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A STUDY ON THE
SYSTEMATIC SUSTAINABLE
OPTIMIZATION OF
RETAIL HPP
FROM A CIRCULAR
ECONOMY PERSPECTIVE

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ABSTRACT

In the context of the booming development of e-commerce, new retail POP-UP stores, which are one kind of temporary retail space, have become an important promotional way. Brands highly favor HPP (High-Profile-Promotion). Based on the theories of circular economy and systemic design, this research focuses on the sustainable optimization of the retail HPP system. Taking the internationally renowned fragrance and cosmetics brand D as a typical case, it conducts in-depth exploration by comprehensively using methods such as literature research, case studies, user surveys and physical space surveys.

The study finds that although HPP activities can bring significant commercial value to brands, due to problems such as short duration and the use of disposable materials, they cause a relatively significant environmental impact. To address these issues, the research uses the analytical method of systemic design to conduct a complexity analysis of the territory and the company, identify and evaluate the opportunity and challenge points for systematic upgrades, and propose a series of system design strategies to balance commercial value and sustainability. In terms of material selection, a preferred material list for brand HPP construction is formulated, giving priority to environmentally friendly materials. Component utilization promotes the internal and external reuse of some components to extend the material life cycle. In addition, the exposure to sustainable practices is increased through new media to enhance consumers' awareness and recognition of the brand's environmental concept.

The research results not only provide targeted guidance for luxury brands in HPP event booth design but also offer practical cases and theoretical support for the entire retail industry on the path of sustainable development.

Key Words: circular economy, sustainable fashion, systemic design, POP-UP Space, new retail HPP

1.INTRODUCTIONS

1.1 Research background

1.1.1 Background of temporary retail spaces

With the continuous growth of e-commerce surpassing physical retail, temporary retail spaces, including new retail pop-up stores, have become a crucial promotional strategy, especially for online retailers and service providers^[1]. Against this backdrop, many brands have begun to focus on creating offline spatial experiences, and new retail pop-up stores have emerged as one of the most effective ways to drive consumption among young people today. According to industry reports, China's pop-up store market is expected to reach 56 billion RMB (approximately 8.3 billion USD) in 2024, nearly tripling from 2019; the total value of China's pop-up store market will reach 35 billion USD, accounting for approximately 25% of the global market^[2].

Pop-up activities hosted in new retail pop-up stores, also known as temporary activities, are short-term, sudden, and provisional commercial events where brands rent small spaces for a short period to quickly focus consumer interest on products or services. In China, 65% of pop-up stores operate for less than 10 days^[3].

Pop-ups can be categorized in multiple ways: by purpose (retail pop-ups, experiential pop-ups, artistic pop-ups, etc.), by theme and location (seasonal pop-ups, collaborative pop-ups, social enterprise pop-ups, etc.), by venue (independent pop-ups, mall pop-ups, mobile pop-ups, etc.), and by organizer (brand pop-ups, platform pop-ups, community pop-ups, creative pop-ups, etc.).

This commercial model yields substantial benefits. A report by Cushman & Wakefield^[3] shows that pop-up store rents are typically 30-40% lower than traditional retail stores, while their sales are 20-30% higher. Additionally, pop-up stores usually have lease terms ranging from weeks to months, compared to the multi-year leases of traditional retail stores. This means pop-ups can adapt faster to market changes and are easier to adjust. According to research by RET^[3], pop-up stores offer high cost-effectiveness in attracting foot traffic and generating sales. In China's current market, their customer-gathering capability is comparable to IP exhibitions, while their revenue contribution exceeds that of IP exhibitions. Compared to general food & beverage, fast fashion, and cinemas, pop-up stores also demonstrate stronger customer-attracting performance, as shown in Figure 1.1.

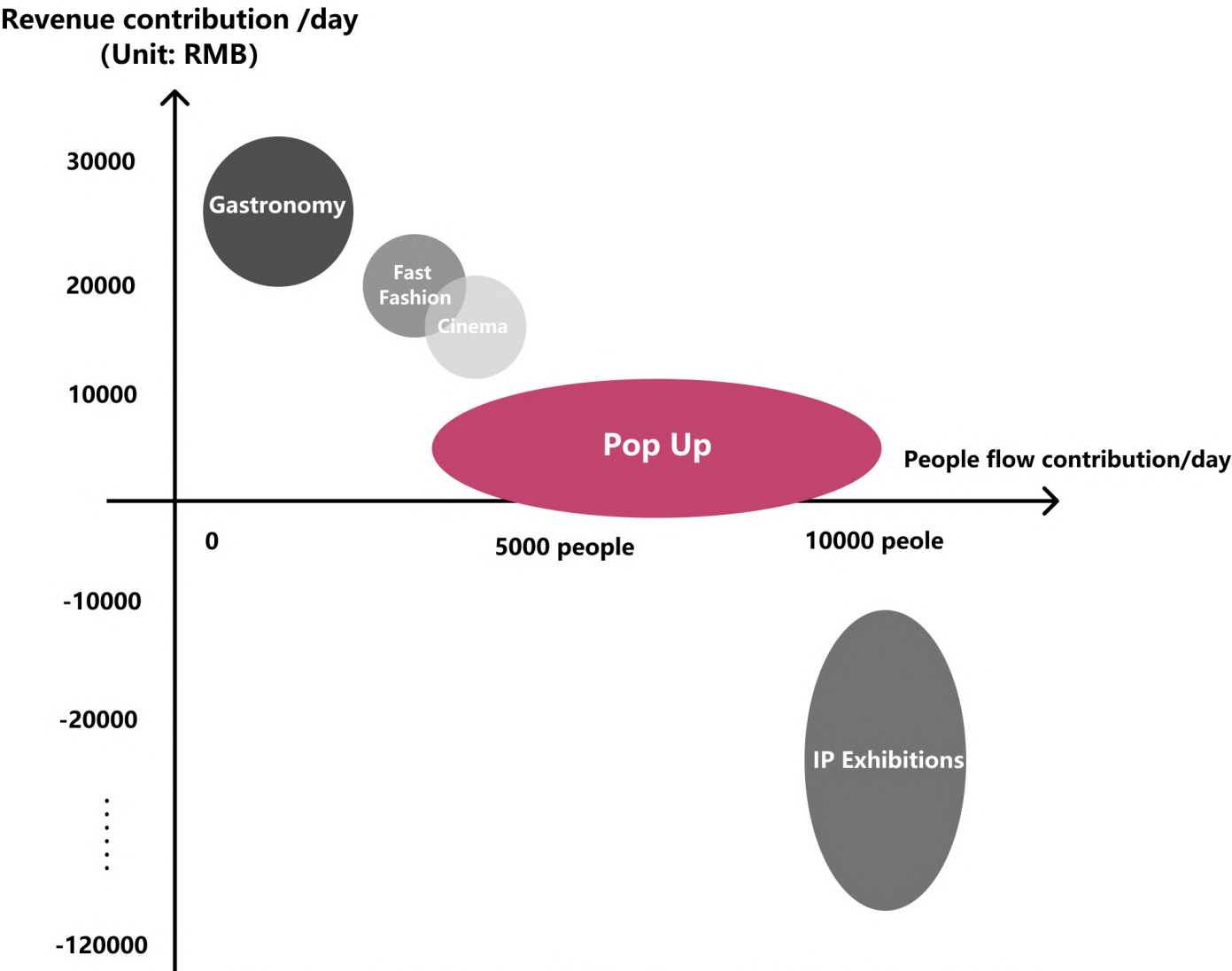


Figure 1.1 Customer attraction performance of various business formats in shopping malls (source: pop-up Space, RET China commercial real estate research center)

It can be seen that new retail pop-up stores bring freshness and experiential value to users while generating huge commercial value for brands. However, due to their characteristics of short duration, strong thematic focus, and non-fixed venues, researchers have become interested in exploring **whether a series of environmental and sustainability issues exist in new retail pop-up stores driven by capital**. This study aims to start from real new retail pop-up spaces, intuitively quantify the environmental impact of such stores, identify design opportunities, and propose optimization strategies.

In this process, the research selects HPP structures as the main research object. HPP typically refers to short-term thematic pop-up activities initiated by brands, primarily aimed at launching their next season's products. Such activities are more common among high-end beauty, fragrance, and bag brands, with more detailed definitions and explanations provided later in this paper. Through collaboration with a leading international fragrance and cosmetics brand (hereafter referred to as brand D), this study conducts on-site investigations of the processing and decommissioning facilities of the brand's HPP structures.

1.1.2 Research problems

Based on the current status of new retail pop-up spaces mentioned earlier, particularly HPP, the research question of this thesis is: **How can system design thinking be applied to create an HPP that balances commercial value and sustainability?** Starting from this question, the following sub-questions are further derived:

(1) How to define a typical HPP structure?

(2) How to assess the sustainability issues of HPP, and what specific sustainability challenges does HPP face?

(3) How to use systemic design methods to achieve the expected design goals?

1.2 Literature review

This paper uses the professional literature analysis tool CiteSpace to conduct an in-depth exploration of research in the field of spatial sustainable design in the Web of Science database. By searching for keywords such as **CIRCULAR ECONOMY, SYSTEMIC DESIGN, SUSTAINABLE, SUSTAINABLE FASHION and STORE**, and imposing publication time restrictions on the retrieved literature, a total of 608 documents were obtained. This approach reveals the research hotspots and evolutionary trends in this field internationally over the past five years.

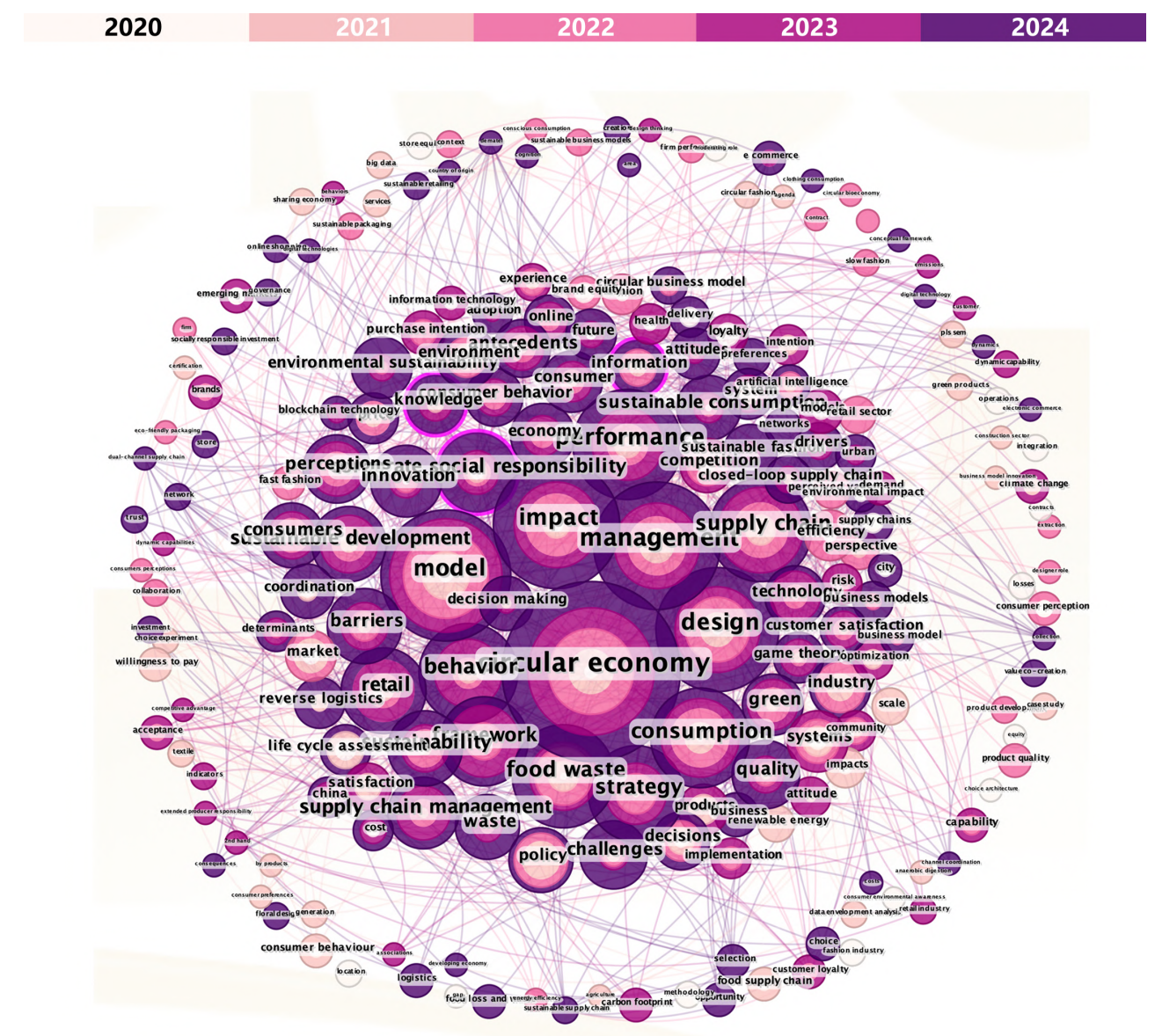


Figure 1.2 Keyword co-occurrence map of spatial sustainable design (source: self-drawn by the author)

