retail with neighborhood life, offering on-demand shopping services.
Image source: https://mp.weixin.qq.com/s/8OSDimp4FtoWNTARMs3Agg

Fig. 3.33, Experience Consumption
Freshippo by Alibaba redefines grocery shopping with an immersive, tech-driven retail experience that blends dining, picking, and delivery.
Image source: https://cn.nytimes.com/technology/20180404/retailer-stores-automation-amazon/

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Fig. 3.34, Digital Bank
Alipay by Alibaba enables digital payments across all business activities.
Image source: https://xinwen.bjd.com.cn/content/s66f496dfe4b0c25b287beff7.html

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Fig. 3.35, Alibaba Search Engine
Location-based search engine ensures real-time positioning and embeds digital logic into urban life.
Image source: https://finance.sina.com.cn/tech/2021-11-18/doc-iktzscyy6353367.shtml

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Fig. 3.36, Intime Department Store
Alibaba collaborates with Intime to integrate digital platforms with traditional department stores.
Image source: https://mp.weixin.qq.com/s/BDPughqKDzSuk13f9rpX7w

TERMINAL LA

Fig. 3.37, Alibaba Courier
Alibaba's courier network, powered by Cainiao Logistics, ensures efficient parcel delivery across cities and rural regions.
Image source: https://www.cnbeta.com.tw/articles/tech/1422265.htm

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Cainiao Station

Fig. 3.38, Alibaba Delivery Worker
Delivery workers in Alibaba's ecosystem provide fast, on-demand services.
Image source: https://mp.weixin.qq.com/s/u7PFXf9i8o5uSj0j1CX9Ow

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Fig. 3.39, Pickup station in Community
Cainiao Pickup Stations by Alibaba serve as smart community hubs for parcel pickup, delivery, and local services.
Image source: https://mp.weixin.qq.com/s/LDImnTPGPDm1LSzqCNXb8Q

Fig. 3.42, Alibaba Smart Locker
Alibaba's smart lockers provide convenient, co part of its last-mile delivery network.
Image source: https://lieyunpro.com/archives/452530

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Fig. 3.40, Alibaba Pickup Station on Campus
ns on campuses provide efficient, self-service parcel delivery tailored to student life.
Image source: https://36kr.com/p/2490857378125703

, Autonomous Delivery
ed delivery brings automation to the last mile with robots and AI-powered logistics.
rce: https://picture.iczhiku.com/weixin/message1600828879497.html

ntactless parcel pickup as

Fig. 3.43, Shopping at home
Shopping at home becomes seamless, personalized, and data-driven because of Alibaba.
Image source: https://www.sohu.com/a/839175733_121948385

Fig. 3.44, Alibaba Pickup Station in Countryside
In rural areas, Cainiao Post Stations by Alibaba enhance last-mile logistics while serving as multifunctional community hubs.
Image source: https://mp.weixin.qq.com/s/NDE3ttyhsxXdev8Gq9eVaQ

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ADDRESS LA

Fig. 3.45, IP Address
IP address enables devices to locate and communicate with each other across digital networks.
Image source: https://blog.trendmicro.com.tw/?p=70576

Fig. 3.48, QR Code
QR codes contain product details, location inf
Image source: https://www.chillfool.com/news/355.html

Fig. 3.46, Persona Construction
Alibaba segments and targets users by constructing detailed personas.
Image source: https://www.ungrammary.com/post/ux-workshop-importance-process

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Fig. 3.47, Human-Computer Interaction
Interaction via platforms by Alibaba enables precise identification and localization of users and devices.
Image source: https://www.sohu.com/a/411820372_114819

Fig. 3.49, Living Environ
The living environment sym habits, and values, and can
Image source: https://n.yam.com

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Fig. 3.50, Router
Router directs data traffic by determining optimal paths, functioning as a key component of the Address Layer's routing system.
Image source: https://192-168-1-1.com.cn/howto/2413.html

ormation, and customer data.

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Fig. 3.51, Real-time Positioning
Real-time positioning enables Alibaba to locate users, goods, and delivery personnel, facilitating precise routing and efficient platform operations.
Image source: https://www.cnbeta.com.tw/articles/tech/1303199.htm

ment
bolizes an user's consumption capacity, be regarded as valuable data.
/Article/20241020755403

Fig. 3.52, Street Address
Street addresses link physical locations with digital systems
Image source: https://www.jfdaily.com/sgh/detail?id=1458176

INTERFACE LA

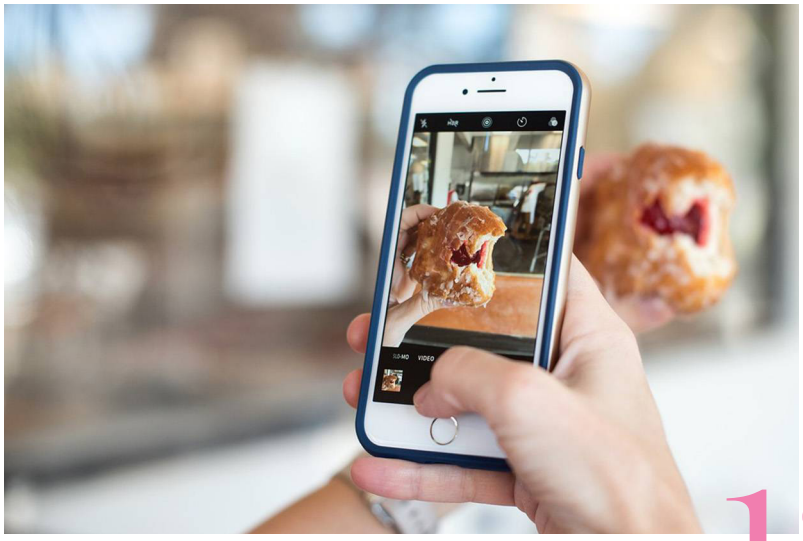

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Fig. 3.53, Services Platform
Alibaba provides app-based interfaces to access services such as digital banking, credit systems, and micro-funding platforms like Alipay.
Image source: https://www.cbndata.com/information/89051

Fig. 3.54, User Journey Design
User journey design maps and shapes the complete experience a user has when interacting with the product and service, from initial awareness to final engagement.
Image source: https://www.design-hu.com/web-news/user-journey-map.html

Fig. 3.55, Graphical User Interface, GUI
A Graphical User Interface (GUI) allows users to interact
buttons, and menus.
Image source: https://www.woshipm.com/evaluating/6215458.htm

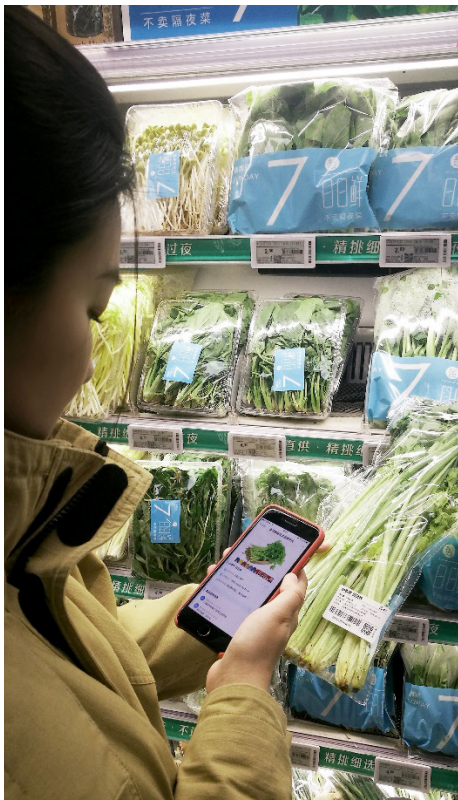

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Fig. 3.57, Physical Interface, Self-service Kiosk
Alibaba's self-service kiosks enable customers to browse products, place orders, and complete payments in physical retail spaces.
Image source: https://www.sunmi.com/cases/hema/

t with digital systems through visual elements like icons,

l

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Fig. 3.58, Information Platform
Alibaba's information interfaces translate complex data into intuitive and accessible user experiences.
Image source: https://i.ifeng.com/c/7x8ShXbvbQc

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Fig. 3.56, Goods Platform
Goods platforms like Taobao enable users to interact with physical products through seamless digital-physical interfaces.
Image source: http://news.ikanchai.com/2018/0408/206163.shtml

Fig. 3.59, Physical Interface, Smartphone
The smartphone acts as a physical interface connecting users to Alibaba's digital services.
Image source: https://www.sohu.com/a/390780255_114819

USER LA

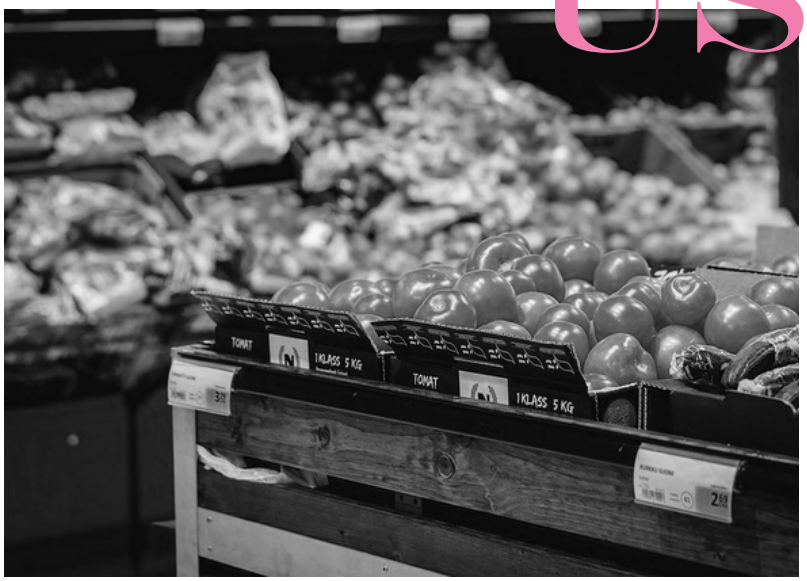

Fig. 3.60, Commodity as Product
Commodities as products on Alibaba are tangible goods transacted through platform-based retail systems.
Image source: https://www.ifanr.com/890279

Fig. 3.62, User Interaction Habits
User interaction habits shape how users navig
Image source: https://www.gizmodo.jp/2018/10/iphone

22

Fig. 3.61, Product
A product on Alibaba is both a commodity and a data node, linking supply chains, customer behavior, and platform intelligence.
Image source: https://kan.china.com/read/3588741.html

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ate and utilize digital services.
-xr-haptic-touch-hands-on.html

Fig. 3.64, User Feedback
User feedback on Alibaba platforms refers to the evaluations, suggestions, and behavioral signals provided by users.
Image source: https://www.sohu.com/a/259687161_99982005

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Fig. 3.65, Customer
A customer on Alibaba platforms is not only a consumer but also a data source shaping personalized services and algorithmic responses.
Image source: https://www.alibabanews.com/alirugugaoxinlingshou-yuoushanglingshoujiruntaijituandachengxinlingshouzhane/

Fig. 3.63, Service as Product
Services on Alibaba function as products when they are standardized, platformized, and delivered with measurable value.
Image source: https://www.jfanr.com/890279

3.3 Black Box of Alibaba Ecosystem

Mechanism and Logic of Alibaba Ecosystem

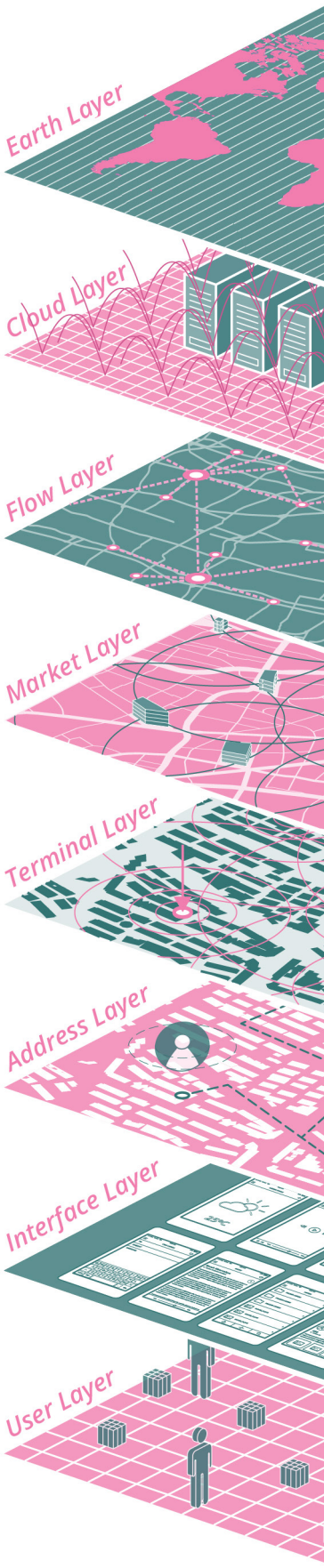
By collecting the inputs of Alibaba's business and implementation strategies, along with the outputs of transitional elements across each Stack layer (see Fig. 3.67), the underlying mechanisms and logic of the Alibaba ecosystem can be inferred (see Fig. 3.66).

The Earth and Cloud layers serve as the geographical and technological foundation upon which all other layers operate. These layers establish the infrastructure for platformization, with the Earth layer representing physical spatial conditions and the Cloud layer embodying digital networks, algorithms, and data storage.

The Flow, Market, and Terminal layers collectively structure the production system, as they define the logic of how a product is produced, distributed, and scaled. The Flow layer governs the movement of labour, goods, information, and cash; the Market layer regulates exchanges and economic transactions; and the Terminal layer represents the interfaces and endpoints where production materializes into tangible or digital commodities. Throughout this system, products are designed not only for functionality but also to engage users, foster brand growth, and create self-reinforcing advertising loops.

On the other hand, the Address, Interface, and User layers program the consumption system, shaping human perception, behavior, and decision-making. The Address layer organizes spatial and digital accessibility, determining how consumers encounter products and services. The Interface layer mediates interaction between users and platforms, influencing cognitive responses through UX/UI design, recommendation algorithms, and personalized content. The User layer represents individual and collective consumption behaviors, molded by algorithmic curation and social influences.

At a macro level, all eight layers are interconnected through data flows, as the system continuously collects, processes, and utilizes information. This data is leveraged to optimize platform operations, refine predictive algorithms, and drive targeted advertising, ultimately reinforcing the cycle of production and consumption in the accelerated platform era.



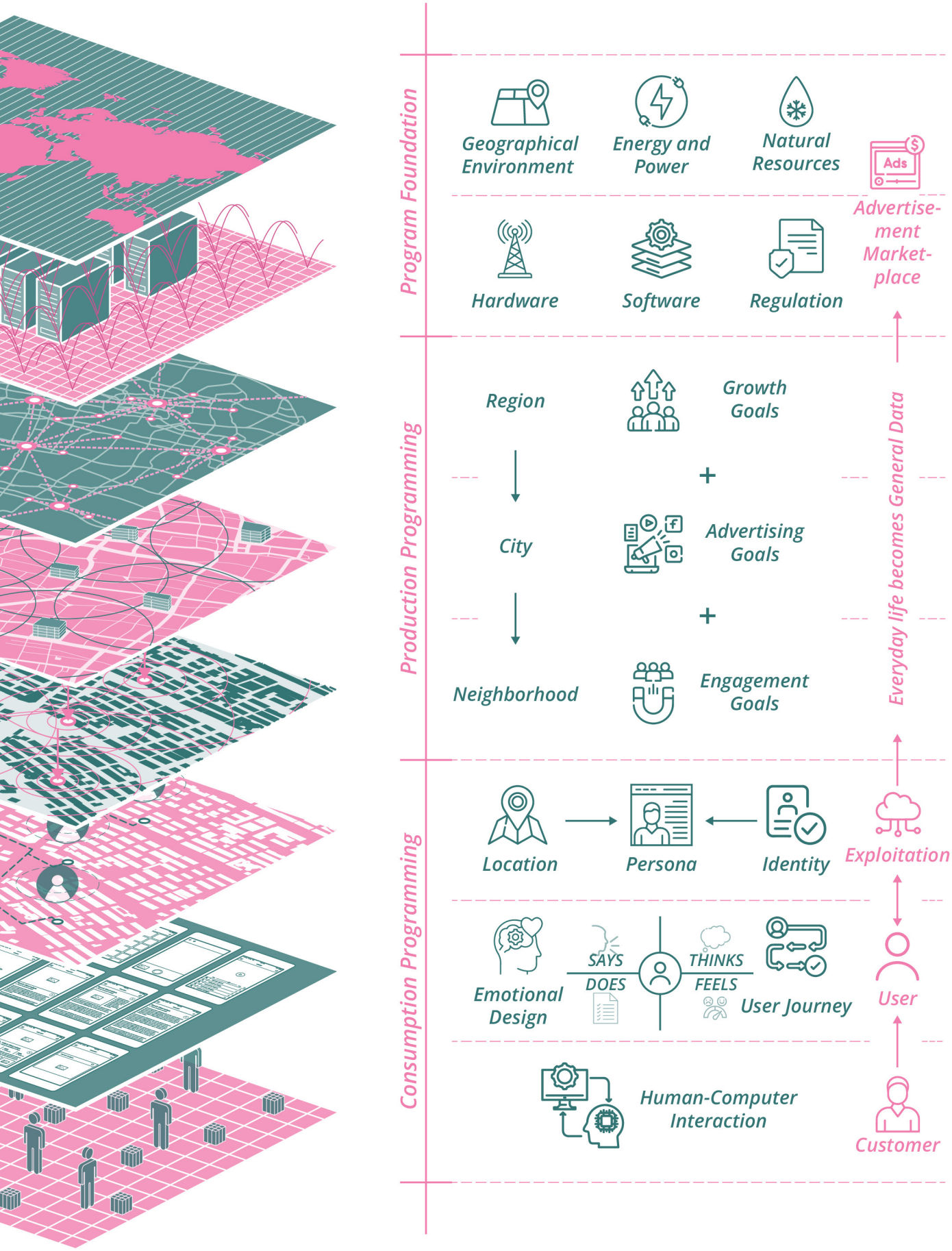
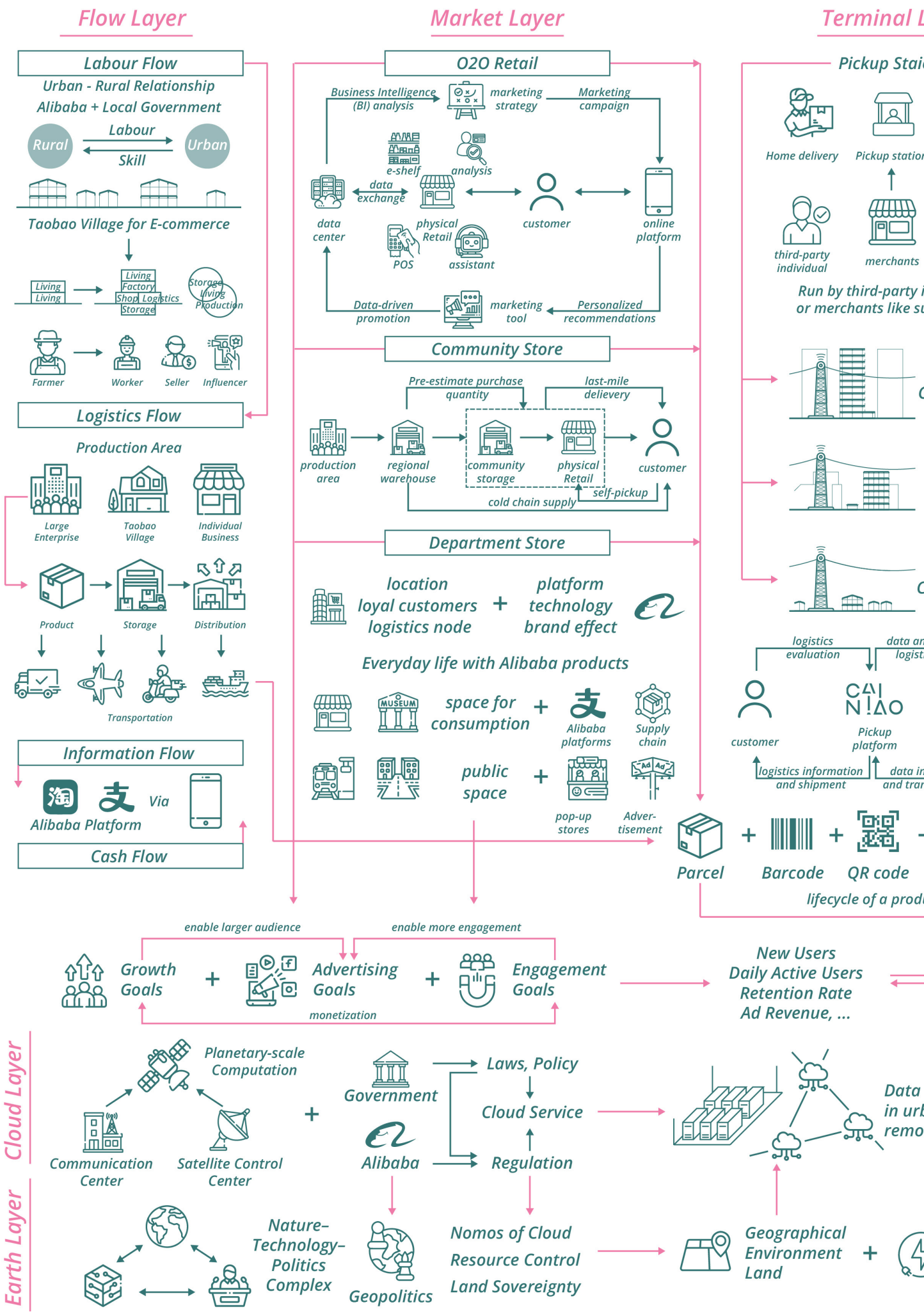


Fig. 3.66, Mechanism and Logic of Alibaba Ecosystem


Flow Layer
Labour Flow
Urban - Rural Relationship
Alibaba + Local Government
Rural
Labour
Skill
Urban
Taobao Village for E-commerce
Living
Living
Living
Factory
Shop Logistics
Storage
Storage
Living
Production
Farmer
Worker
Seller
Influencer
Logistics Flow
Production Area
Large Enterprise
Taobao Village
Individual Business
Product
Storage
Distribution
Transportation
Information Flow
Via
Alibaba Platform
Cash Flow
Market Layer
O2O Retail
Business Intelligence (BI) analysis
marketing strategy
Marketing campaign
e-shelf
analysis
data exchange
data center
physical Retail
customer
online platform
POS
assistant
Data-driven promotion
marketing tool
Personalized recommendations
Community Store
Pre-estimate purchase quantity
last-mile delievery
production area
regional warehouse
community storage
physical Retail
customer
cold chain supply
self-pickup
Department Store
location
loyal customers
logistics node
+
platform
technology
brand effect
Everyday life with Alibaba products
space for consumption
+
Alibaba platforms
Supply chain
public space
+
pop-up stores
Adver-tisement
Terminal L
Pickup Stai
Home delivery
Pickup station
third-party individual
merchants
Run by third-party
or merchants like su
logistics evaluation
customer
Pickup platform
logistics information and shipment
Parcel
+
Barcode
+
QR code
lifecycle of a prod
enable larger audience
enable more engagement
Growth Goals
+
Advertising Goals
+
Engagement Goals
monetization
New Users
Daily Active Users
Retention Rate
Ad Revenue, ...
Cloud Layer
Planetary-scale Computation
Communication Center
Satellite Control Center
+
Government
Alibaba
Laws, Policy
Cloud Service
Regulation
Data
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Earth Layer
Nature–Technology–Politics Complex
Geopolitics
Nomos of Cloud
Resource Control
Land Sovereignty
Geographical Environment Land
+

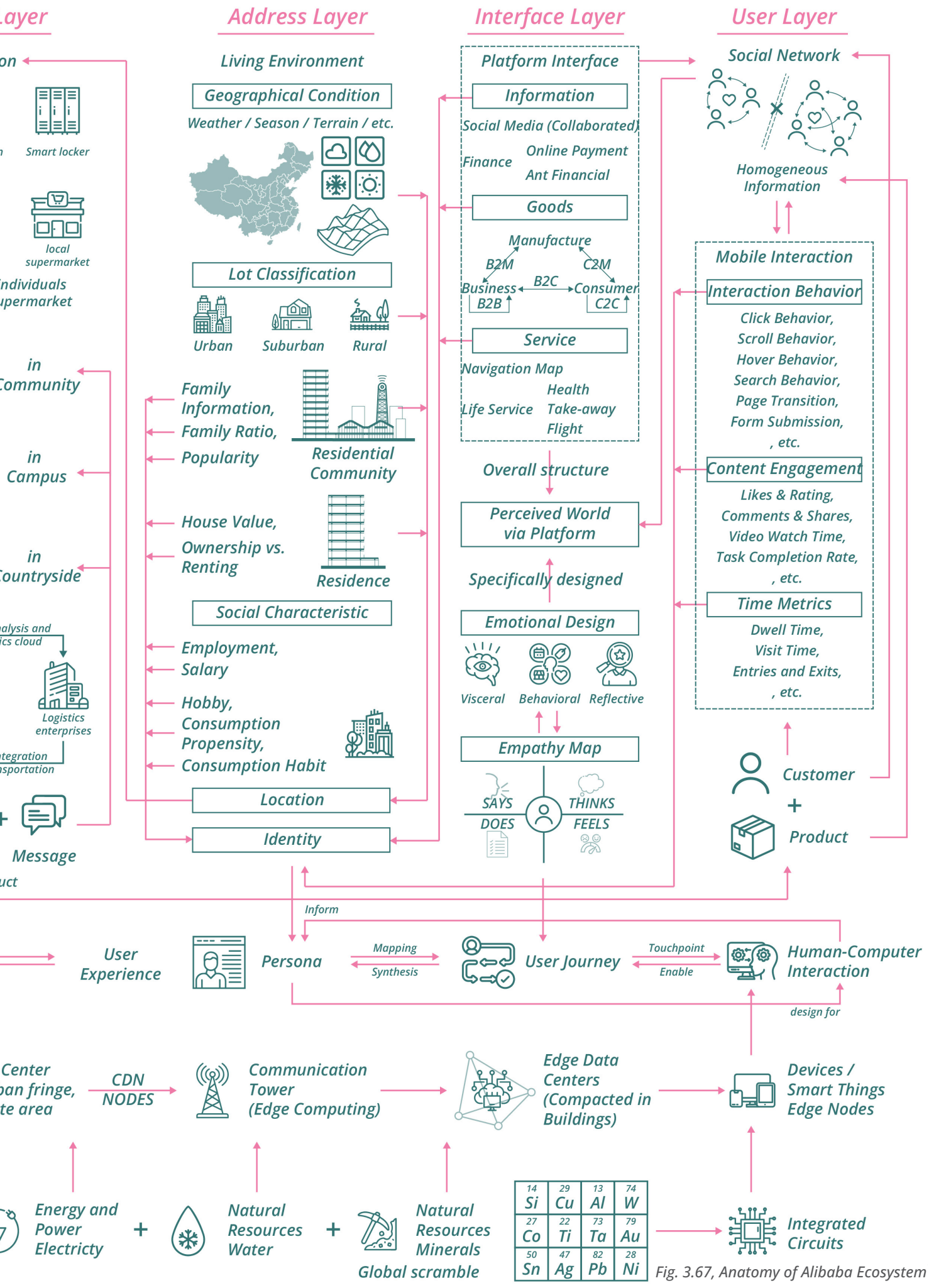

Fig. 3.67, Anatomy of Alibaba Ecosystem

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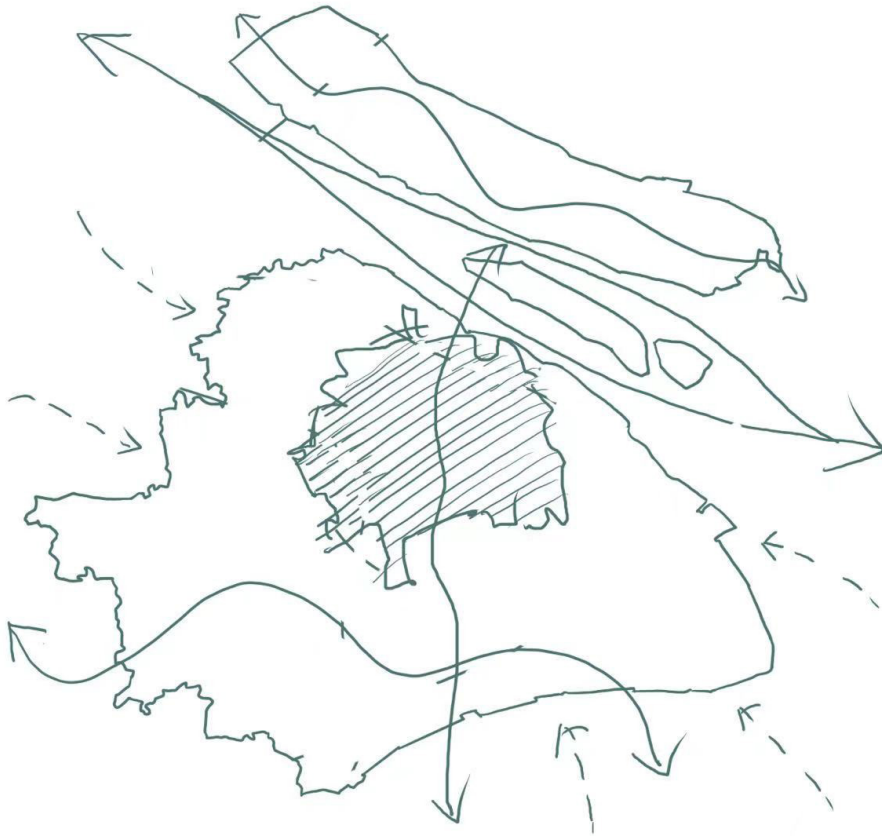
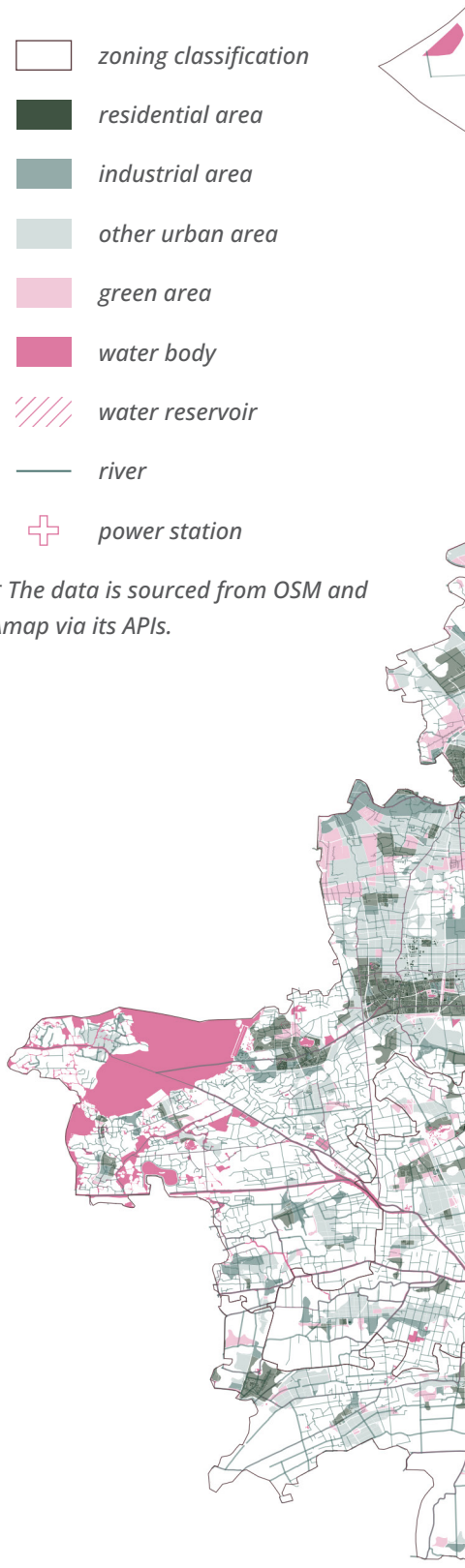
4.1 Tracing Alibaba's Stack in Shanghai

Programming Foundation - Earth Layer

As a consumption-oriented city, Shanghai's urban development is organized along the Huangpu River. Fig. 4.1 shows the eastern area (Pudong New District) and the northern area (Chongming Island) serve as the city's main power production zones. but due to the city's commercial orientation, combined with its flat terrain and limited natural resources, Shanghai is highly dependent on the transportation of external energy and materials to operate the Stack system.





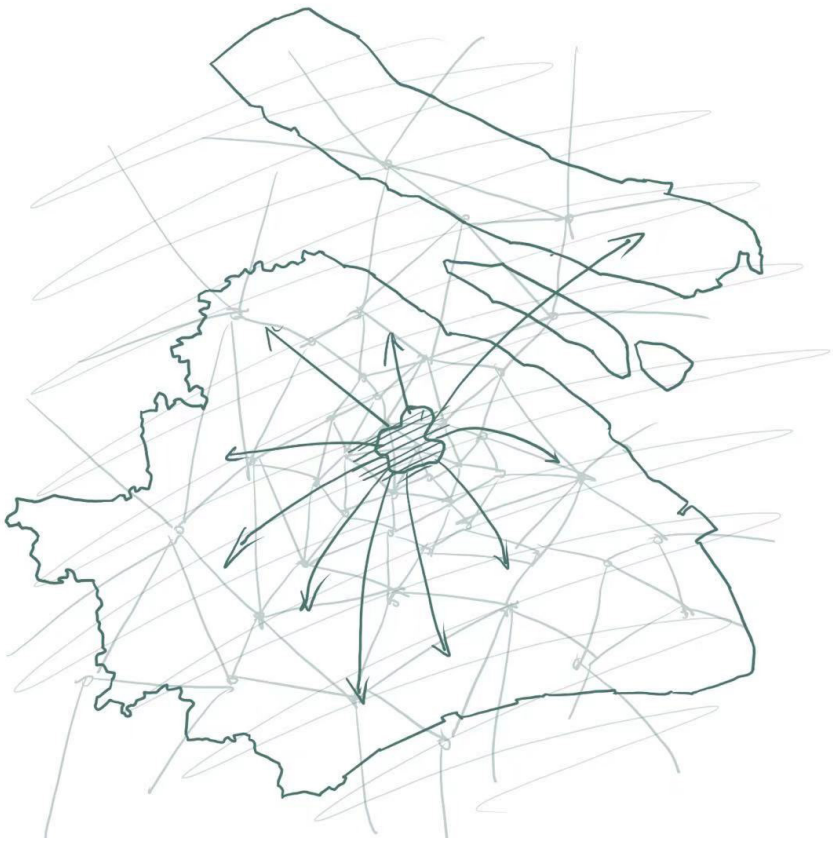
** The data is sourced from OSM and Amap via its APIs.*

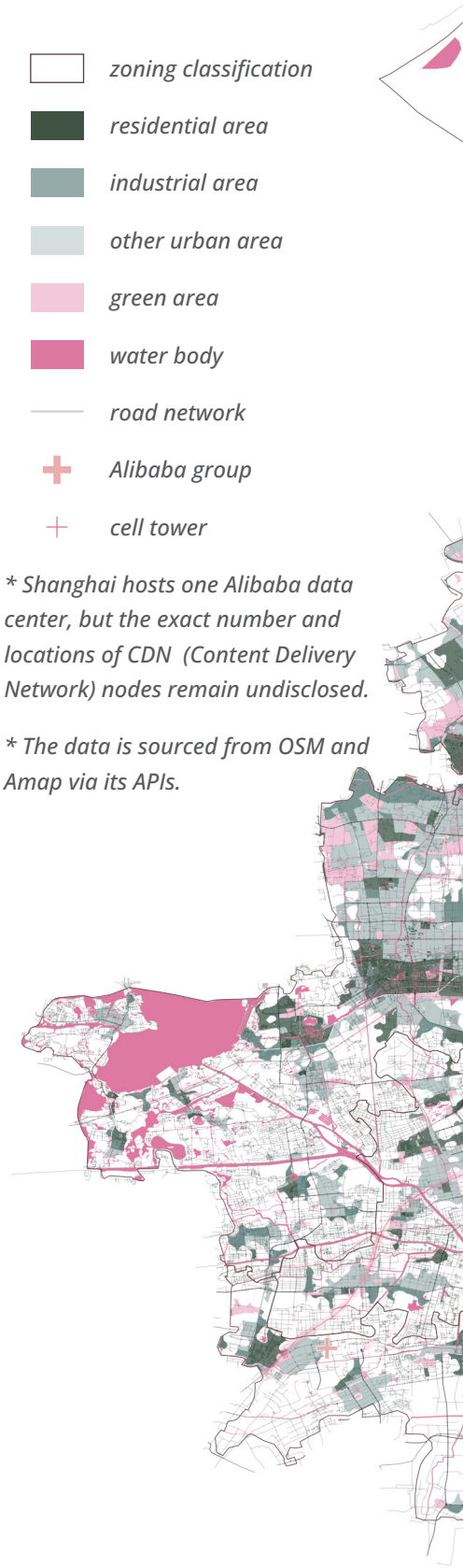
Fig. 4.2, Diagram of Alibaba's earth layer in Shanghai

Fig. 4.1, Mapping of Alibaba's earth layer in Shanghai

Programming Foundation - Cloud Layer

The exact location of Alibaba's data center in Shanghai has not been publicly disclosed. However, it could be deduced that it is situated in the eastern coastal area, far from the city center. As shown in Fig. 4.3, Alibaba's commercial buildings and other urban sites host distributed edge computing facilities. And cell towers, whose spatial distribution largely aligns with the road network, show the highest density in the city center. Although there is no publicly available data on transmission hardware such as the fiber optic network, it is likely that such infrastructure spans across the entire city (see fig. 4.4). Together, these digital infrastructures, supported by the natural resources, energy, and land of the Earth layer, ensure the operation of planetary computing systems.





** Shanghai hosts one Alibaba data center, but the exact number and locations of CDN (Content Delivery Network) nodes remain undisclosed.*

** The data is sourced from OSM and Amap via its APIs.*

Fig. 4.4, Diagram of Alibaba's cloud layer in Shanghai

Fig. 4.3, Mapping of Alibaba's cloud layer in Shanghai

Production Programming - Flow Layer

Since 2012, Shanghai has promoted delivery standards, optimized traffic policies, and improved logistics efficiency, service capabilities, and traffic management for urban delivery logistics. In the following planning phases, five main logistics parks (see fig. 4.5) were established: the Waigaoqiao Free Trade Zone Logistics Park, Pudong Airport Logistics Park, Yangshan Deepwater Port Logistics Park, Northwest Integrated Logistics Park, and Southwest Integrated Logistics Park. These parks were designed to support different types of logistics operations. A National Express Delivery Industry Transformation and Development Demonstration Zone was also established to ensure connectivity between the city center and surrounding urban areas.

Fig. 4.5, Mapping of the planning of flow layer in Shanghai

Production Programming - Flow Layer

As a port city and logistics hub, Shanghai's logistics and transportation rely heavily on its ports and railways. The ports are mainly concentrated along the Huangpu River, while the railway network covers major cities across the country. At the same time, storage and distribution hubs are primarily located on the outskirts of the city to ensure efficient logistics operations (see fig. 4.6).

In the southern parts of Shanghai, such as in Jinshan District and Fengxian District, there are several Taobao villages in collaboration between Alibaba and local governments, primarily engaged in e-commerce retail. The number of these Taobao villages has been steadily increasing year by year.

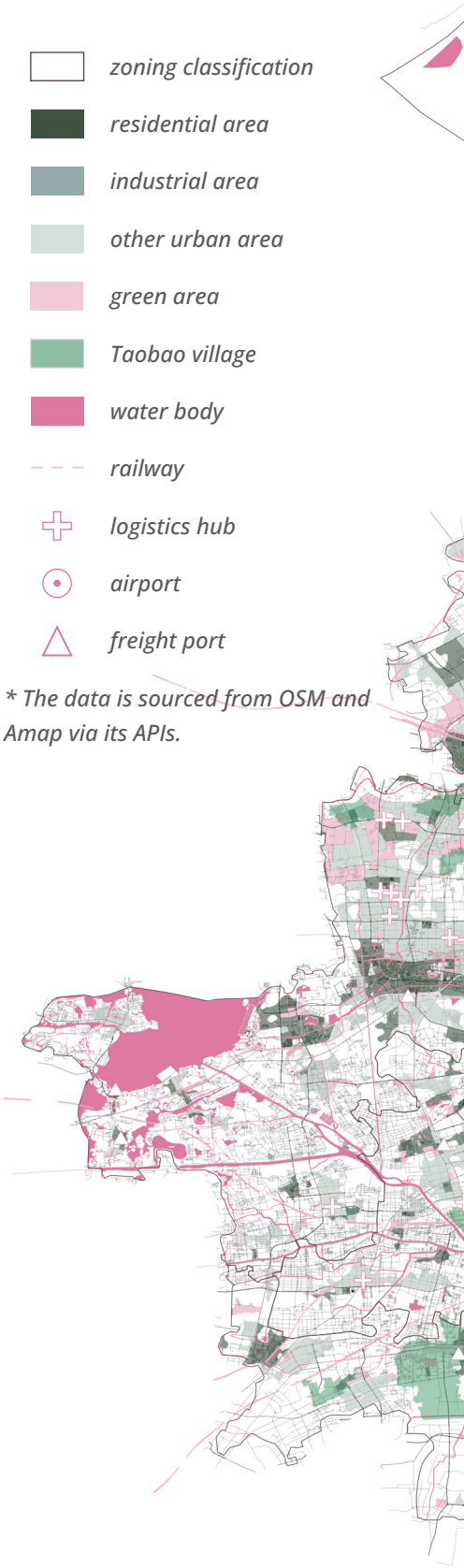


Fig. 4.7, Diagram of Alibaba's flow layer in Shanghai

Fig. 4.6, Mapping of Alibaba's flow layer in Shanghai

Production Programming - Market Layer

Alibaba's business operations target different consumer groups through vertical segmentation, covering all living environments in Shanghai. Through its brand effect, and the e-commerce logistics network that has accumulated supply chains and warehousing, Alibaba has quickly opened up the market.

Shanghai is also a testbed for Alibaba's digital transformation. Since 2016, Alibaba's O2O (online-to-offline) business, Freshippo, has been established in the city. Its business primarily operates on an offline experience with online purchasing model. As shown in Fig. 4.8, the distribution of its flagship stores almost covers all residential areas, with many located in high betweenness areas at the city scale.

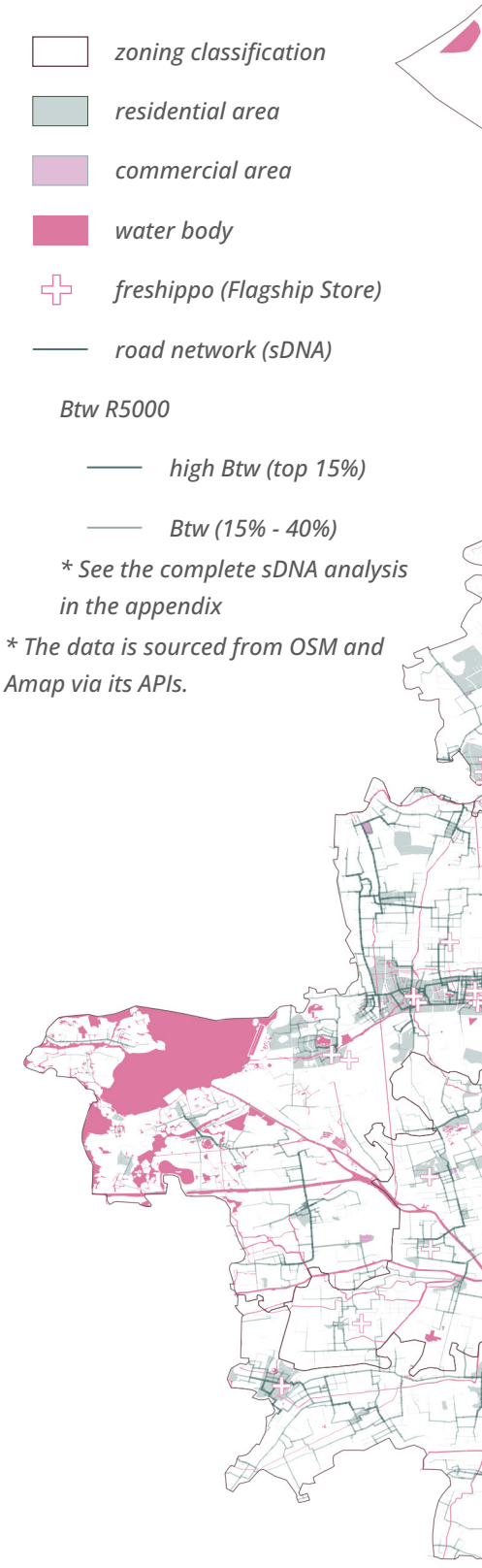


Fig. 4.8, Mapping of Alibaba's market layer at the city scale in Shanghai

Production Programming - Market Layer

Since 2018, Freshippo introduced its new model, Freshippo NB, which focuses on neighborhood and lower-tier markets. As shown in Fig. 4.9, the distribution of Freshippo NB is mainly concentrated in the remote areas outside the city center, often located in high betweenness areas at the neighborhood scale.

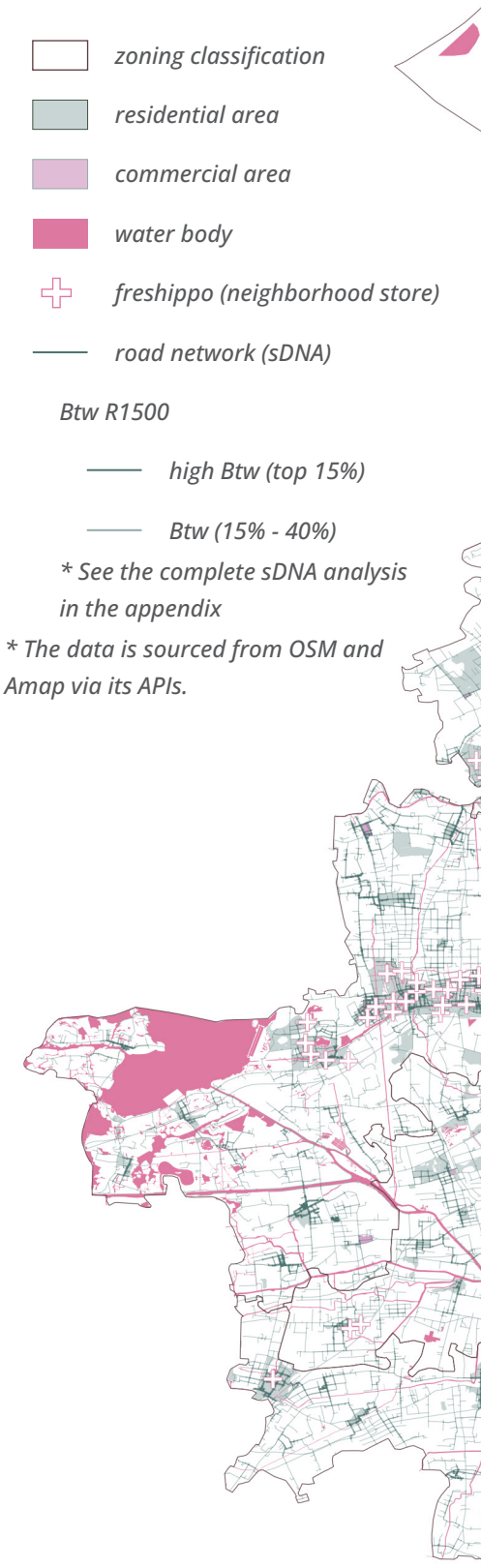


Fig. 4.10, Diagram of Alibaba's market layer in Shanghai

Fig. 4.9, Mapping of Alibaba's market layer at the neighborhood scale in Shanghai

Production Programming - Terminal Layer

Cainiao is Alibaba's last-mile logistics service platform, launched in 2015, providing consumers with convenient services such as parcel pickup, delivery, and return. Closely integrated with Alibaba's e-commerce and O2O business models, Cainiao has become an essential component of the company's logistics ecosystem. As shown in Fig. 4.11, there are 2,115 Cainiao pickup stations in Shanghai, distributed across almost all residential area, both urban and rural, as well as university campuses. These pick up stations have effectively become standard infrastructure in residential area and campuses.

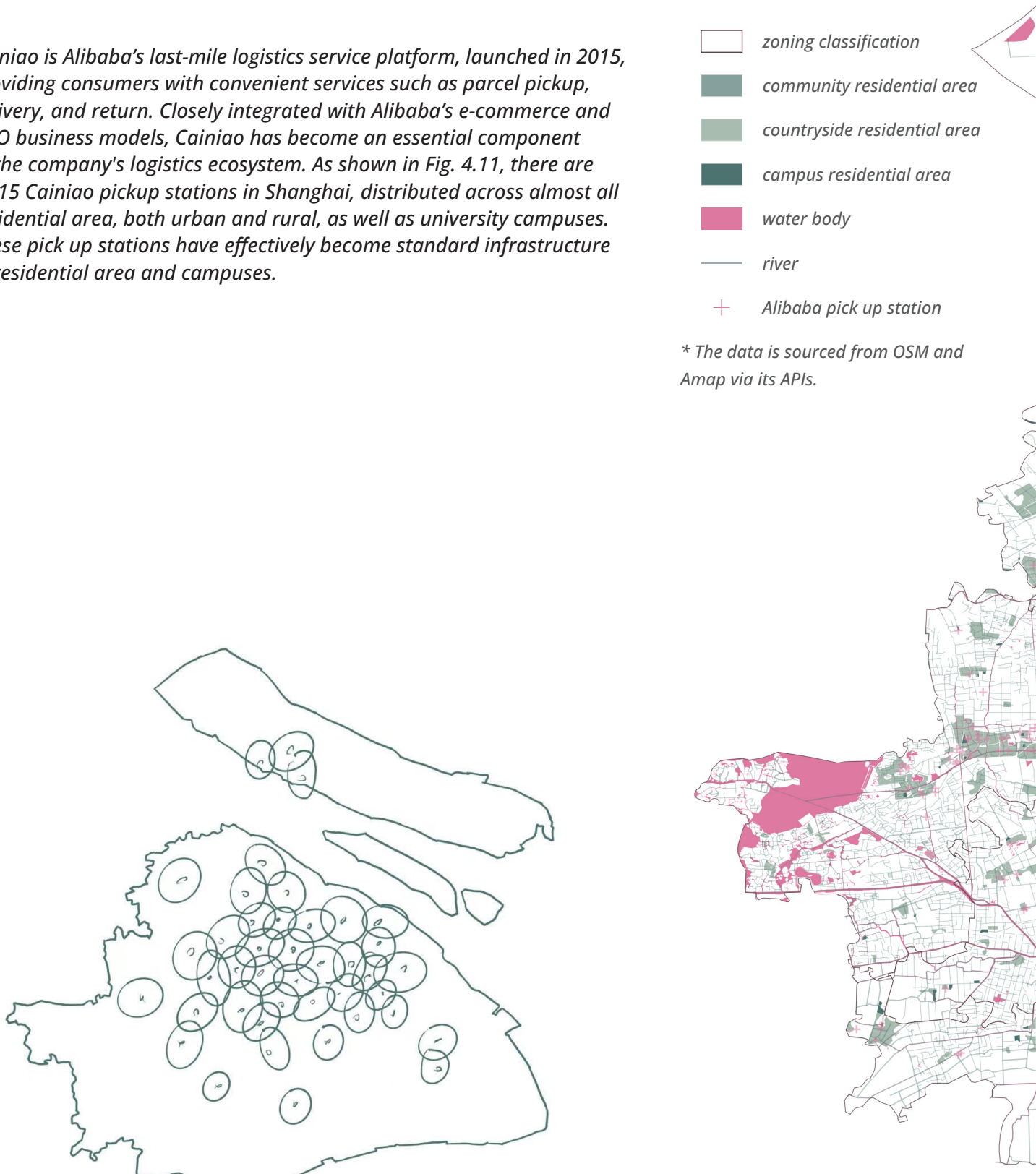
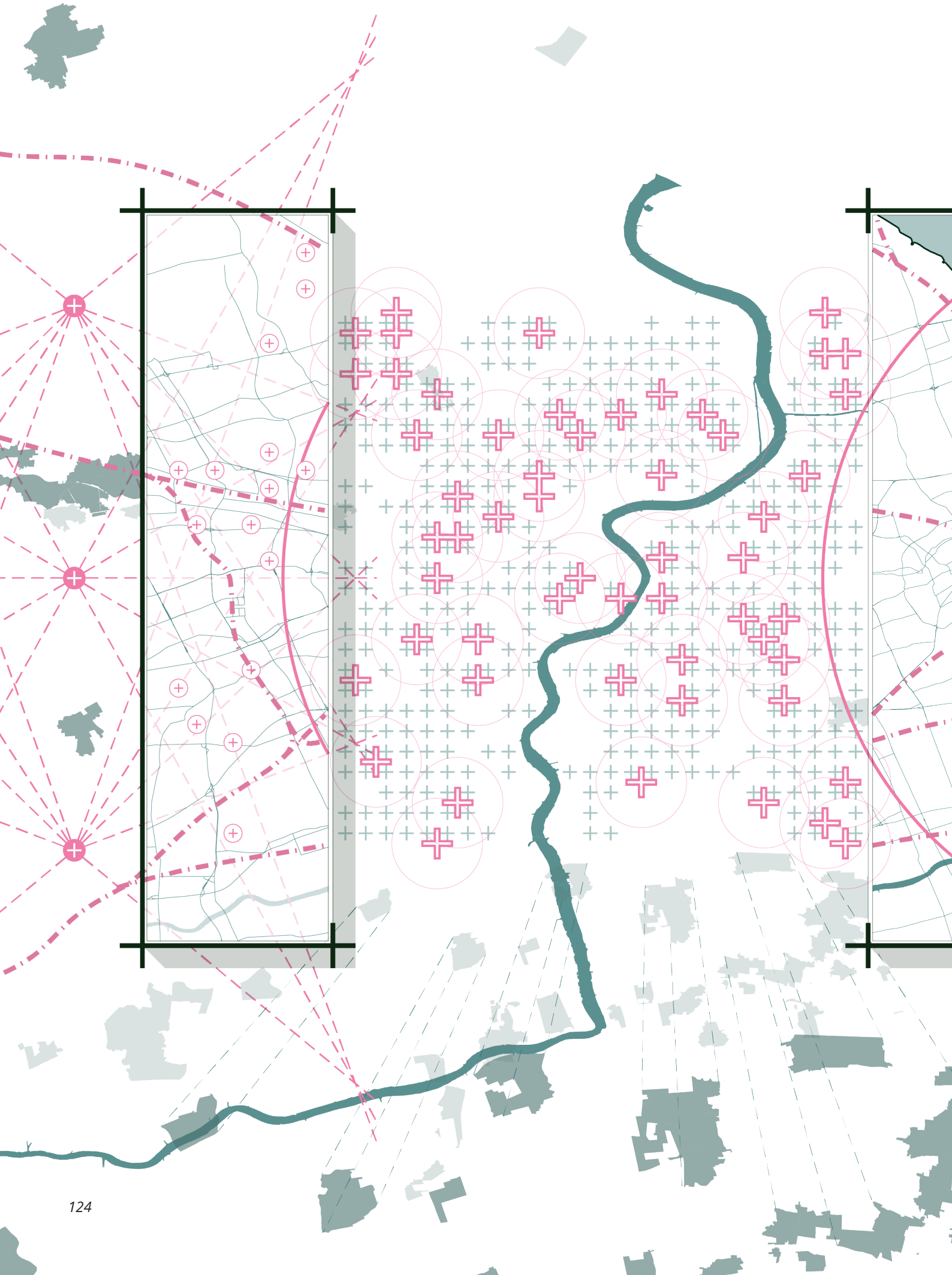


Fig. 4.12, Diagram of Alibaba's terminal layer in Shanghai

Fig. 4.11, Mapping of Alibaba's terminal layer in Shanghai



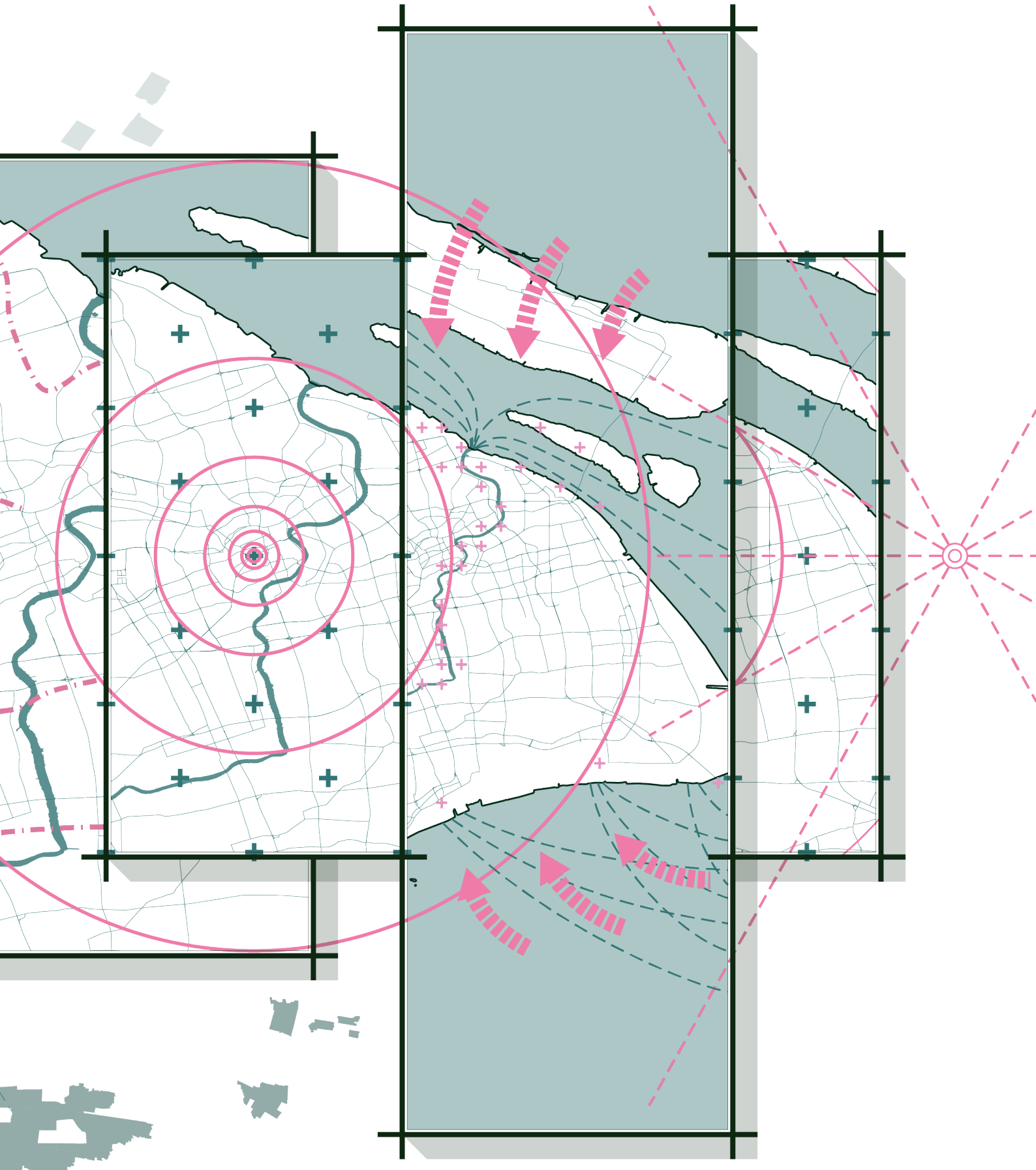
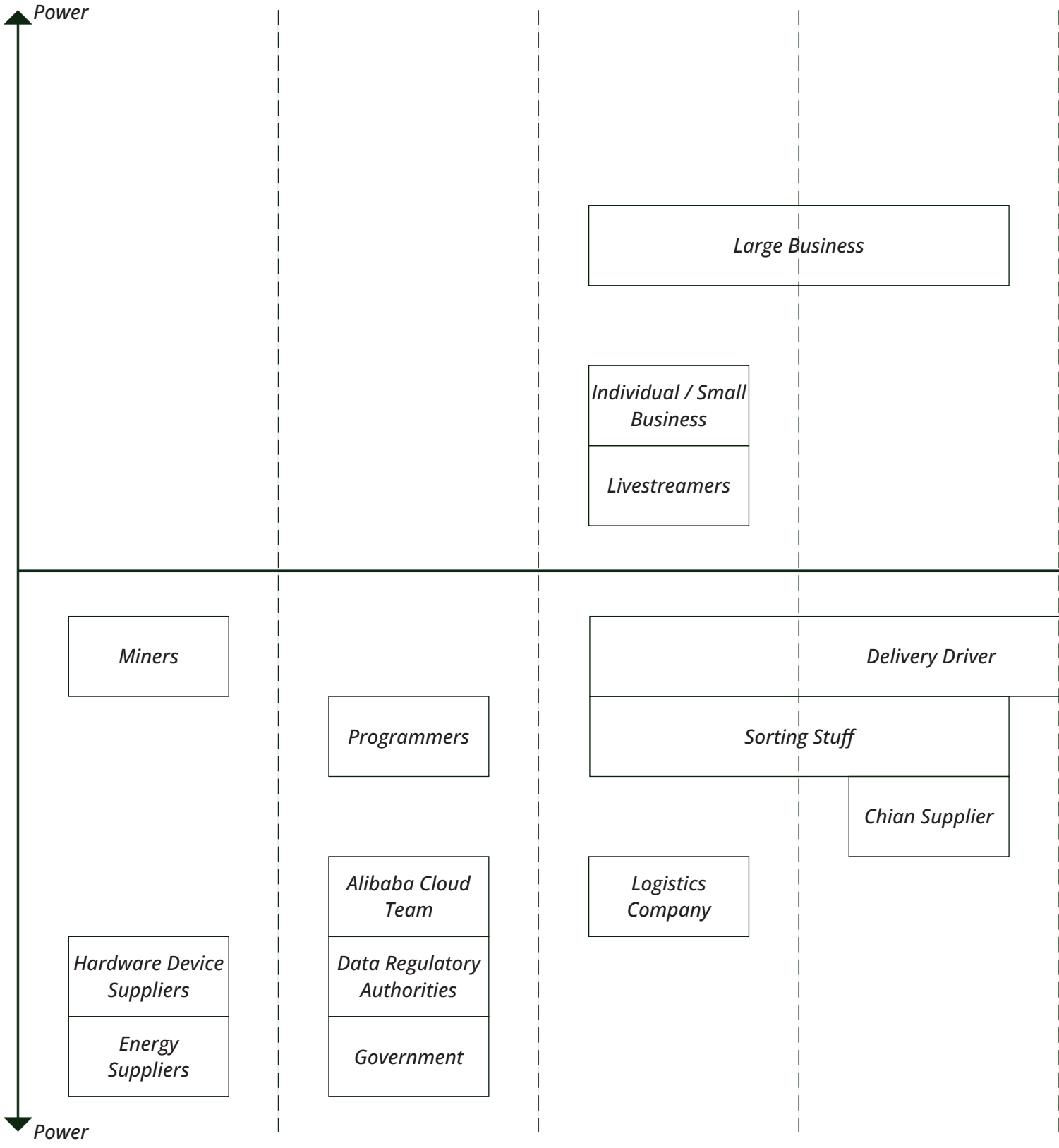


Fig. 4.13, Alibaba's program in Shanghai's production system

4.2 Profiling Alibaba's Users in Shanghai

To analyze how different actors interact with Alibaba's stack, the participants in the exchange process are categorized into Front Stage and Back Stage, following Goffman's dramaturgical framework (1959) (see Fig. 4.13). The Front Stage represents the domain where customers directly interact with the stack, which is visible and accessible to them. In contrast, the Back Stage refers to the hidden layers of internal operations, where production and consumption are programmed and managed, remaining largely invisible to end users.



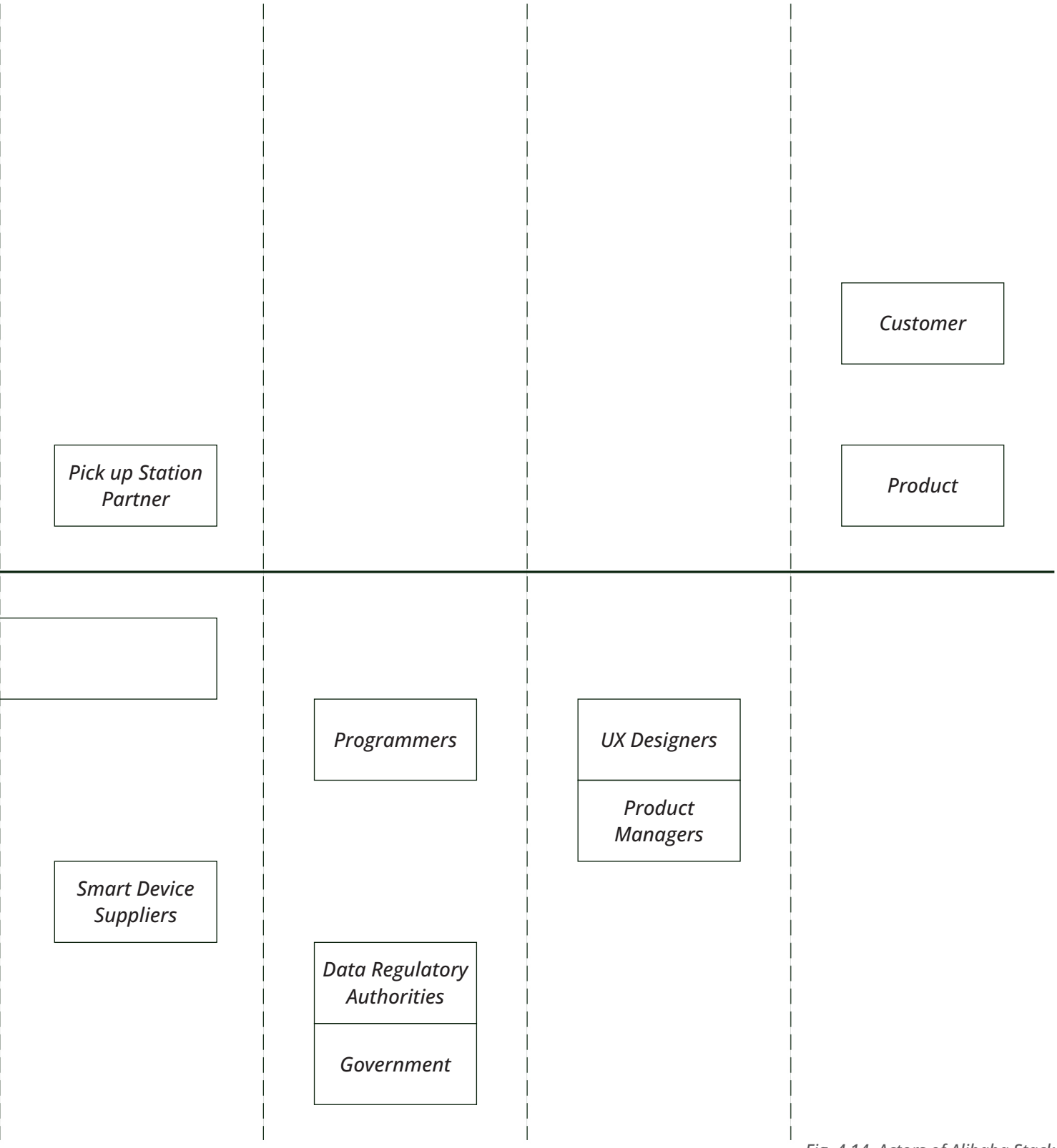
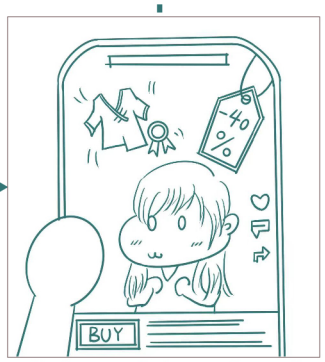


Fig. 4.14, Actors of Alibaba Stack



sell through broadcasting

O2O shopping

supply products from village

supply products from mall

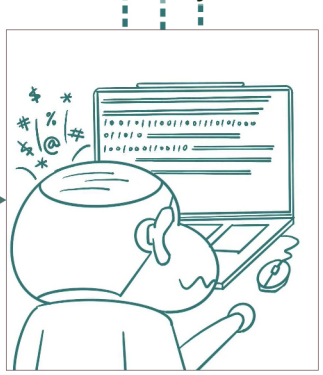
Earth Layer

Cloud Layer

Flow Layer

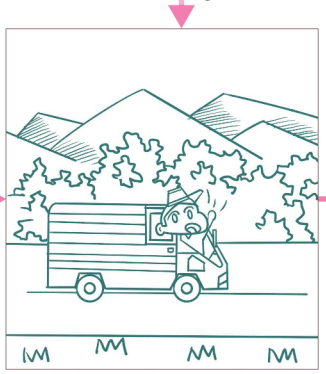
Market Layer

extract materials



program system

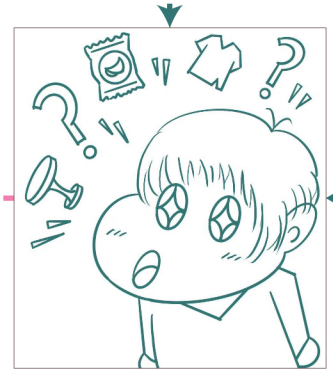
transport the product



deliver the product

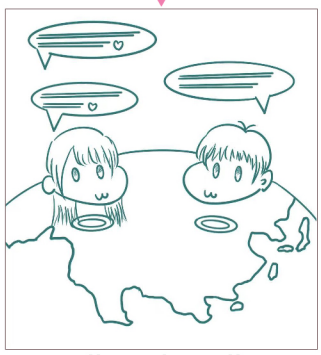
provide energy

organize inventory



want to buy something

look up online



talk to the seller

comment and feedback

place an order

get the product

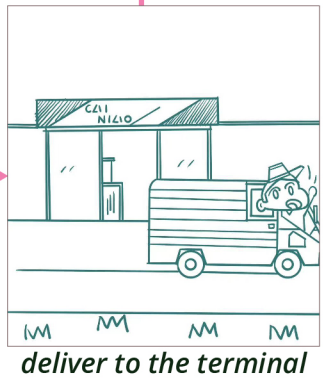
pick up at the terminal

Terminal Layer

Address Layer

Interface Layer

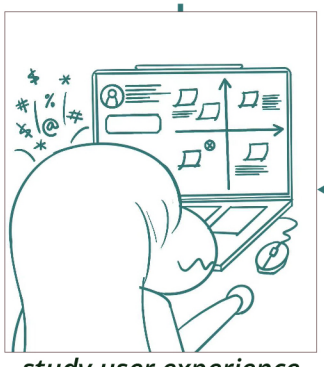
User Layer



deliver to the terminal

build the platform

analyze insights



study user experience

Customer Flow

Product Flow

Information Flow

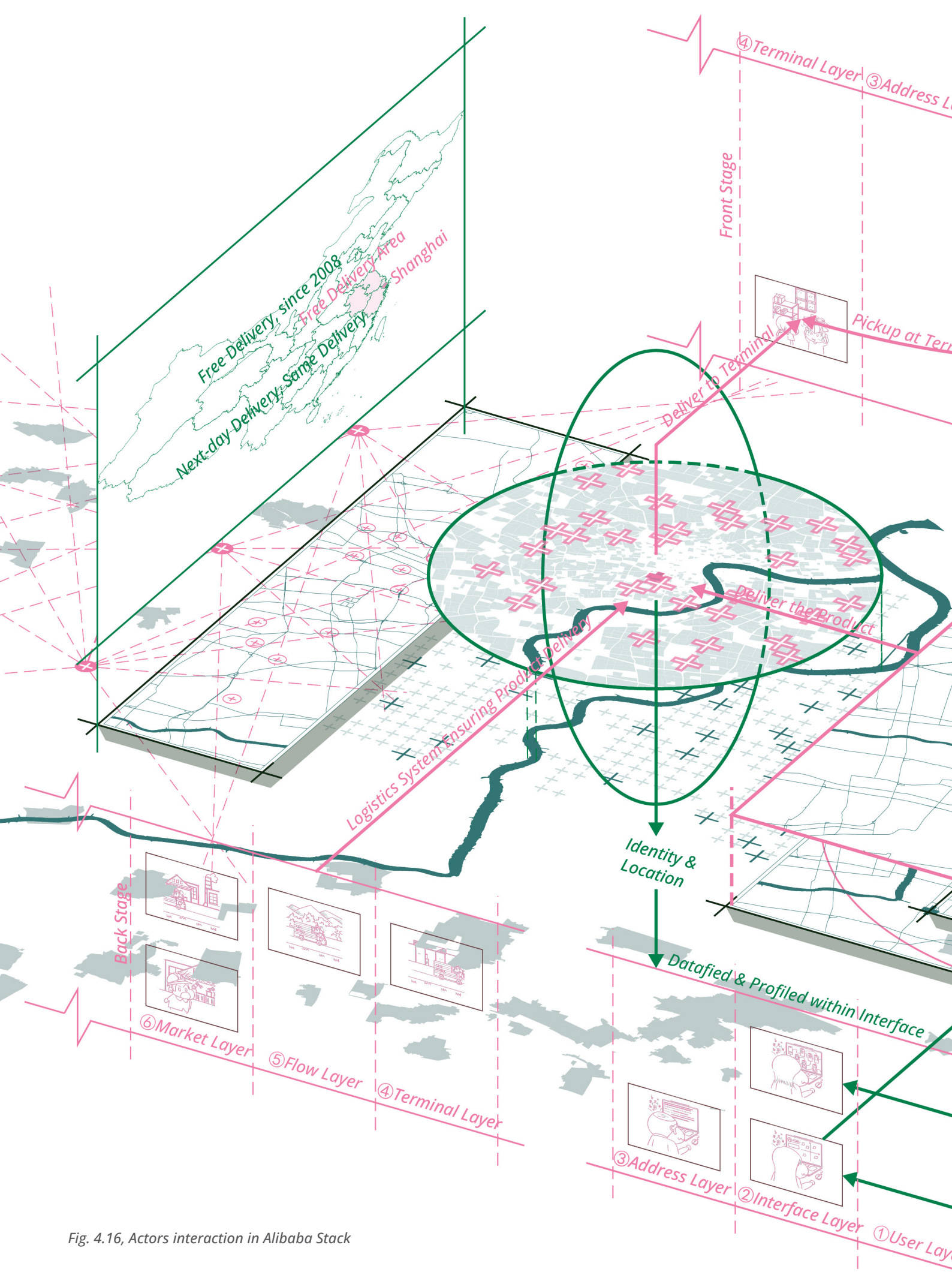
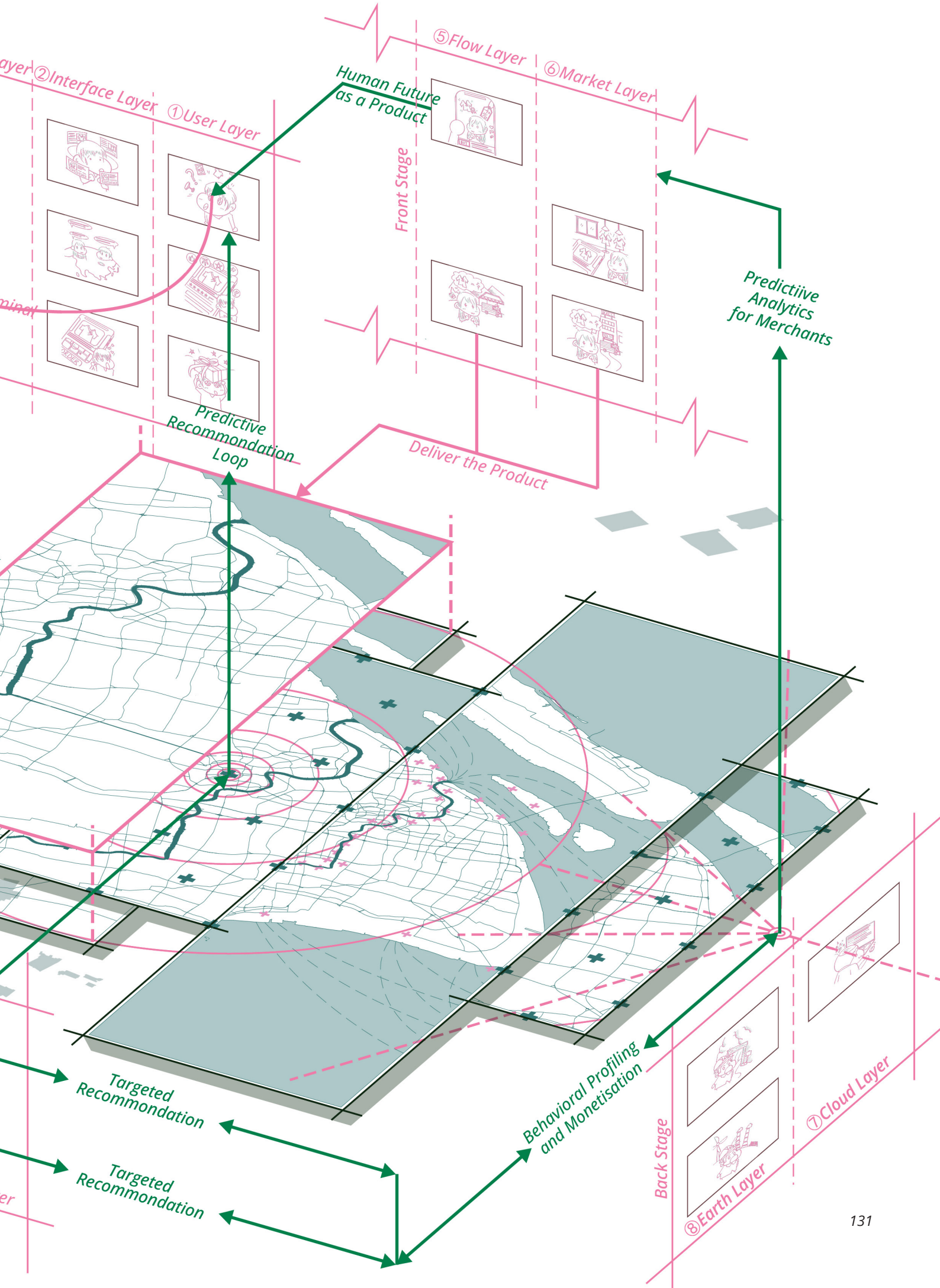