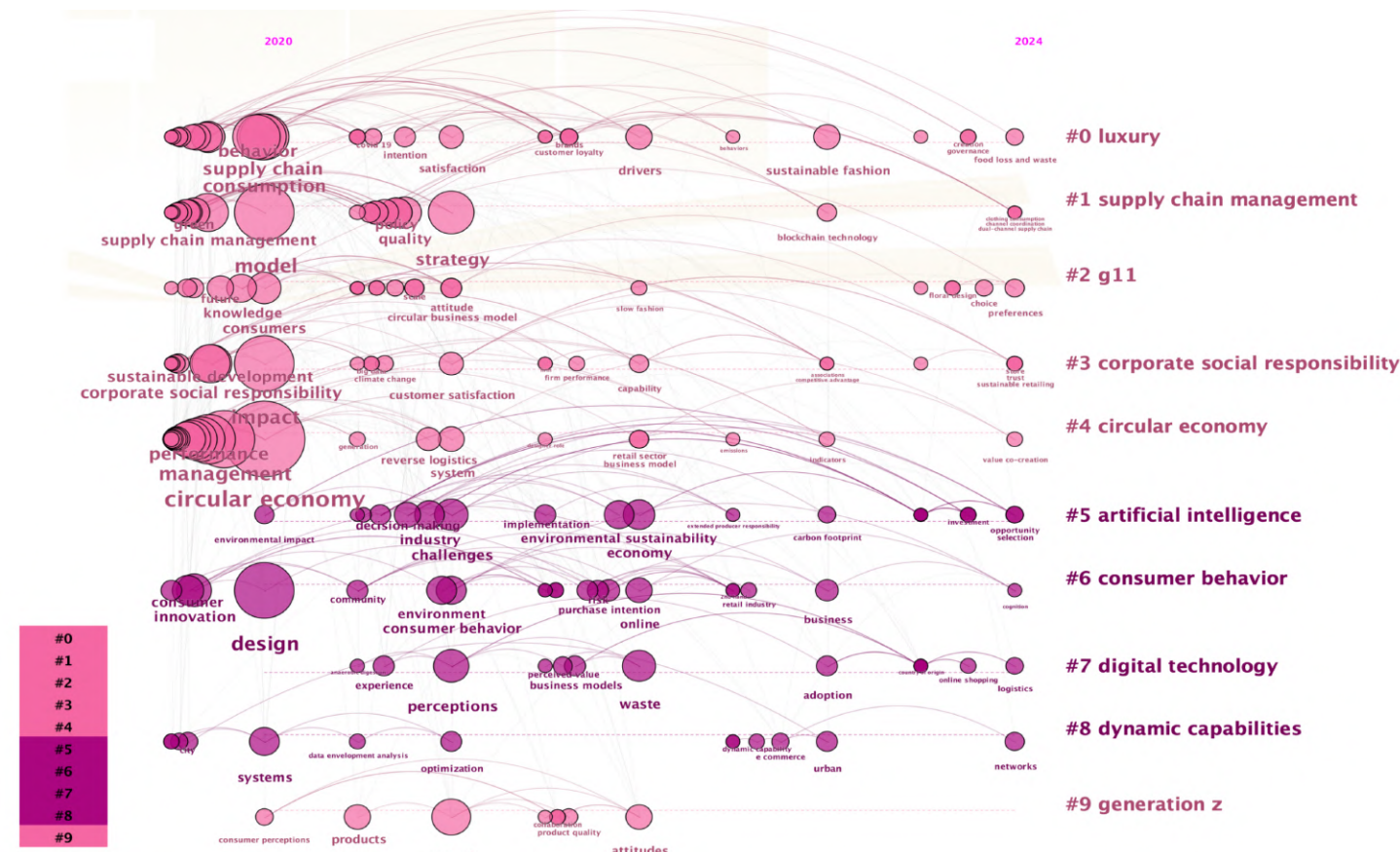


Figure 1.3 Timeline of keywords in spatial sustainable design
(source: self-drawn by the author)

Based on the analysis results of the CiteSpace software, researchers constructed keyword co-occurrence maps and keyword timeline graphs to gain a more comprehensive understanding of the research status in sustainable retail space design, as shown in Figures 1.2 and 1.3. From the keyword co-occurrence map, it can be seen that **SUPPLY CHAIN, MANAGEMENT, SOCIAL RESPONSIBILITY, PERFORMANCE, MODEL, IMPACT and CONSUMPTION are all relatively important keywords.** In sustainable retail space design, the greening and efficiency of the supply chain are crucial. Issues worthy of exploration include how to reduce carbon emissions throughout the entire process from raw material procurement to product distribution and improve resource utilization.

From the keyword timeline graph, it can be concluded that in recent years, spatial design research has increasingly involved studies on artificial intelligence, digital technologies, and the behaviors and attitudes of Generation Z consumers. The appearance of the keyword **LUXURY** also indicates that the luxury industry has received attention in research within this field. These research advancements can be further applied to explore the role of HPP structure systems in the circular economy, with the aim of providing more precise theoretical support and practical guidance for constructing new retail spaces that align with commercial value and sustainability goals.

1.2.1 Research progress on circular economy and sustainable fashion concepts

The embryonic idea of the circular economy can be traced back to the rise of environmental protection movements in the 1960s. At that time, with the acceleration of industrialization, environmental pollution became increasingly prominent, triggering profound reflections across sectors on traditional economic development models. In 1962, American ecologist Rachel Carson published *Silent Spring*^[4], which used detailed data and vivid cases to reveal the devastating damage caused by pesticide abuse to ecosystems. The shocking portrayals prompted people to reconsider the relationship between humans and nature, laying the groundwork for the birth of circular economy ideas. After the 1990s, the global upsurge in sustainable development strategies ushered in a golden era for the circular economy, completing its transformation from a concept to a systematic theory. In 1992, the United Nations Conference on Environment and Development adopted documents such as the Rio Declaration^[5] and Agenda 21^[6], establishing sustainable development as a global consensus, with the circular economy garnering significant attention as a key implementation pathway. In 1996, Germany promulgated the Circular Economy and Waste Management Act^[7],

constructing a legal framework covering the entire process from waste generation, recycling, treatment to reuse, setting a legislative benchmark for other countries; in 1998, China introduced the German concept of the circular economy and began exploring a development path with national characteristics.

Meanwhile, the "3R" principles (reduce, reuse, recycle) were widely recognized as the cornerstone of circular economy practices. Enterprises improved processes in accordance with these principles, reducing raw material use, extending product lifespans, and enhancing waste recycling rates, allowing the theoretical system of the circular economy to continuously improve and sublimates through global practice.

Influenced by the concept of the circular economy, the concept of sustainable fashion was first proposed by American scholar Carson^[4]. Since the end of the 20th century, research on sustainable fashion has gradually gained attention, including technical projects aimed at improving resource efficiency in existing businesses and ways to fundamentally rethink the fashion system^[8]. Overseas research on sustainable fashion began to unfold in the mid-20th century and has now yielded rich results. Domestic research in this field started later but has developed rapidly. While drawing on mature foreign studies, relevant scholars have also actively focused on sustainable fashion paths that align with China's future development^[9].

In terms of sustainable concepts and behaviors, changes in consumers' consumption patterns are closely linked to enhanced environmental awareness. Research in this field both domestically and internationally has focused on the interconnections between human needs, economic development, environmental protection, and resource conservation, emphasizing top-level design for green lifestyles, improving environmental management systems through market-oriented means, and highlighting public green consumption and sustainable practices guided by government policies^[10]. Comparatively, foreign research in this field emphasizes individual social responsibility, extending the communication of sustainable environmental concepts through consumption behaviors to reflections on environmental issues^[9]. Domestic research is reflected in phenomenological identification and brand cognition, where consumers develop cognitive and emotional identification with sustainability, leading to the gradual assimilation of individual, social, and environmental responsibility awareness, with brand identity and corporate image playing significant regulatory roles^[11-12].

Sen^[13], Lo et al.^[14], and Shen et al.^[15], from the perspective of the fashion industry supply chain and combined with practical cases of multinational enterprises, emphasize that sustainable fashion has become a common topic in international industry and fashion circles and a new benchmark for the fashion industry.

In research on sustainable supply chains, promoting supply chain upgrading and renewal is a common concern for domestic and foreign researchers^[16]. The core of sustainable supply chains balances development in economic, social, and environmental dimensions, but consumers' expanding demands and their impact on resources and the environment have made the influence on sustainable fashion increasingly evident. Information gaps and technological backwardness are two common issues plaguing fashion industry supply chains, while digital technologies are important pathways to improve supply chain production efficiency and promote sustainable development transformations in the fashion industry. Developed economies such as those in Europe and the United States have leveraged core technological advantages in big data, artificial intelligence, and cloud computing to establish blockchain platforms for supply chain tracking and certification, including for carbon emissions, water consumption, and air and water pollution^[5]. Based on foreign advanced theories and experiences, domestic scholars have proposed green supply chain management models aimed at minimizing environmental side effects while maximizing resource utilization efficiency, supplementing the concept of green supply chains with principles such as symbiosis, circulation, substitution, and system development to be followed during supply chain management implementation^[17-19].

Research on sustainable fashion systems mainly includes content such as circular fashion, ethical fashion, and slow fashion. Overseas studies have particularly focused on slow fashion in luxury ready-to-wear brands^[20,21], emphasizing circular and ecological fashion research. Domestic research in this field places greater emphasis on the environmental impact of clothing and the safety of clothing itself, focusing on the negative environmental effects (including harm to animals) of different fibers and clothing production processes—from raw material production, manufacturing, transportation to final disposal—and attempting to create a circular system through clothing consumption that reduces human impact on the environment^[5]. This shows that domestic research on sustainable fashion systems has been limited to clothing production processes, with less attention paid to the sustainability of commercial behaviors such as new retail pop-up stores.

In summary, the idea of the circular economy germinated in the 1960s and has been continuously improved under the impetus of sustainable development strategies. The concept of sustainable fashion emerged under the influence of the circular economy, with foreign research starting early and achieving fruitful results, while domestic research, though later, has developed rapidly. In terms of sustainable concepts and behaviors, supply chains, and sustainable fashion systems, domestic and foreign studies share common concerns but also have divergent emphases.

Future research can build on foreign experiences, further integrate with national conditions, and broaden the scope of domestic sustainable fashion research—such as strengthening discussions on the sustainability of commercial behaviors.

1.2.2 Research progress in systemic design theory

Systemic design is one of the entry points for this research. It refers to the process of planning, designing, and organizing a system to solve problems or achieve specific goals. The objective of system design is to create a system that meets specific requirements while considering aspects such as reliability, maintainability, and scalability.

Smith (2010)^[22] provided theoretical and methodological perspectives on system design. Emphasizing its importance, Smith proposed a theory and methodology-based approach that highlights the significance of problem definition, goal setting, requirement analysis, system planning, and organization in the design process. Johnson (2015)^[23] focused on reliability analysis in system design, reviewing its applications and discussing various assessment methods and technologies. The study underscores the importance of considering reliability to ensure stable and dependable long-term system performance.

Zhang (2012)^[24] explored system maintainability, that it is crucial for long-term operation and maintenance. They proposed design principles and methods to help optimize maintainability during the design phase. Menasce and Almeida (2011)^[25] addressed scalability and performance issues in distributed systems, introducing concepts, principles, and techniques for achieving and evaluating scalability through case studies and experimental results.

The underlying logic of systemic design follows the laws of natural ecosystems. Bistagnino^[26] and the Zero Emissions Research Initiative (ZERI) proposed the following principles:

1. Outputs (Waste) as Inputs (Resources):

Eliminate the concept of "waste" and repurpose it as low-cost or free resources.

2. Relation-Generating Systems:

All system elements hold equal importance and strategic value in design.

3. Self-Generating Systems:

The ultimate goal in artificial systems is sustainability, which requires collaboration rather than competition to benefit all stakeholders.

4. Localized Action:

Respect and support local interests while wisely managing social, cultural, and material resources to address potential issues of decentralized production.

5. Humanity-Centered Design: Focus on human needs while recognizing humanity's integration with nature, not dominance over it. Systemic designers must particularly consider relationships between communities and territories^[27], artificial and natural elements, and humans and ecosystems.

In summary, scholars have explored systemic design from diverse angles: Smith's theory-based approach, Johnson's reliability analysis, Zhang's maintainability strategies, Menasce and Almeida's work on scalability, and Bistagnino's principles. **These contributions provide essential support for this research in method selection, framework construction, and theoretical application, enabling in-depth exploration and innovative outcomes in the field of system design.**

1.2.3 Demonstration of the possibility and applicability of systemic design in solving HPP sustainability issues

This study attempts to use systematic design methods to propose strategies for the sustainability issues of HPP, and this approach has significant potential and applicability. In "Research on Systematic Design Based on Sustainability", researchers Liu Xin and Maurizio Velen redrew the system model (Figure 1.4): Generally speaking, the inputs of a system include resources such as energy, water, and production raw materials; the outputs include finished products and waste. Waste may also become a resource for another production activity, thereby forming a larger circular system^[28].

From the perspective of HPP's own characteristics, as a short-term thematic pop-up activity, it involves multiple links including material procurement, venue construction, event operation, and dismantling/decommissioning, which are interrelated to form a small system. System design can comprehensively sort out the material flow, energy flow, and information flow among these links, identifying potential points of resource waste and environmental impact.

In material selection, system design can evaluate the life-cycle costs and environmental impacts of different materials, prioritizing recyclable, renewable, and low-energy-consuming materials to reduce environmental pressure at the source. During the venue construction and dismantling phases, system design can plan more reasonable construction processes and dismantling schemes to improve resource recycling rates and reduce waste generation. For example, standardized design of detachable components facilitates quick assembly and disassembly, allowing them to be directly reused in other projects or recycled after the event.

From an operational perspective, system design can optimize energy utilization systems by rationally configuring equipment such as lighting and air conditioning according to the activity space and duration to reduce energy consumption. Meanwhile, considering that HPP organizers are mostly high-end brands, system design helps integrate sustainable concepts into brand image building, meeting consumers' demands for environmental protection and enhancing the brand's social responsibility and market competitiveness. This provides both internal motivation and external demand support for the application of system design in HPP, fully demonstrating its high suitability for addressing HPP's sustainability issues.

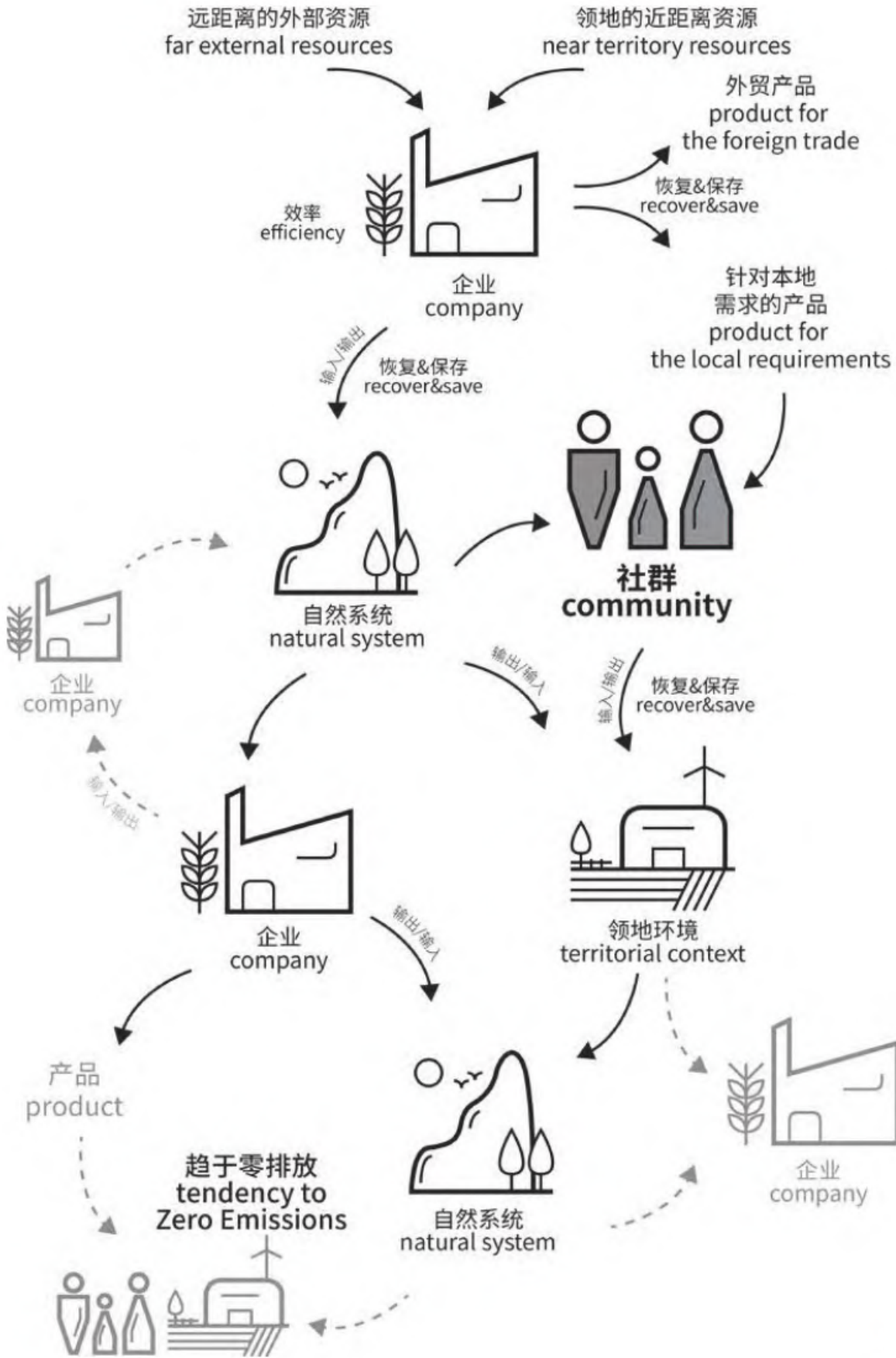


Figure 1.4 System model
(source:Liu Xin, Maurizio Velenna. research on system design based on sustainability)

1.2.4 Research potential for sustainable optimization of retail HPP structure systems

To clarify the research value of this project, the researcher used an opportunity mapping tool to locate current sustainable behaviors in society. The horizontal and vertical coordinates here are set by the researchers themselves. A position closer to the right on the horizontal axis indicates that the design of this sustainable practice tends to be more system-oriented, while a position closer to the left indicates a tendency toward independent design content. A position closer to the top on the vertical axis signifies a business-driven orientation, whereas a position closer to the bottom indicates that the practice is more driven by social responsibility and awareness.

The trend here is observed by comparing various data points rather than simply dividing them into four quadrants. For example, "Branded sustainable action" tend to be more commercially driven, which does not mean that these sustainable practices in commercial brands lack considerations of social responsibility and awareness. In fact, compared to "second-hand trading platforms," their commercial driving force is relatively weaker.

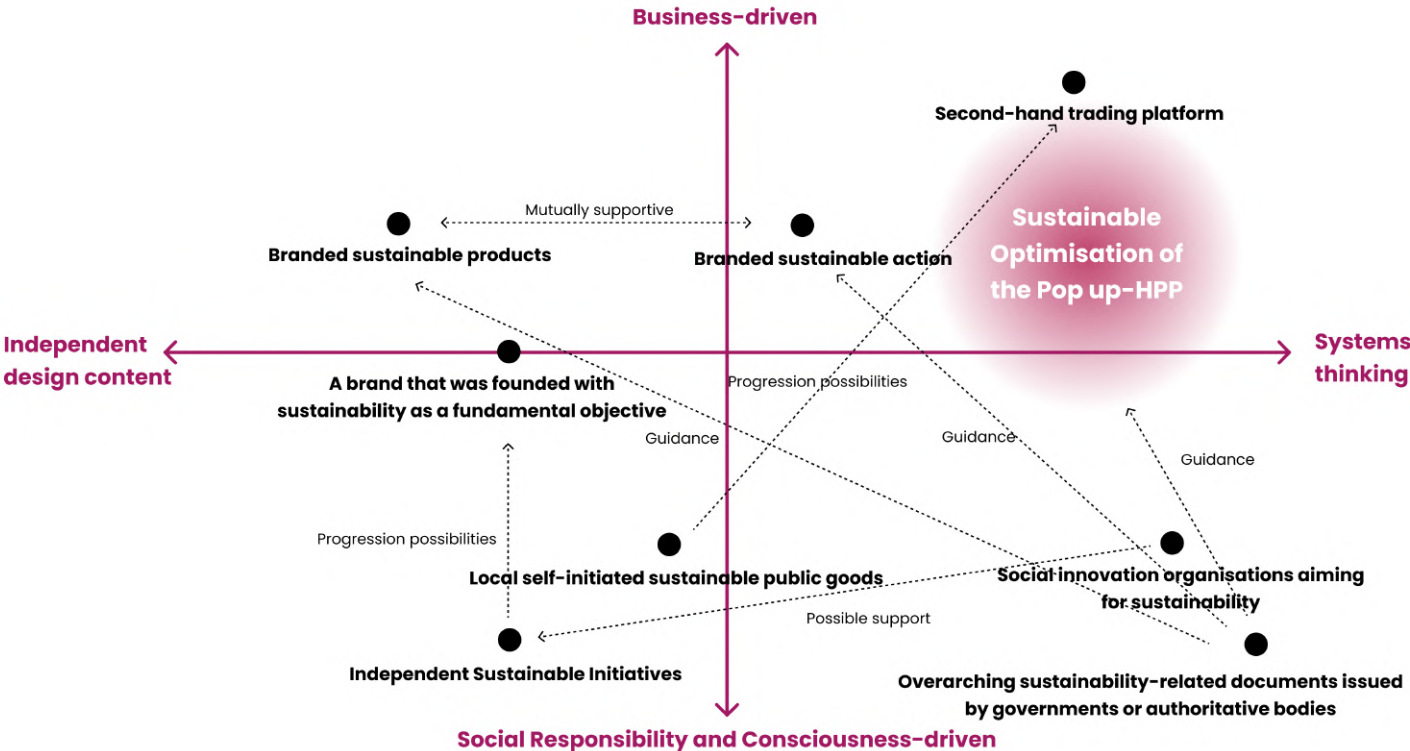


Figure 1.5 Opportunity map of the research field
(source: self-drawn by the author)

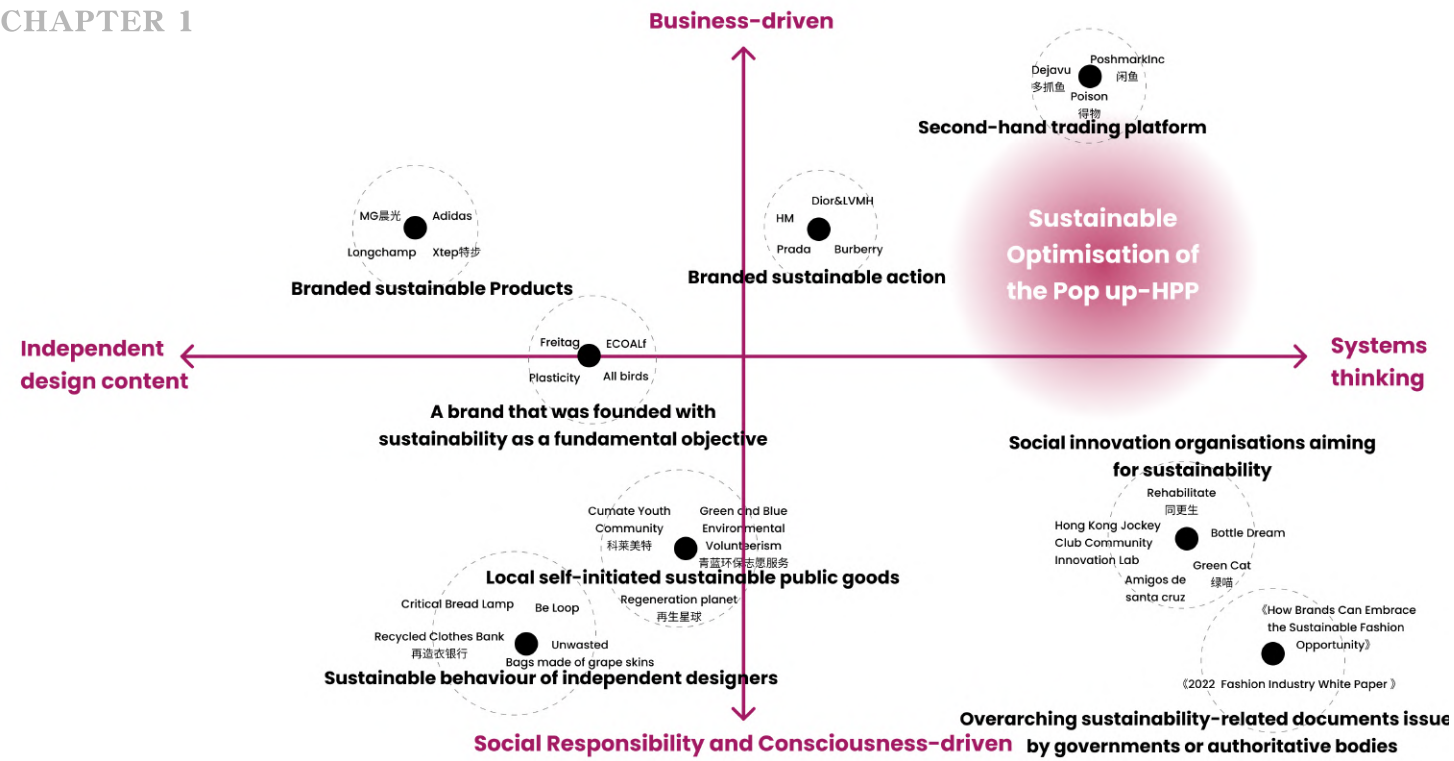


Figure 1.5 Partial cases in the research field (source: self-drawn by the author)

Through the use of the opportunity mapping tool, it was found that there are many entry points for the application of sustainable thinking in society. Driven by social responsibility and awareness, an increasing number of people have joined the ranks of implementing and promoting sustainable thinking, such as guiding documents issued by governments and authoritative institutions, local spontaneous public welfare actions, sustainable practices of independent designers, and social innovation organizations with sustainability as their goal. For many commercial brands, practicing sustainable thinking relies more on the drive of commercial interests. Many brands hope to gain recognition from the new generation of environmentally conscious consumers by launching sustainable products and organizing sustainable initiatives, so as to enhance corporate image and value.

Although the internal driving force of sustainable behaviors brought by commercial incentives is not as strong as that driven by social responsibility and awareness, it remains a crucial focal point for spreading sustainable concepts at this stage.