Fig. 4.16, Actors interaction in Alibaba Stack


⑤Flow Layer
⑥Market Layer
②Interface Layer
①User Layer
Human Future as a Product
Front Stage
Predictiive Analytics for Merchants
Predictive Recommondation Loop
Deliver the Product
Targeted Recommondation
Targeted Recommondation
Behavioral Profiling and Monetisation
Back Stage
⑦Cloud Layer
⑧Earth Layer

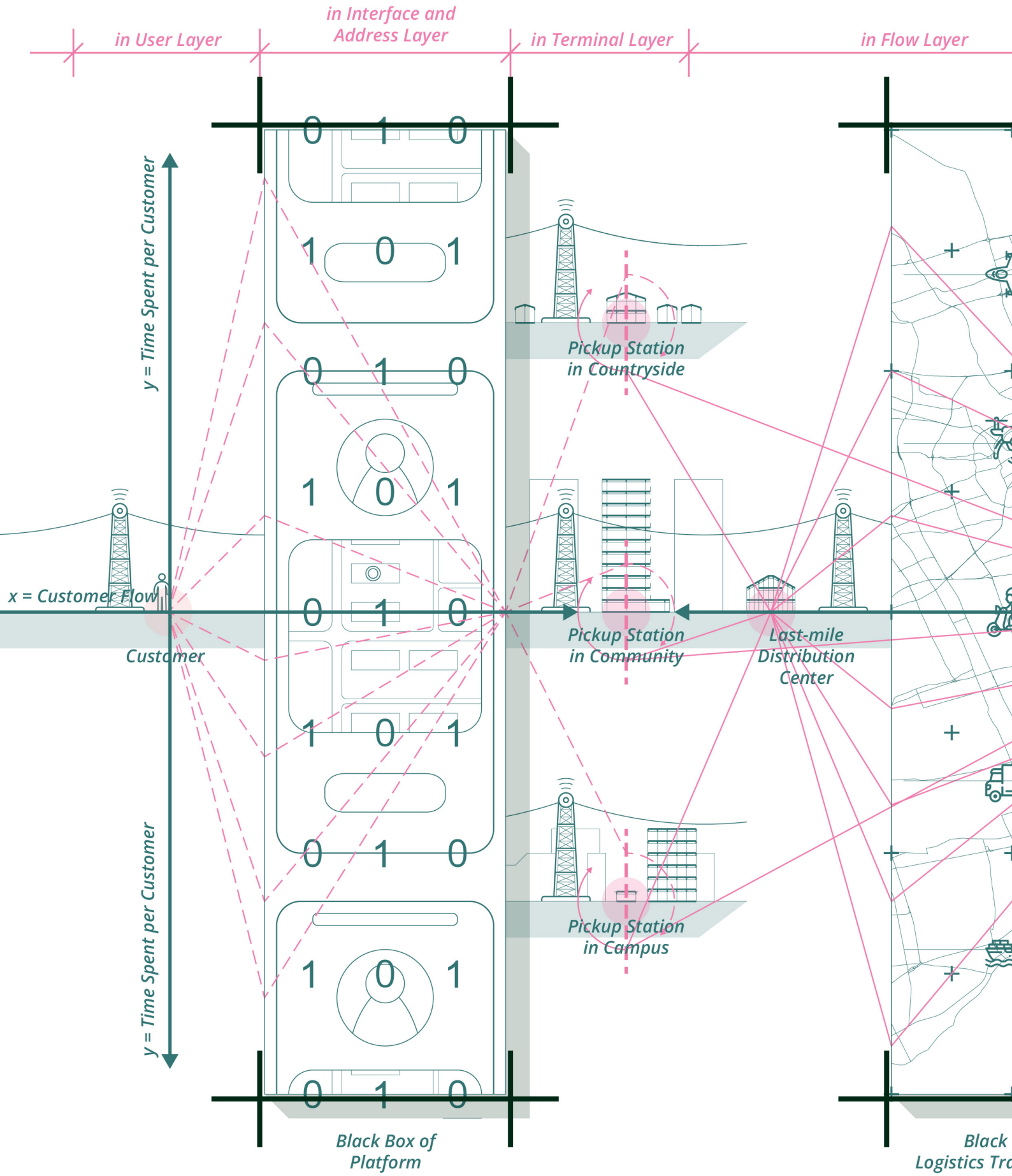
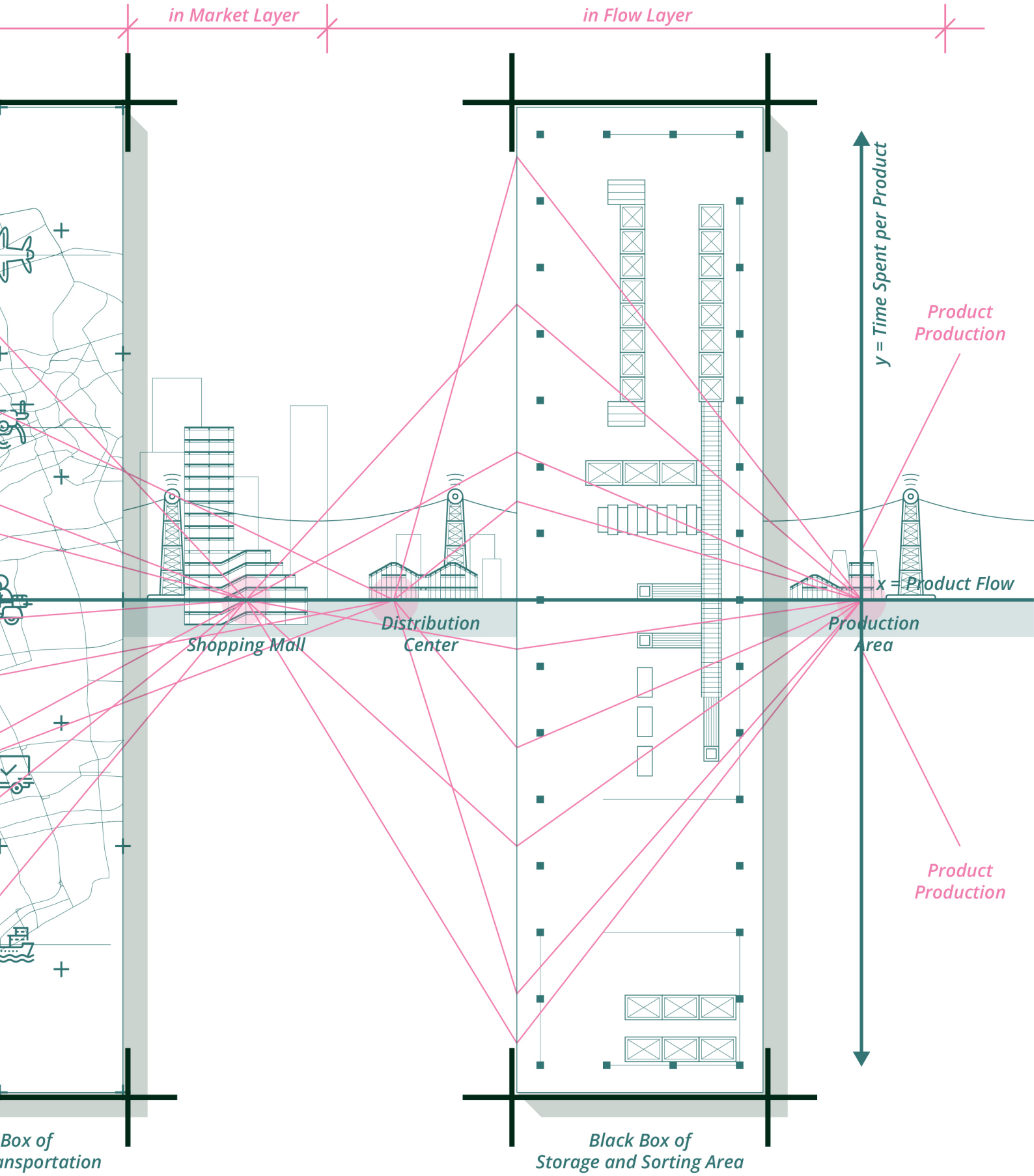
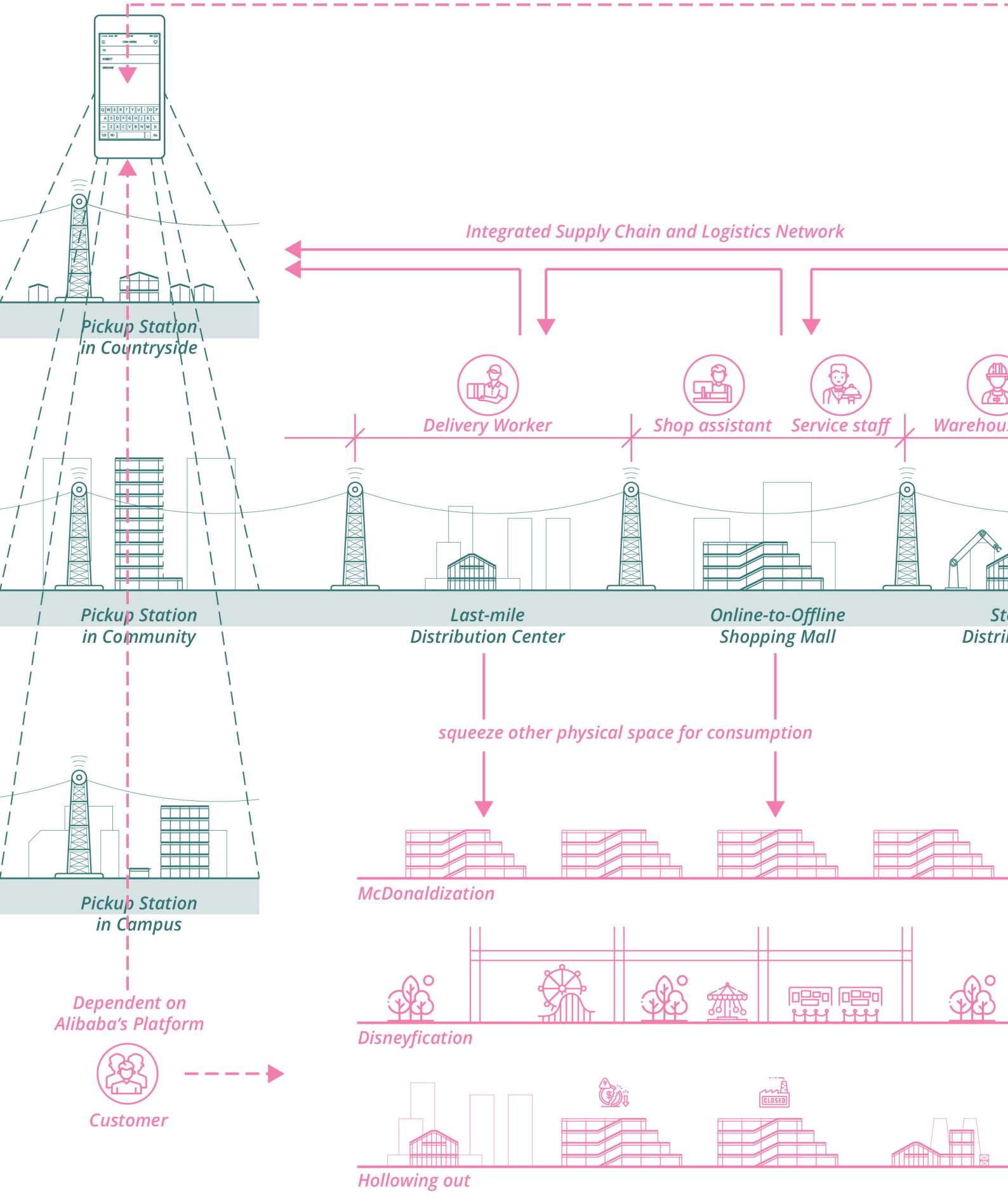


Fig. 4.17, Actors time-space interaction in Alibaba Stack


in Market Layer
in Flow Layer
y = Time Spent per Product
Product Production
x = Product Flow
Shopping Mall
Distribution Center
Production Area
Product Production
Box of ansportation
Black Box of Storage and Sorting Area

4.3 Decoding Alibaba's imprint in Shanghai



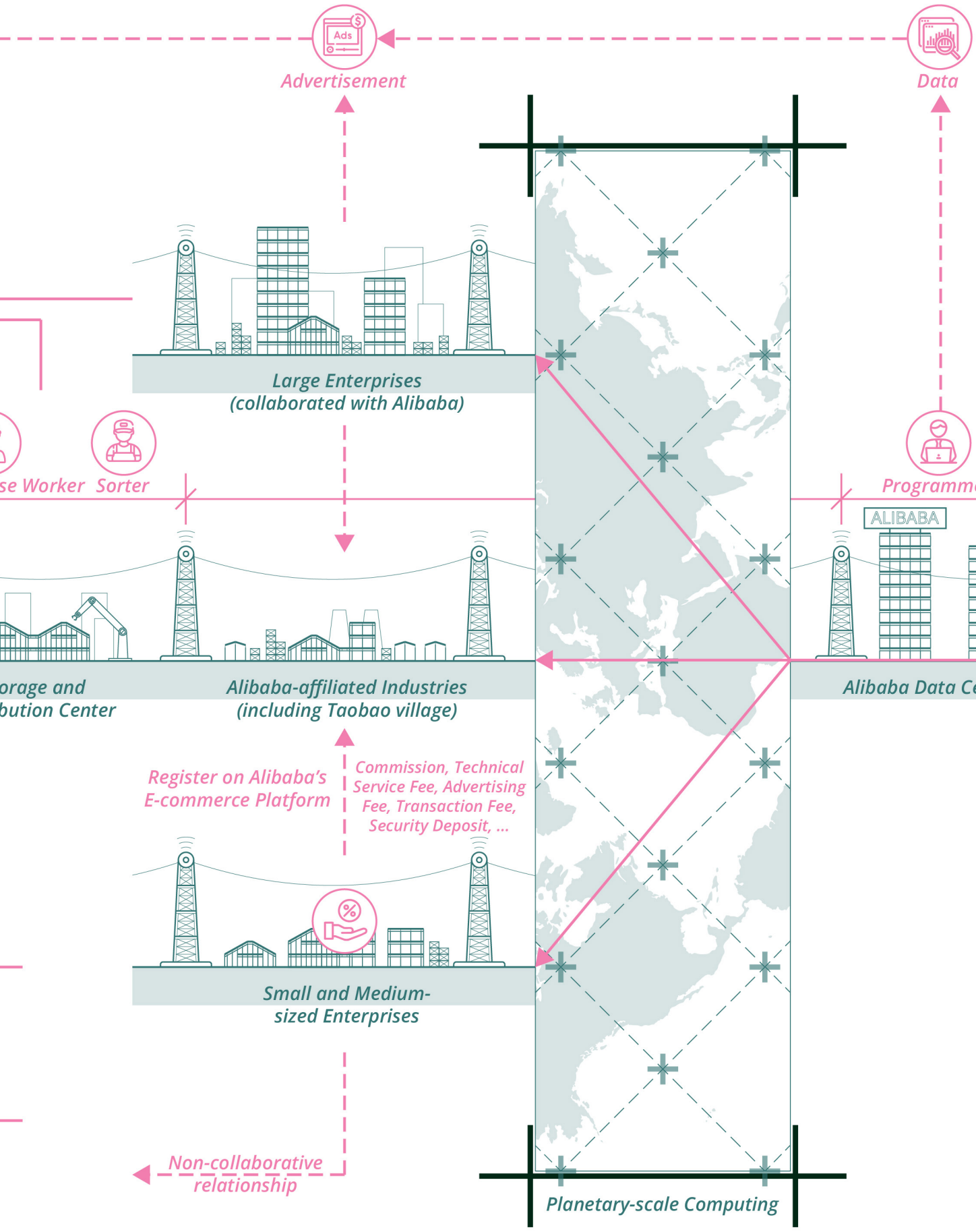
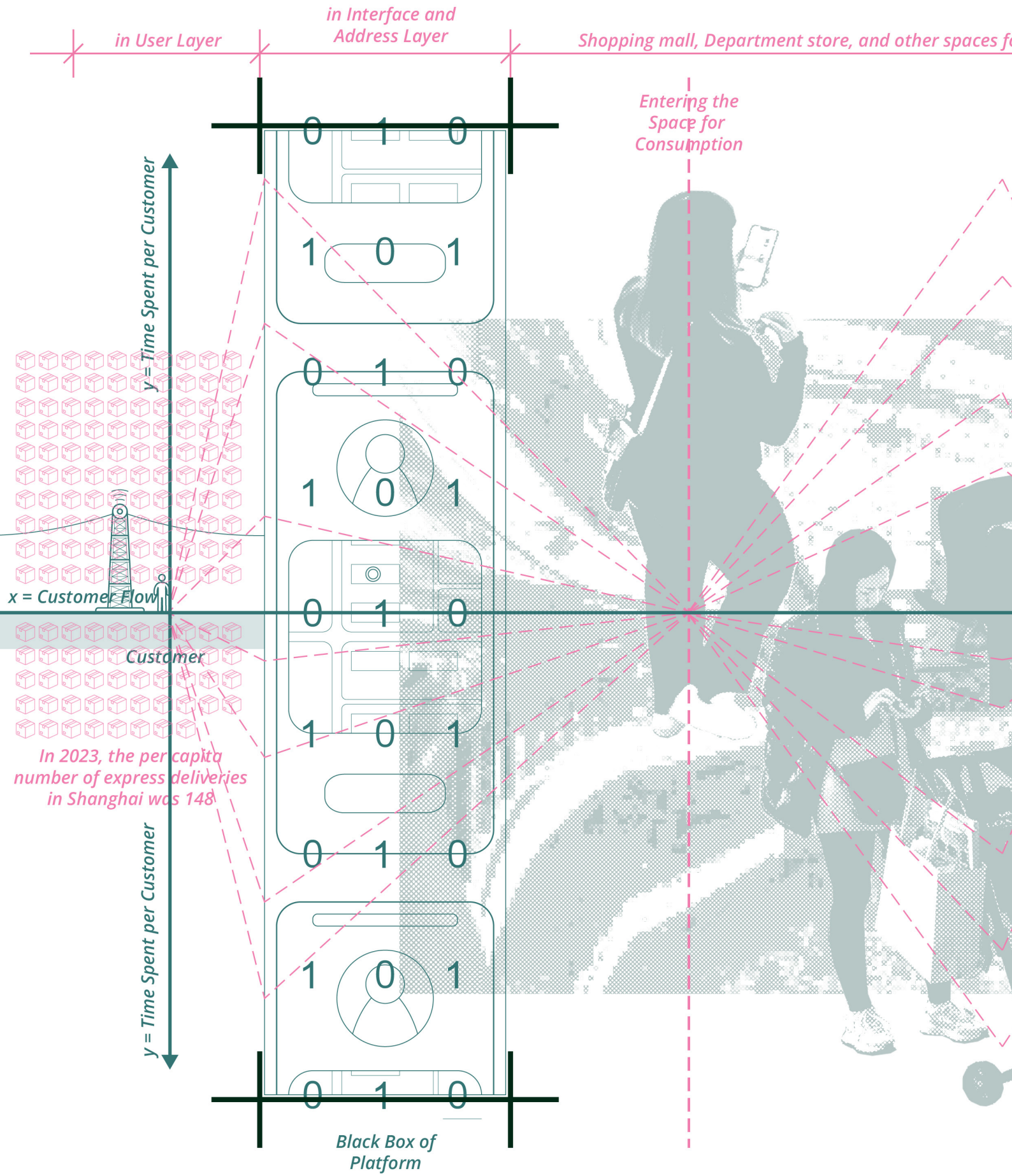


Fig. 4.18, Alibaba's production program in Shanghai


in User Layer
in Interface and Address Layer
Shopping mall, Department store, and other spaces fo
Entering the Space for Consumption
y = Time Spent per Customer
x = Customer Flow
Customer
In 2023, the per capita number of express deliveries in Shanghai was 148
y = Time Spent per Customer
Black Box of Platform

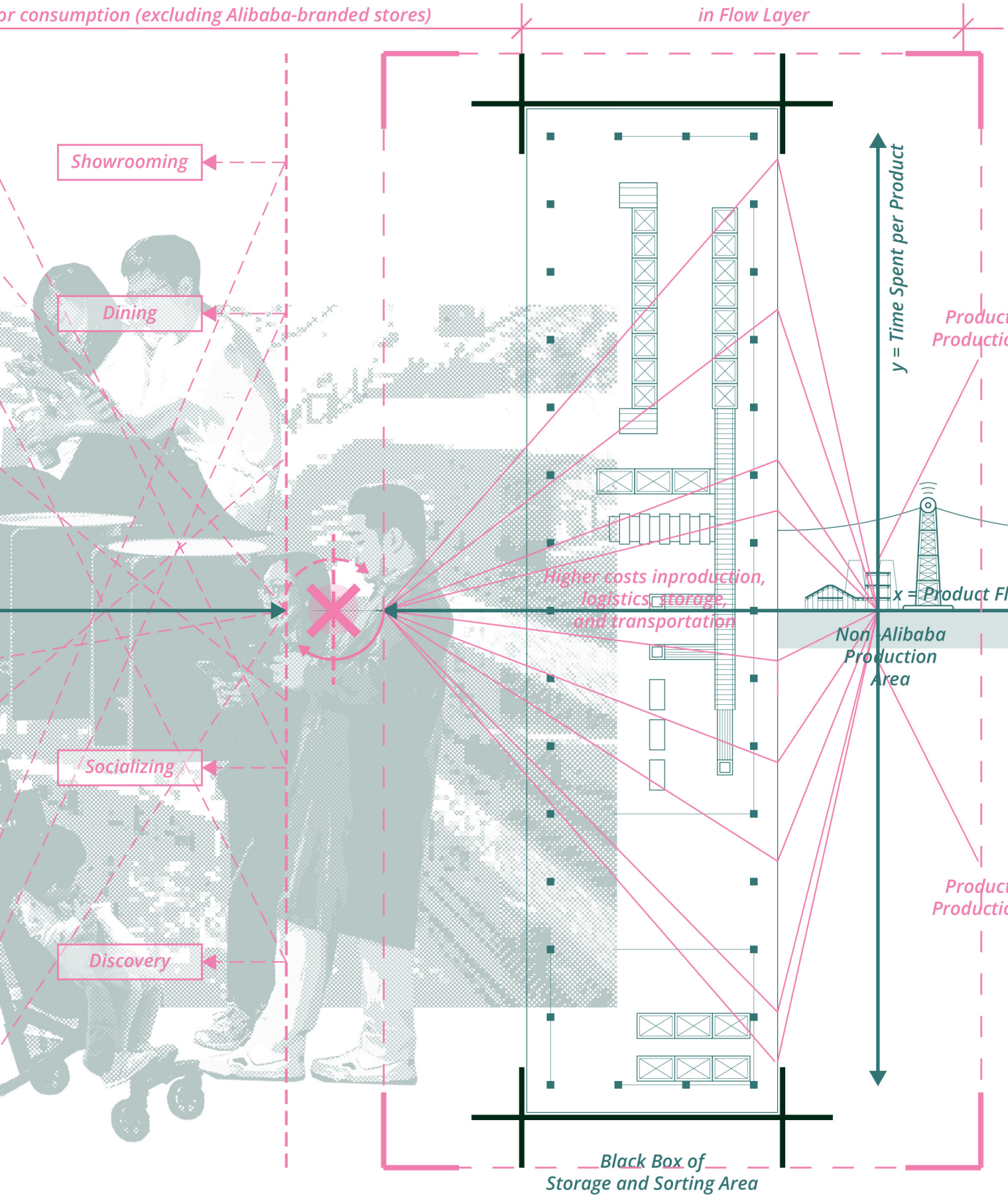


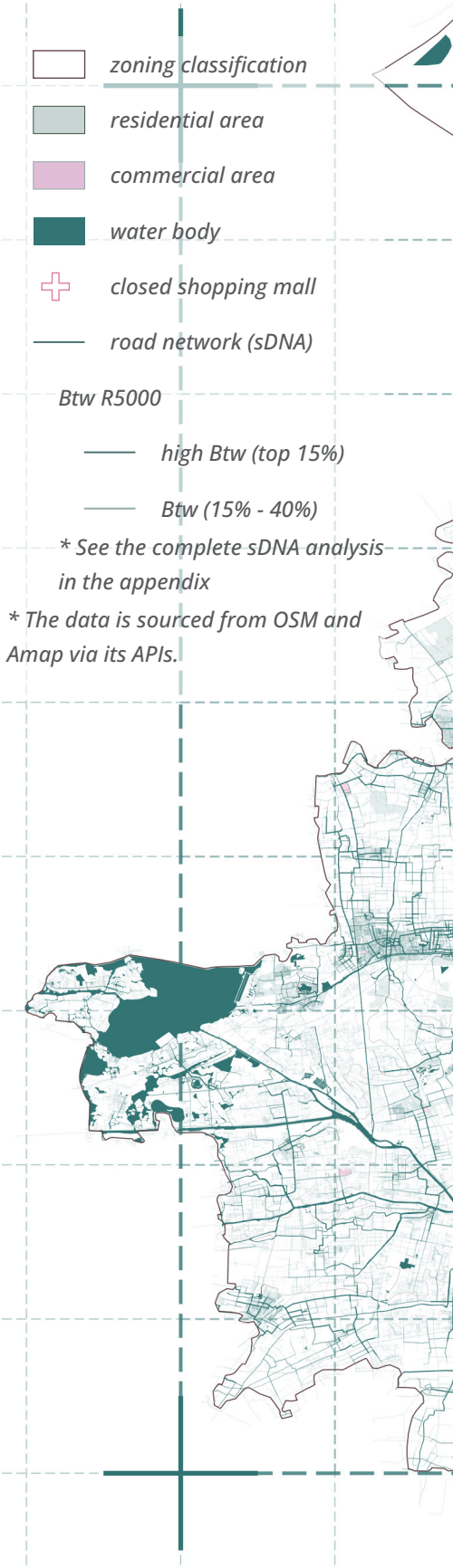
Fig. 4.19, Change of Customer Behavior

Disruptive Market Structure

Alibaba has built a comprehensive online-to-offline marketplace through planetary-scale computation and the accidental Stack formed by its spatial operations, brand influence, platform products, and partnerships with other enterprises. Therefore, it redefines and reconfigures labour and employment through the digital biopolitics. By integrating services like e-commerce, digital banking, logistics, and algorithmic recommendations, it enables fast product supply, broad category coverage, and competitive pricing. This forms an efficient and unified logistics system (see fig. 4.18). This has allowed it to rapidly spread among customers, fostering deep reliance, and from the customer's perspective, it has certainly provided the convenience of online shopping.

Costomers have become increasingly dependent on online platforms to purchase various products, resulting in a decline in foot traffic for traditional retailers. Meanwhile, both the logic and purpose of consumption have shifted. As previously chapter has discussed, everyday life for many Chinese residents was closely compacted to shopping malls. However, under accelerated platformisation and the growing consensus around Alibaba's e-commerce ecosystem, although customers still visit malls, their intentions have changed. These visits are now often driven by leisure, social interaction, exhibitions, or the desire to physically experience products before searching for them online (see fig. 4.19). As a result, the mall's traditional role as a primary shopping venue has diminished, giving way to a process of Disneyfication and McDonaldization.

At the same time, due to price transparency and intense competition on digital platforms, retailers are forced to offer either lower prices or higher-quality services to retain customer loyalty. For small and medium-sized businesses seeking to join Alibaba's capital system, platform regulations and commission fees remain significant barriers. Many of them struggle to keep up with the competition from online giants. Even some large department stores have failed to withstand this battle for customer attention, potentially leading to closures or bankruptcy (see fig. 4.20).



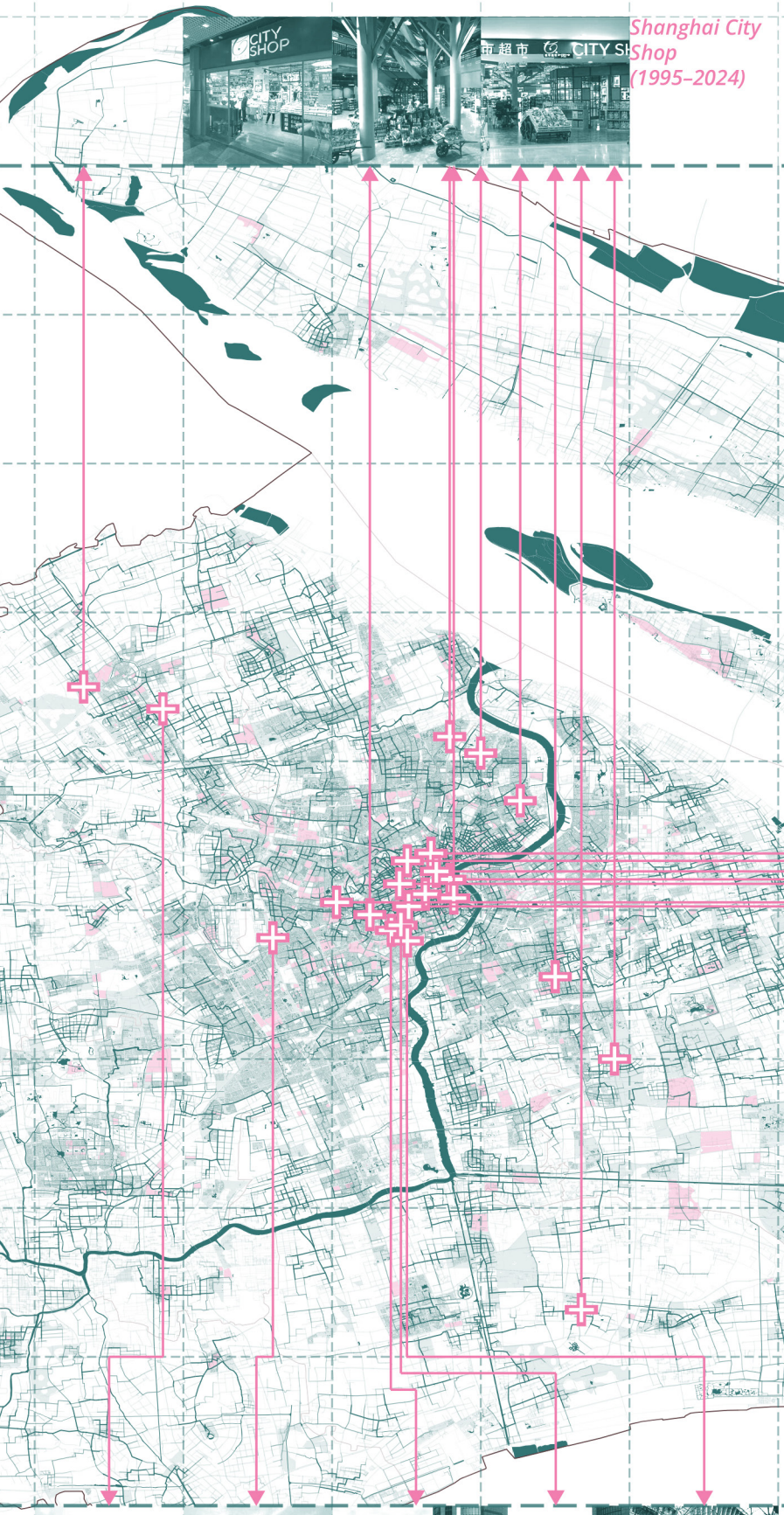


Fig. 4.20, Declining shopping malls in Shanghai

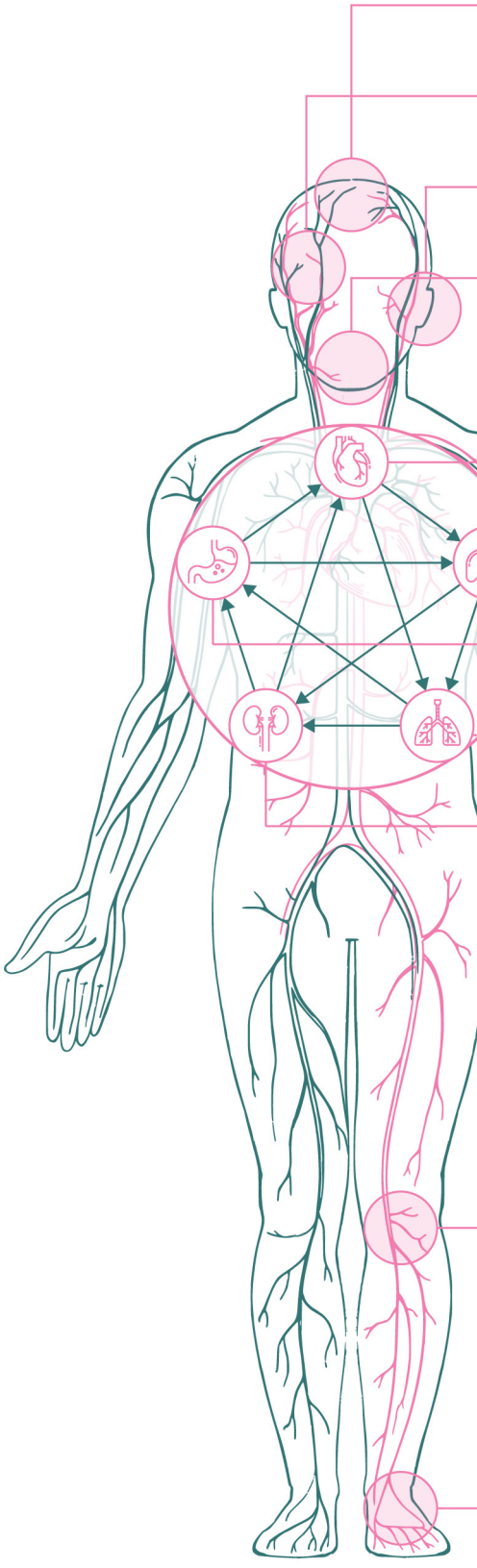
Reconceived Customer

Customers are no longer simply making autonomous decisions within the complex online-to-offline market environment. Within Alibaba's planetary-scale computing system, they become dividuals (see chapter 2.2), datafied and algorithmically profiled according to their preferences, habits, and behavioral patterns. Algorithms, personalized recommendations, and targeted advertisements drive the emotional dimensions of consumption, stimulating the dividual into an ever-responsive advertising marketplace. As a result, customers are both intentionally and unintentionally directed toward platform-preferred choices. (See fig. 4.21. In Alibaba's system, human senses, emotions (as associated with the five organs in traditional Chinese medicine), and motor interactions are all subject to programmed control)

The everydayness of consumption, combined with the convenience provided by the platform, has drawn nearly all residents into Alibaba's capital system, where they assume new identities as platform users. Planetary-scale computation enables the delivery of vast amounts of targeted content that is enjoyable but often repetitive and continuously exposed to customers. Stimuli such as livestreams and advertisements are designed to excite the senses and intensify consumption desires. Within Alibaba's fully integrated online shopping ecosystem, a complete shopping activity can now be carried out entirely at home or within the local neighborhood.

While convenience remains the main selling point, the compression of consumer cognition and behavior gradually erodes individual subjectivity. Algorithms narrow the user's cognitive range, spatial activities become more confined and routine, and personal identity is increasingly shaped by data-driven consumption patterns. As a result, the customer is transformed from an active subject into a passive consumer embedded in a tightly controlled digital-physical ecosystem.

This infrastructural integration facilitates the form of digital biopolitics by shaping individual identity, cognition, and values through algorithmic regulation and affective engineering. As users are continuously exposed to personalized stimuli, their perceptual field is gradually narrowed and their subjective awareness compressed into the platform's operational logic. This weakens critical judgment and intensifies emotional dependency, further embedding them within the system.