In this process, approaching the sustainable optimization direction of brands and enterprises from a systematic perspective provides a more holistic view than focusing on independent design elements, and it is also a field that many forward-looking and environmentally conscious brands are exploring. Taking this opportunity, this study decides to investigate HPP pop-up spaces from a systematic perspective and provide insights into their sustainable optimization directions. This aims to enable more brands in society to conditionally apply sustainable tools while pursuing commercial interests, jointly promoting the harmonious and sustainable development of society.

1.3 Case Study

1.3.1 Background of temporary retail spaces

In today's globalized consumer market environment, as consumers' environmental awareness continues to awaken and society's attention to green development continues to rise, more and more brands have keenly realized that the concept of sustainable development is no longer an optional addition, but a key element in shaping a good corporate image and significantly enhancing market competitiveness.

In order to accurately grasp market trends and analyze how the concept of sustainable development is implemented in real commercial scenarios, this study has investigated and compiled information on sustainable pop-up space design projects of selected brands, as shown in Table 1.1. (Image sources: Internet)

Table 1.1 Case study on sustainable POP-UP spaces for brand

Project : "Traceability and Regeneration": Sustainable Art Pop-up Exhibition

Brand : ANTA

"Traceability and Regeneration": Sustainable Art Pop-up Exhibition was inaugurated at ANTA's 0 Carbon Mission Store, No.98 Wukang Road, Xuhui District, Shanghai. Fashion designer Chen Peng and emerging artists Ye Linghan and Li Weiye jointly presented three artworks inspired by "peace doves" through content advocacy and design collaboration, interpreting their understanding of the sustainable concept of "traceability and regeneration". All exhibition installations are made of eco-friendly materials. ANTA also launched the "Sustainable Dressing" initiative to encourage the public to practice sustainable lifestyles in daily life.

INSIGHTS

Collaborations among cross-border talents can help promote ideas and concepts.



Project : Nike-Move
Brand : Nike

Nike has attempted to use recycled, recyclable and renewable materials in its Move pop-ups, such as recycled cardboard and biodegradable plastics, to reduce resource consumption and environmental impact. The brand has also applied sustainable concepts to energy use and waste management.



Project : Conscious
Brand : H&M

The H&M brand has launched the sustainable series "H&M Conscious". It has opened sustainable pop-up stores in several cities to showcase and sell its sustainable fashion products, as well as demonstrate the sustainable design and operational strategies adopted in the pop-up spaces.



Project : Run for the Oceans
Brand : Adidas

The store itself is constructed from upcycled marine plastic waste, enabling visitors to understand the impact of plastic pollution and Adidas' innovative efforts to produce shoes and clothing using recycled marine plastics.

INSIGHTS

The selection of materials within the space plays a crucial role in achieving sustainable goals, and can strengthen promotion through visual means to popularize the brand's sustainable practices.



Project : Worn Wear Tour
Brand : Patagonia

Patagonia has launched the "Clothing Recycling" program to encourage consumers to repair and reuse products. The brand organized a "Worn Wear Tour," opening sustainable pop-up spaces in multiple cities to provide product repair and exchange services.

INSIGHTS

Selling products is not necessarily the only option for sustainable pop-up spaces; brand image can also be shaped by providing after-sales services.



Project : Stellabration
Brand : Stella McCartney

British fashion designer McCartney has installed a brand-new festival-themed retail pop-up installation named "Stellabration" at Selfridges Corner Shop. This vibrant creation integrates concepts of sustainability, fashion, art, and British festival traditions, reusing neon lights and in-store displays from the brand's past Christmas celebrations. The shop also sells Stella McCartney's eco-friendly capsule collection.

INSIGHTS

Materials can be recycled across multiple events. Through artistic creation, old materials can generate new commercial value.

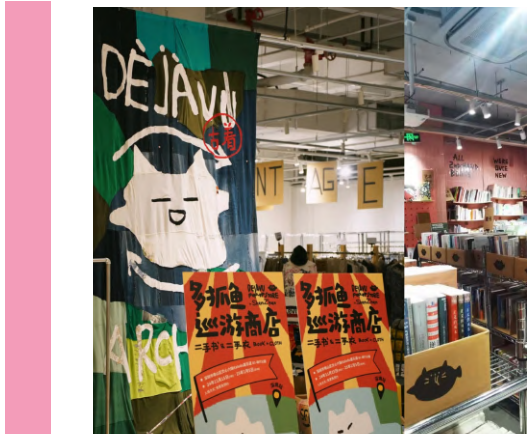


Project : 3D Printed POP-UP Store
Brand : Dior

Dior has collaborated with WASP, an Italian 3D printer manufacturer, in conjunction with the Dubai Expo. The pop-up store is composed of two cylindrical modules, constructed through sustainable architectural 3D printing technology that combines clay, sand, and natural fibers. This technology was originally developed to build sustainable low-cost housing in the world's poorest regions.

INSIGHTS

To achieve sustainable goals, the application of new technologies can be considered.



Project : Itinerant POP-UP Store
Brand : Deja vu

Deja vu, a second-hand books and clothing sales brand, has held itinerant store pop-up activities in multiple cities, lasting approximately 1-2 months. Most of Deja vu's pop-up events rent existing spaces or idle spaces during the subletting gaps of stores, with interior furnishings using reusable frames and lightweight, sustainable cardboard boxes. In addition to the products sold, the selection of spaces and organization of activities also conform to the concept of circular economy.

INSIGHTS

Pop-up activities do not necessarily require the construction of new structures, as existing spaces can also serve as excellent activity venues.

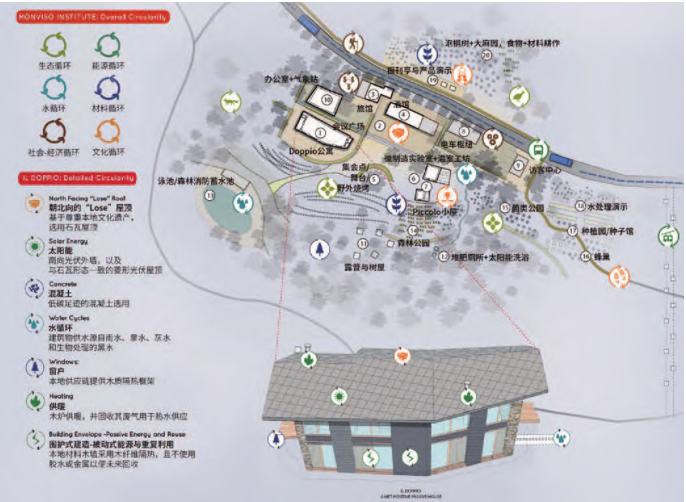
Through analysis of the above projects, it can be observed that brands have gradually integrated sustainable thinking into the operation of pop-up stores. For example, in the selection of spatial materials, some brands prefer to use recyclable and degradable environmental protection materials; in the selection of venues, not all activities build new structures, and some utilize idle spaces; in event planning, interactive links with environmental themes are integrated, and cross-border talent cooperation is introduced; moreover, not all pop-up activities take sales growth as their sole purpose—promoting brand concepts and showcasing brand values are also very important goals pursued by brands.

However, it cannot be ignored that most brands currently mainly adopt a strategy of "using points to drive the surface," practicing sustainable concepts only in individual links or local areas, and lacking a systematic perspective from overall planning and operational processes to long-term development. This may result in sustainable initiatives being difficult to form a coherent effect, unable to fully leverage their maximum value, and unable to sustainably generate influence and benefits.

1.3.2 Case study on solving sustainability issues through systemic design

To further understand the relevant application scenarios and practical outcomes of system design theory in addressing sustainability issues, Liu Xin and Maurizio Velenna (2021)^[28] analyzed four relatively successful cases in their research on system design for sustainability. This study summarizes and collates these cases, as shown in Table 1.2.

Table 1.2 Case study on system design based on sustainability

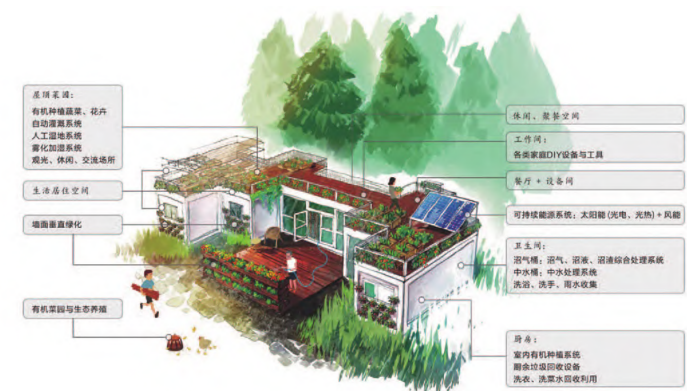


Project : Alpine Mountain Village Regeneration Project
Team/Address : MonViso Institute

The design concept of the project is to combine traditional agriculture and craftsmanship with modern sustainable technologies and innovations, including improving infrastructure, protecting natural resources, promoting the local economy, and enhancing community participation, etc., so as to create a sustainable living environment.

INSIGHTS

Comprehensive consideration of measures is crucial for the development of a region.

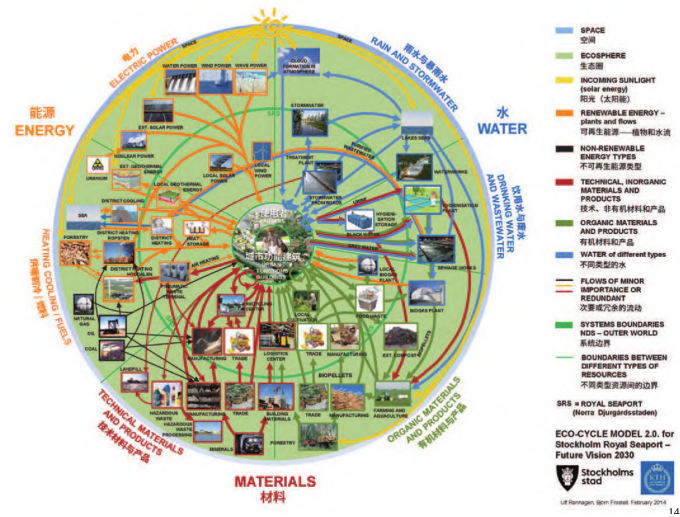


Project : Sustainable Living Lab: Lettuce House Project
Team/Address : Academy of Fine Arts, Tsinghua University

Aims to explore the integration of urban agriculture and sustainable lifestyles. The Lettuce House adopts a vertical planting system, leveraging circulating water and an automatic irrigation system to maximize water resource conservation. After being crushed, food waste is combined with sewage from toilets and directed into a biogas tank. Through sedimentation and anaerobic fermentation, the generated biogas provides clean energy for kitchen stoves, while biogas slurry and residue become high-quality organic fertilizers for rooftop vegetable gardens and indoor/outdoor greenery fertilization. Meanwhile, the use of LED lighting and intelligent temperature control systems optimizes the plant growth environment, enhancing yield and quality.

INSIGHTS

Systematic improvement considers the coordination among multiple factors in the system, enabling one factor to have more functions.



Project : Royal Port Eco-Community Project
Team/Address : Stockholm, Sweden

The project aims to create a green and livable urban community by integrating ecosystem services and sustainable technologies, such as establishing wetlands, vegetation coverage, water resource management, adopting renewable energy and efficient energy systems, rainwater harvesting, and wastewater treatment systems.

INSIGHTS

Efficient energy production, utilization, and collection are all crucial. Considering the participation of multiple stakeholders and fostering dialogue on urban development helps plan urban growth from a more comprehensive perspective.

1.3.3 Case summary

In addition to the pop-up space cases and relevant cases of system design addressing sustainability issues mentioned in the first two subsections, the researchers also explored other design cases potentially related to this study. The attributes of some cases, their main advocating practitioners, and the specific methods used to solve problems are summarized and compiled, as shown in Figure 1.7. Among them, cases involving system design intervention are marked in dark color, and cases related to the main subject of this study—pop-up spaces—are marked in light color.

Through an in-depth understanding of these cases, it is found that systemic design, like spatial design, service design, and experience design, can serve as a specific method for solving sustainability issues. However, in the research field of pop-up spaces, systemic design is not a common thinking strategy. In conventional design fields, spatial design focuses on optimizing physical space layouts, service design aims to improve service processes and quality, and experience design is centered on enhancing user participation. Relatively speaking, the goals expected to be achieved by these methods are more focused and precise, rather than macro-level improvements, while system design has its unique advantages.

When facing dynamic, complex environments and social issues, the systemic design approach is not limited to single problems or domains. It can comprehensively consider various factors from a more comprehensive global perspective, thereby better addressing complex and changing realities. At the same time, systemic design also incorporates a sustainable development perspective, emphasizing long-term development and impacts, rather than merely focusing on short-term benefits. It is committed to achieving coordinated economic, social, and environmental development. This global perspective and sustainable development perspective are crucial for solving the various complex problems facing society today and provide us with an effective method and approach. This will be highly conducive to the continuous advancement of this study, enabling us to explore problem-solving methods more deeply under the guidance of systemic design and make greater contributions to achieving sustainable development goals.

No.	Case name	Main practicer	Methodology	Problems solved
1	Lettuce House	Community/Private	System design	Sustainable Problem Energy consumption and waste recycling in households
2	Port Royal Eco-Community	Government/social organisation	System design	Sustainable Problem Sustainable City
3	Coffee grounds recycling	Social enterprise/Business	System design	Sustainable Problem Coffee grounds
4	Alpine Village Regenaration	Community/Government	System design	Social Problem Rural depopulation and ageing
5	The Community Innovation Lab of The Hong Kong Jockey Club	Community	System design	Social Problem Innovative development of communities
6	Amigos de santa cruz	Social organisation	System design	Social Problem Improving the lives of people in villages
7	H&M Conscious Pop-up Store	Brand/Business	Space design	Sustainable Problem Brand Sustainability Awareness Communications
8	Nike-Move Pop-Up Store	Brand/Business	Space and Service design	Sustainable Problem Recycling of slightly worn shoes
9	Patagonia Worn Wear Tour	Brand/Business	Experience design	Sustainable Problem Recycling of worn clothes
10	Freitag	Brand/Business	Industrial design	Sustainable Problem Extended material life cycle
11	Ecoalf	Brand/Business	Materials Research	Sustainable Problem Plastic Recycled Fabrics

Figure 1.7 Analysis and summary of research-related cases
(source: self-drawn by the author)

1.4 Research methodology and content

This study is a practical research based on real-life scenarios, enabling the acquisition of intuitive first- hand materials and on-site survey data. Based on relevant theories and professional knowledge in the fields of sustainable design and circular economy, this study is conducted by combining quantitative and qualitative research methods. It comprehensively applies various research methods, including sustainable design methods such as product life cycle assessment and management, as well as design research methods such as case studies, non-participant observation, user research, and systemic design analysis.

Taking the HPP booths in specific scenarios as the research objects, this study analyzes their characteristics as individual products, product components, and life cycles. Then, by placing them in the macro product circulation process, it proposes more effective sustainable design strategies from a full - process perspective.

Based on the principles and methods of system design mentioned in the work of Liu Xin and Maurizio Vrenna (2021)^[28], the research content of this study mainly includes the following parts :

(1) Conduct an overall regional study on brand D’s HPP

Through literature review and field investigations, understand and grasp the operational status of Brand D’s HPP division. Collect and analyze economic, social (including material culture, etc.), and environmental data within its operational regions. Study specific industrial processes according to the project’s scale and domain, dissecting the quality and quantity of material flows, energy flows, and capital flows involved in each process. Visualize data, processes, and element relationships using system diagrams to facilitate analysis, diagnosis, and communication.

(2) Explore typical systems of HPP commercial pop-up spaces

Based on primary field research and desktop research, collect and analyze a series of best design practices that address challenges similar to this study and involve diverse scenarios. Summarize typical systems of common HPP commercial pop-up spaces in contemporary society to identify shared knowledge.

(3) Identify system issues and seek opportunities to enhance the sustainability of HPP commercial pop-up space systems

Using the visualized system diagrams drawn in the first stage, combined with literature and expert insights, diagnose and identify issues in existing systems and specific production processes. These issues may involve environmental aspects (e.g., waste flow, carbon emissions from cross-regional logistics, untapped local energy sources, water waste, etc.). After such analysis, identify opportunities to enhance the sustainability of HPP commercial pop-up space systems.

(4) Design and evaluate a new HPP system that balances commercial value and sustainable development goals

Based on primary research and focused exploration of circular pathways for output flows (e.g., converting waste streams from one production process into resources for another) and input flows (e.g., converting non-local resources into local resources), define a new system model: integrate identified design opportunities and pathways into a new HPP system model, ensuring interrelated processes. During evaluation, apply relevant assessment tools to determine whether the new system achieves the preset objectives.

1.5 Research object

1.5.1 The development history of HPP

HPP is a type of POP-UP. The main initiators of HPP activities are internationally renowned fashion luxury brands (such as Dior, Prada, LV and other brands have reported HPP activities). They use HPP activities and HPP structures as the main carriers to carry out high-profile promotions during some important festivals. The goal is to increase the exposure of new brand products in a short term, attract specific customer groups, and enhance brand awareness. The typical form of HPP structure is shown in Figure 1.8. The following is a brief summary of the development history of HPP.

From the late 20th century to the early 21st century, competition in consumer markets gradually intensified, and consumers' pursuit of new experiences and demand for experiential consumption began to emerge. To break through the limitations of traditional marketing models, some internationally renowned fashion luxury brands started experimenting with temporary spaces and activities to attract consumer attention. For example, during major festivals, brands would set up temporary display areas in department stores within bustling commercial districts, simply showcasing seasonal new products without particularly complex designs or event formats. These initiatives already possessed the embryonic form of HPP activities, marking the beginning of using short-term high-profile displays to increase new product exposure.

From the mid-2000s to the early 2010s, with the rise and rapid development of social media, the speed and scope of information dissemination significantly expanded, providing a new powerful platform for brand promotion. Luxury brands keenly seized this trend and began planning HPP activities more systematically. They meticulously designed aesthetic pop-up booths with brand-specific characteristics as core carriers, and event formats became increasingly diverse. In addition to new product displays, elements such as new product launches, celebrity guest appearances, and exclusive customization services were added, attracting widespread attention from consumers and the media. This gradually formed an HPP marketing model characterized by short-term, high-profile, and experiential activities, whose influence rapidly expanded through social media dissemination.



Figure 1.8 Display of typical hpp structures
(source: collated from online information)

From the mid-2010s to the early 2020s, HPP entered a period of maturity and diversified expansion. During this time, HPP activities were widely carried out globally, extending beyond traditional fashion capitals like New York, Paris, London, and Tokyo to major cities in emerging markets. Brands became more sophisticated and meticulous in event planning and execution, focusing on deep integration with local culture, art, and trend elements to create activities with regional characteristics and cultural connotations.

For example, HPP events in some Asian cities incorporated local traditional festival elements and art forms. Meanwhile, event scales and formats became more diverse, with the emergence of large immersive experience spaces and cross-border collaborations with renowned artists or designers, further enhancing brand buzz and influence.

1.5.2 Characteristics of HPP

In today's diverse commercial marketing landscape, as a unique form of POP-UP, HPP clearly demonstrates its characteristics of both association and distinctiveness compared to common pop-up activities. It fully retains the key feature of temporariness inherent in POP-UP. However, when delving into its commercial core, one discovers that HPP has more explicit and ambitious pursuits. In setting and achieving commercial goals, HPP focuses precisely on a series of key metrics, particularly sparing no effort to achieve high exposure. Through meticulous planning and execution, it strives to rapidly bring the brand and its new products into the vision of target audiences within a short period, maximizing brand visibility and influence.

Meanwhile, HPP has strict standards and precise strategies for positioning and attracting target customer groups. It is not a broad-based mass marketing approach but specifically targets high-end or niche customer segments with specific consumption preferences, aesthetic tastes, and purchasing power. By deeply tapping into their potential needs and consumption desires, it may involve deep integration with elements such as top-tier art, cutting-edge technology, and niche culture, touching consumers' hearts from multiple dimensions—visual, auditory, tactile, and emotional—to achieve the core goal of increasing brand awareness.

Fashion luxury brand giants represented by renowned international brands such as Dior, LOUIS VUITTON (LV), and Prada have become active practitioners and successful examples of HPP activities. With their strong financial capabilities, rich market resources, and keen business insights, these brands organize approximately hundreds of HPP events annually. At the event sites, they typically create meticulously designed artificial aesthetic pop-up booths that integrate the brand's core values, the design concepts of seasonal new products, and the preferences of target audiences. Through clever display arrangements, interactive experience setups, and guidance from professional service teams, they create an immersive brand experience environment for participants. It can be seen that compared to pop-up activities held by ordinary brands or start-up brands still in their infancy, HPP demonstrates significant differences and advantages across multiple dimensions. Summarizing its main characteristics:

- 1. Structures are notably temporary ;
- 2. Emphasize high exposure to enhance brand awareness. ;
- 3. Often feature the brand's new-season flagship products or concepts to attract specific target customer groups ;
- 4. Commit to creating unique experiences from various dimensions.

1.5.3 Preliminary investigation of HPP structures

To gain a deeper understanding of HPP structures, the primary spatial vehicles in HPP activities, the researchers conducted investigations into HPP activities by different brands, summarizing and organizing their locations, durations, activity content, and basic spatial forms. The research was primarily carried out through desktop research and on-site investigations, with most information sourced from personal records and public news media reports, and a small portion from experience reviews published by netizens.

Table 2.1 Summary of HPP activities research by various brands



HPP : MISS DIOR^[29]
Brand : Dior
Address : Deji Plaza, Nanjing, China
Duration : 2018.8.16-2018.8.20

A romantic pop-up space was created at Deji Plaza in Nanjing, featuring pink as the main color tone and decorated with abundant floral elements. The space focused on promoting Miss Dior Blooming, attracting many young fashion-forward women to visit for photo-taking. This initiative enhanced the brand's local popularity and boosted product sales.



HPP : "Beijing Style" Time-limited Space^[30]

Brand : LV

Address : Four major blocks in Beijing, China: 798, Drum Tower, Liangma River and Guomao

Duration : The main space of 798CUBE: 2024.7.10-2024.7.28
Drum Tower, Liangma River, and Guomao: 2024.7.9-2024.7.15

These spaces are designed based on the characteristics of different neighborhoods. For example, the space in Drum Tower incorporates decorations in the traditional architectural style of old Beijing. In this way, LV combines the brand with Beijing's characteristic culture and popular locations, attracting the attention of many local residents and tourists, and enhancing the brand's popularity and influence in the Beijing market.



HPP : Christmas Workshop
Brand : Dior

Address : Atrium, 1F, Grand Gateway 66, Shanghai, China
Duration : 2023.11.29 - 2023.12. 5

Combining the Christmas festive atmosphere, limited-edition MISS DIOR products and exclusive gift sets were launched, attracting a large number of consumers to stop by, visit, and purchase. This has enhanced the brand's market competitiveness during the holiday season.



HPP : Blossom Jewelry Time-limited Space^[31]

Brand : LV

Address : Changsha International Finance Square IFS
Duration : 2024.2.7-2024.2.26

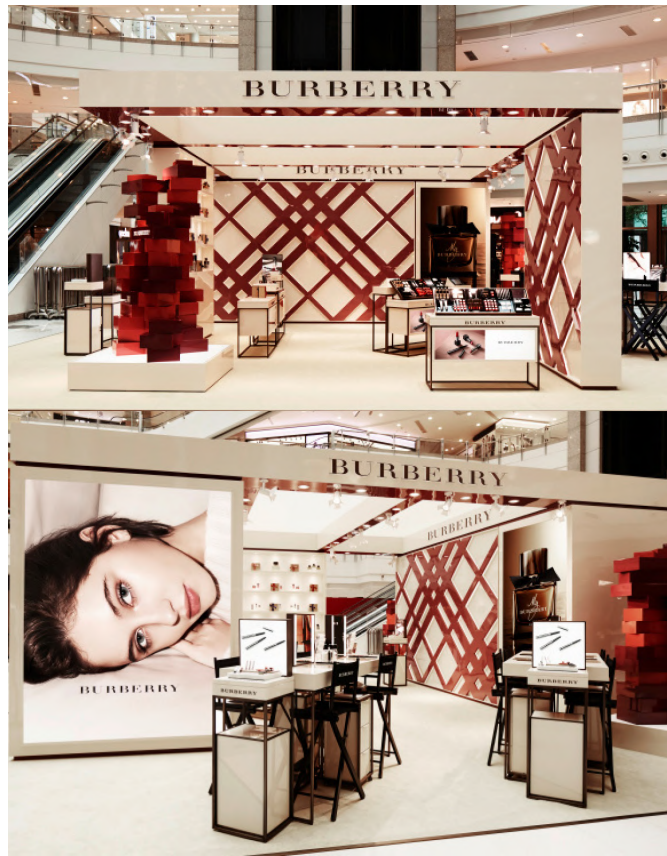
The Louis Vuitton Blossom Jewelry Time-limited Space made its debut at Changsha International Finance Square (IFS). The event primarily promotes the Idylle Blossom jewelry collection.



HPP : Global Horizons^[32]
Brand : Burberry

Address : Shanghai Plaza 66
Duration : 2021.11.18
(No specific duration)

Aim to create an interactive experience space that integrates nature and technological exploration, allowing consumers to closely feel the brand's tribute and inheritance of classic elements, innovative concepts, and the spirit of outdoor exploration, and start an immersive global journey. The spatial design is inspired by "outdoor landscapes", and the appearance design of hills reproduces the characteristics of natural landscapes, celebrating the freedom of wandering outdoors and echoing the brand's iconic spirit.



HPP : Burberry Beauty Time-limited Boutique^[33]
Brand : Burberry
Address : Grand Gateway 66, Shanghai
Duration : 2017.3.22 - 2017.3.26,

The spatial design of this time-limited boutique allows customers to immerse themselves in the brand's casual and natural makeup world, experiencing the full range of makeup products and fragrance collections. At the event site, with the help of exclusive makeup stylists, customers can purchase star products for creating the brand's classic looks or freely craft their own unique makeup styles.



HPP : Shanghai Wuzhong Market Pop-up
Brand : PRADA
Address : No. 318, Wulumuqi Road, Wuzhong Market, Shanghai, China
Duration : 2024.9.27-2024.10.10

The atypical HPP space integrates brand contents with existing spaces for joint marketing. The Wuzhong Market (a community food market) in Shanghai is packaged as a must-visit destination accessible to everyone. The pop-up space set up here breaks the aloof image of traditional luxury stores, forming a striking contrast and unique integration with the lively atmosphere of the food market.