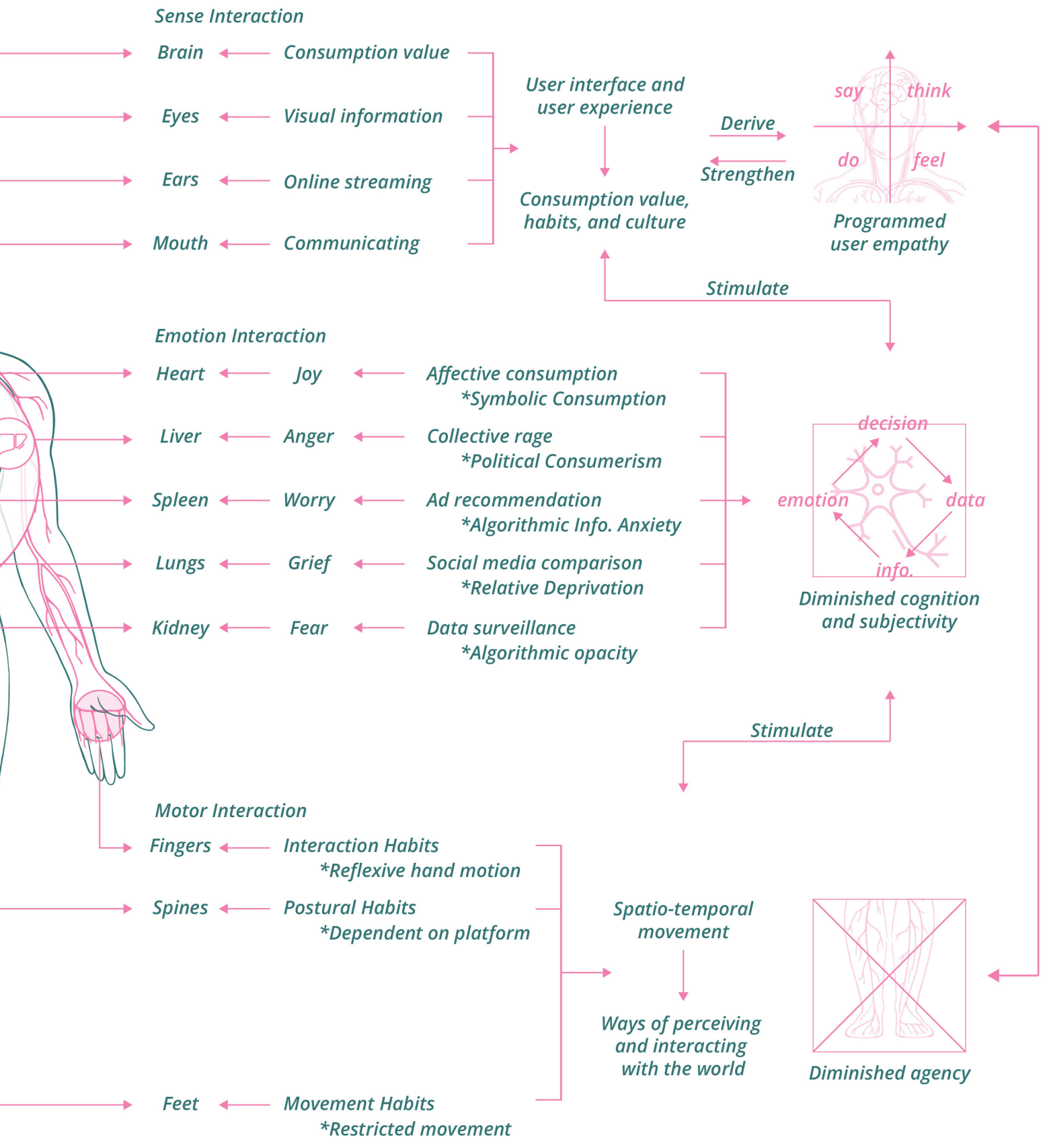


Fig. 4.21, Anatomy of reconceived customer

Design

Future

5

Demo for the

Shanghai

ion Program

n Program

astructure

5.1 Glitched Consumption Program

A New Paradigm of Digital Biopolitics

As discussed in the previous chapter, Alibaba Corporation facilitates digital biopolitics through the transformation of geographical environments and the implementation of both physical and digital infrastructures. This system significantly programs China's production and consumption patterns in the accelerated platformisation era. Operating under an oligopolistic and profit-driven model, Alibaba's digital biopolitics has, on the one hand, redistributed and reorganized labour and employment, constructing a highly efficient logistics network and an integrated supply chain that offers convenience and streamlined production. On the other hand, its over-exploitative profit model and the price advantages embedded in its supply chain have led to consumer passive consumption and behavioral inertia, deepening consumer dependence on e-commerce. This dynamic not only restricts individual subjectivity but also contributes to an increasingly unfair market environment.

Digital biopolitics has shown positive effects on production and, as a form of governance, may also hold the potential to ensure and safeguard the value of biological life, as Bratton (2021) argues. Therefore, this chapter aims to imagine an alternative paradigm of digital biopolitics that leverages planetary computation to address the blind spots of production, while avoiding excessive exploitation and instead empowering individuals to explore and realize themselves. In such a future, the platform techonology can be reappropriated as a tool to help customers discover and define themselves, enabling their subjectivity.

As shown in Chapter 2.6, the exploitation–exploration dilemma has become increasingly prominent in today's algorithmic landscape (Berger-Tal et al., 2014). Prioritizing exploration can not only support individuals in discovering new possibilities and enhancing subjectivity, but also enable sustainable profit-making. Therefore, this chapter will focus on discussing a paradigm of digital biopolitics that is driven by exploration on subjectivity.

Experience Enables Subjectivity

Defined by embodied cognition theorists, cognition and subjectivity are strongly influenced by aspects of the body beyond the brain itself and depend on the experiences that come from having a body with various sensorimotor capacities (Varela et al., 1991). Therefore, the body is an individual's way of perceiving and connecting with the world. Visual data and information may influence emotions or reactions, but they can never replace the real and embodied experience.

As Thomas Nagel (1974) argued in his essay "What Is It Like to Be a Bat?" (see fig. 5.1), even if we possess a complete understanding of the physical mechanisms behind echolocation, we cannot access the subjective experience and feeling of being a bat. Similarly, while big data, algorithms, and surveillance technologies may be able to profile user personas and model human behavior, they cannot capture the qualitative dimensions of human subjectivity, namely what it is like to be an individual.

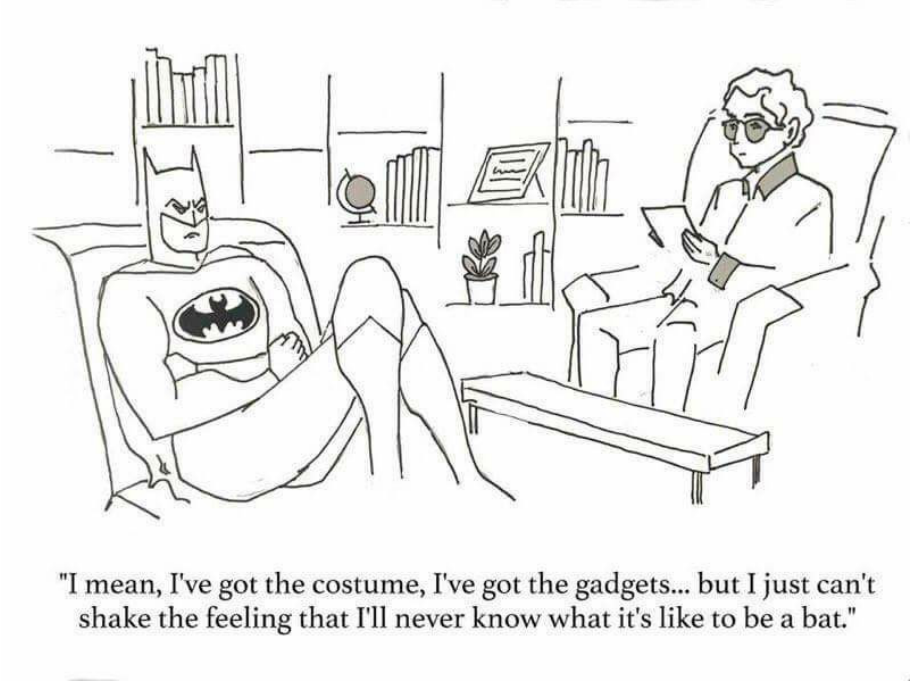


Fig. 5.1, What is it like to be a bat

sources: https://philosophy.stackexchange.com/questions/42521/does-nagels-take-on-what-its-like-to-be-a-bat-dissolve-the-question-of-what-ca

Qualia (see fig. 5.2) is the subjective qualities of experience that emerges from the continuous interaction between the body and the external world. These qualitative aspects cannot be fully conveyed through language or visual platform, as they fundamentally depend on an individual's unique perception and experience. As Merleau Ponty (1945)

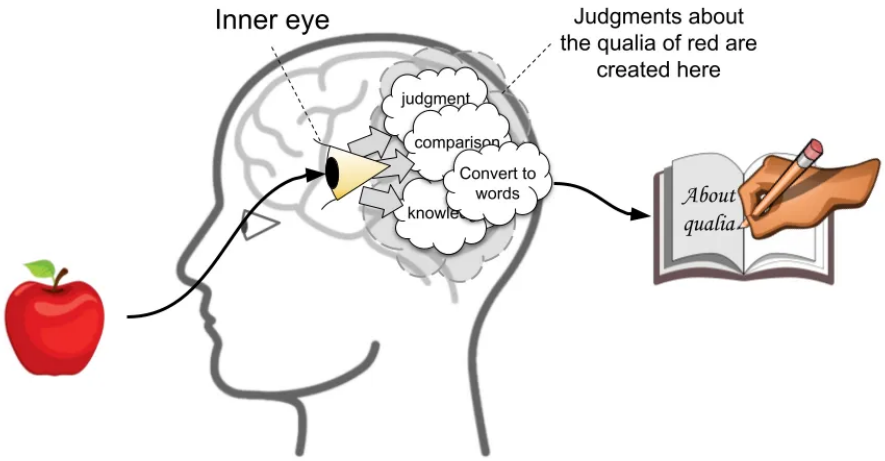


Fig. 5.2, Inner eye and Qualia

sources: https://ykulbashian.medium.com/how-to-create-a-robot-that-has-subjective-experiences-fc7b534f90ce

argued, perception is not an act of pure intellect, but is always rooted in the lived body. It is through this sensorimotor interaction that individual perceieved experience contributes to the formation of subjectivity. Repeated acts of sensing, moving, and emotionally responding contribute to the gradual formation of a relational and embodied sense of self, which perceives, acts, and experiences the world from a distinct and situated subjective perspective.

In conclusion, subjectivity is progressively constituted through lived, embodied experience. These experiences ground the formation of a subjective reality that is shaped by the body's continuous negotiation with the world, a process that is increasingly restricted by the exploitation of data extraction and platform surveillance.

Experience as a Product

Therefore, in contrast to the exploitative perception of the world shaped by data, surveillance, algorithms, and recommendation systems, an exploration mode of digital biopolitics will emphasize and facilitate the embodied interaction between the body and the external world by sensing, moving, and emotionally responding. Experience, as both outcome and impetus of embodied interaction with the world, forms a continuous loop through which subjectivity is progressively shaped and enhanced.

From Alibaba's accidental megastructure, customers are passively adapting to a vast and rapid transition. Technological acceleration pushes them into an overwhelming vortex of information, and with calculated precision, it pushes, guides, and defines their every action. Who they are and what they truly need no longer seem to matter. What the customers ultimately lose, therefore, is themselves.

Technology can study customer behavior and profile individuals, but it can never truly simulate human experience, because only our instinctive bodily reactions can respond with honesty. Therefore, the first principle of design is that experience is both irreplaceable and deeply personal, representing and empowering the human subjectivity. In this way, what we consume in the future may no longer be physical products, but experiences themselves, where the experience becomes the product.

In this way, the following strategy will begin with the User layer, where a critical shift takes place that the product is now transformed into the experience to consume. From there, the discussion will move on to explore how experience could be a product and what the other Stack layers might look like in response to this assumption[1], which collectively shape the exploration mode of digital biopolitics.

[1] This project names this design strategy glitch, which is a crack in the Stack that was accidentally programmed by Alibaba. A glitch is a minor malfunction in a system that signifies moments of breakdown, interruption, or error. It reveals the underlying structures and logics of technological systems. In this project, the glitch is understood as a creative and resistant force. It functions as a design language that disrupts the established megastructure of the Stack constructed by Alibaba. By exposing failures within programmed systems, glitches highlight structural transformations.

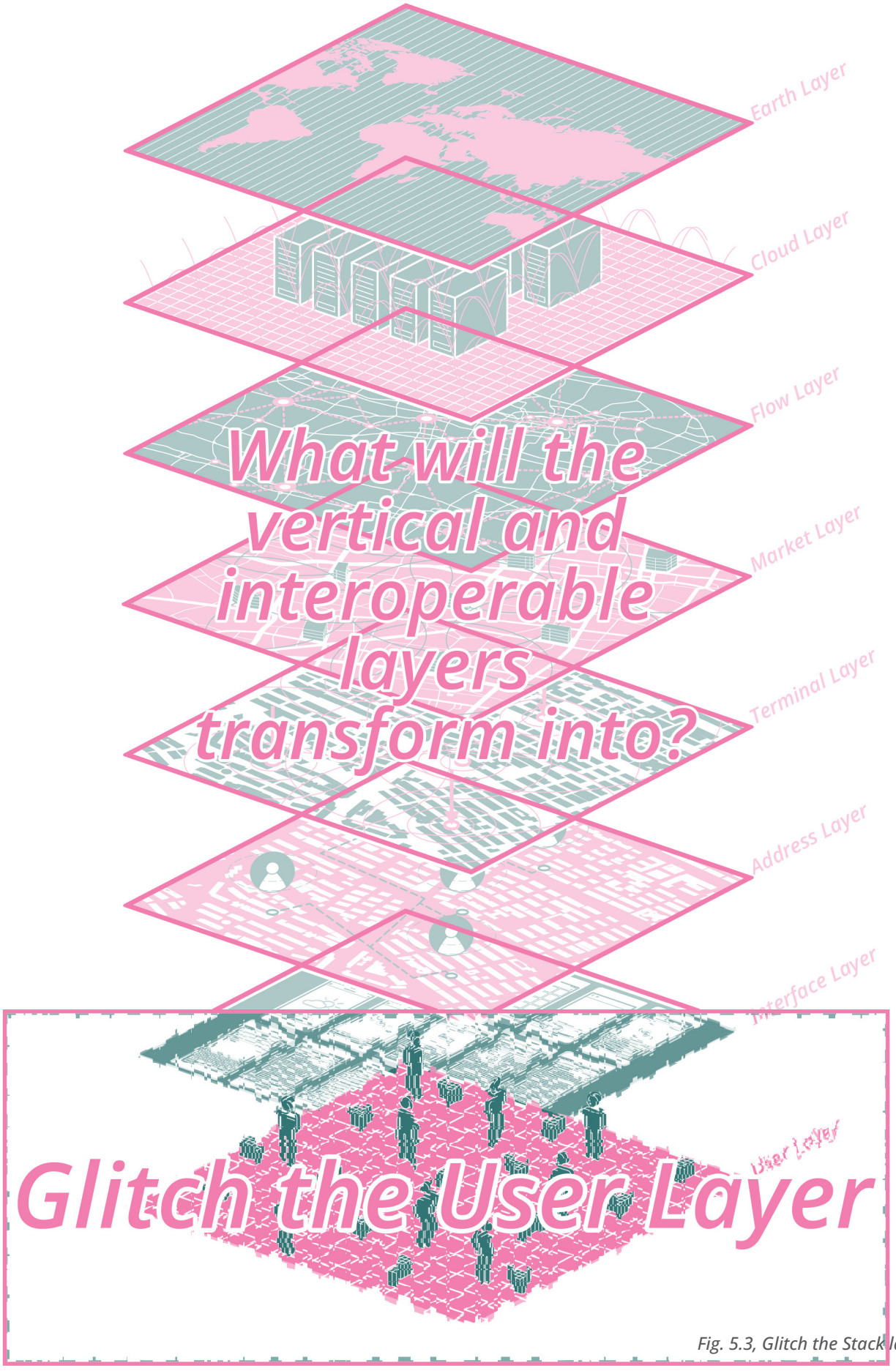


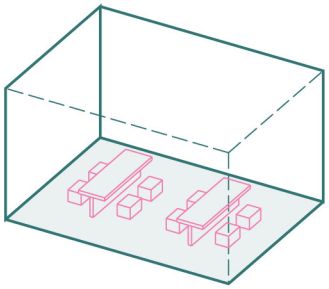
Fig. 5.3, Glitch the Stack layers

Glitched User Layer

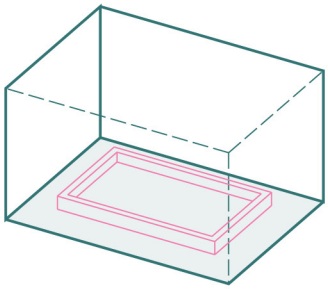
Based on the hypothesis of experience as a product, experience is conceived as a spatial product that includes consumption beyond material needs, including desire, sensory, body, and relationships (see fig. 5.4). The experience product is assembled from these types of elements according to individual will and needs. Among them, desire, sensory, and body form the core of spatial experience, reflecting material, sensory, and behavioral needs, while relationships represent how customers position their needs within social relations.

Desire, sensory, body, and relationships have been diminished and erased after being profiled and exploited by Alibaba oligopoly. Therefore, experience serves as a possible representation of human subjectivity. Only when people truly embody experience does the customer become an experiential subject, with needs arising from the body and personal will, rather than from algorithms, data, or social media.

Desire

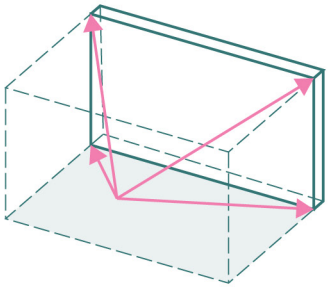


Function

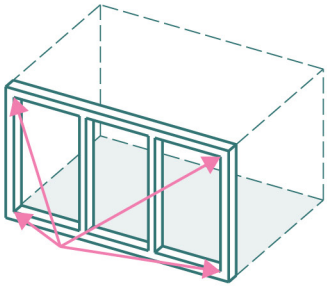


Exposure

Sensory

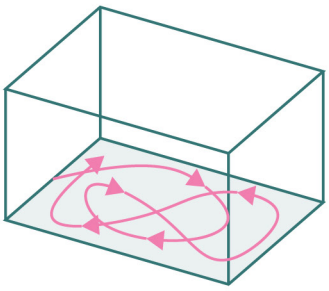


Seeing

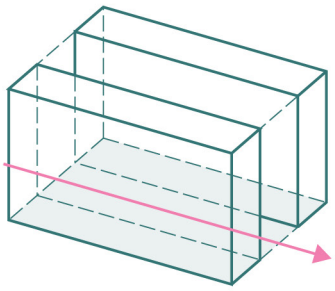


Being Seen

Body

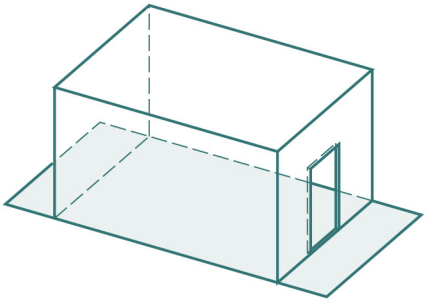


Free Movement

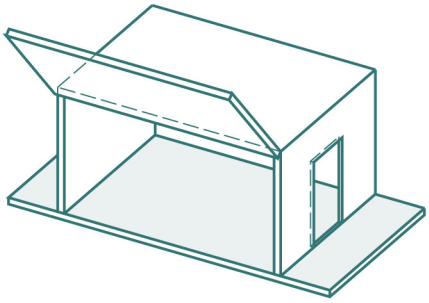


Linear Movement

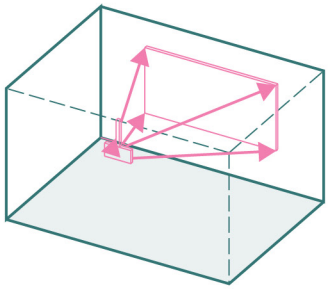
Relationship



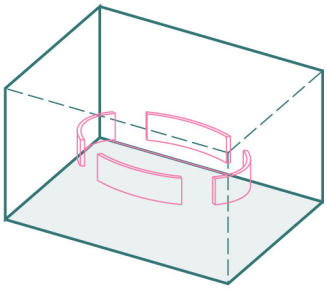
Individual



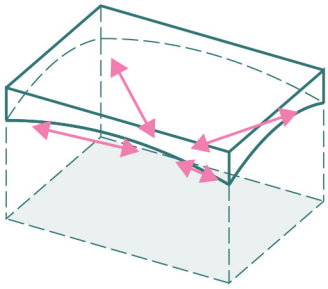
Socialbility



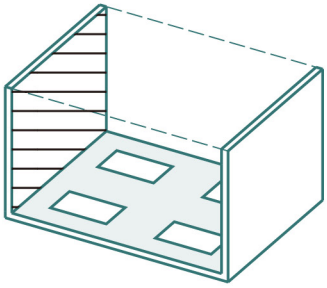
Immersion



Enhancement



Hearing



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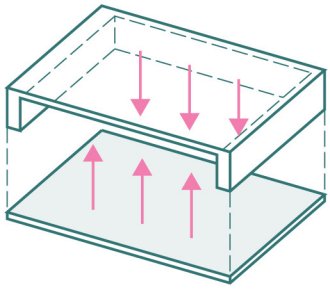

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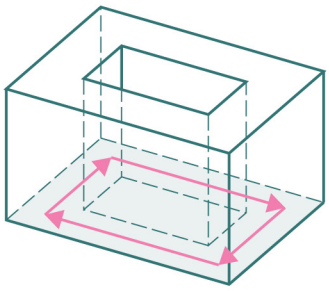
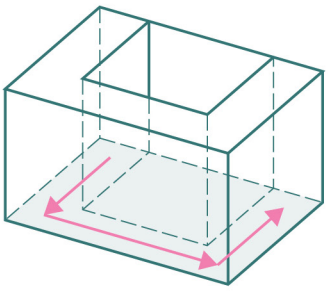
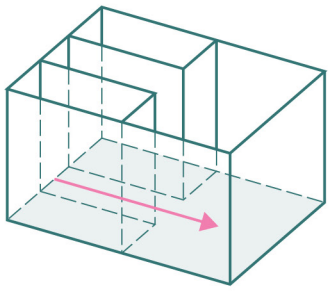


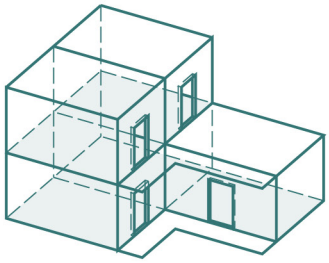
Indirect Movement



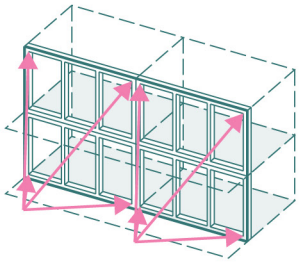
Restricted Movement



Sudden Change



Collective



Exploring

Fig. 5.4, Experience as a spatial product

Glitched User Layer

The spatial experience product occupies an area of approximately 20 square meters, which is sufficient to accommodate environmental simulation and essential spatial activities such as resting (see fig. 5.5), interaction, and movement, thereby enabling diverse spatial experiences that respond to varying customer needs (see fig. 5.6).

Besides, as a spatial experience product that embodies the consumption of relationships, this spatial unit is modularly configurable and reassemblable. It can be stacked, opened, or closed, allowing experiences to be infinitely combined and scaled (see fig. 5.7). It also grants customeres the power to choose when to see and be seen, enabling the sharing or learning of others' life experiences.

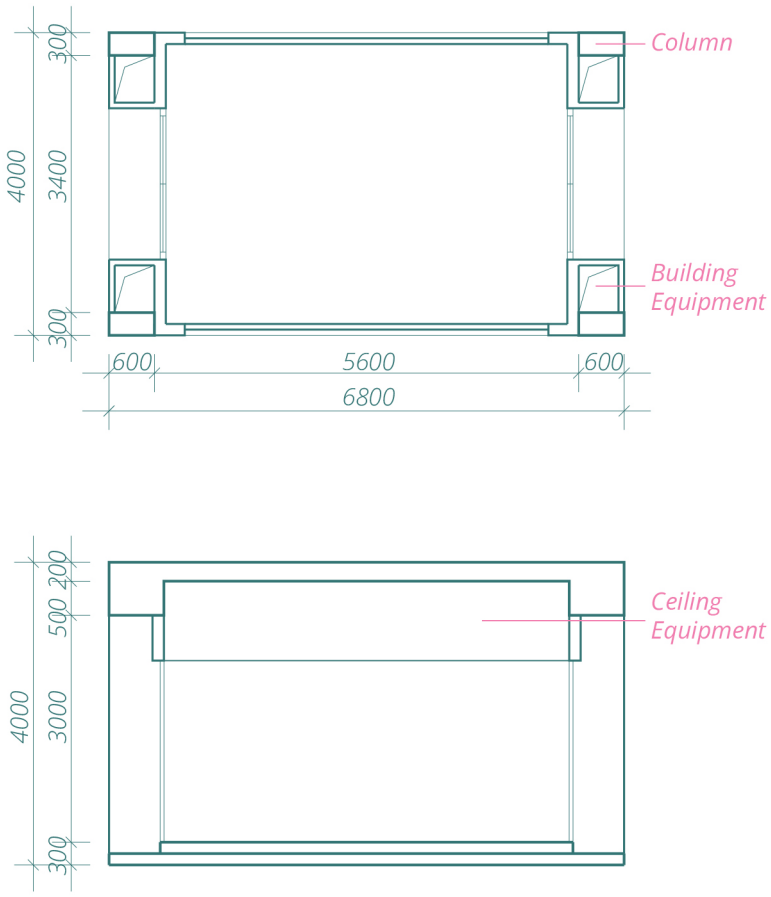


Fig. 5.5, Dimensions of the modular unit

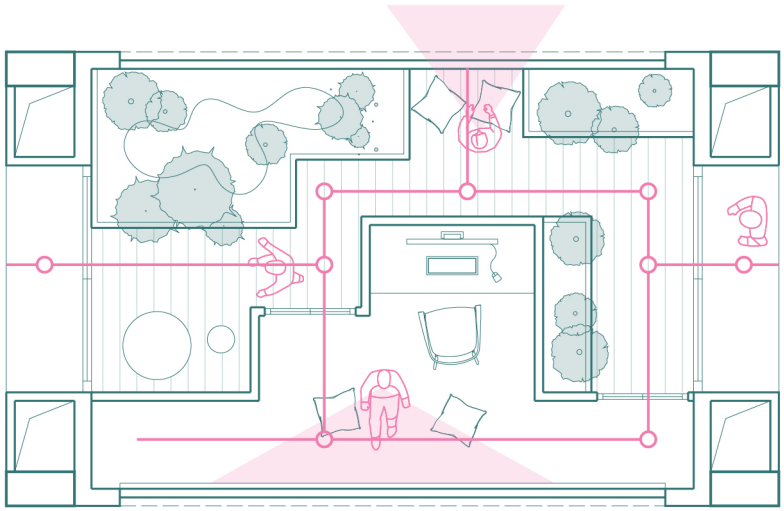


Fig. 5.6, Experience product

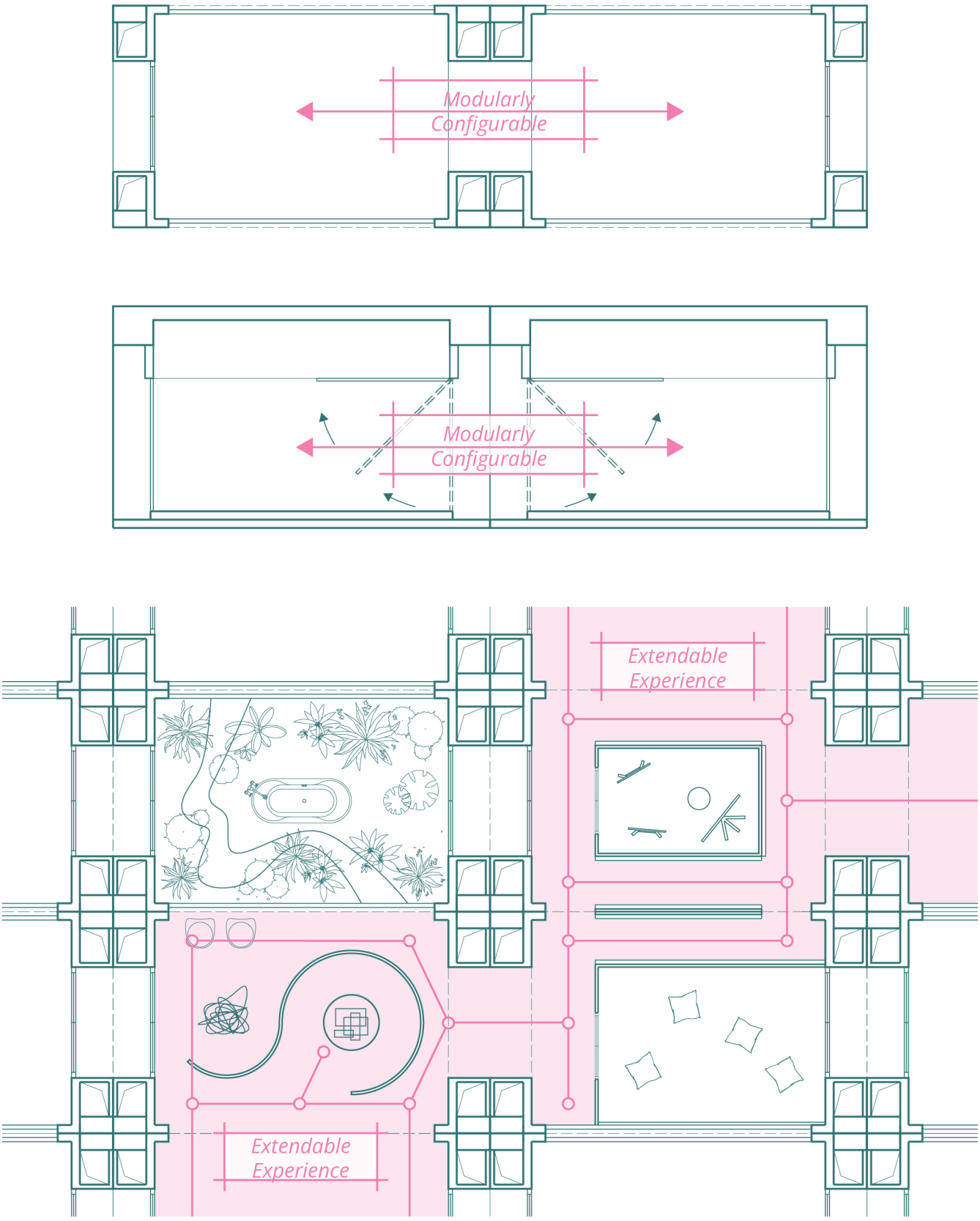
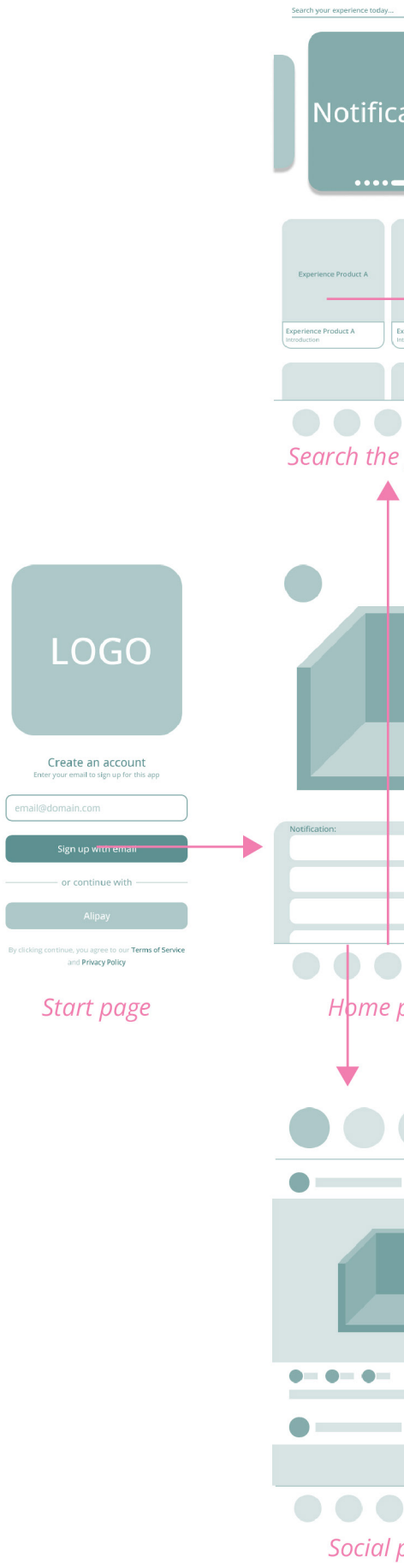


Fig. 5.7, Assembled experience products

Glitched Interface Layer

The experience product requires the customer's embodiment, and the platform acts as the connection between the customer and the experience product. It allows the customer to order, search, and design their wanted experience (see fig. 5.8). The experience producer, in turn, receives the demand and delivers the experience to the customer.

The core functions of the platform allow customers to search for and directly order pre-designed experience products. Producers and collaborators, such as experience product designers, artists, cultural institutions, and even governments, can input their designed experiences into the platform. Customers can also explore shared experiences from friends, communities, or influencers through the social interface, learning from and choosing experiences that others have already used. Additionally, customers can customize their wanted experience by selecting different components through the design page, and the experience producers will deliver the customized product based on their design. In this way, customers can order the experience they want and have it delivered to a designated location.



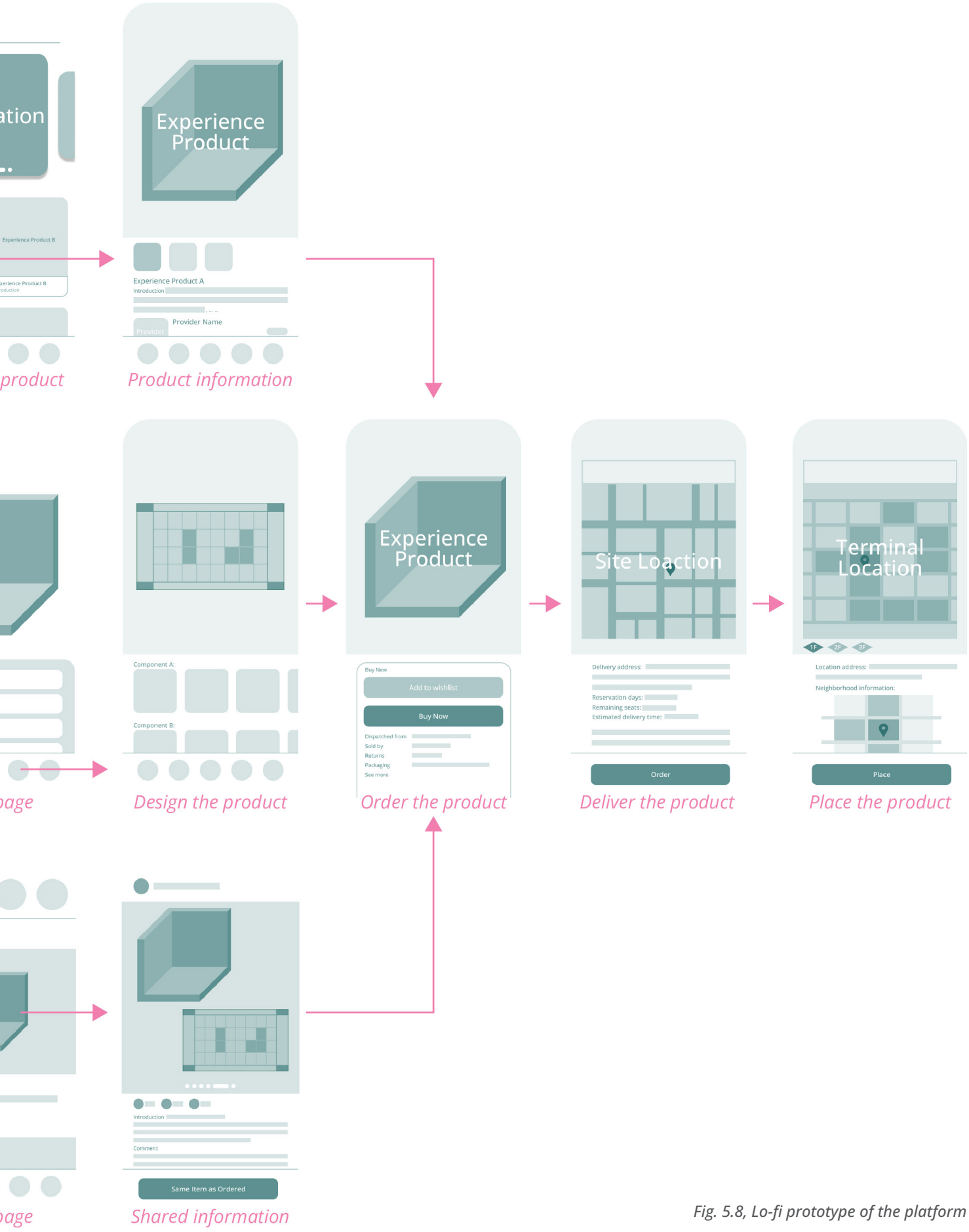


Fig. 5.8, Lo-fi prototype of the platform

Glitched Address Layer

The role the platform plays still focus on identity and location, but with a different emphasis (see fig. 5.9). When a customer places an experience order, the nearest and most suitable experience production area to the designated location will assemble the required components and deliver them via drone to the specified site. After engaging with the experience, the customer can choose to rate, comment on, and share their use of the product. This feedback data is transmitted to the relevant data analysis departments and used as a reference for developing new types of experience products and optimizing the production and logistics of components.

Similarly, as previously shown, the customer holds the power to choose and design products. They can enjoy their customized experience within their living environment. At the same time, public spaces will host experience products placed by designers, artists, cultural institutions, governments, and other creatives. These experiences are intended for exploration and experimentation, allowing customers to discover and upgrade their experiential dimensions by encountering potential experience needs in public spaces.