1.5.4 Summary of HPP tructure types

HPP structures come in a rich variety of types and can be divided into multiple categories according to different classification criteria. In terms of structural forms, frame structures are widely used, such as metal frames and wooden frames. Metal frames are often used in HPP activities that require rapid assembly and multiple reuse due to their sturdiness, durability, and ease of construction and disassembly. Wooden frames, on the other hand, can create a warm and natural atmosphere, meeting the needs of brands pursuing specific styles. HPP structures with shell structures, relying on their unique shapes, can enhance the visual appeal of the space and become the focal point of the event. They are often used in art exhibition-type HPP activities to bring a unique experience to the audience.

Classified by functional use, display-type structures are one of the most common types, with a focus on highlighting product display functions. Such structures typically have large display areas, shelves, and display platforms, presenting brand products in all directions to consumers through carefully designed layouts and lighting effects. Experience-type structures place greater emphasis on consumer participation and interactive experiences, with interactive installations and experience areas set up inside to allow consumers to gain an in-depth understanding of the brand and products through participation. Sales-type structures take promoting product sales as their core goal, emphasizing the convenience of shopping in spatial layout, setting up reasonable cash register areas and commodity display methods to enhance consumers' willingness to purchase. Of course, in specific HPP activities, these functions may be coordinated, but the priorities will differ.

1.5.5 The interaction relationship between HPP structures and their surrounding environment

HPP structures have multiple interactive relationships with their surrounding environments. In terms of space utilization, HPP structures need to fully consider the layout of surrounding buildings, roads, and public spaces. For those located inside shopping malls, they must coordinate with the mall's overall spatial planning, rationally utilize public areas such as corridors and atriums to avoid disrupting the mall's normal operations, while leveraging the mall's foot traffic advantages to attract more consumers. For outdoor HPP activities, integration with surrounding natural and urban landscapes must be considered. For example, in HPP events held in parks, the design of structures should echo the park's natural environment, using natural materials and green plants for decoration to minimize damage to the natural landscape and create a harmonious event atmosphere.

From the perspective of crowd flow, HPP structures can attract large gatherings of consumers, thereby altering the crowd flow patterns in surrounding areas. To achieve the goal of attracting more consumers, HPP activities typically use frame-type structures to make spaces more open, i.e., without a single entrance. Successful HPP events can boost the development of surrounding businesses, drawing more people to nearby dining and café venues and promoting regional economic prosperity. However, improper event organization may lead to issues such as traffic congestion and excessive crowding in adjacent areas.

2.DESIGN RESEARCH ON HPP: TAKING BRAND D AS AN EXAMPLE

2.1 The case value of brand D in HPP research

HPP has a very diverse range of application scenarios, and there is no unified standard or paradigm within the industry. Therefore, in order to better analyze the characteristics of HPP and identify sustainable system optimization goals, this study decides to focus on a specific high-end fragrance and cosmetics brand. After establishing contact and obtaining authorization from brand D, the researchers developed a series of research plans and used systematic design methods to analyze the brand from a global perspective of its development.

The choice to focus on brand D is not only because the researchers can obtain first-hand data through cooperation with the brand but also because of many other advantages. In terms of brand image, as a globally renowned luxury brand, the brand design guidelines presented by brand D in its HPP activities are highly representative.

Whether in the layout of event venues or the design of related structures, brand D's HPP activities integrate classic brand elements, providing an excellent paradigm for studying how brand images are strengthened through HPP events. In terms of economic benefits, brand D's HPP activities often generate considerable returns, typically attracting a large number of highly loyal consumers and potential customers, and achieving significant increases in product sales within a short period. This not only provides a large number of research samples on brand consumers but also is representative in achieving HPP activity goals, making it conducive to evaluating whether research strategies balance commercial value and sustainability. Additionally, brand D is highly proficient in integrating partner resources.

It frequently engages in cross-border collaborations with top fashion media, art institutions, and other high-end brands, which shine in its HPP activities and can be used to analyze stakeholders in the HPP event organization process. Most importantly, Brand D has already identified sustainable development as one of its brand-building goals. In recent years, Brand D has undertaken multiple sustainable practices in its development and has collaborated with relevant design universities to encourage and support the application of sustainable thinking in overall design, which will be highly conducive to advancing the research of this project.

2.2 Research results of brand D's users

To better understand consumers' perceptions of temporary spaces and sustainable practices by high-luxury brands, especially in the high-luxury fragrance and cosmetics sector, the researchers conducted a questionnaire survey. A total of 125 valid questionnaires were collected, including 32% male and 68% female respondents. The majority of respondents were young consumers aged 18-35, with 10 respondents over 46 years old, reflecting a certain breadth of user representation.

From the basic demographic survey results, luxury brands enjoy extensive visibility: Dior, Chanel, and Hermès have awareness rates exceeding 90%, while Louis Vuitton and Gucci are close to 90%. 93.6% of users learned about these brands through social media (such as Weibo, WeChat, and Douyin), followed by offline stores at 67.2%. Among these users, 48.8% purchase luxury products 1-2 times a year, 35.2% hardly ever purchase, and only 4.8% purchase frequently (6 or more times a year). The primary reason for purchasing is "as a gift for others" (64%), followed by "to enhance personal image and temperament."

When buying, consumers prioritize three factors: product efficacy, brand reputation, and price, each selected by approximately 55% of respondents. When asked about the characteristics of high-luxury fragrance and cosmetics brands, 77.6% chose "premium brand image and positioning," while fewer than 50% selected traits like "long-standing brand history and cultural heritage," "celebrity endorsements and advertising effects," "exquisite packaging design," or "broad financial resources and influence."

The second part of the questionnaire investigated user familiarity with HPP. Among respondents, 67.2% noticed temporary structures built for HPP activities in shopping mall atriums or perimeters (typical HPP structure photos were included in the questionnaire), but only 8.8% were very familiar with and frequently participated in such activities, while 24% had never noticed or participated at all. Excluding users with no awareness of HPP, 80% of the remaining respondents noticed HPP activities "by chance while passing by," 52.63% through "offline store promotions," and only 38.95% via "brand official websites or social media accounts." The most attractive factors for attending HPP activities were "new product trials or experiences on-site" (81.05%) and "discounts or gifts" (71.58%), followed by "beautiful venue decor" (54.74%) and "celebrity appearances" (46.32%). 62.11% of users reported a moderately improved impression of the brand after attending HPP activities, perceiving the brand as more dynamic; no one chose "worse impression."

The third part of the questionnaire focused on sustainable practices by high-end brands. A total of 35.2% of respondents chose "very familiar" or "somewhat familiar" with such practices. However, 69.6% and 56.8% agreed that sustainable actions by brands could "enhance brand image and social responsibility" and "increase favorability and loyalty," respectively. 9.6% worried that such practices might "reduce the brand's exclusivity and luxury appeal." When asked about potential price increases for sustainable practices, 10.4% were very willing to support environmental protection and sustainability, 45.6% were willing but hoped for minimal price hikes, 35.2% were reluctant to pay for sustainability due to price being a primary consideration, and 8.8% were completely unwilling, expressing no concern for brand sustainability efforts.

Analyzing these data, the researchers initially derived the following insights, categorized into "challenges" and "potential," to facilitate subsequent systematic analysis:

1. Challenges

(1) Low purchase frequency.

Over one-third of users almost never purchase high-luxury brand products. Nearly half of users purchase only 1-2 times a year, and users who purchase frequently account for only 4.8%. Overall, the purchase frequency is low.

(2) Limited channels to learn about HPP activities.

Users mainly learn about HPP activities by chance encounters or offline store promotions. Only 38.95% of users learn about them through brand official websites or social media accounts, indicating a need to expand brand promotion channels.

(3) Issues with awareness and acceptance of sustainable practice.

More than 60% of users have little understanding of the sustainable practices of high-end brands, and over one-third are reluctant to pay for brands' sustainable behaviors. If prices are raised due to sustainable practices, there may be a risk of losing consumers.

2. Potential

(1) Strong influence of social media.

93.6% of users learn about high-luxury brands through social media, but their impressions of HPP mainly come from offline encounters and stores. To enhance the effectiveness of HPP events, brands can leverage social media to increase promotion efforts.

(2) Positive impact of HPP activities.

Over 60% of users reported an improved brand impression after participating in HPP activities. Factors such as new product trials and promotional gifts strongly attract consumers to HPP events. Brands can hold more such activities to enhance consumer interaction and favorability.

(3) Positive impact of sustainable practices.

Nearly 70% of users believe that a brand's sustainable development actions can enhance its image, increase favorability, and foster loyalty. Actively implementing sustainable practices and informing consumers helps shape a positive brand image.

(4) Strengths in brand image.

77.6% of users recognize the premium brand image and positioning of high-luxury fragrance and cosmetics brands. Brands can continue to reinforce this characteristic to consolidate their market position.

(5) High gifting demand

64% of users purchase high-luxury brand products as gifts for others. Brands can launch relevant products and services for gifting scenarios to meet consumer needs.

2.3 Field research on the construction/decommissioning factories of brand D's HPP

The field research primarily employs **Non-participant Observation and Expert Interview methods**^[34]. A total of three offline field investigations were conducted, including direct communication with the China general agent of brand D. The research team visited the construction and decommissioning factories of brand D's HPP structures (these are close partner factories rather than directly owned by brand D) to conduct on-site investigations of production processes and real-world scenarios. During the research, the team also interviewed brand managers and frontline workers from manufacturing facilities to understand the multi-perspective processes throughout the entire lifecycle of HPP production, processing, and deployment. Confidential information in the figures has been redacted in accordance with brand requirements.

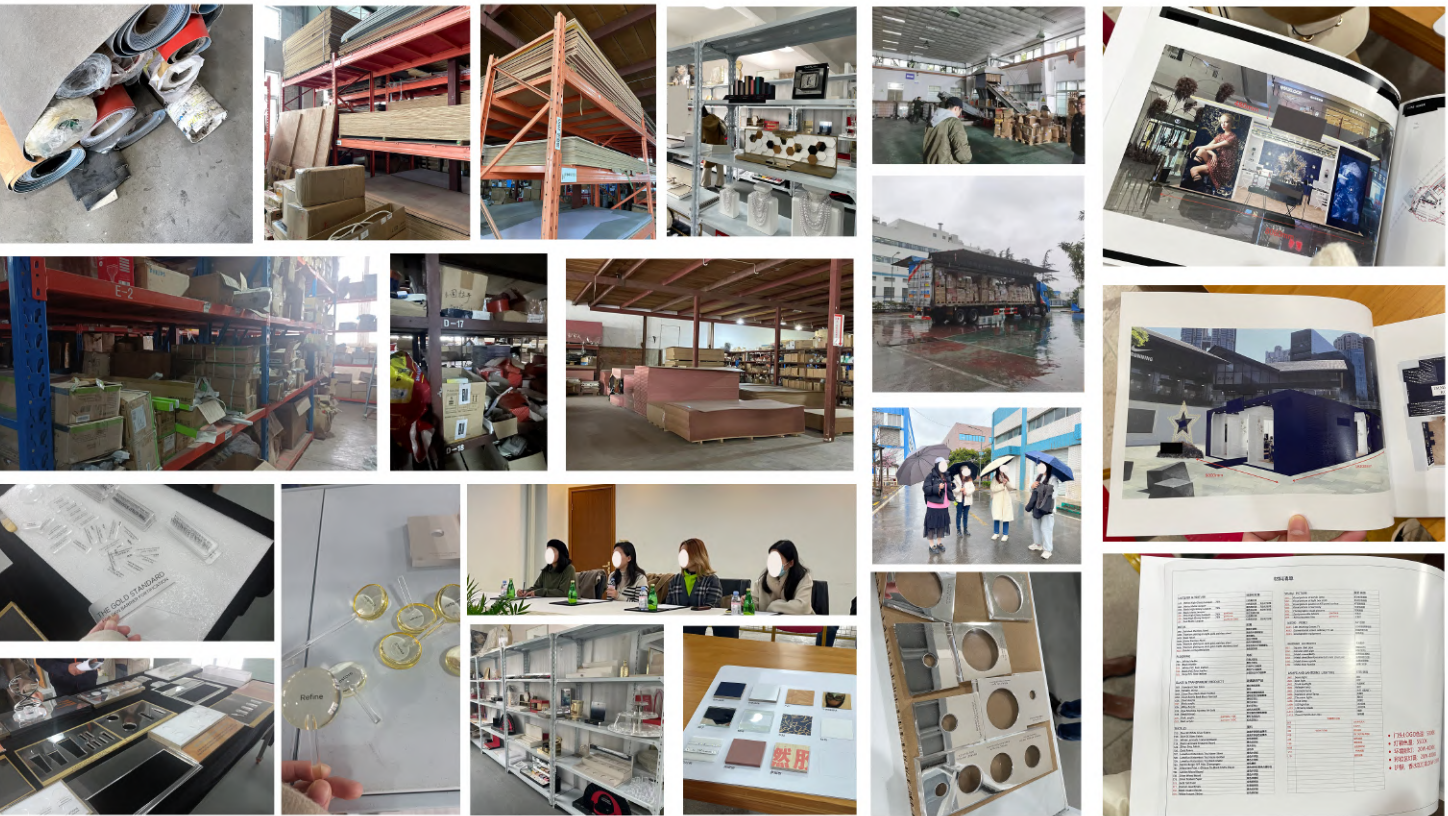


Figure 2.1 On-site photos of field research and interviews at the construction/decommissioning factories of brand D's hpp (source: records of the research team)

What do we hear?