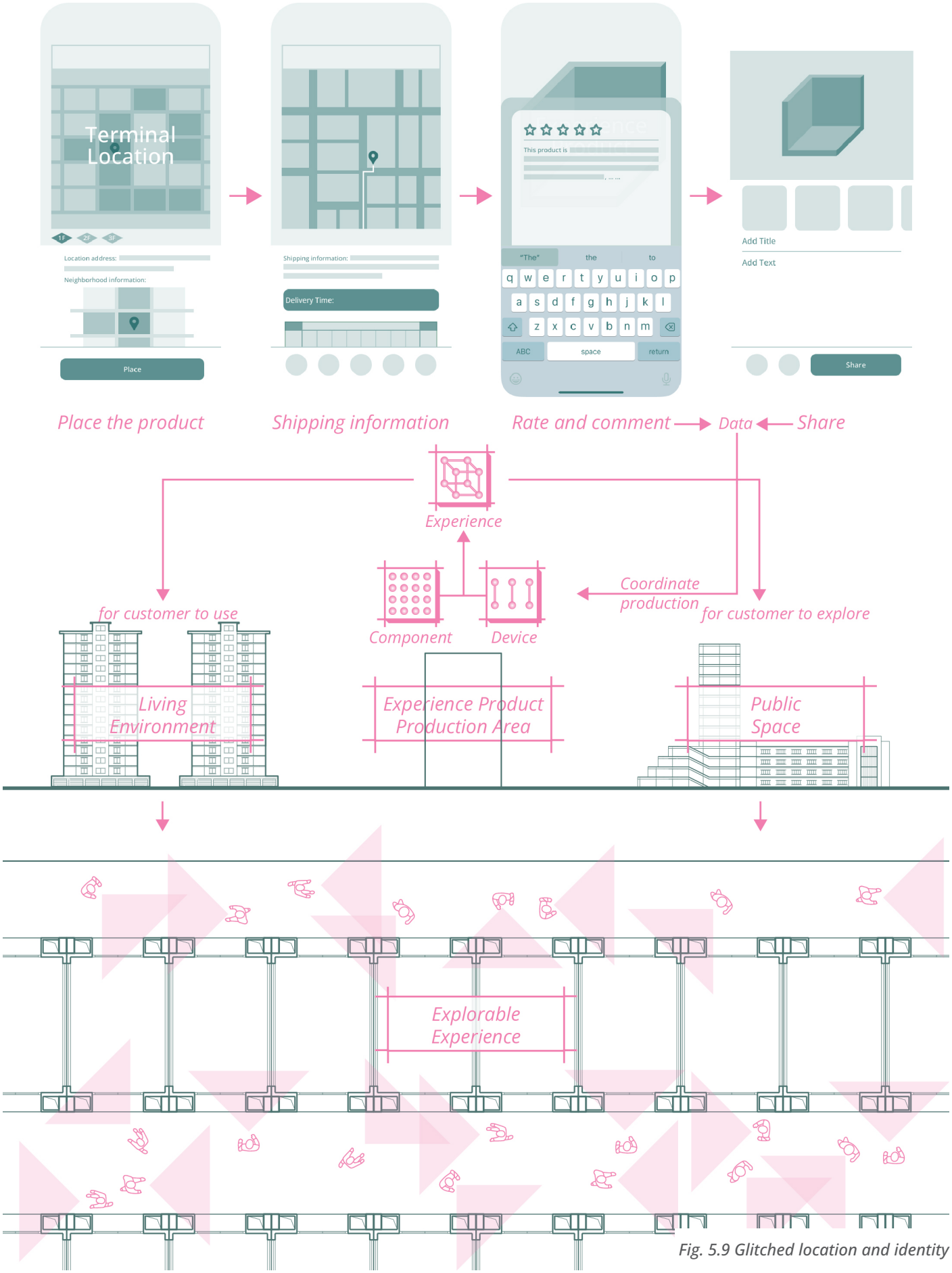


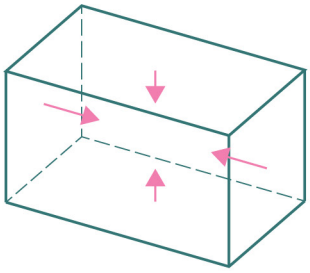
Fig. 5.9 Glitched location and identity

5.2 Glitched Production Program

Modular Assemblies of Experience

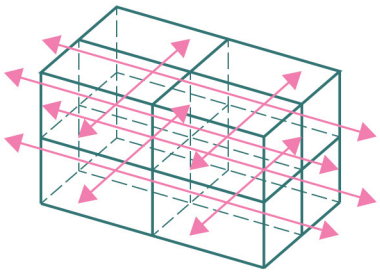
The modular logics of assembling experiences for customers are categorized into four types: individual, collective, explorable, and experimental (see fig. 5.10). Individual experiences are designed for personal use and focus on private and essential needs. Collective experiences provide opportunities for customers to share and learn from each other's experiences, forming a shared experiential archive or community. These two types are primarily distributed within the residential environment in terminal layer.

Explorable experiences are widely distributed in public spaces, offering customers opportunities to encounter and embody new experiences. Experimental experiences are created by experience production areas through integrated planning, design, and emerging technologies to generate enhanced experiences that are presented publicly for testing and exhibition. These two categories are mainly situated within the market layer.



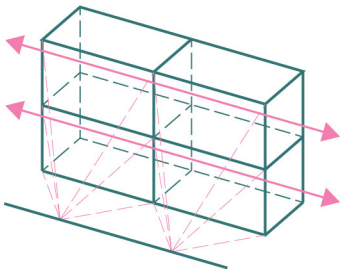
Individual Experience

in Terminal Layer



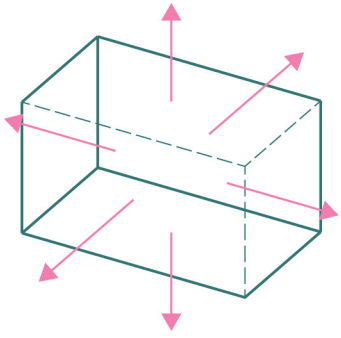
Collective Experience

in Terminal Layer



Explorable Experience

in Market Layer



Experimental Experience

in Market Layer

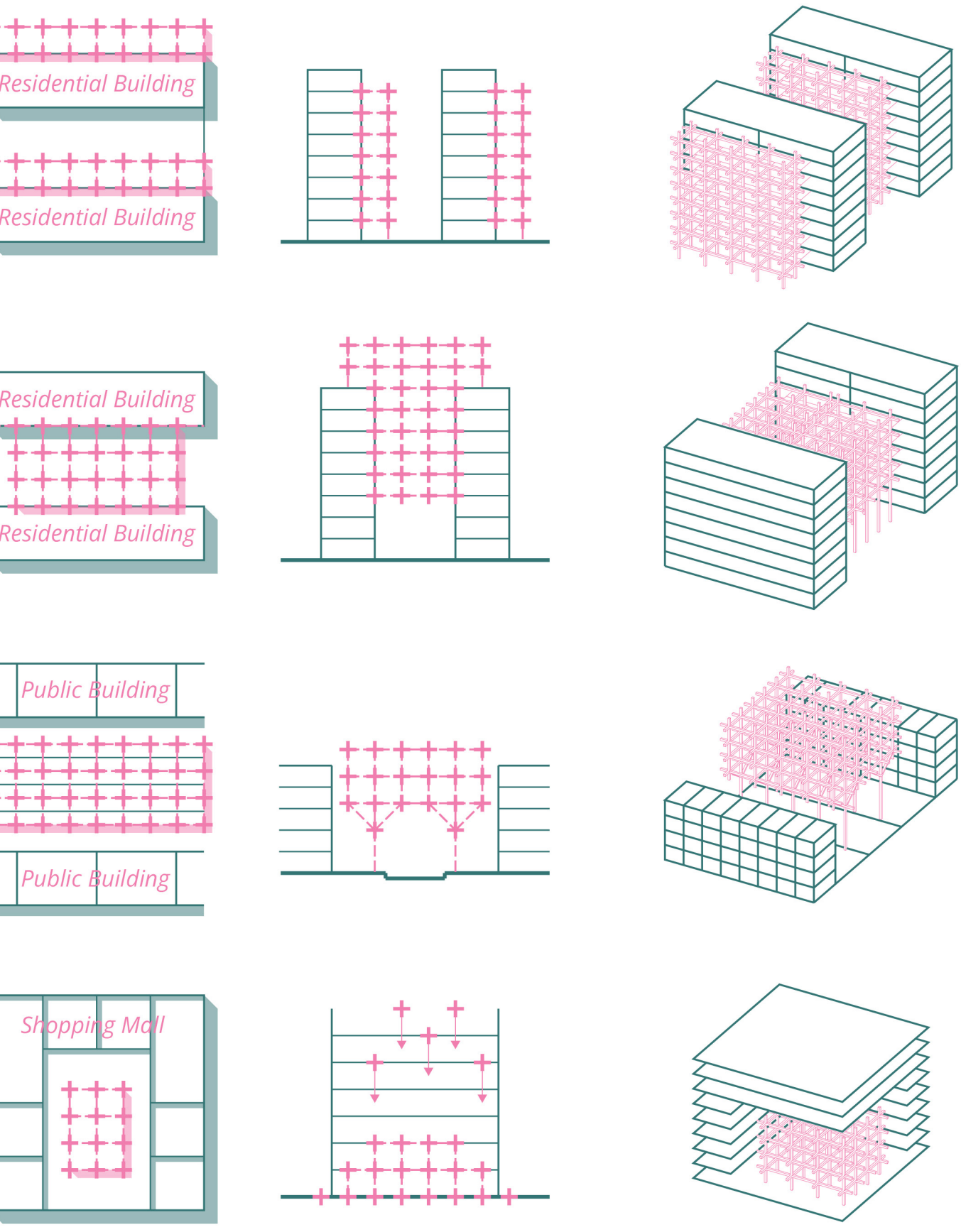
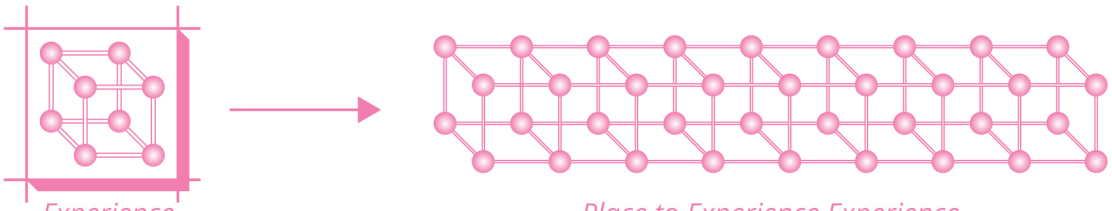


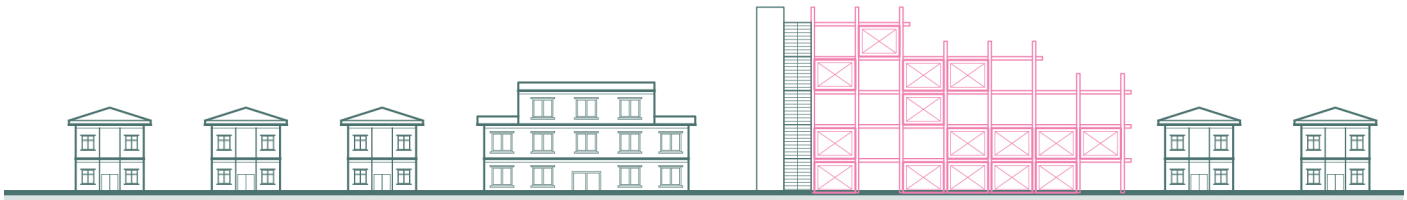
Fig. 5.10, Modular Logics of Assembling Experience

Glitched Terminal Layer

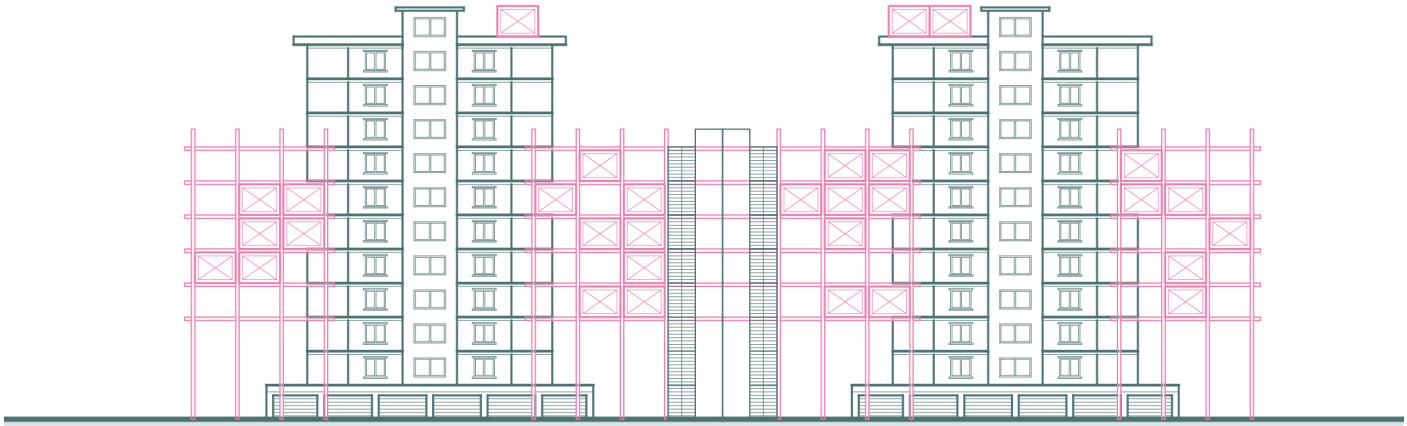
The three types of terminals, which are countryside, community, and campus (see fig. 5.11), serve as primary locations for placing individual and collective experiences. Customers can engage with these experiences within the proximity of their everyday living environments.

In the terminal layers, frameworks for hosting experiences are constructed based on factors such as population density, architectural form, and the distribution of open spaces. In the countryside, frameworks are typically located near village centers and integrated into existing rural activity hubs, functioning as community centers. In residential communities, especially those composed of mid- to high-rise buildings, the frameworks are placed in shared open spaces or between and above buildings to enhance accessibility. On campuses, they are often situated near public buildings such as gyms and libraries, enabling broader participation and easier engagement for customers.

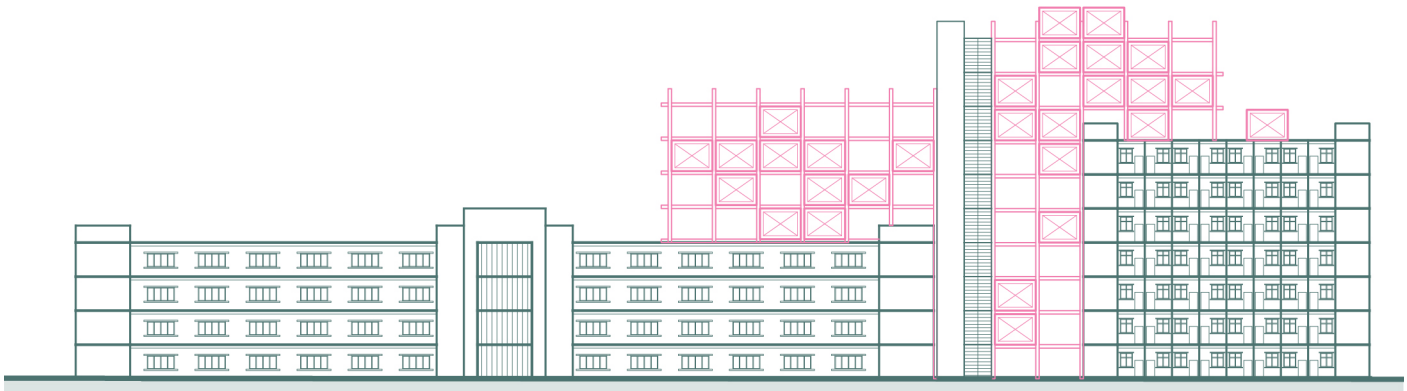




*Glitched Countryside



*Glitched Community



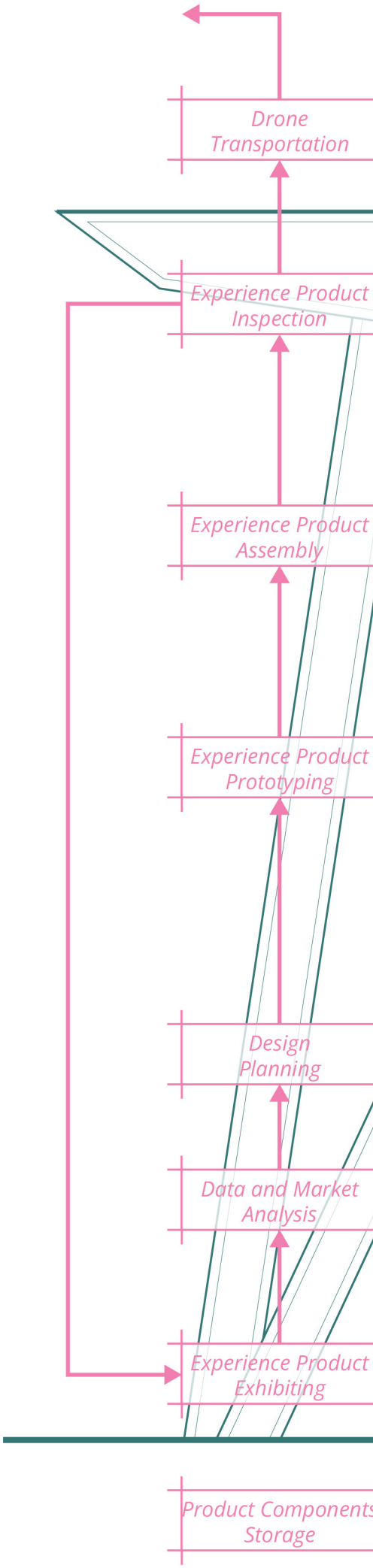
*Glitched Campus

Fig. 5.11, Glitched living environment with experience

Glitched Market Layer

As experience becomes a product and the customer an experiential subject, and as online shopping is already sufficient to meet basic material needs, physical retail spaces in the future will no longer focus on selling goods. Instead, they will be transformed into experience factories (see fig. 5.12), where spaces are dedicated to the analysis, design, production, display, and delivery of the experience products.

The future experience factory will analyze and process the collected data in the office layer to design, plan, and coordinate the production of experience products. Above the office layer, the entire experience production process will take place. This includes the storage of raw materials, assembly, and inspection of components, as well as a drone transportation hub on the rooftop for product delivery. The ground floor will primarily serve as a space for displaying experimental experiences, offering service areas, and integrating with public spaces to create an explorable and experimental experience.



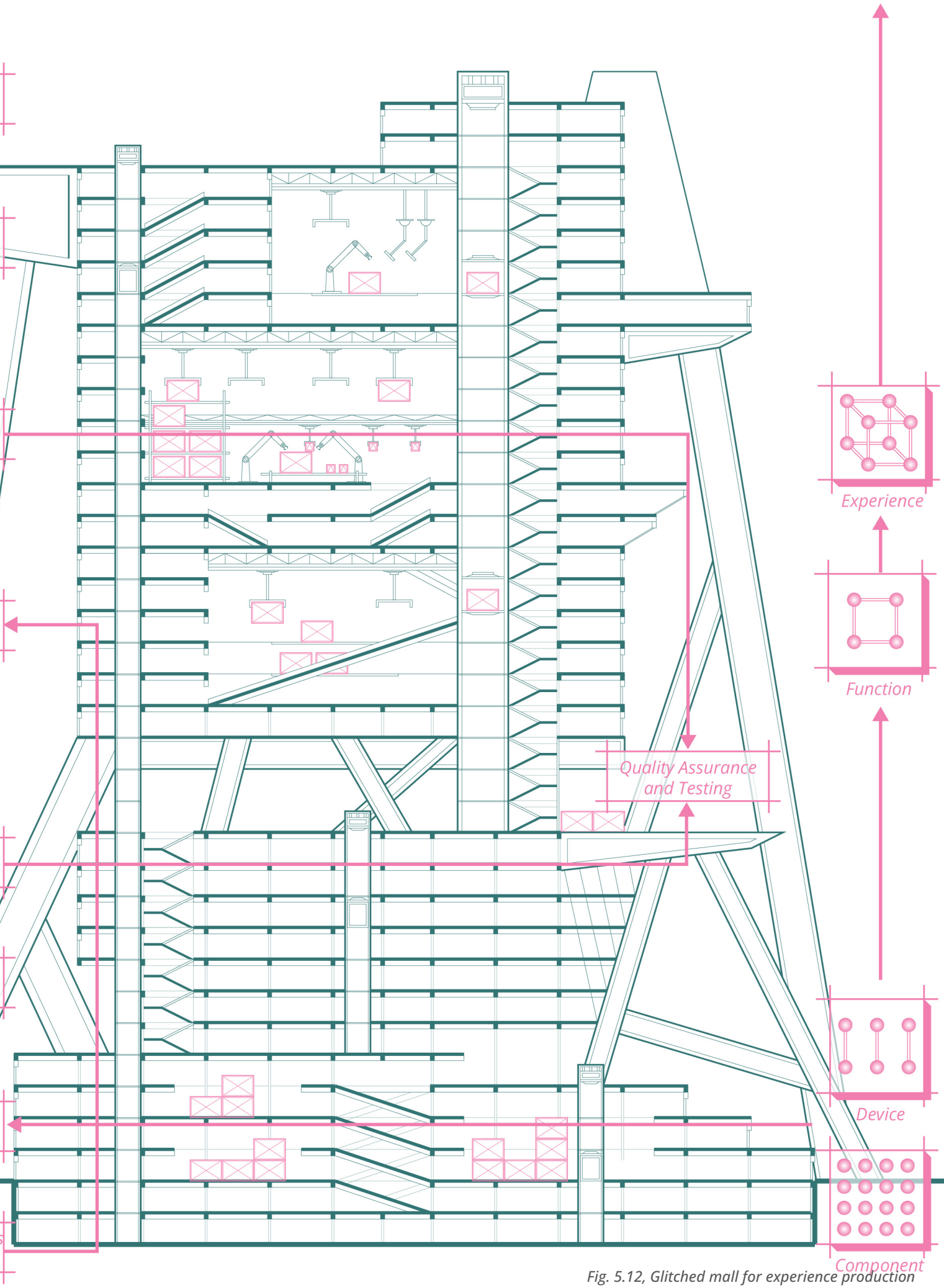
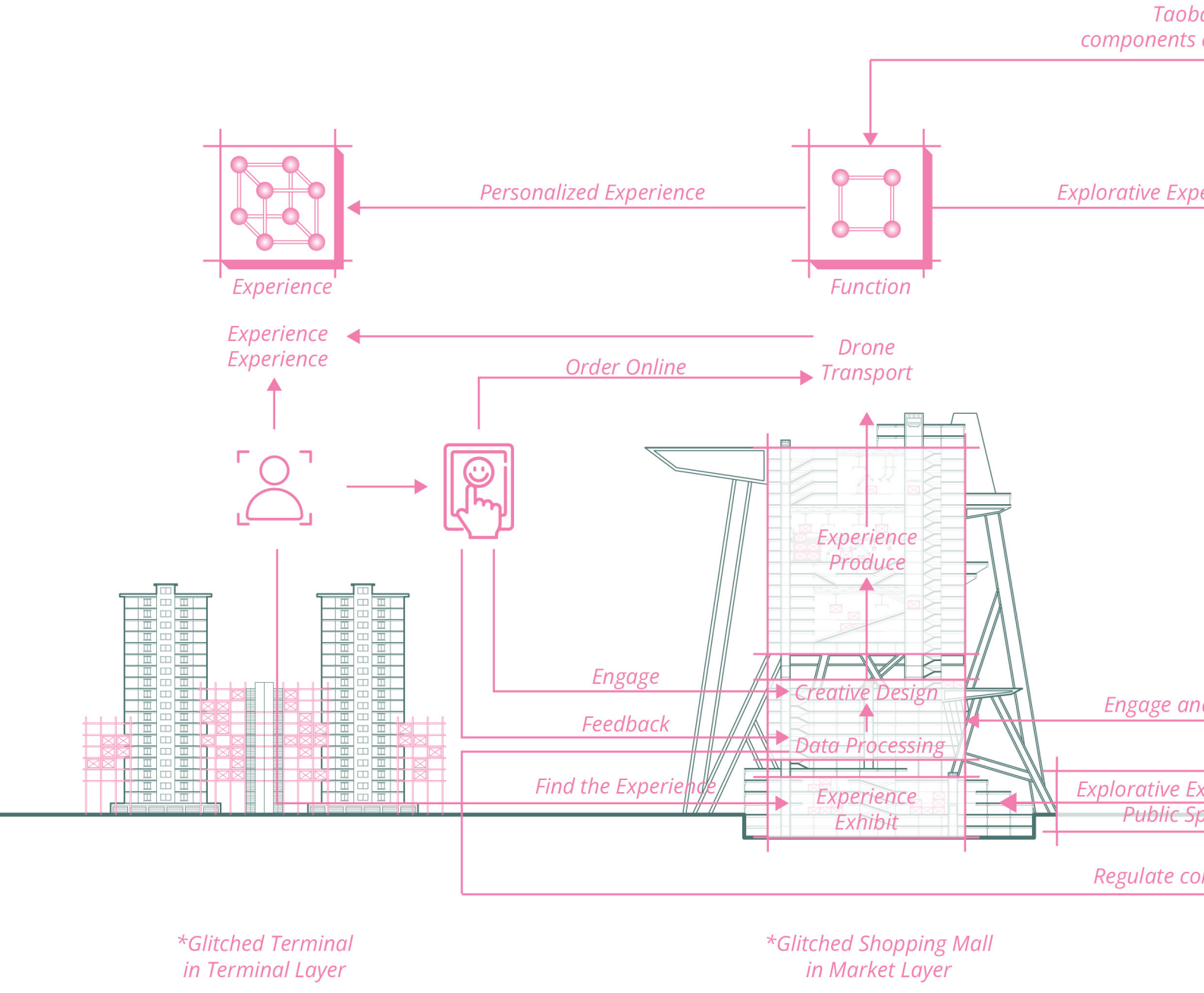


Fig. 5.12, Glitched mall for experience production

Glitched Flow Layer

The flow layer focuses on the production and information flow of the experience product (see fig. 5.13). Taobao Village and other production areas will manufacture the fundamental components and devices for the glitched shopping mall to assemble into experience products. At the same time, these production areas will adjust the production ratios of different types of components based on the data analysis provided by the mall. The components of the experience product will also be recycled, ensuring the entire flow system becomes more efficient.



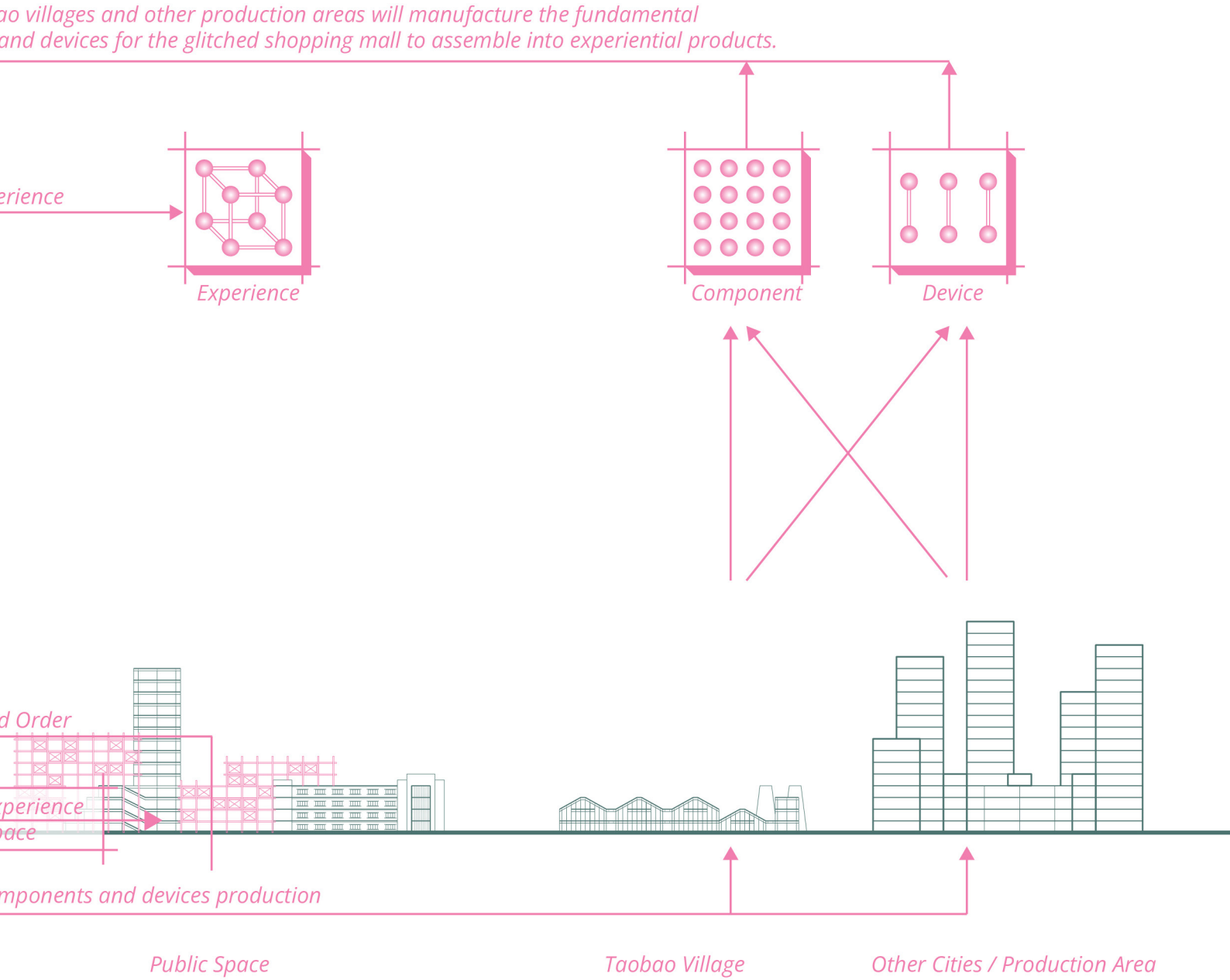
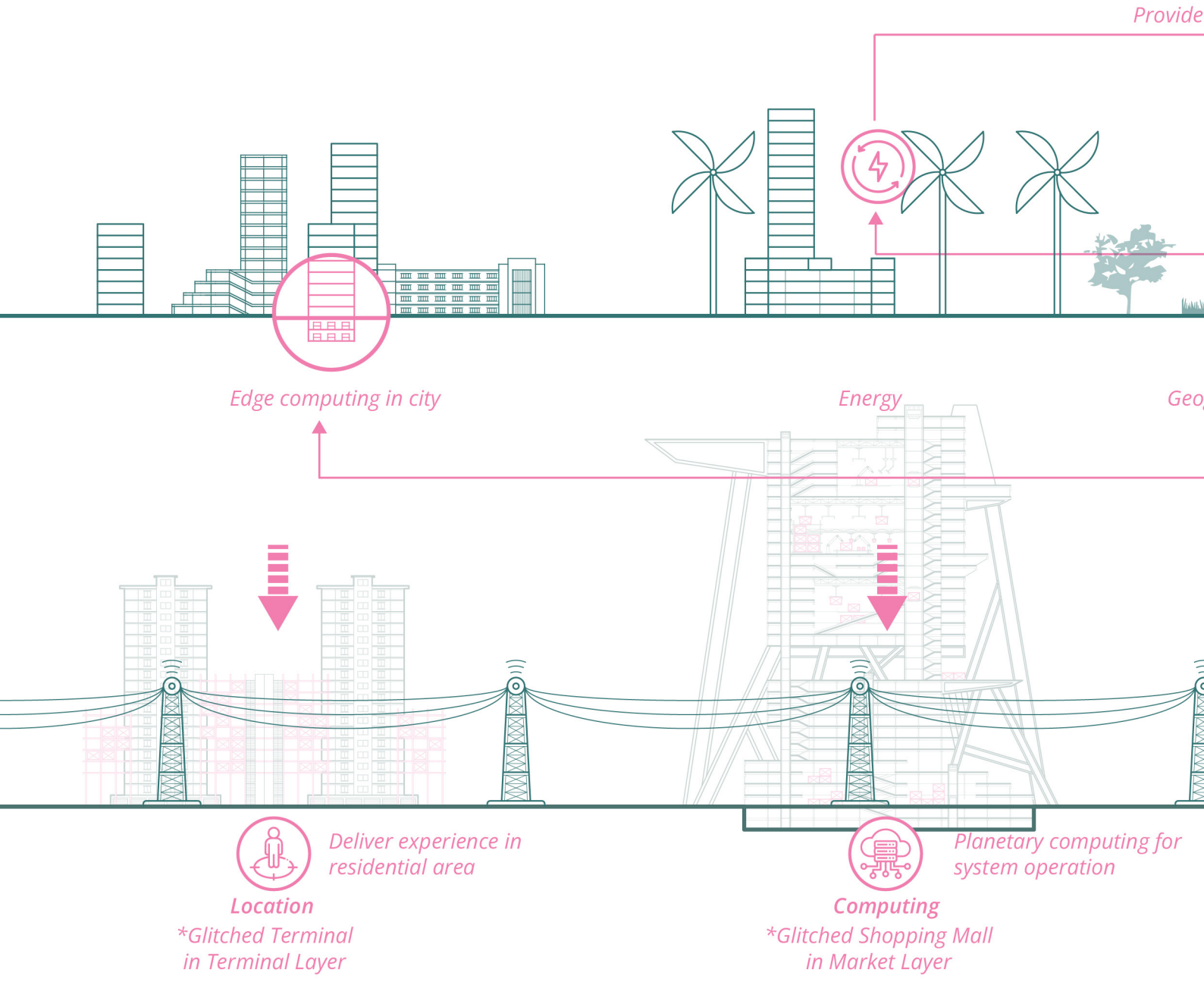


Fig. 5.13, Glitched Flow system

5.3 Glitched Stack Megastructure

Glitched Cloud and Earth Layer

Digital infrastructure and the geographical environment provide the material and technical foundation for planetary computing, enabling information flows and the operation of the glitched system (see fig. 5.14). The data center, which is located in remote areas, rely on natural resources such as electricity, cooling water, and minerals to function. Through cell towers and content delivery networks (CDNs), they support the information, production, transportation, and computational systems with essential data and technical resources.



This glitched system creates a dynamic and responsive manufacturing ecosystem where data from customer engagement and experience is used to optimize production, ensuring that the components are constantly refined to meet the evolving demands of the customer and regulate energy and material resources.. It highlights a circular model of production and consumption, where components are continuously reused and repurposed to maintain sustainability and efficiency.

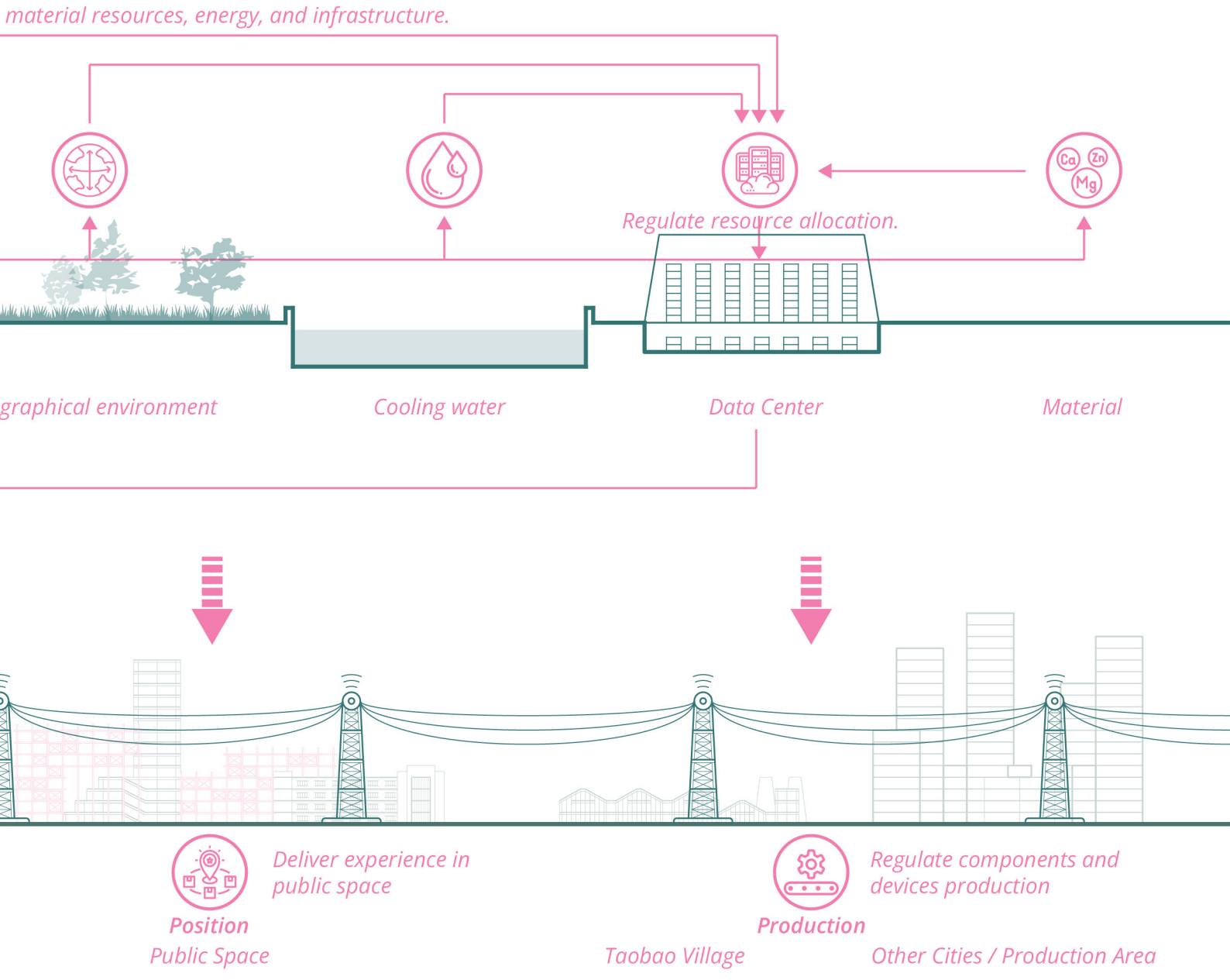


Fig. 5.14, Glitched Earth and Cloud layer

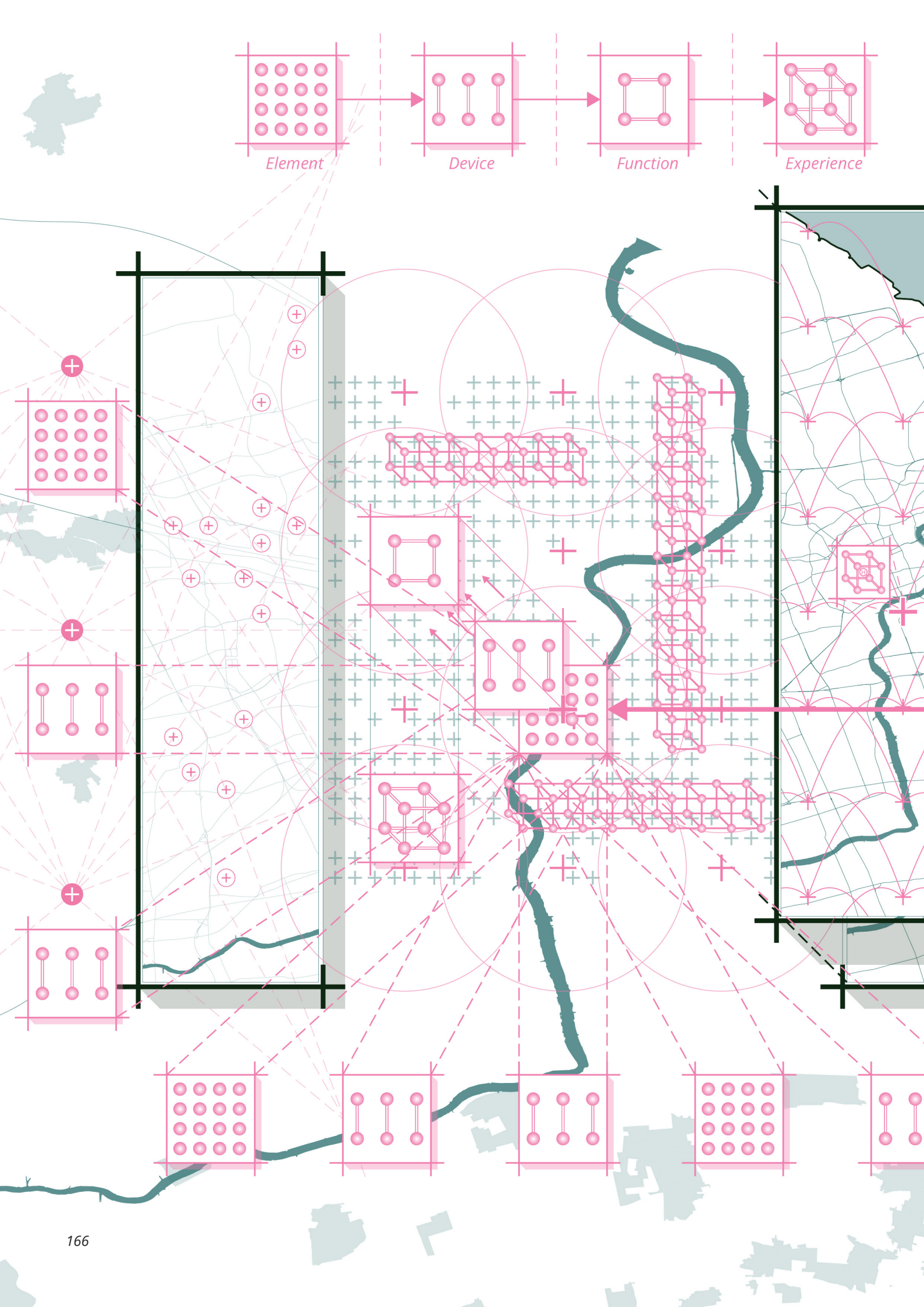

Element
Device
Function
Experience

Fig. 5.15, Glitched Stack scenario

Design

Culture

6

Beta for the

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6.1 Beta Manual

Design Brief

When individual, collective, explorable, and experimental experiences become the future consumption for customers to rediscover themselves, reclaim their lost identities, and enhance their subjectivity, the entire living environment, both private and public spaces, from neighborhoods to entire regions, will transform into sites for constructing situational experiences. Production, logistics, computing, and energy systems will also glitch to serve as the foundation for constructing these situational experiences, forming the new glitched Stack.

By glitching the Stack and constructing situational experiences, the altered future may resist algorithmic homogenization. It fosters renewed individual and collective subjectivity, empowering customers to freely choose their own experiences and ways of living.

Site Selection

As the Stack layers are multiscale and encompass various aspects, from architecture and urban planning to information technology, this project aims to imagine the potential of an altered future living environment and human interaction. By utilizing cross-scale design interventions, it first explores the possibilities of a transformed urban configurations, and then integrates these changes into the broader city context to visualize the scenario of the entire urban landscape.

Based on this, this design selects the Xujiahui commercial area in Shanghai's Xuhui District as the test site. A specific neighborhood within this area will be chosen and placed into the broader district context to envision new forms of urban architecture, spatial configurations, and flow systems.

And the reason to choose the Xujiahui commercial area is because it is one of the most densely commercial and digitally saturated areas in Shanghai. Many elements of Alibaba's ecosystem, such as affiliated brands, logistics infrastructure, payment systems, and targeted advertising, are deeply embedded in this district. This makes it a typical site where the Alibaba Stack directly shapes everyday life. In addition, Xujiahui is a key urban intersection in Shanghai where commercial, transportation, and educational functions converge. The area also contains a densely populated and highly mixed residential fabric, with a combination of historical buildings and modern high-rise housing. This layered and collage-like urban texture makes it an ideal location for testing speculative urban scenarios.

Fig. 6.1, Xujiahui site location

Fig. 6.2, Photos of Xujiahui, photo by Ricky Qi

Fig. 6.3, Xujiahui bankrupted shopping mall, photo by Yizheng Fan

6.2 Beta Recode of Shanghai City

Design Beta of Terminal Layer

Fig. 6.4 presents a glitched urban fabric in a neighborhood of the Xujiahui area, where newly constructed structures are inserted to accommodate both individual and collective experiences. These interventions include spatial additions within existing residential buildings for individual experience (see fig. 6.5), as well as open-space installations at the neighborhood scale that support collective experience (see fig. 6.6). Fig. 6.5 and fig. 6.6 are collages illustrating the embodied manifestations of these two experiences, employing a vaporwave art style to depict the interactions between humans, space, and computers. The collage serve as a metaphor to convey both the means of interaction and the immersive experiential atmosphere.

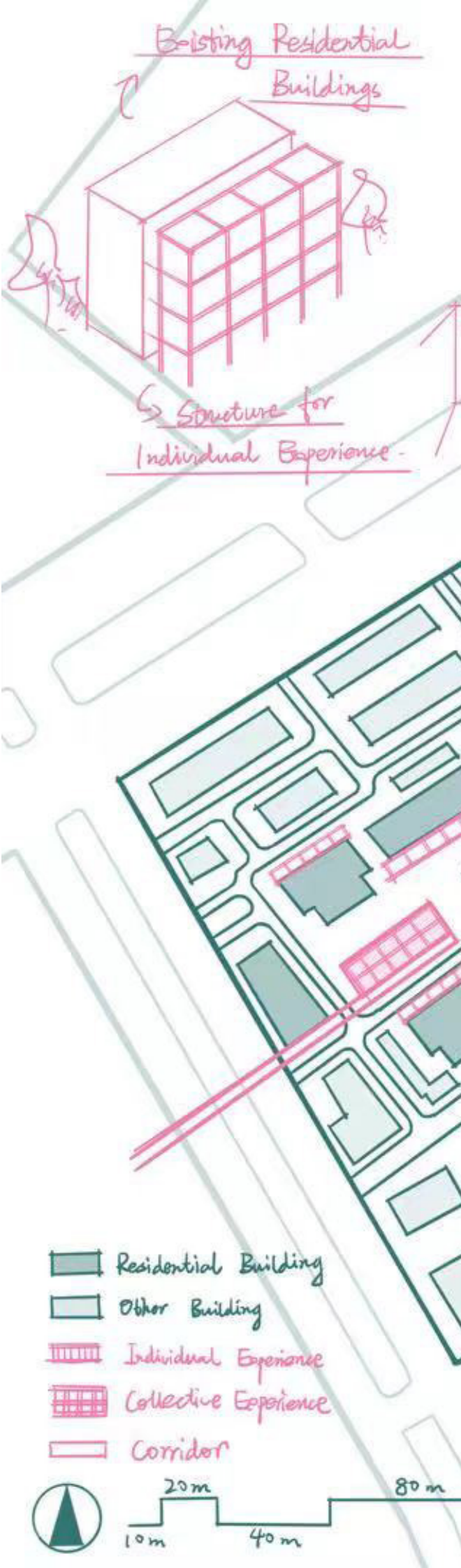
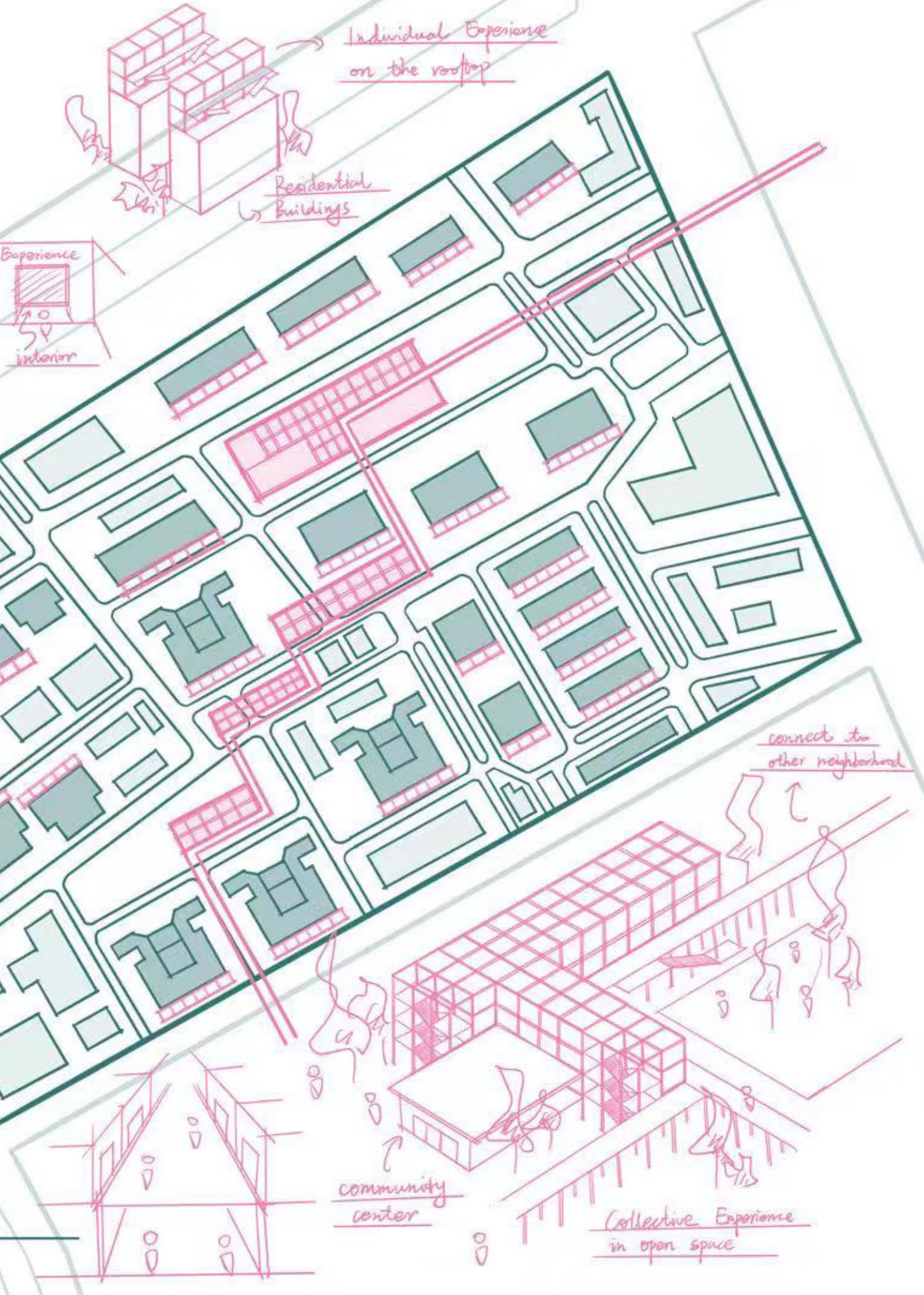
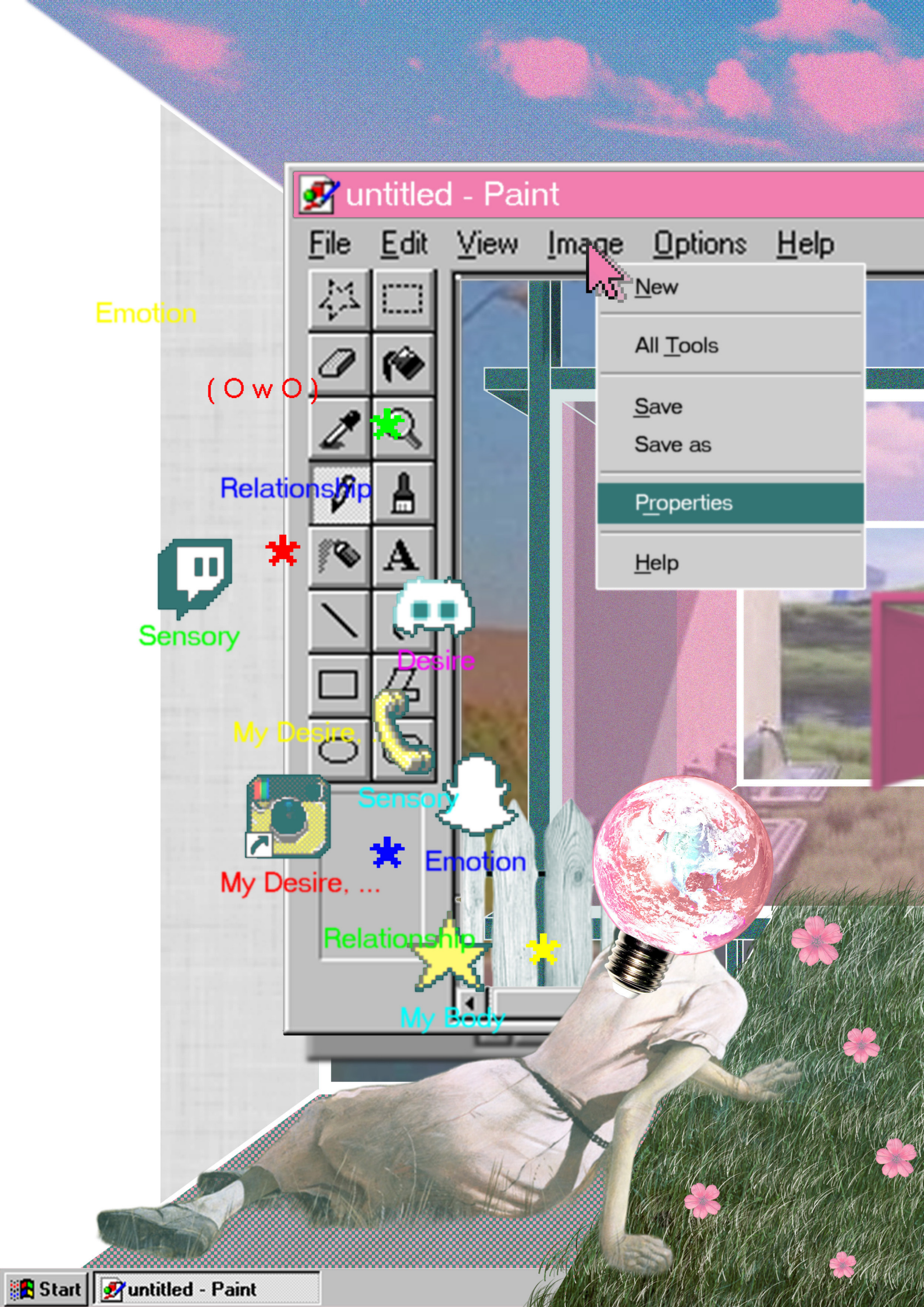


Fig. 6.4, Glitched neighborhood fabric in Xujiahui


Individual Experience
on the rooftop
Residential
Buildings
Experience
interior
connect to
other neighborhood
community
center
Collective Experience
in open space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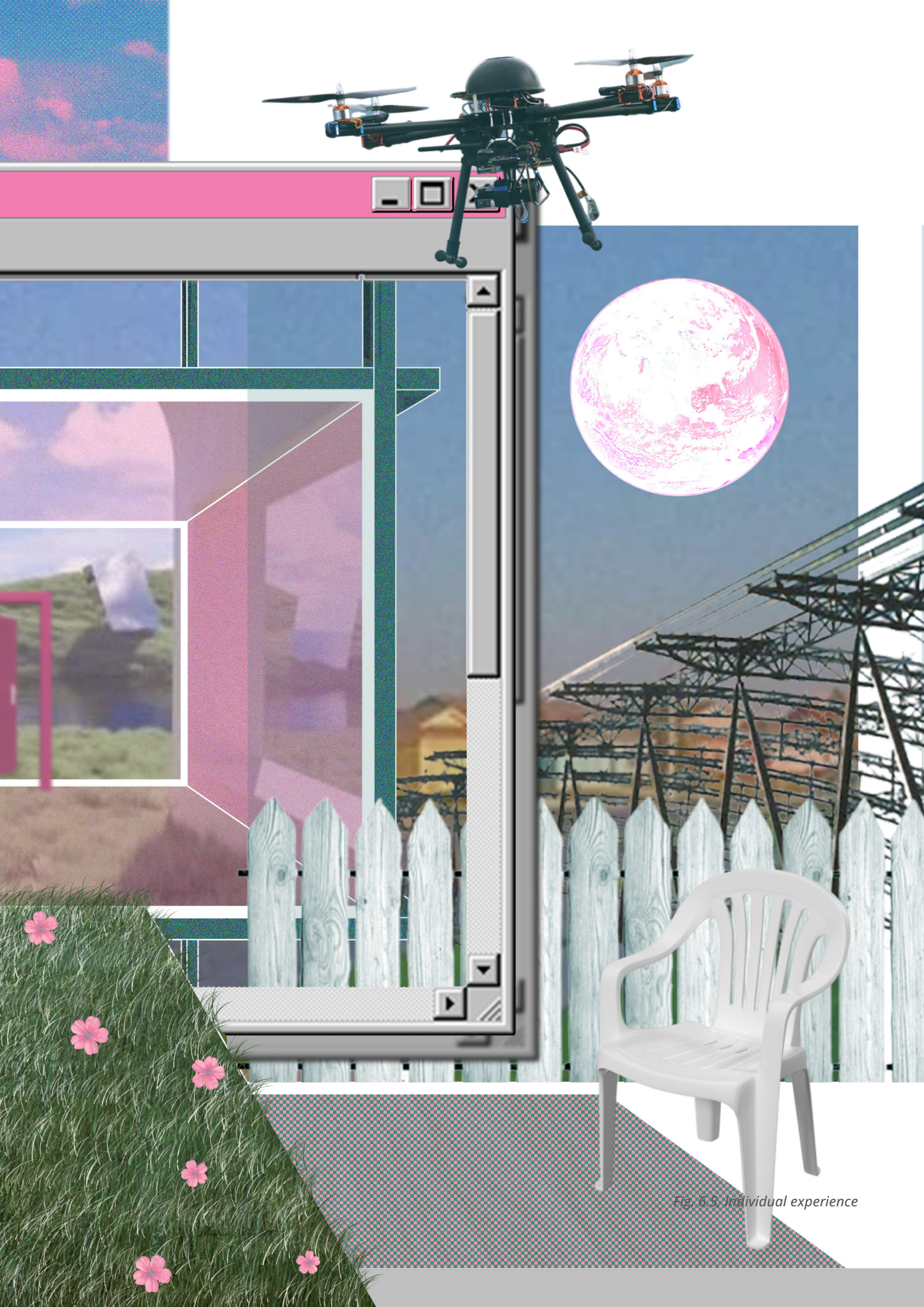
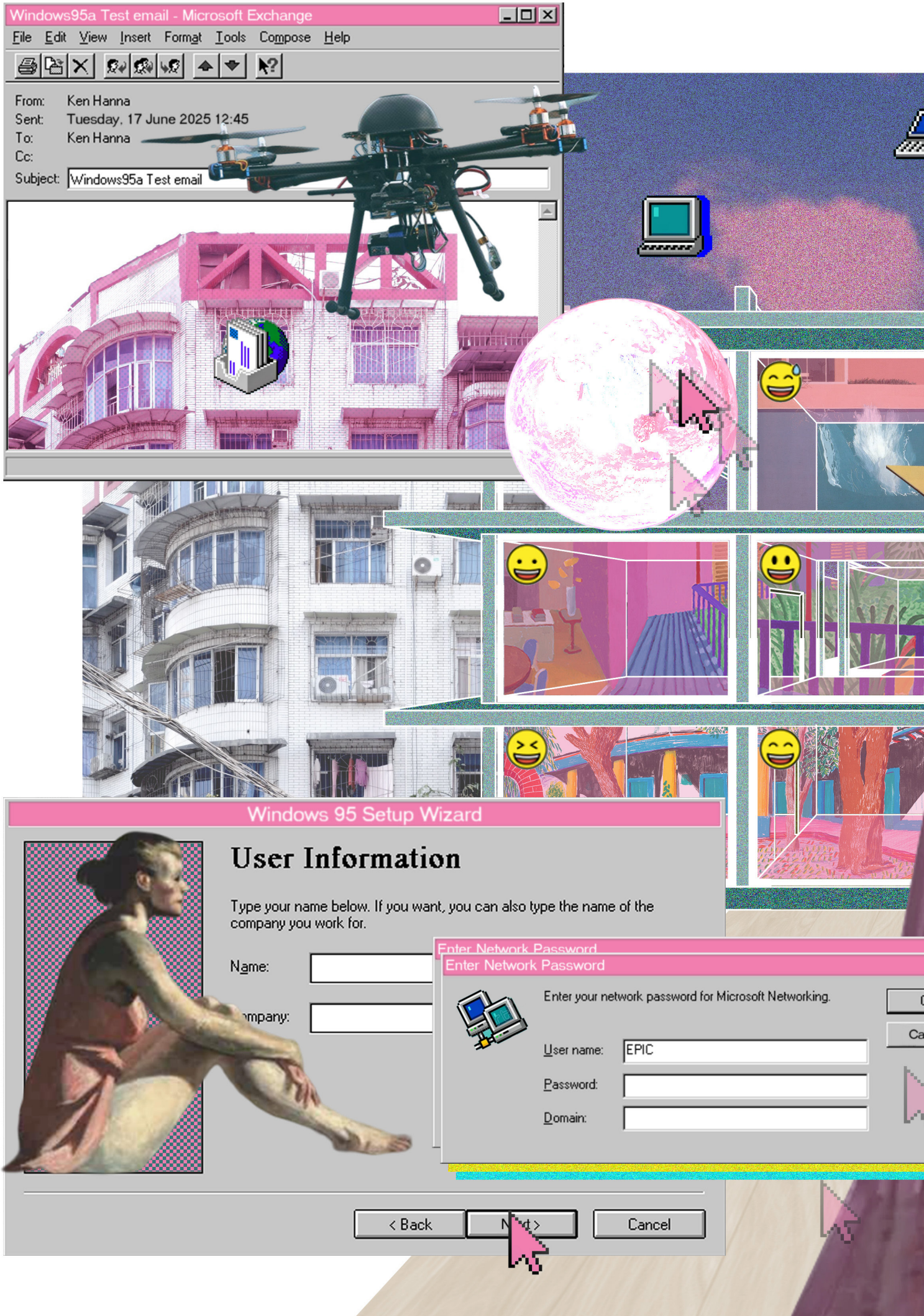


Fig. 6.3 Individual experience


Windows95a Test email - Microsoft Exchange
File Edit View Insert Format Tools Compose Help
From: Ken Hanna
Sent: Tuesday, 17 June 2025 12:45
To: Ken Hanna
Cc:
Subject: Windows95a Test email
Windows 95 Setup Wizard
User Information
Type your name below. If you want, you can also type the name of the company you work for.
Name:
Enter Network Password
Enter Network Password
Enter your network password for Microsoft Networking.
User name: EPIC
Password:
Domain:
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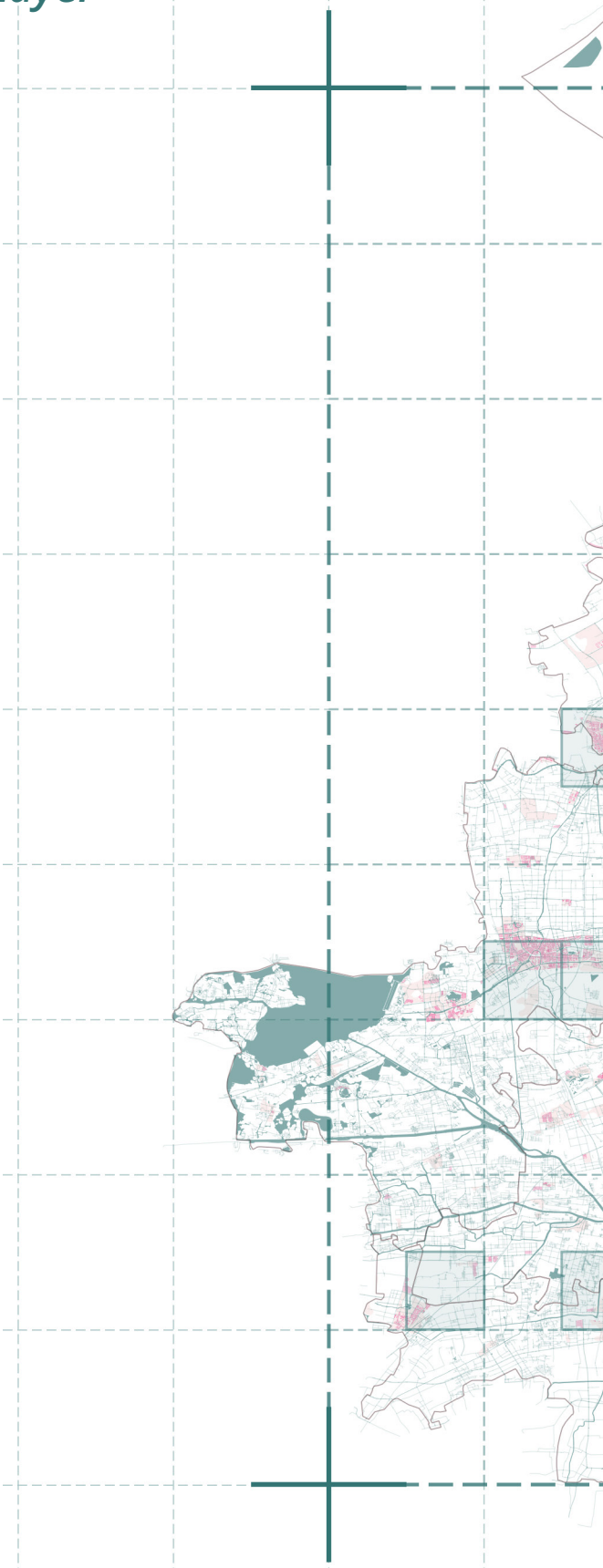
Cancel

Fig. 6.6, Collective experience

Planning Beta of Shanghai Terminal Layer

The entire residential area, both in the countryside and the city, as well as campuses in Shanghai, will be equipped with individual and collective experience situations for residents' use. Individual experiences will primarily be distributed within residential buildings, while collective experiences will be located in open spaces within the residential areas. Additionally, in the westward and eastward urban expansion of Shanghai, newly built residential areas will also be oriented towards experience-situation-based public spaces.



zoning classification

water body

road network

buildings for individual experience

residential area for collective experience

countryside area for collective experience

water body

planned residential area

individual experience

collective experience

** The data is sourced from OSM and Amap via its APIs.*

N

0 5 10 20 km

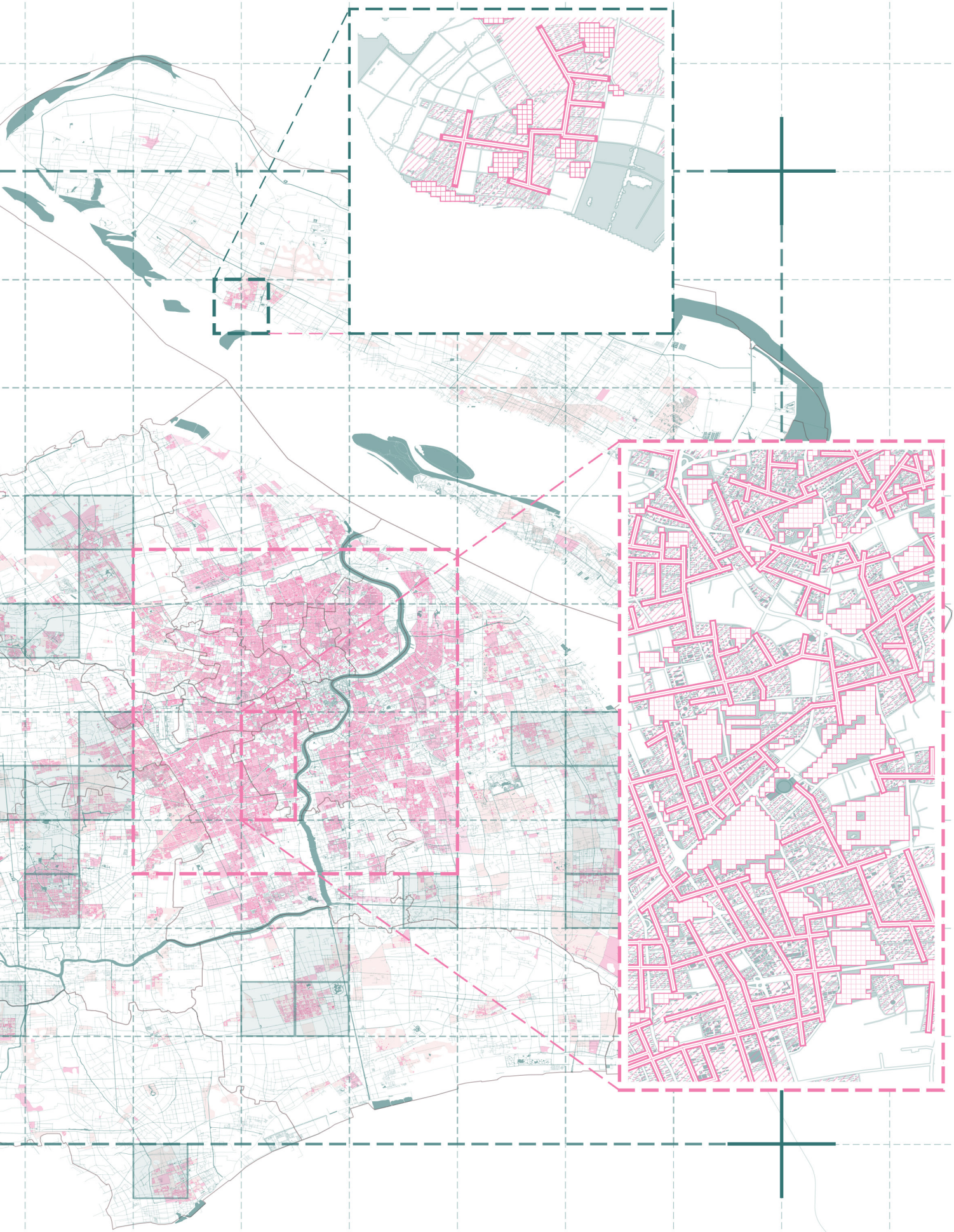


Fig. 6.7, Planning for the terminal layer in Shanghai

Design Beta of Market Layer

Fig. 6.8 presents the glitched Xujiahui economic center, where high-betweenness roads are overlaid with structures designed for explorable individual experiences (see fig. 6.10). The shopping mall, acting as a central node, is transformed into a multifunctional space for experience product planning, production, delivery, and experimental exhibitions that enable individuals to engage in experiences beyond ordinary cognition and conventions (see fig. 6.11).

Fig. 6.9 shows, at a larger scale (Xuhui district), the distribution of explorable experiences following the planning and construction of the glitched mall.

Fig. 6.8, Glitched urban fabric of Xujiahui area


100 m

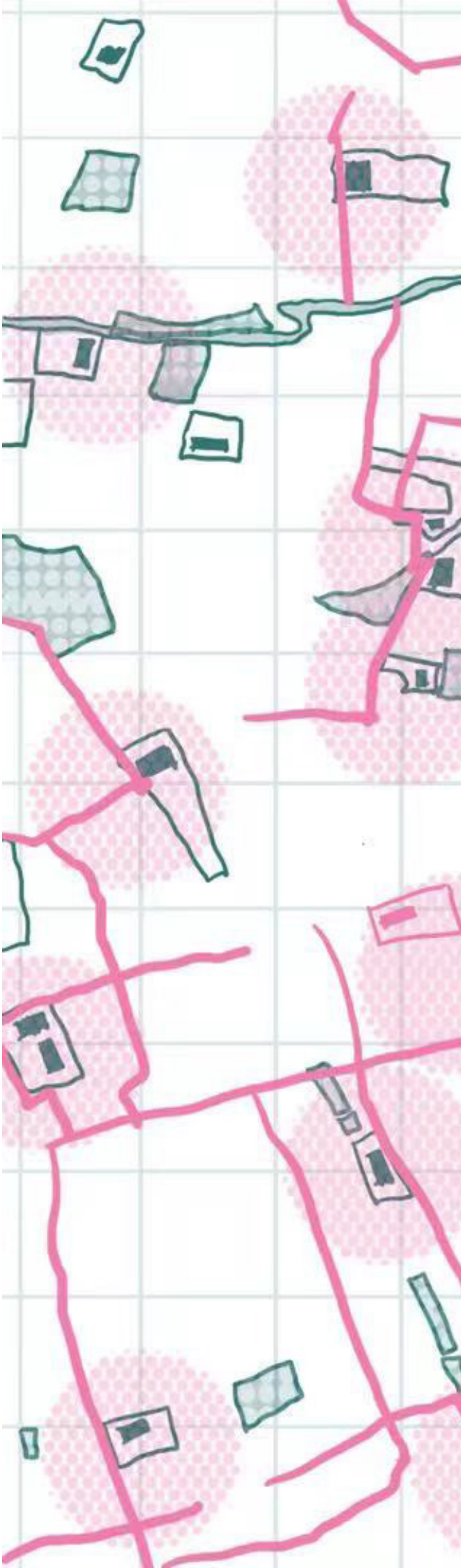


Fig. 6.9, Glitched urban fabric of Xuhui district

Fig. 6.10, Explorable experience

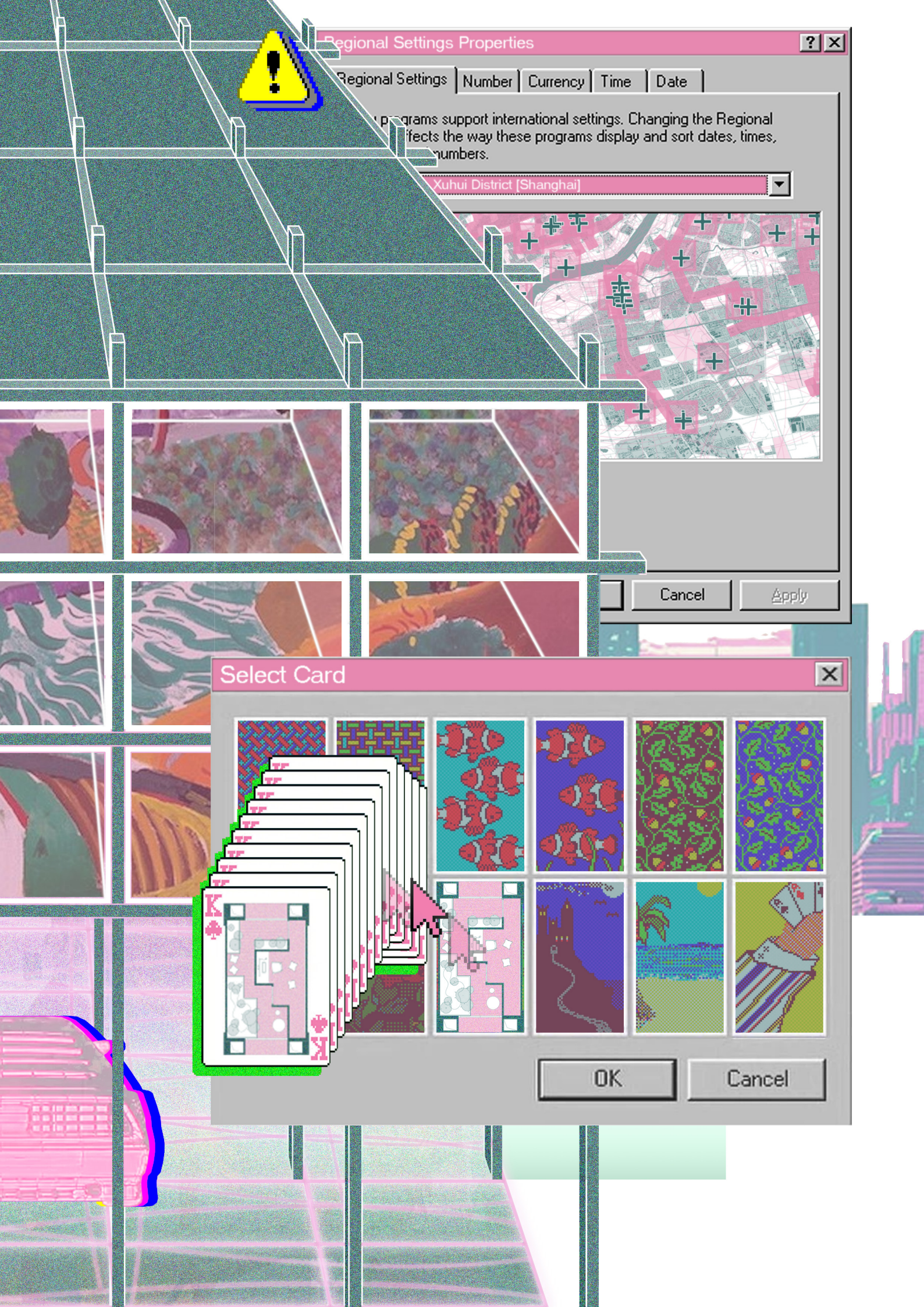
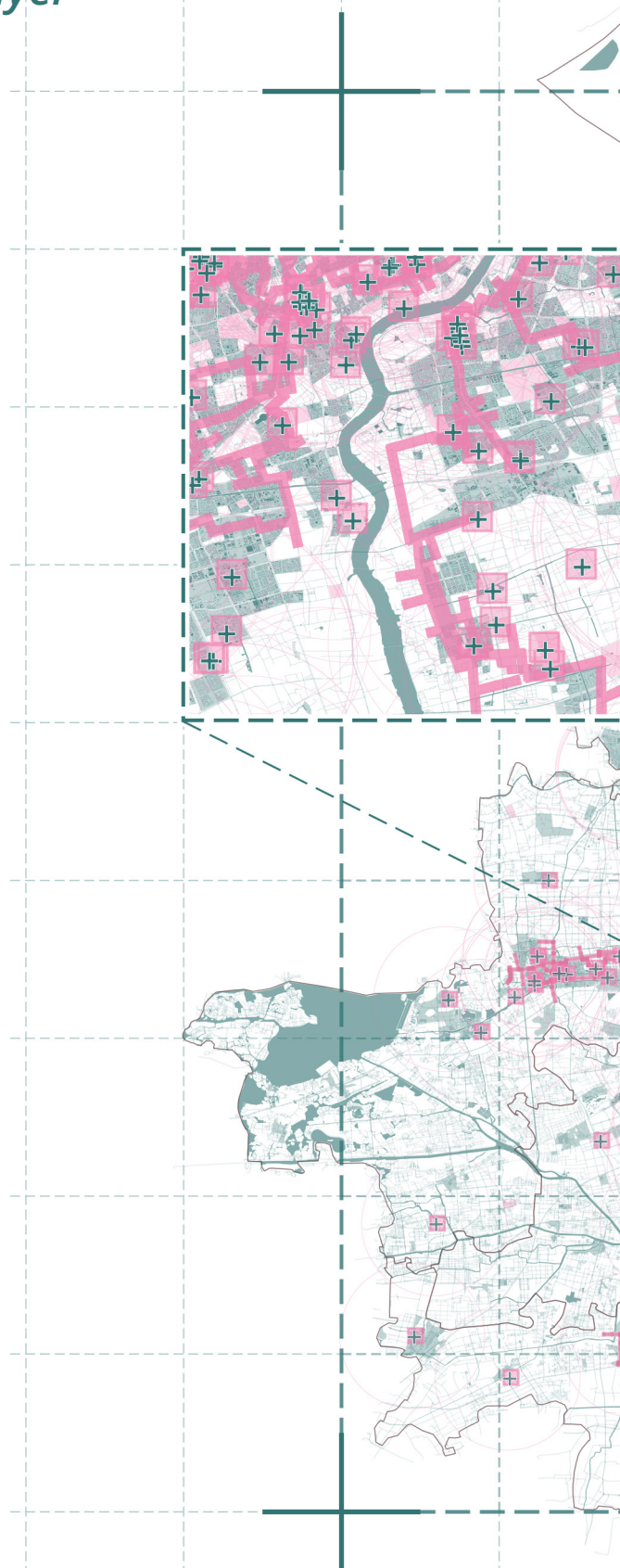

Regional Settings Properties
Regional Settings
Number
Currency
Time
Date
rograms support international settings. Changing the Regional
ffects the way these programs display and sort dates, times,
numbers.
Xuhui District [Shanghai]
Cancel
Apply
Select Card
OK
Cancel

Fig. 6.11, Experimental experience


... 81%
Distance Left: 17
From: Glitched Mall
To: Gliteched Self
Status: In Battle
Status
Health
48 / 54
Magic
12 / 17
Experience / Next Level
Immersive EX_07
7 / 7

Planning Beta of Shanghai Market Layer

Explorable experiences will primarily be distributed across public spaces, particularly in areas with high betweenness at the city scale. Customers will have the opportunity to explore new possibilities within their everyday life. Glitched malls will serve as nodes within these public spaces, displaying new experimental experiences and corresponding service spaces on the lower floors. This will create a cohesive public space layer. Meanwhile, the upper floors of these malls will focus on the production and transportation of experience products. Existing malls will transform into experience-production hubs, and, together with newly built glitched malls, will cover nearly all residential areas in Shanghai.