- 
- 4 Pulpboard is environmentally friendly and sustainable compared to wood and has been used to a certain extent in Singapore. However, there is a lack of hardness in the pulp board processed by domestic technology, and it is expensive to import
- 5 the worker said there was a detailed coding system and electronic filing and that anything you needed could be found after searching in the files
- 6 All scrap materials will have a fixed cooperative third-party for recycling.
- 7 HPP's design plan is mainly developed by the foreign brand headquarters, then issued guide book, the Chinese team according to the actual situation in China to modify the details, repeatedly finalize the plan before the implementation of the landing.
- 8 When talking about sustainability-related measures, the factory cited the use of sustainable materials in Southeast Asia and the United States, and the use of photovoltaic power generation in China, but the factory doesn't track the waste in its own factory
- ! If the end-of-match the effe
- ! What exactly material, is it a
- ! Is acrylic an en its material pr reasons for its More in-depth

What do we think?

- ❗ If the end-of-life rate is inevitable (as it is necessary for luxury brands to consume a certain amount of resources to renew their counter image to match the effect of the campaign), is it possible to improve the craftsmanship in the use of raw materials.
 - ❗ What exactly is the recycling process like? If it is sold, how much is the cost feedback? What happens to the recycled material, is it actually recycled or is it simply landfilled as waste?
 - ❗ Is acrylic an environmentally friendly material? How reusable is it? What are its material properties? What can be used as a substitute? What are the reasons for its high frequency use?
More in-depth research is needed...
- ### What do we see?
- ❗ the counters are exquisitely crafted and expensive, but

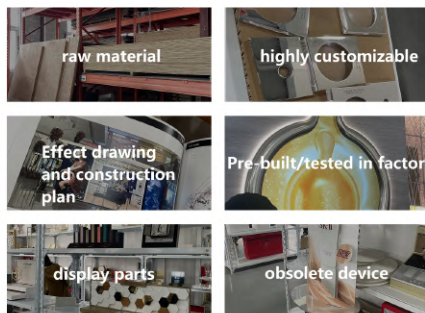
What do we see?

- 1 the counters are exquisitely crafted and expensive, but have a lifespan of only 2-3 weeks and a high end-of-life rate (a few counters or items will be reused within the brand)
- 2 The factory has a wide range of acrylics, extra thick, mirrored and so on. This material seems to be very popular with the beauty industry.
- 3 the warehouse looks so messy.

What do we wanna know?

- How much freedom does the Chinese team have in terms of design? How much design adjustment is acceptable to the head office?
- Which type of components can be reused?

SEE



FACT

Material Selection

- Use more environmentally friendly/reusable pulp boards instead of wood boards
- The production of domestic pulp plates is small and the price is high, mainly relying on imports
- Use water-based paint instead of oil-based paint

- Use mod

- Use modular design to facilitate material reuse
 - eg: Mirrors, chairs, lamps in the try-on area
-
- Using light box + tin foil and aluminum foil can reduce the number of lamp tubes

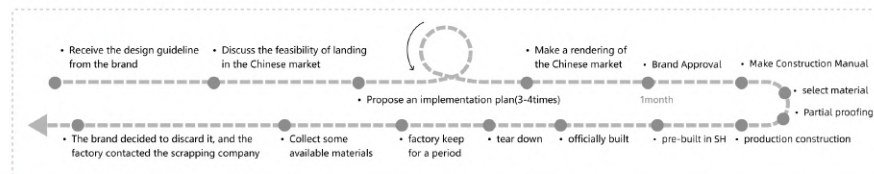
Reuse

- Reusable components: lamps, chairs, warehouse structures
- The structure of the display frame has changed a lot, and the reuse rate is low

Waste disposal

- The main categories of waste processed by third-party scrap companies: acrylic, wood structure, glass, metal
- Due to color difference and quality cannot be guaranteed, scrap material will not be recycled
- Update frequency: 1-2 weeks for flash devices, 1-2 years for nonvolatile devices

PROCESS The whole process from showcase design to landing



REFLECTION

1. Brand positioning of luxury goods (high quality texture & visual effect) VS low quality of recycled materials

- In order to satisfy the public's awareness of brand positioning, luxury brands create a sense of luxury through visual effects
- It is difficult to guarantee the quality and effect of material recycling
- Booth materials of different brands are highly customized and difficult to use universally

2. Implementation cost vs profit of sustainable concept

- The cost of material recycling and reuse is high, so brands and factories lack strong execution motivation
- The plan and cost are mainly controlled by the brand side, and the third-party factory is the plan executor, lacking the right to speak
- The implantation of sustainable concepts will break the existing stable production process

3. Material thinking already have

- There have been cases of using pulp board instead of wood structure, but limited to manufacturing costs
- Water-based paint can also replace part of the paint, but the effect is slightly poor and cannot be completely replaced
- Product theme of the brand (makeup/skin care - the theme of different feelings affects the material

- Public awareness of luxury brands? Does the advanced visual effect of the booth affect the consumption behavior of the public?
 - How do scrap companies deal with waste materials now?
 - Apart from dismantling and reusing materials, what other ways can be used for abandoned booths?
- eg. Does the existing beauty store (Xi Ran, Colorist) have any demand for out-of-season booths?

- What sustainable options are there besides material recycling?
- For sustainable implementation, it needs to be initiated by the brand side, and the factory should cooperate
- Can the later material processing scheme be added to the earlier scheme design?

- The physical props designed for shooting include: background, decoration, exhibition plate, lamps (model, color temperature and brightness are different, but can be reused). Frame

Figure 2.2 Text records of field research on the construction/decommissioning factories of brand factories of brand D's hpp (source: records of the research team)

1. Non-Participatory Observation Results

During the observation of the construction and decommissioning factories of brand D's HPP structures, the researchers identified the following key phenomena:

(1) Warehouse usage and management

From the stacking conditions of materials in the on-site warehouse, it can be seen that there is a wide variety of raw materials used in production, including but not limited to the various materials shown in the figures. Although the factory has certain standards for raw material storage and has established a coding query system, in practice, the on-site placement of raw materials was slightly disorganized, and the query system was not used. This may affect production efficiency and increase the time cost of searching for materials.

Regarding the use of environmentally friendly materials such as pulp boards, while the factory is aware of their importance and understands international trends, their practical application is limited by costs and technology, failing to reach an ideal level. For example, traditional materials are still used in some components where environmentally friendly materials could substitute them.

(2) Production contents and efficiency

The researchers observed a wide variety of acrylic materials with diverse specifications produced on-site, which seem highly popular in the fragrance and cosmetics industry. However, many idle counters were also seen after use. These counters are exquisitely crafted and expensive but have a service life of only 1–2 weeks, resulting in a high scrappage rate. Only a few counters or items are reused within the brand.

The usage of production equipment in the factory is also notable. Some equipment shows obvious signs of aging, which may affect product processing precision and production efficiency. Although the factory plans to update the equipment, the progress is slow due to financial and production scheduling constraints.

(3) Decommissioning treatment and resource recycling

In the observation of decommissioning treatment, the methods for disposing of HPP structures were relatively single. Most decommissioned components were treated as waste, with only a small amount of materials with high recycling value being recycled. The factory lacks a complete accounting system for cost control during decommissioning. When handling decommissioned components, the focus is more on clearing the site as soon as possible, ignoring the potential for cost savings and resource recycling value that could be tapped during the process.

2. Expert interview results

Through interviews with brand managers and frontline workers from the manufacturing factory, the following key information was obtained:

(1) Perspective of brand managers

From the brand positioning and market demand, the brand emphasizes that HPP structures require high-quality materials and exquisite craftsmanship to ensure their display effects. In the interviews, brand managers mentioned the contradiction between the luxury brand's positioning (high-quality appearance and visual effects) and low-quality recycled materials. They believe that in the current market environment, high-value materials are more likely to achieve the desired effects to attract consumers and maintain the brand image, while recycled materials cannot be effectively utilized yet.

In terms of implementing environmental sustainability concepts, the brand has certain plans and goals, but the updates in material selection and support for recycling processes are not well-reflected in the activities, nor can they leave consumers with the impression that "we are actively practicing sustainability goals." For commercial brands, the investment in sustainable practices has not yet matched the outcomes.

Meanwhile, since Brand D's parent company is based in France, the entire process of HPP activities in China—from design to implementation—requires continuous synchronization of information with the parent company, and many steps can only proceed after feedback from the parent company. The most critical part is the post-demolition recycling process: after HPP structures cease operations, parent company approval is required to determine which materials can be recycled and reused. Therefore, in many cases, the local brand operation team chooses to directly scrap the structures to save steps and time, resulting in the loss of some sustainability opportunities due to these management requirements.

(2) Perspective of frontline workers in manufacturing factories

For partner factories that undertake the construction of structures for different brands, their deliverables are only responsible for the design schemes provided by the brands, with limited decision-making power. In material selection and application, they finalize choices with the brand based on mainstream market conditions, but the top two considerations are achieving design effects and controlling costs.

3. Field research insights

Through analysis and consolidation of the above information, the researchers derived the following insights, categorized into "Challenges" and "Potentials" for subsequent systematic analysis.

Challenges

(1) Non-standard raw material query system.

Despite storage standards and a coding system, messy on-site placement and disuse of the query system increase material-searching time costs and affect production efficiency.

(2) Limited application of environmentally friendly materials.

Restricted by costs and technology, their usage falls short of ideal levels, hindering environmental and sustainability goals.

(3) Severe counter idling.

High scrappage rates and low reuse rates lead to resource waste.

(4) Aging production equipment.

Slow equipment renewal due to funding and scheduling constraints impacts processing precision and efficiency.

(5) Single decommissioning treatment method.

Most components are treated as waste, with low recycling rates and a lack of cost accounting systems, ignoring cost-saving and recycling potentials.

(6) Contradiction between luxury brand positioning and recycled materials:

The demand for high-quality appearances limits the use of recycled materials, affecting sustainability practices.

(7) Lack of consumer impression of sustainability.

Despite plans, the brand's efforts in material selection and recycling are not visible, failing to convey active sustainability practices to consumers.

(8) Lost sustainability opportunities due to management requirements.

HPP activities in China are constrained by the parent company's approval approval processes, especially for recycling, leading to frequent direct scrapping and missed opportunities.

(9) Limited material selection decision-making power for partner factories.

Focus on design effects and costs may hinder the promotion of more sustainable materials.

2. Potential

(1) Improvement opportunities for raw material storage and coding systems.

Effective utilization and site management could enhance production efficiency and warehouse operations.

(2) Wide application of acrylic materials.

Popular in the industry, they offer potential for optimization in product design and application to increase value, reduce scrappage, and improve reuse rates.

(3) Low-cost improvements for decommissioning treatment.

Establishing a cost accounting system could optimize disposal methods, unlock recycling value, and achieve cost savings and sustainability.

(4) Upgrading value of recycled materials.

As market attention to sustainability grows, resolving the contradiction with brand positioning could balance image and practices, winning consumer favor.

(5) Optimizing communication with the parent company.

More efficient decision-making in HPP activities, especially recycling, could seize sustainability opportunities and enhance the brand's green image.

(6) Increasing exposure of sustainability practices.

Commercial considerations call for promoting sustainability efforts to consumers to enhance brand image, drive deeper practices, and create a positive cycle.

2.4 Typical HPP structures of brand D

2.4.1 The basic attributes of typical HPP structures of brand D

In the context of brand D, **HPP is a pop-up event lasting approximately one week, organized hundreds of times annually in different regions, typically featuring artificial aesthetic pop-up booths. The HPP structure measures approximately 9 m × 15 m × 3 m (around 403 m³)**, mostly as semi-open spaces with strong circulation characteristics. The specific form and information are shown in Figure 2.3.