- *zoning classification*
- *water body*
- *road network*
- *residential area*
- *future experience mall*
- *planned experience mall*
- *experience service coverage*
- *planned commercial area*
- *explorable experience*
- *experimental experience*

** The data is sourced from OSM and Amap via its APIs.*

N

0 5 10 20 km

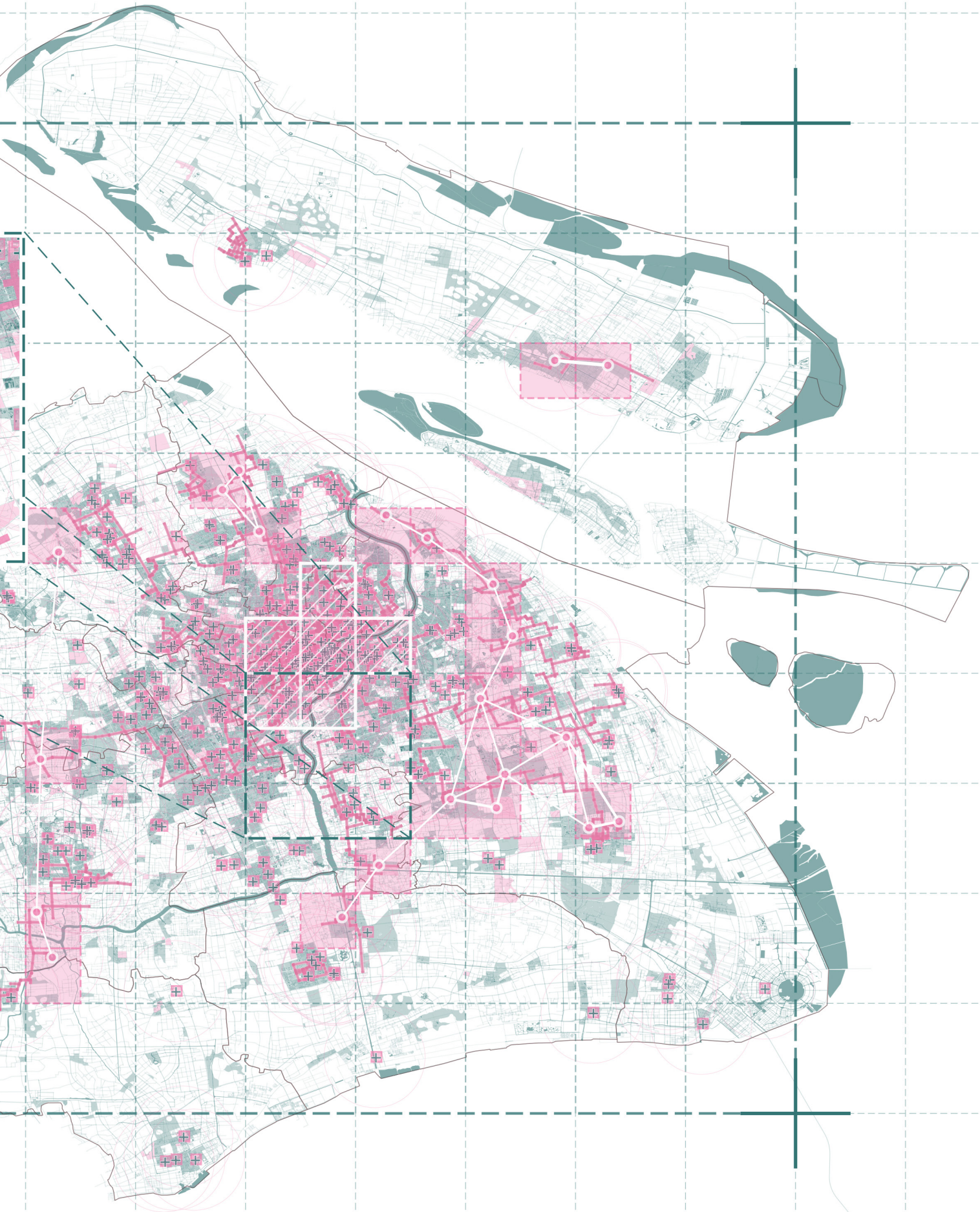


Fig. 6.12, Planning for the market layer in Shanghai

Planning Beta of Shanghai Flow Layer

The glitched shopping malls will establish drone transportation systems on their rooftop areas to deliver experience products, covering all residential areas and public spaces.

Besides, future more Taobao villages in the southern regions and other production areas in different cities will transport components for producing experiences to these glitched shopping malls via roads, railways, sea, and air transport. Additionally, used experience products will be recycled for their components, contributing to a sustainable consumption vision.

- *zoning classification*
- *water body*
- *road network*
- *residential area*
- *future experience mall*
- *planned experience mall*
- *experience delivery range*
- *planned commercial area*
- *exisited production area*
- *planned production area*
- *railway*
- *port logistics*

** The data is sourced from OSM and Amap via its APIs.*

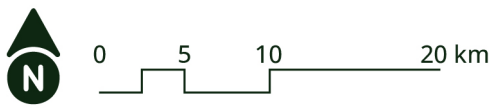
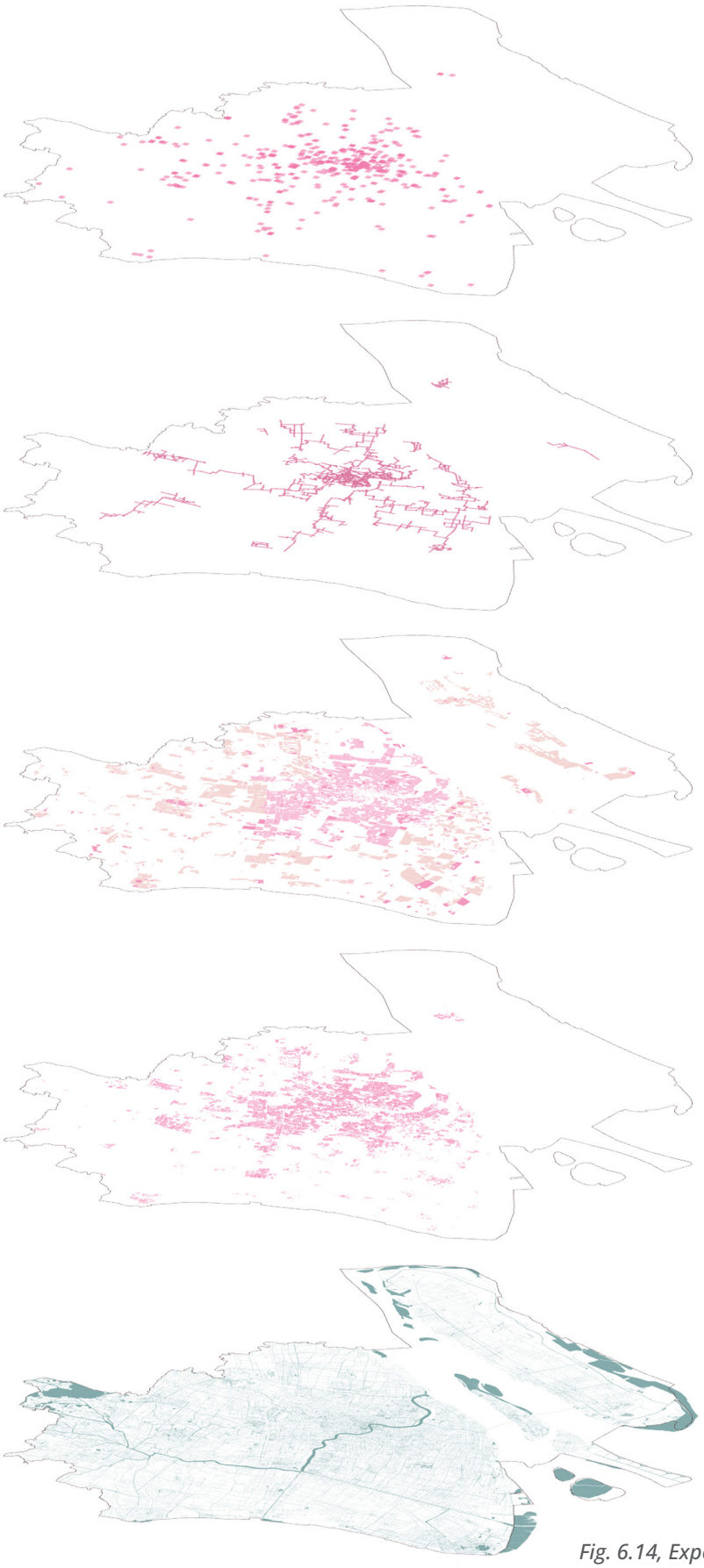


Fig. 6.13, Planning for the flow layer in Shanghai

Planning Beta of Shanghai Production System



Individual Experience from Terminal Layer

Collective Experience from Terminal Layer

Explorable Experience from Market Layer

Experimental Experience from Market Layer

Fig. 6.14, Experience situations in Shanghai

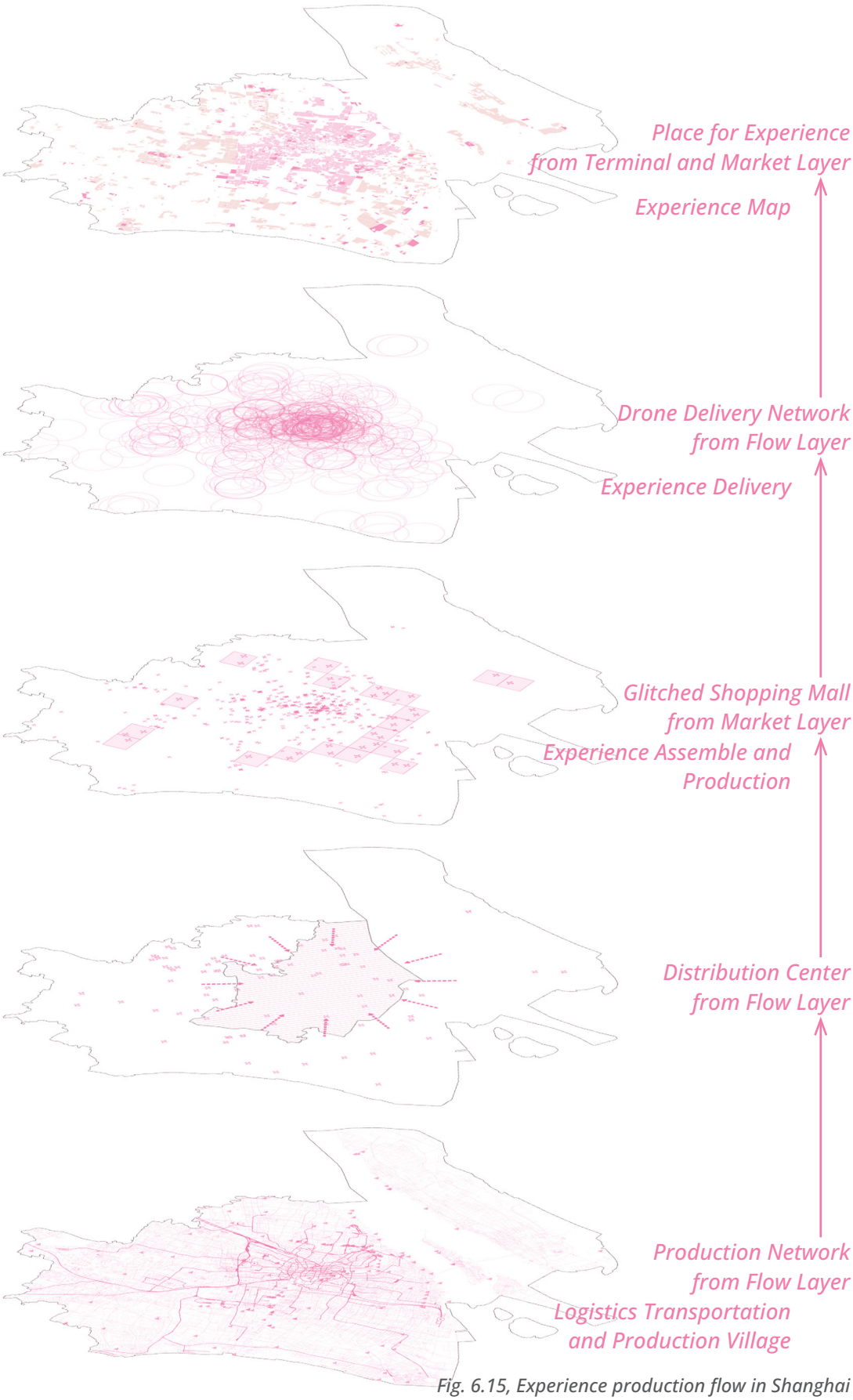
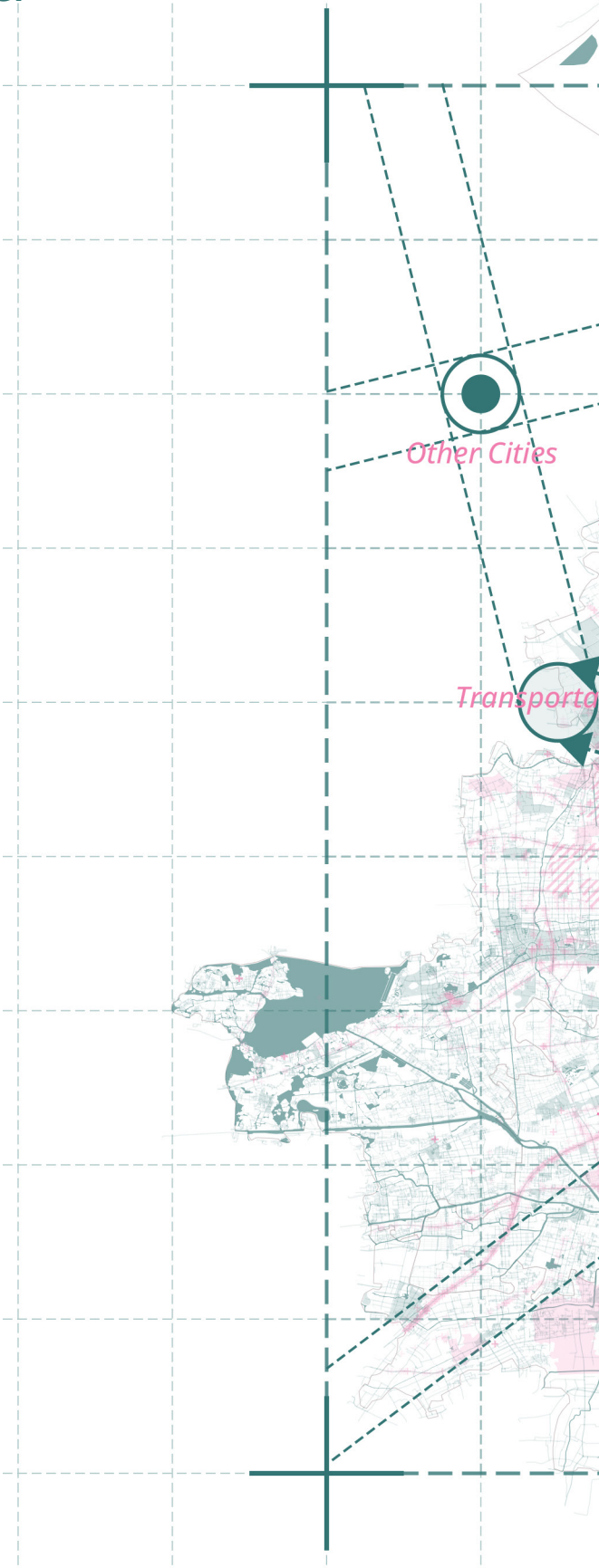


Fig. 6.15, Experience production flow in Shanghai

Planning Beta of Shanghai Cloud Layer

All experiences will be rated and commented on by customers after use. This data will be collected and processed at data centers in remote areas. The data will be used to analyze the usage and frequency of components and experiences, serving as guiding material for production areas to regulate manufacturing. The data will directly guide production rather than influence individuals.



- *zoning classification*
- *water body*
- *road network*
- *residential area*
- *cell tower*
- *location for data center*
- *information destination*
- *other city*
- *exisited production area*
- *planned production area*
- *informtion flow*

** The data is sourced from OSM and Amap via its APIs.*

N

0 5 10 20 km

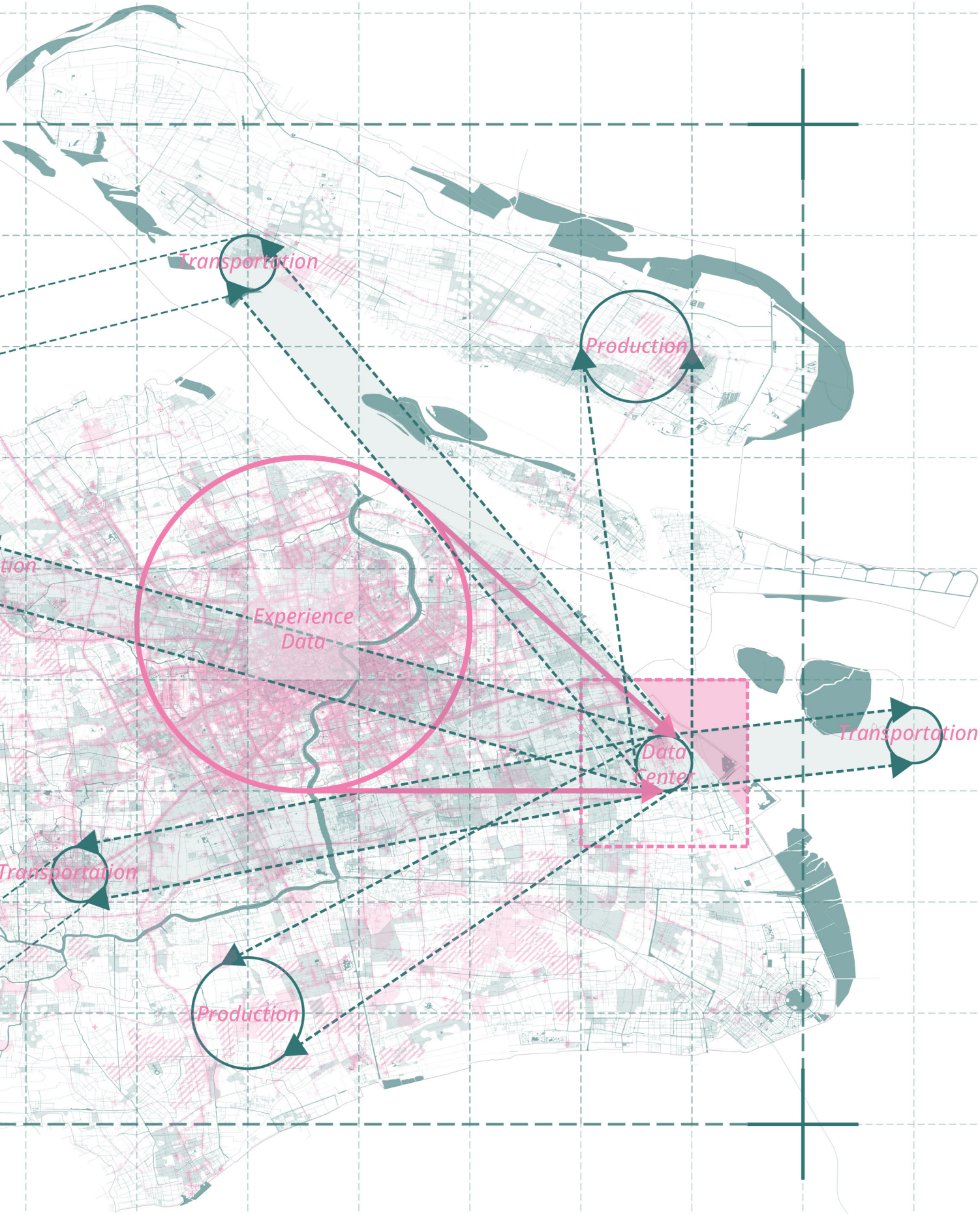
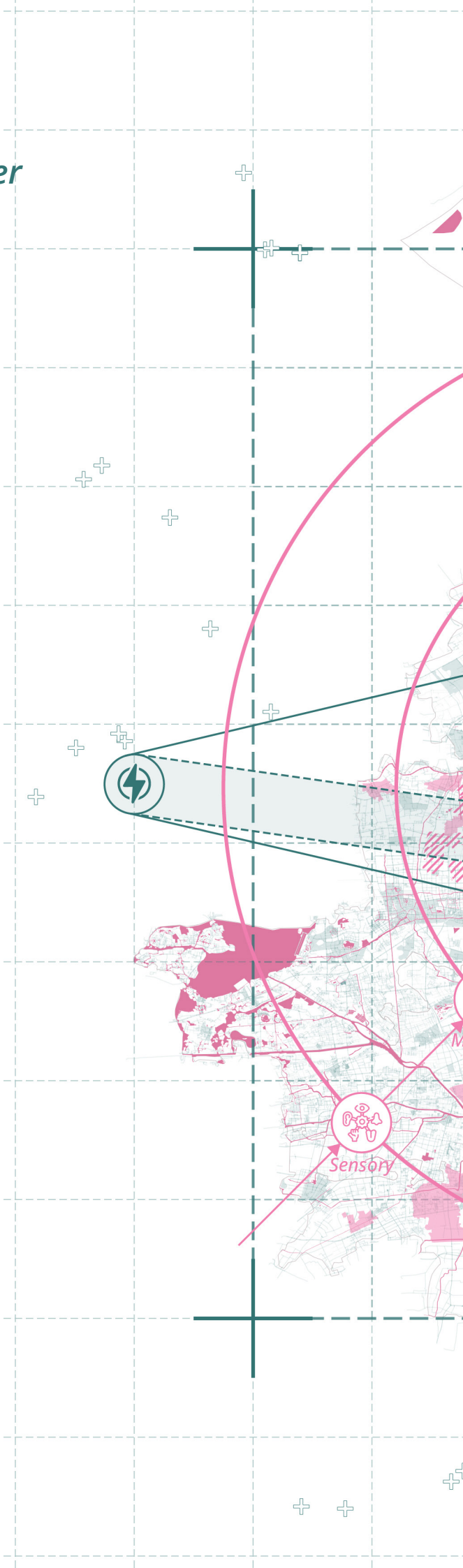


Fig. 6.16, Planning for the cloud layer in Shanghai

Planning Beta of Shanghai Earth Layer

The data centers will be located in remote areas in the eastern Shanghai, where abundant electricity and cooling water will provide the necessary energy and material foundation to ensure efficient and stable planetary computing. These data centers will also guide energy supply.

As resources for producing experience products, it will not only involve recyclable components but also require extensive creative design knowledge and real-world scenarios, which could be extracted and utilized as AR/VR experiences to offer rich sensory experiences. In this way, a sustainable ecosystem for producing experiences is formed, leveraging technology and planetary computing.



- *zoning classification*
- *water body*
- *road network*
- *residential area*
- *power station*
- *location for data center*
- *exisited production area*
- *planned production area*
- *material flow*

** The data is sourced from OSM and Amap via its APIs.*

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0 5 10 20 km

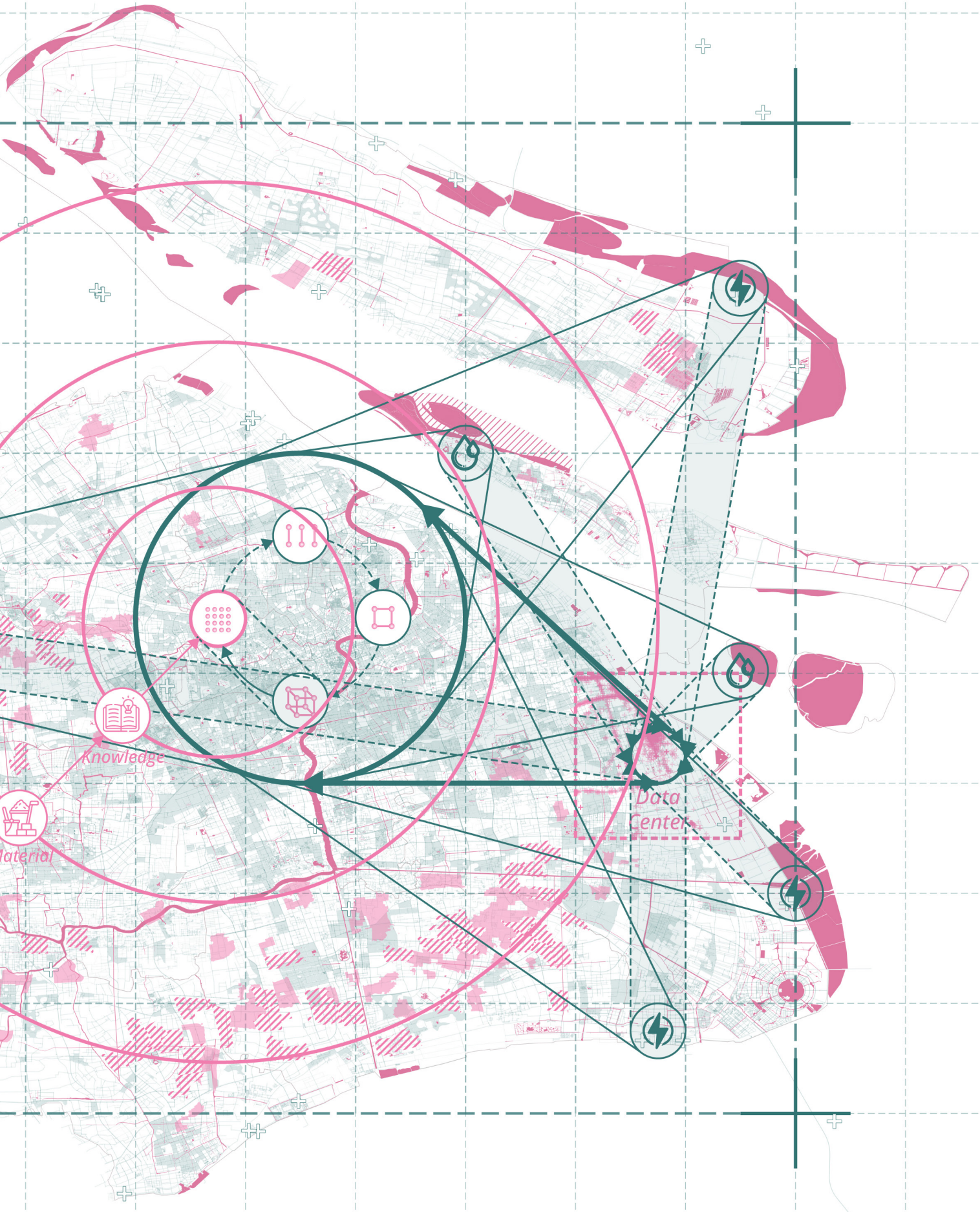


Fig. 6.17, Planning for the earth layer in Shanghai

Planning Beta of Shanghai Program Foundation

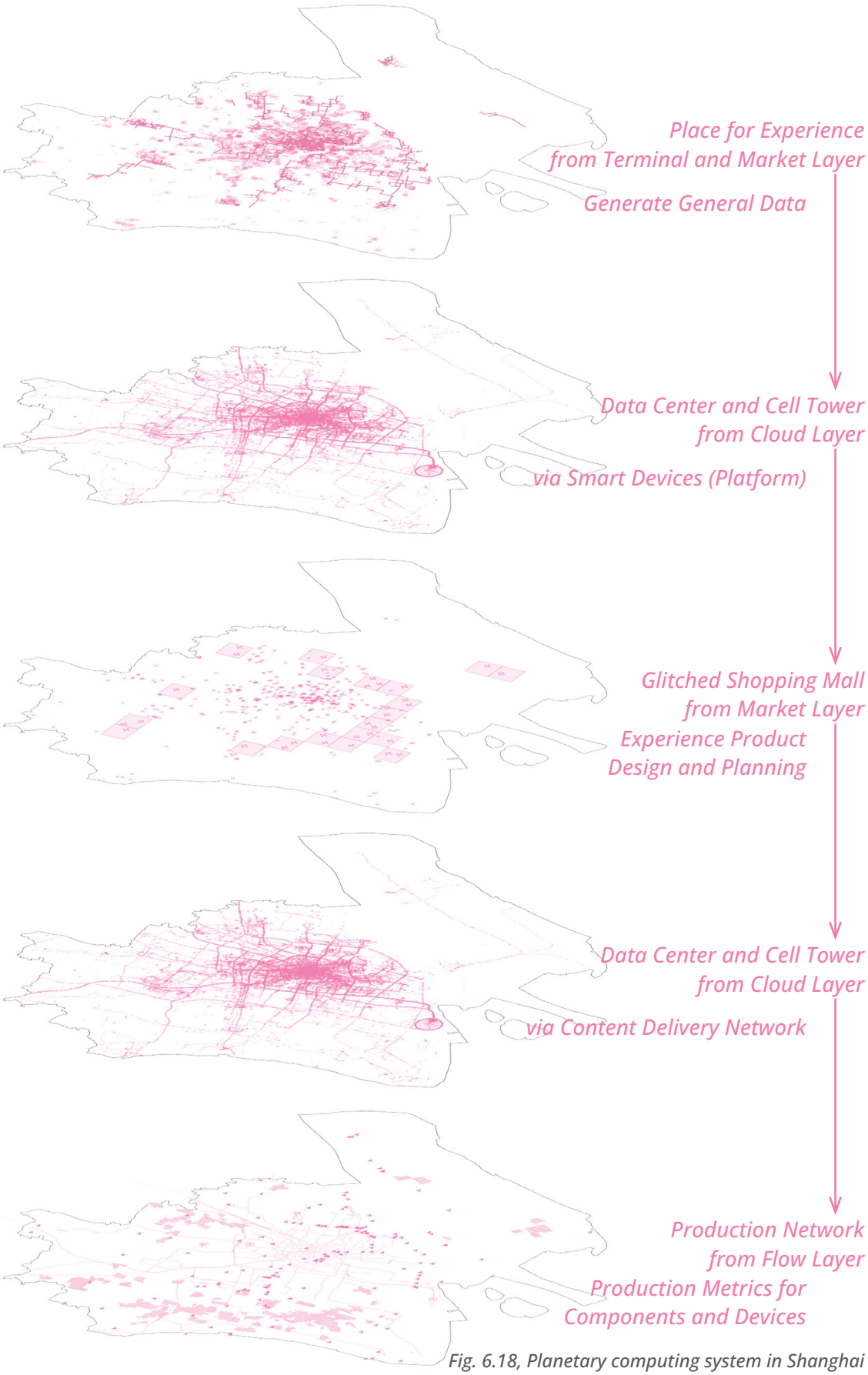


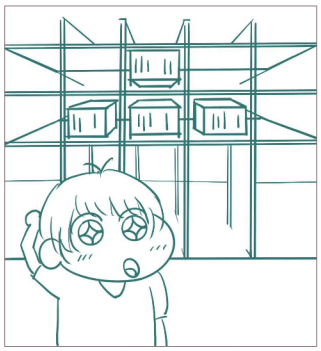
Fig. 6.18, Planetary computing system in Shanghai

Fig. 6.19, Materials system in Shanghai

6.3 Test Beta in the Field

experimental experience

distribute experience



explorable experience

Earth Layer *Cloud Layer* *Flow Layer* *Market Layer*

extract materials

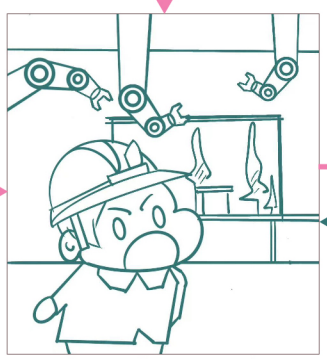
program system

produce materials

design and plan experience

provide energy

transport materials



produce the experience

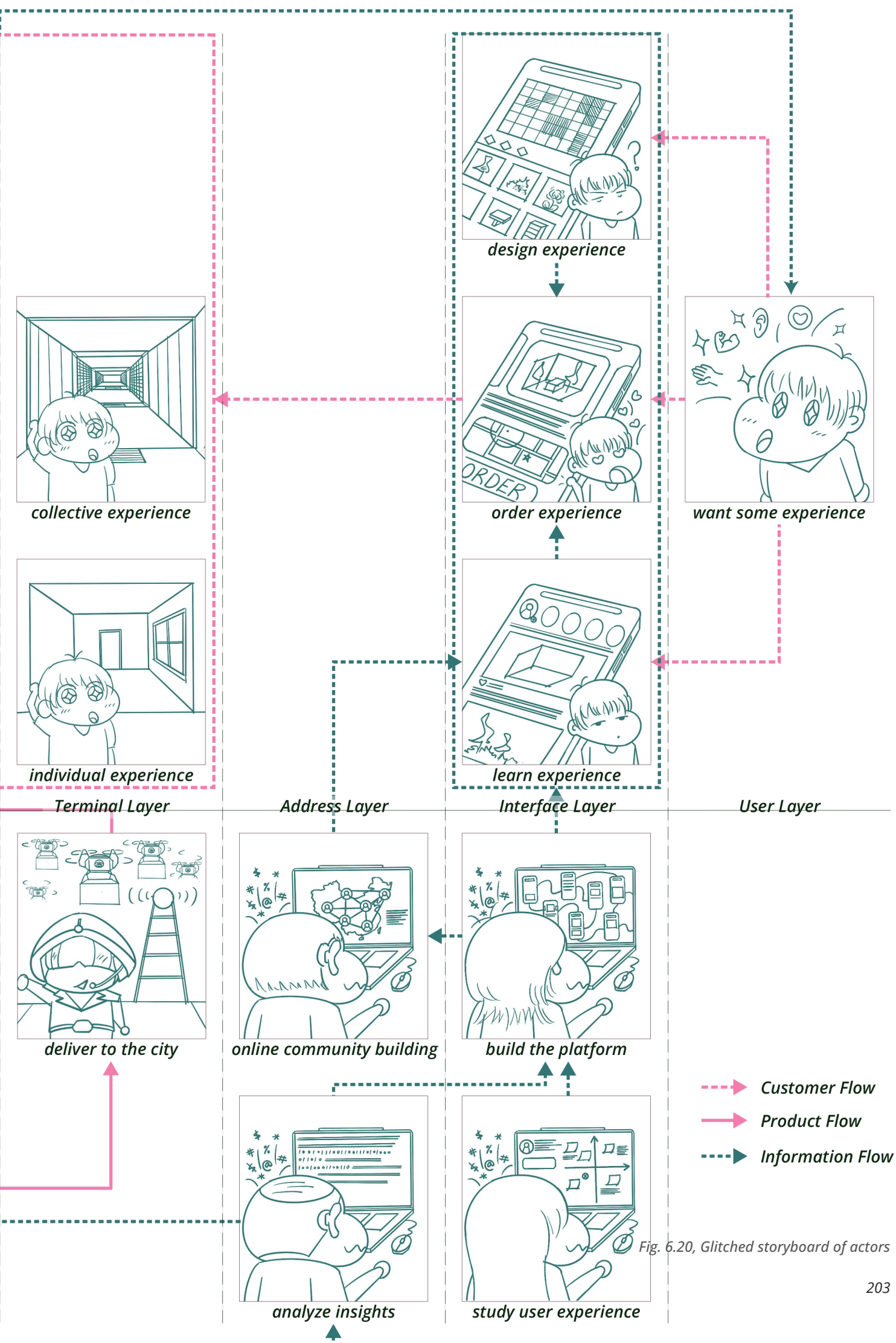


Fig. 6.20, Glitched storyboard of actors

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Conclusion and Discussion

In conclusion, this thesis investigates how the Alibaba ecosystem, as a new institutional form, reshapes China's geographical environment and social structure through both its digital infrastructure and physical manifestations, with a particular focus on Shanghai, China's economic center. Situated at the intersection of political economy, technological philosophy, and architecture and urbanism, this research adopts digital biopolitics as its critical lens and applies Stack theory as both research and design framework to remap the patterns of production, consumption, and the evolving culture of consumerism.

The inquiry is structured around four interconnected questions. It begins by uncovering the mechanism and logic of the Alibaba ecosystem as a facilitator of digital biopolitics. Building on this foundation, it then analyzes the socio-spatial implications of such biopolitical operations within the context of Shanghai. The project further speculates on possible altered futures of production and consumption, reimagined through an affirmative paradigm of digital biopolitics. Finally, it envisions the spatial transformations of Shanghai's culture of consumerism through a utopian design.

The following sections summarize the conclusions drawn from each of the four sub questions, accompanied by a discussion of their broader implications for digital governance, social and spatial dynamics.

SQ1 Platform as an Institutional Form

Alibaba corporation's development has been structurally aligned with China's urbanisation, modernisation, and technological advancement. Its e-commerce ecosystem has been actively supported and promoted by the state, particularly in alignment with national economic policies aimed at stimulating consumption and expanding domestic demand. Evolving from a web-based marketplace, the corporation strategically expanded during the mobile internet era by contributing to digital infrastructure development and logistics network optimisation. Today, it has shifted its focus towards technological innovation and algorithmic governance, Alibaba transcends conventional market-dominant entities. No longer merely a commercial or market oligarch, Alibaba now occupies a structural position in society, shaping infrastructure, formulating platform rules, and influencing the development of credit systems.

Based on planetary-scale computing and the nomos of cloud, which relies on the geographical environment, natural resources, computing and transmission hardware, and cloud services, Alibaba has redefined the product lifecycle and the ways customers access a product. This transformation is realized through the construction of physical infrastructure such as logistics networks, regional production area planning, physical marketplace construction, and last-mile delivery systems. These developments reshape traditional production patterns by embedding platform logic into both material flows and information flows. At the same time, on the consumption side, Alibaba uses customer profiling, location tracking, interface design, and algorithmic recommendation systems to influence customer cognition and behavior. These mechanisms work to standardize, guide, and manage consumption habits and value systems, thereby shaping contemporary consumption patterns and reinforcing

platform dependency. Across its interconnected systems, Alibaba achieves user engagement, growth, and advertisement goals, all serving the purpose of profit-making. Through this evolution, Alibaba has transformed into a new institutional form that facilitates its digital biopolitics to significantly influence contemporary production and consumption patterns.

As Bratton (2016) argues in The Stack, humanity is transitioning from the geopolitics of the Nomos of the Earth, as proposed by Carl Schmitt, to a new digital geopolitics based on the Nomos of the Cloud, which is based on global digital infrastructure and planetary-scale computing, (Lan, J., 2022). In this emerging order, power, sovereignty, and governance are no longer merely dependent on territory and borders, but are increasingly enacted through cloud platforms, data architectures, and computational systems.

This transformation introduces new perspectives and challenges for future urban design and planning. The cloud domain (Bratton, 2016), which was not previously part of traditional political governance, is now becoming a space shaped by both national power and digital capital. with the case of platform corporation Alibaba, It has evolved beyond a commercial entity, becoming deeply embedded in the construction of digital infrastructure and the development of production and consumption. Operating under the state-led principle that places the nation above the market, Alibaba participates in shaping a uniquely Chinese Nomos of the Cloud and plays an institutional role in the biopolitics of the digital era.

Consequently, the future city must no longer be understood solely as a material agglomeration, but as a mixed space of governance where the physical and digital are closely connected. Urban planners must critically examine how data infrastructures reshape social life, economic circulation, spatial justice, and even data justice. In the process of policy-making and urban design, platforms must be recognized not just as economic actors, but as infrastructural agents of governance, shaping everyday life and political imaginaries.

SQ2 *Dilemma of Digital Biopolitics*

Through the case study of Shanghai, this thesis explores how Alibaba's business development, along with policy making and spatial implementation, reshapes the geographical environment, spatial structure, and configuration, enabling digital biopolitics. It examines how these changes affect the existing living environment, human cognition, and behavior through both spatial implementation and digital platforms. As China's economic center, Shanghai leads in digital transformation, making it a key site for observing shifts in the culture of consumerism.

In conclusion, as Alibaba's digital biopolitics programs both production and consumption patterns, spatial practices reveal how integrated logistics networks and supply chains are developed in coordination with government planning. This is evident in the construction of logistics infrastructure and the organization of Taobao Villages as production hubs. In addition, its O2O retail strategies are designed to target diverse demographic groups, expanding into both urban and rural areas, while pickup stations

now cover nearly all residential areas. On the consumption side, behavioral guidance and identity profiling play central roles. Interface design also shapes consumption choices and user engagement. As a result, the outcome is an integrated system that emphasizes efficiency and convenience. However, due to its monopolistic dominance, Alibaba contributes to the hollowing out and alienation of traditional existing marketplaces, creating an unfair commercial environment. Furthermore, its profit-driven model leads to the overexploitation of human value, as data is used to extract users' thoughts and behaviors, narrowing their choices and preferences.

This example illustrates both the affirmative and negative aspects of digital biopolitics. On the affirmative side, planetary-scale computing enables large-scale production and coordinated systems, allowing products to be accurately targeted, distributed, and delivered. Through digital biopolitics control over labor, interaction, and time, productivity is increased and operations become more sustainable. This reflects the broader logic of platform governance, where efficiency is achieved through data-driven precision. On the negative side, Alibaba's profit-driven model relies on profiling users and monitoring behavior to extract commercial value. Such practices intensify market inequality and erode individual agency, as human life is increasingly turned into a calculable and controllable resource. This reflects the core of negative digital biopolitics, which is an excessive form of control that threatens subjectivity and reduces life to data.

Digital biopolitics in the digital age differs significantly from traditional forms. Its objects of control are not limited to the state but also include technological platform corporations like Alibaba. These platforms not only manage life at the data level but also shape people's identities, emotions, and values. Furthermore, digital technologies break traditional physical boundaries, allowing governance to occur in any space, unrestricted by physical distance. The mechanisms of digital biopolitics have already permeated various aspects of daily life and have reached a consensus globally, creating a past dependence. This phenomenon presents profound challenges and opportunities for future digital governance and urban planning.

SQ3 *Customer as an Experiential Subject*

This thesis acknowledges that existing examples suggest digital biopolitics governance offers significant opportunities across various domains. It has become an inevitable mode of life governance in today's society, particularly in China, offering potential benefits for both production and governance. However, as described in the concept of "granular society", biopolitics in the digital age replaces the truth forms, personal development, and sense of belonging that once existed in civil society. The corresponding urgent issue, concerning the tension between digital technology and human subjectivity, requires more and more attention.

Therefore, this project aims to explore an altered paradigm within the framework of digital biopolitics to address this issue. In the context of algorithmic theory, the exploration-exploitation dilemma is a fundamental concept (Berger-Tal, O., 2014). Alibaba's digital biopolitics can be seen predominantly as an exploitation model, where it excessively pursues short-term, fast profits by treating customers as resources, overexploiting them through platforms, algorithms, surveillance, and recommendation technologies. However, customers are also limited resources. Therefore, this project

argues for a fundamental shift in its operational logic from exploitation to exploration to poetically imagine the future.

This project proposes that experience should be prioritized, drawing on Merleau-Ponty's phenomenology of perception, which emphasizes the direct, embodied interaction between the subject and the world, encompassing emotional, intentional, and non-sensory dimensions. Grounded in a holistic understanding of perception, this perspective envisions a future in which experience itself becomes the product. In such a system, technology functions as a governance and enhancement tool for the production of experiences, enabling customers to engage with and explore their own subjectivity.

Therefore, in the future production and consumption system of Shanghai, the focus should shift toward humans as experiential subjects, with experience itself becoming the product. The traditional marketplace would no longer exist, replaced by the production place for experiences. The production line, logistics network, and information flow would focus on the components that make up the experience, thus reorganizing the relationship between customers, products, and the marketplace. In this new system, customers are no longer passive consumers or data slaves, but are empowered participants who are able to explore, design, and learn the experiences. In doing so, both individual autonomy and collective experiences are realized, enhancing subjectivity and opening up new possibilities for engagement and interaction.

And can the enhancement of subjectivity reshape Alibaba's algorithmic programs that govern consumption and production systems? This project argues that only when individuals possess sufficient awareness, autonomy, and critical capacity to understand and respond to algorithmic mechanisms can healthier socio-technical relationships emerge. It is only when more individuals adopt an active and conscious stance toward algorithms that platforms will, in turn, be compelled to adjust based on user preferences. Strengthening individual subjectivity is also the foundation for fostering public discourse and political participation, which are ultimately essential for driving policy and market reform.

SQ4 *The New Situation of Shanghai*

As early as the 1960s, International Situationists offered a critical perspective on the alienation of everyday life under capitalism, proposing the "construction of situations" as a means to activate the latent possibilities of urban space. Similarly, this project raises questions about the influence of emerging digital capitalism on spatial configuration and everyday life. It proposes a reconstruction of consumption and production system, where experience becomes the spatial product and customers are redefined as experiential subjects. In this sense, the space for experiencing the experience becomes a new "construction of situations". Through this, urban space is no longer merely a backdrop to a perceptual world shaped by digital platforms, but becomes a site for the creation and encounter of lived experience, where individuals actively participate in the exploration of the self.

In this way, the urban condition of Shanghai comes to encompass experiences of

embodiment, collectivity, exploration, and experimentation. It supports a mode of consumption that extends beyond material demand, addressing desires, the body, the senses, and relationships. Spatially, this is reflected in private or semi-open living environments that accommodate individual and collective experiential needs, while larger, more public spaces become terrains for discovering the possibilities of lived experience and exploring how future technologies may enhance it. Platform technology functions as a medium that connects individuals to lived experience. It serves both as a guide for experience and as a tool for precise positioning and for forming networked communities. While it collects data to inform the production and regulation of experience products, it does not directly determine individual decisions. The city becomes a composite of situations and a continuously evolving testing ground, where informational, logistical, and production systems provide the infrastructure necessary for the ongoing construction of situations.

Based on the foregoing analysis, this project concludes by proposing a poetical and critical vision: a utopian future in which the system of production and consumption is fundamentally reconfigured around the creation of lived experience. Rather than viewing individuals as data resources or passive recipients of algorithmic governance, this framework recognizes them as experiential subjects who are capable of engaging in self-exploration and shaping their own experiences with the support of technology. By proposing a shift paradigm of digital biopolitics from exploitation to exploration, the project critiques current digital capitalist structures while offering an alternative imaginary grounded in subjectivity. This utopian vision is thus not an escape from reality, but a method of revealing latent potentials within the present, and of constructing new socio-technical and spatial conditions for living.

Transferability of the Stack Theory

Facing the question of analyzing computational system of the Anthropocene from a spatial perspective, this project adopts the Stack Theory from Benjamin Bratton (2016) as a conceptual tool to investigate the vertical and interoperable layers that consititue the planetary-scale computational systems. By applying this framework, the project seeks to remap the technological transition and propose approaches to the design and planning of the geographic environment. It also aims to test and refine the applicability of Stack Theory within the disciplines of architecture and urbanism.

The Stack conceptualizes planetary-scale computation as an accidental megastructure composed of six interoperable layers: Earth, Cloud, City, Address, Interface, and User.The Stack geography reorganizes spatial and political logics through a vertical structuring of technological systems, in contrast to the horizontal divisions of modern political geography. Therefore, it is suitable for organizing and understanding the spatial and technological operations of Alibaba's corporation.

While the Stack offers macro-level philosophical and technopolitical insight into the geopolitics and territorial implications of planetary-scale computation, and represents a work of partially accidental geodesign that calls for further and more deliberate geodesign (Bratton, 2016, p.375), its abstraction makes it difficult to apply directly in architectural and urban design practice. For example, from Bratton (2016, p. 70), the

City Layer integrates human settlement and mobility within both physical and virtual environments, enabling user flows to connect physical, informational, and ecological infrastructures. However, it overlooks the micro-spatial dimensions that shape individual and community life through everyday interactions between computational technology and space configuration. Moreover, the argument in its content assumes that platforms transcend national borders and reorganize sovereignty and governance on a global scale, which does not hold in the context of China, because the operation of platforms is strongly influenced by national policies.

Based on this, the approach adopted in this project is to use the Stack as a framework for research and design. However, the contents of each layer need to be systematically adjusted to align with the specific research object and context. In particular, the City layer, which is closest to the spatial-design-operable domain, will be used to reduce macro-level analysis and refine it to identify specific dynamics and heterogeneities. For example, in this study, the City layer is divided into multi-scale layers to describe the socio-spatial interactions involved in Alibaba's core business activity, with a focus on identifying the multi-scale spatial needs based on local characteristics. The same logic can be applied to other topics. For example, when examining the impact of Airbnb on cities and housing, the City Layer can be further specified into sub-layers focusing on Zoning and the Spatial Distribution of Airbnb within the City.

In the process of conducting research and design based on the Stack layers in this project, it has been fouund that the City layer or its subdivided layers are directly linked to the physical and social spaces of the city, involving specific areas, neighborhoods, buildings, and human activities, making them directly applicable to spatial design. The Earth and Cloud layers focus on macro-level policies, planning, and global technological infrastructure, making them more suitable for research from a strategic and planning perspective. Meanwhile, the Address, Interface, and User layers are more relevant for analyzing the application of technology in space and understanding how technology influences human behavior patterns. This approach aligns with the Stack's ability to integrate multiple scales and disciplines. Moreover, since each layer is interoperable, any redefinition or replanning of one layer will affect all other layers, leading to the emergence of different configurations and patterns.

In conclusion, through this experimental study of the Alibaba corporation based on The Stack model, this thesis demonstrates that by adapting and refining the contents of each layer to specific contexts, The Stack can be operationalized not merely as an analytical tool, but also as a spatial design methodology that bridges multiple scales and disciplines. This approach opens up new possibilities for understanding contemporary urbanism as increasingly shaped by platform logics and computational infrastructures.

Reflect

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Reflection

Scientific Relevance

This thesis adopts an interdisciplinary perspective, using architecture and urbanism language as a bridge between technology, philosophy, and art. By integrating these fields, it aims to construct a comprehensive framework for understanding the spatial, social, and technological transition driven by planetary-scale computing under oligarchic monopolies.

And to address the urgent challenges of the Anthropocene, this project adopts the Stack theory as a framework to offer macro-level philosophical and technopolitical insights into the geopolitics and territorial implications of planetary-scale computation, adapting it as a geodesign approach. The Stack offers a model of vertical geodesign sovereignty that addresses the limitations of conventional geography, political boundaries, and cartographic practices, which rely on horizontal spatial representations.

On the design side, the project draws inspiration from the Situationist International and the utopian movements of the 1960s, such as those led by Constant and Yona Friedman. By employing the narrative strategies of Situationist utopias, the project speculates on the evolving relationship between capitalism, consumption, and individual subjectivity in an era shaped by advanced technologies and potentially accelerated capitalism.

As for the limitations of this project, the most significant is its temporal sensitivity. The research and design are based on current technological conditions, which means they may not fully capture or represent the realities of the future. Although the project is situated within the context of accelerated platformisation, it cannot anticipate what may follow. The emergence of AI-native systems, virtual realities, or other unforeseen paradigms could fundamentally reshape how individuals perceive and interact with the world. Similarly, the choice of Alibaba as a research focus reflects the inherent volatility of corporate development. The analysis is grounded in its present business model, yet this model is subject to rapid and sometimes unpredictable transformation. For example, during the course of this thesis, Alibaba divested all of its shares in the physical department store Yintai. In February 2025, Jack Ma made a public return, placing renewed emphasis on technological innovation. These shifts highlight the difficulty of keeping pace with corporate dynamics in real time.

This uncertainty is one of the reasons the project adopts utopianism as a form of critique. Rather than forecasting a fixed or predetermined future, it seeks to intervene in the present. Through design, the project aims to observe which mechanisms are actively shaping the future, to question what is currently being normalized, and to propose alternative pathways that resist dominant trajectories.

Societal Relevance

The debates surrounding culture of consumerism, platform technology, and biopolitics in the digital age remain ongoing and deeply complex. In the Chinese context, these issues are particularly intensified. Everyday life is increasingly compacted into spaces for consumption, raising the question of how to respond to the decline of physical commercial spaces and the alienation of consumption culture in the accelerated platformistion era. Platform technologies have permeated nearly every aspect of daily life, yet public awareness regarding data privacy and security remains limited. While digital governance has become widely accepted, tensions persist between the pursuit of profit and the realization of individual values. This project aims to engage with and critically reflect on these pressing socio-political challenges.

As mentioned earlier, ordinary individuals are always lagging behind and passively subject to the rapid development of technology and capital. Yet whether it is technological advancement or enterprise transformation, it is ultimately the individual who bears the most direct consequences under the influence of capital. These consequences often take the form of seductive traps. While individuals may appear to benefit, they are simultaneously being softly exploited. Technology has never been neutral.

Therefore, this is why this project places a strong emphasis on individual subjectivity. Amid the rapid and constant changes in the outside world, it is the internal order of one's world that truly matters. What is crucial is the awareness that one still has the agency to choose. This act of choosing, grounded in self-awareness, is in itself a form of resistance in the rapidly changing world.

This project engages critically with the ethical dimensions of digital biopolitics. Digital governance mechanisms such as data collection, algorithmic personalization, and behavioral nudging have proven effective in managing complex societies in corporations like Alibaba. However, their current application is primarily driven by profit-oriented goals. This raises serious ethical concerns including soft exploitation, surveillance, and the commodification of subjectivity, where the human future becomes a product. Instead of rejecting these technologies completely, this project explores how digital biopolitics could be redirected from extractive purposes toward the empowerment of individuals. It imagines a future where platform technologies support users in exploring themselves, rather than manipulating them. In doing so, this thesis proposes an ethical framework in which technological infrastructures help cultivate richer, more autonomous, and more meaningful forms of life experience.

Situating Urbanism

This project adopts a spatial perspective to map contemporary computational systems, using the Alibaba corporation in China as a case study. It focuses on the digital infrastructures that constitute today's socio-techno-political systems and explores their implications for social and spatial dynamics in shaping contemporary urbanism under accelerated platformisation. Like traditional infrastructures, digital infrastructure now functions as a foundational system, influencing urban functioning, social governance, and everyday life, making it a critical subject for urbanism studies.

Digital infrastructure includes both digital technologies and the spatial implementations, such as data centers, cable networks, and edge computing facilities. As a system that demands high resource input and long-term construction costs, it presents new challenges for urban zoning, resource allocation, and architectural space. This project focus on how digital infrastructure shapes contemporary production processes such as labour and logistics networks, and also influences on consumption patterns, including consumption spaces, behavior, and value. These changes contribute to the emergence of new geopolitical urban structures and spatial configurations, that need critical attention in the accelerated platformisation era.

Digital governance presents both potential and possibility as a tool for future societal organization, with the platform and the corporation behind increasingly functioning as an institutional form. This project adopts an affirmative perspective on digital biopolitics, viewing digital technologies not only as tools for governance, but also as potential means of production and social engagement. It discusses critical and unavoidable questions surrounding digital governance, such as issues of individual subjectivity and autonomy in the digital age, as well as the nomos of the cloud. These challenges raise urgent concerns not only about spatial justice but also about data justice. And this project argues that strengthening individual subjectivity can foster meaningful public participation and then influence regulation and policy reform. These issues are central to current discussions on social justice and smart cities, and are essential for envisioning and realizing a just city.

Besides, algorithms, recommendations, and advertisements on platforms significantly affect how citizens perceive and interact with physical space, deeply influencing cognition and behavior. This dynamic leads to the loss of publicness in public spaces, manifesting as the disappearance or forced transformation of spaces for consumption. Therefore, urbanism must critically engage with how to reclaim publicness and urban vitality through the dialectical use of digital technology in today's fast-paced, digitally-driven society.

Situating the Situationists

The strategy and design of this project draw significant inspiration from the 1960s Situationist International movement and utopian architectural visions such as New Babylon by Constant Nieuwenhuys. Guy Debord's critique of mass-media technology as a tool of capitalist control, which constructs life as an accumulation of spectacle, reappears with greater intensity in the age of accelerated platformisation. Digital capital now guides and integrates both financial and industrial capital, with the platform and the corporation behind it evolving into an institutional form. Technology is no longer limited to visual stimulation but exerts an invisible influence over individual behavior, cognition, and values.

New Babylon by creating situations envisions a world driven by homo ludens who is liberated from labour and resists capitalism's definitions and limitations imposed on individuals. It emphasizes human freedom and mobility and views people as free creative agents. Similarly, this project highlights the importance of individual subjectivity in facing today's data surveillance, both at the personal and societal levels. The current programmed system of production and consumption driven by digital capital represents an unsustainable means of profit-making that overexploits human futures. Therefore it is necessary to foster spontaneous or serendipitous experiences to learn from and reclaim subjectivity.

Meanwhile, this project proposes that platform technology could be leveraged as a tool to realize the ideals of New Babylon in the age of platformisation. Platforms can act as vehicles for social participation and engagement, overcoming the limitations of time and place and the data within them can also serve as a means of production. These qualities enable the creation of highly flexible, dynamic, and participatory urban environments envisioned by New Babylon.

Debord's critique of the "society of the spectacle" remains highly relevant today. In the age of platformisation, the spectacle is no longer limited to visible images but manifests through the accidental megastructure, the planetary-scale technological and geographical reconfiguration that enables invisible systems of social control and biopolitics. Therefore, the strategy and design of this project are not merely an aesthetic homage to Situationist architectural forms but an attempt to inherit and extend their spirit of resistance and transformation. It explores how constructed situations can shape individual subjectivity and how digital technologies might be reappropriated as tools of imagination and emancipation. The design goes beyond critiquing the system and seeks to explore possibilities for realizing humanistic futures from within it.

Personal Reflection

Looking back at my previous architectural studies and the motivation letter I wrote when applying to TU Delft, I expressed a strong interest in engaging with technology and art to poetically address cutting-edge social topics. Reflecting on my graduation research journey, I am pleased to see that I have remained committed to this passion. Throughout the process, I have learned to critically examine how technology shapes both space and the human experience, while maintaining my interest in the utopian movements of the 1960s. At the same time, I have integrated perspectives from the philosophy of technology, which have offered a broader and more reflective foundation for my research and design approach.

With a background in architecture, I was trained as a practical architect. However, I gradually came to realize the limitations of addressing many complex issues solely within the disciplinary boundaries of architecture. In contrast, art and technology offer expanded perspectives for engaging with critical social, political, and ethical challenges. This recognition led me to seek more cross-disciplinary approaches within the fields of architecture and urbanism. During my thesis journey, I had the opportunity to learn from my mentors, engage with cutting-edge research and perspectives, and gain hands-on experience in conducting an independent research project. Through this process, I was able to construct a unique conceptual framework for my topic. Both the process and the outcome were deeply fulfilling, and they have further ignited my curiosity and commitment to continue exploring beyond traditional disciplinary limits.

Another significant lesson I have learned is to be critical and confident in expressing my own position and values. My thesis topic, digital biopolitics, remains an area of ongoing debate and exploration. At the beginning, I approached the subject with moderation and restraint which are values deeply rooted in my educational background. However, over time, I came to understand that engaging with complex and urgent issues requires more than balance. It calls for diverse perspectives, clarity, courage, and a willingness to take a stance and experiment. This shift has helped me grow not only as a researcher but also as an individual who is more confident in articulating my own views and committed to exploring the ethical and philosophical dimensions of technology and society.

All in all, I am satisfied with what I have accomplished and found the R&D journey both stimulating and enjoyable. This project allowed me to weave architecture and urbanism together with art, technology, and philosophy, while reflecting on interdisciplinarity and the practice of research itself. I hope that my efforts will contribute value not only to the public but also to the academic area. And it has further ignited my passion and strengthened my commitment to continue exploring and conducting research.

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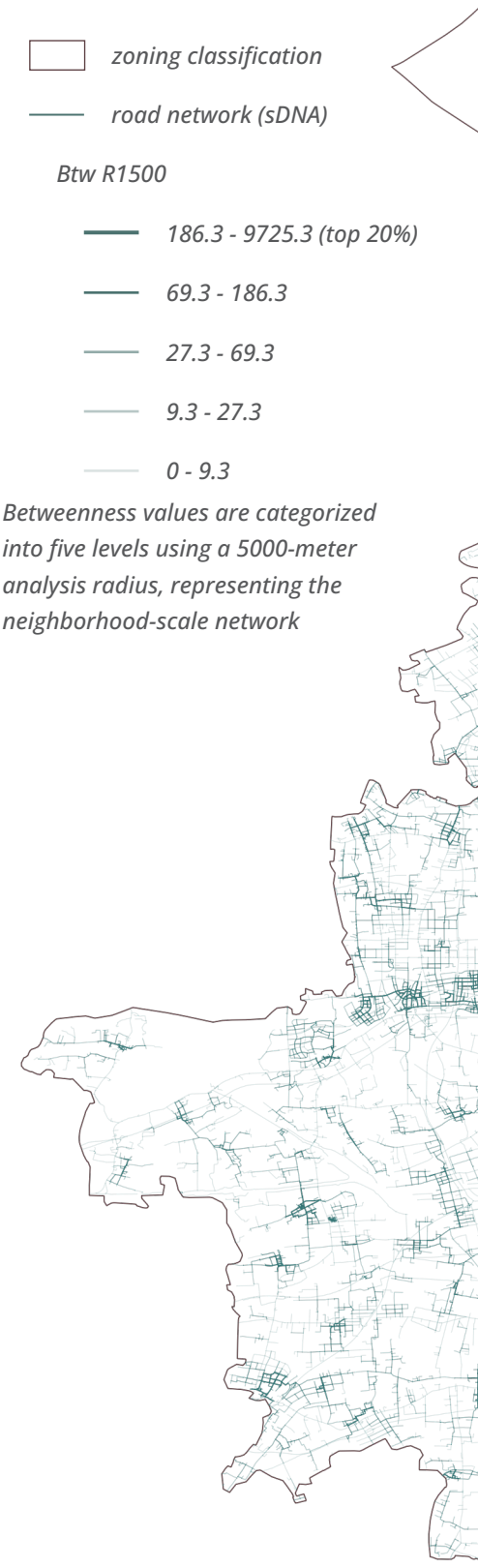


Betweenness values are categorized into five levels using a 5000-meter analysis radius, representing the neighborhood-scale network

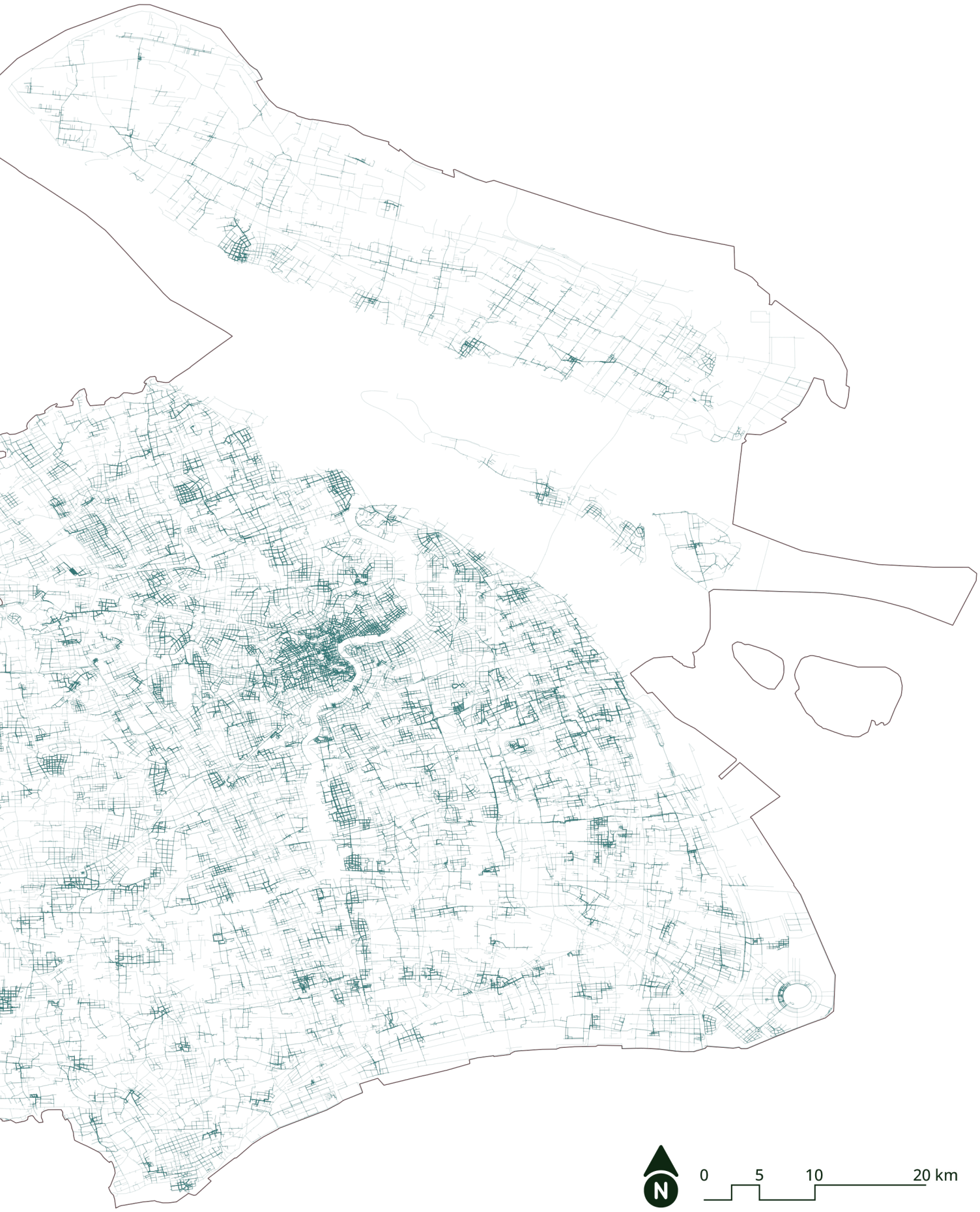
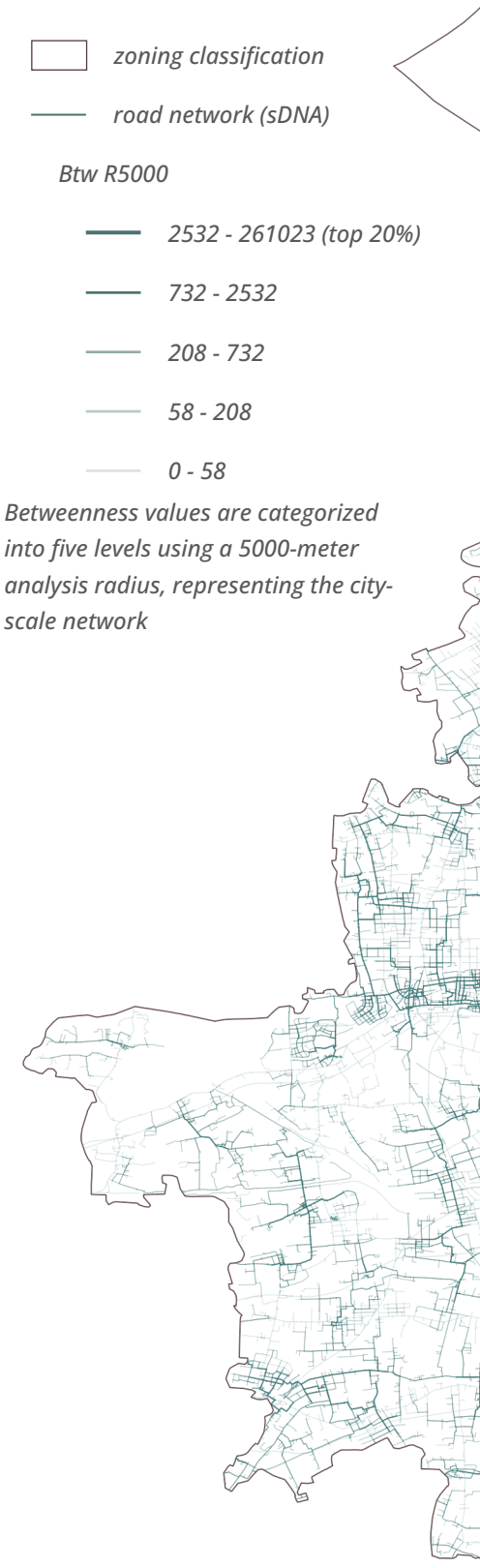


Fig. 10.1, Shanghai Betweenness Analysis (1500m Radius)



Betweenness values are categorized into five levels using a 5000-meter analysis radius, representing the city-scale network

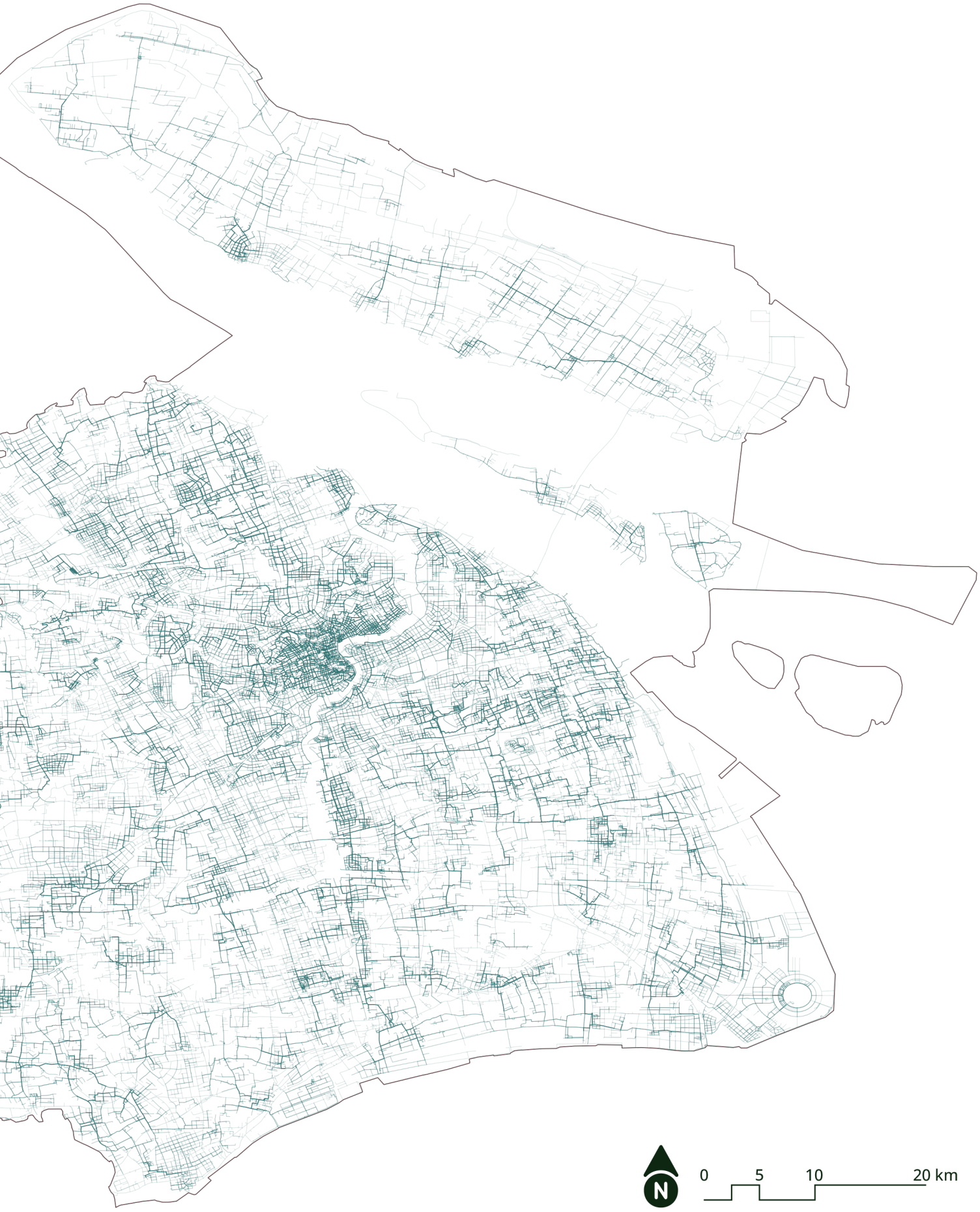


Fig. 10.2, Shanghai Betweenness Analysis (5000m Radius)