Typical HPP booth model (of Brand D)

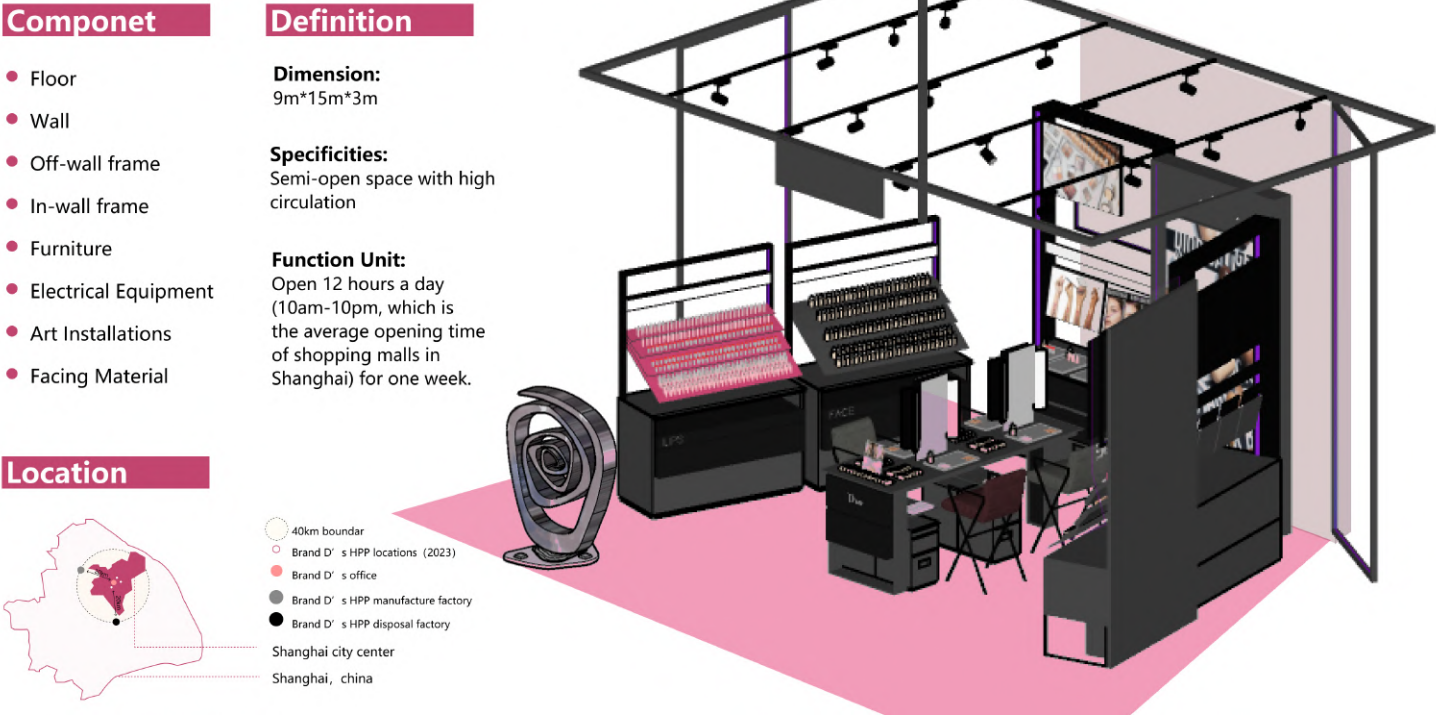


Figure 2.3 Information organization of typical HPP structures of brand D (source: self-drawn by the author)

2.4.2 The lifecycle of typical HPP structures of brand D

The lifecycle of a retail store can be divided into three stages: **creation, provision, and termination**. The first stage involves activities prior to service provision, such as identifying specific locations for service delivery, conceptualization, design, and construction of the store. The second stage is the service provision phase. The third stage includes activities required to conclude service delivery, such as dismantling and disposing of surplus materials that are no longer needed^[35].

Based on this preliminary process framework and combined with initial insights from field research, the researchers further discussed the lifecycle of Brand D's HPP structures in detail, using Shanghai, China as a case scenario, as shown in Figure 2.4.

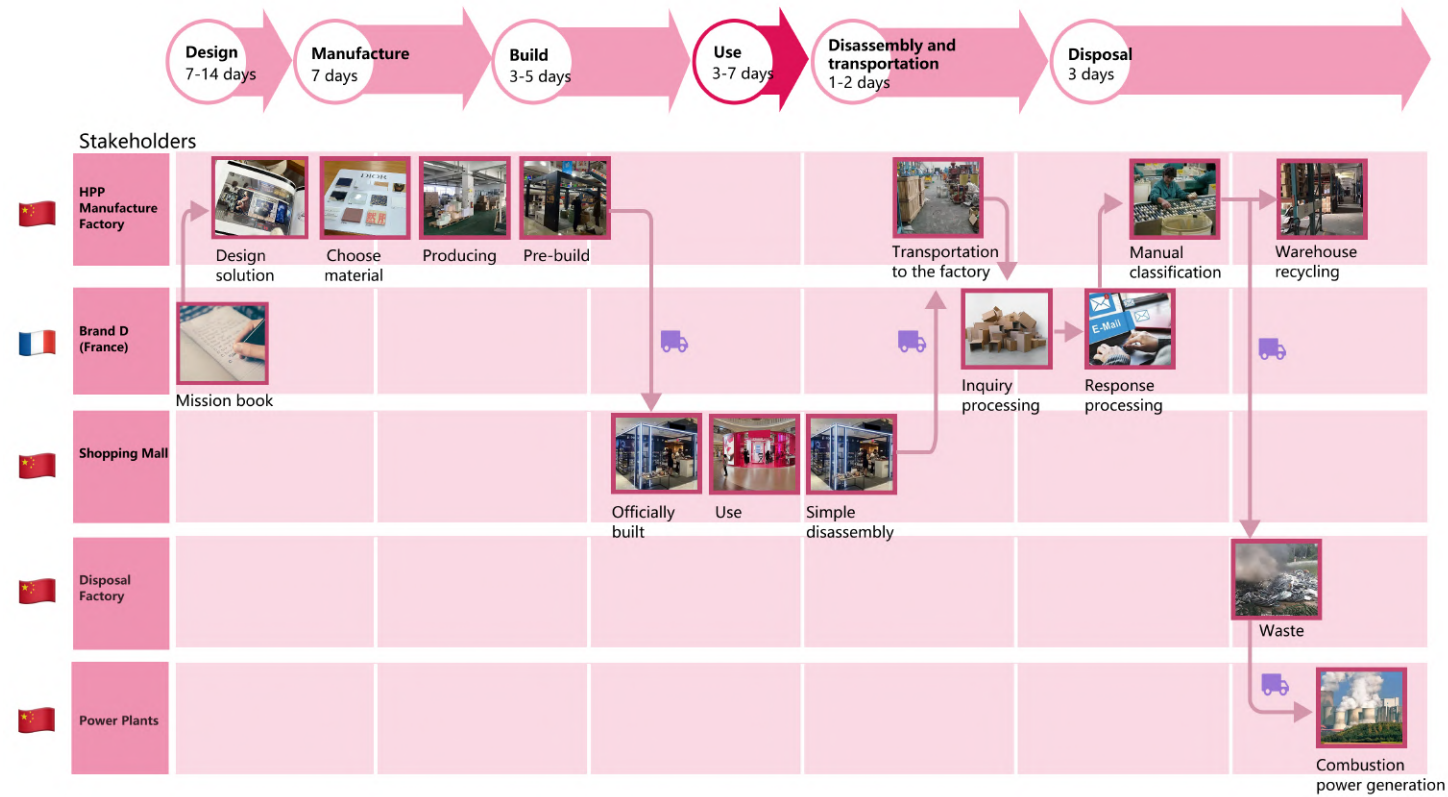


Figure 2.4 Sorting out the lifecycle of brand D's HPP (source: self-drawn by the author)

The organizational process of an HPP mainly includes the following steps:

(1) Receiving design guidelines

The subsidiary first receives design guidelines from the parent company, including the HPP's theme, timeline, and design renderings. Senior executives within the subsidiary then discuss the feasibility of implementing the next-phase HPP plan in the Chinese market, propose an execution plan, and create renderings tailored for the Chinese market.

(2) Feedback on specific chinese market plans and approval

The design team in China submits the plan to the parent company for approval. After approval, the team begins to coordinate with partner factories for on-the-ground production.

(3) Partner factory constructs HPP structures

Construction includes pre-construction and formal installation. The factory first completes the full HPP structure within its premises to confirm the effect, then dismantles the components and transports them to the site for formal assembly.

(4) Event site

Brand D's HPP activities primarily involve thematic displays and makeup trial experiences, with a series of consumer interaction links set up according to the event theme. This stage generally does not cause significant wear and tear on the on-site installations.

(5) Dismantling and decommissioning of structures

After the HPP event concludes, the entire exhibition hall enters the dismantling phase. Dismantled material components are first retained by the factory for a period. During this process, the factory categorizes the components, retains reusable materials, and provides a decommissioning feedback report on other materials to Brand D. If the brand issues a disposal instruction, the factory will contact a decommissioning company to dispose of the remaining materials.

2.4.3 The constituent components of typical HPP structures of brand D

To further identify design opportunities, the researchers worked with the brand to determine the most frequently used components, materials, and furniture in typical HPP spaces of Brand D, as shown in Figure 3.5. For Brand D, the modules that are always included are frames, furniture, finishes, and electrical equipment. Flooring, wall surfaces, and art installations are not always considered for every event but are still very common components. The recycling status of these components can be divided into three categories: normally non-recyclable, decomposable and recyclable until completely out of use, and normally reusable. By calculating the quantity of each type of component, it was found that Brand D can currently only directly recycle 14%-34% of the materials, and approximately 20% of the materials cannot enter the recycling process at all after the approximately one-week event concludes.

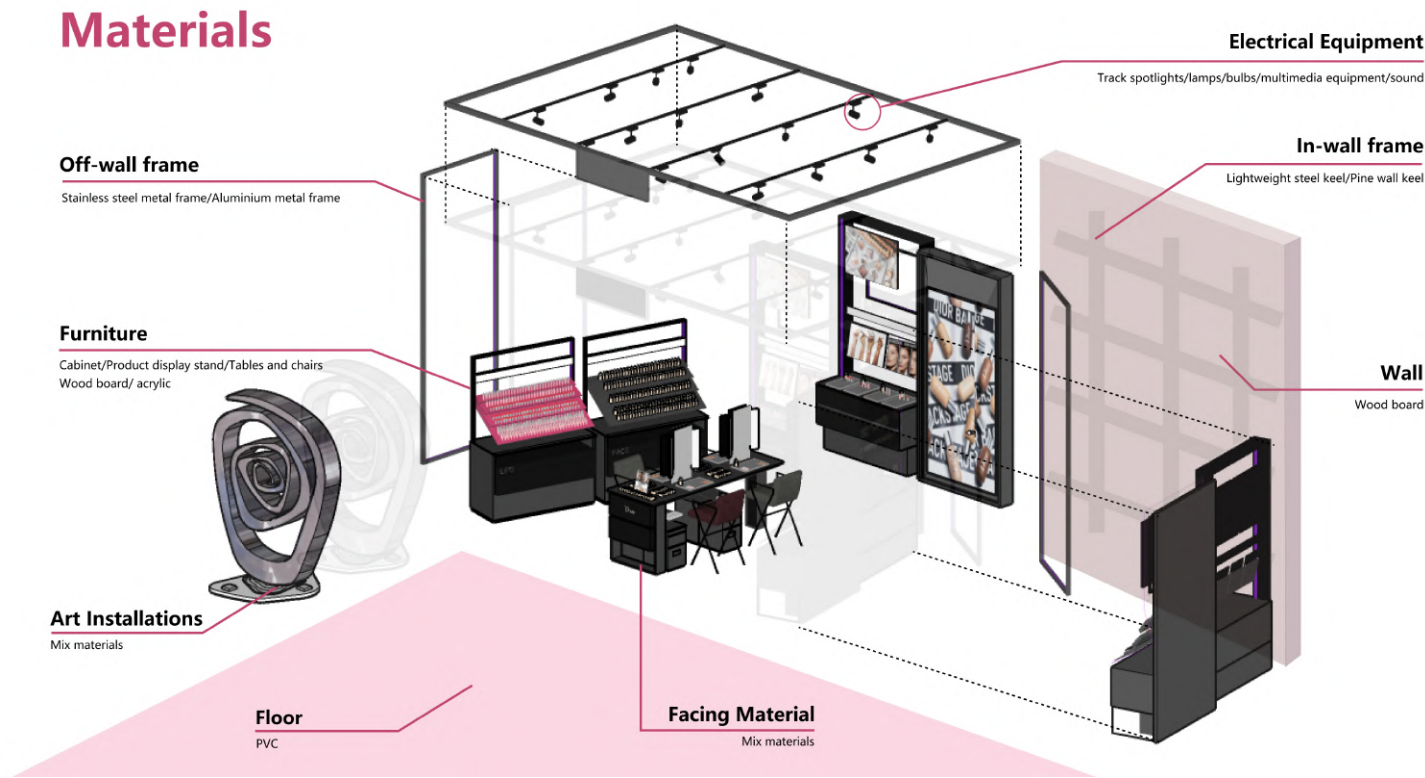


Figure 2.5 Dismantling of typical HPP structures of brand D (source: self-drawn by the author)

These components were further disassembled, and the usage, characteristics, production process, recycling process, and disposal process of the materials that may be used and most commonly used for each type of component were sorted out. After summarization, Figure 3.6 was obtained. For example, regarding HPP flooring materials, Brand D most commonly uses PVC artificial flooring due to its cheap and convenient assembly characteristics. However, a few HPPs may choose no flooring or solid wood flooring. In either case, the flooring materials are dismantled and directly discarded after the event concludes.

Sector of Item	Name of Item	Picture	How many time it will be reused before being recycled	Materials that may be involved	Materials recoverability assessment	Features and functions of material
Structure	Floor		Hardly ever use it again. Will be dismantled and discarded after the event.	No floor	Recycle several times before landfill/incineration	The HPP floor is used to protect the original floor of the site. If the original ground is one that does not require much protection, such as concrete or soil, the floor can be left in place. This occasion seldom happens.
				PVC artificial flooring	Recycle several times before landfill/incineration	Cheap and easy to assemble
	Wall		Hardly ever use it again. Will be dismantled and discarded after the event.	Solid wood flooring (Usually in hardwoods such as oak and walnut)	Recycle several times before landfill/incineration	Expensive, reflecting the class of the brand
				Metal wall keel (usually light steel keel, made of aluminum alloy sheet or cold rolled galvanized sheet)	Recycle	Cheap, lightweight and load-bearing as a wall support structure
				Wooden wall keel	Recycle several times before landfill/incineration	As a wall support structure, cheap, lightweight, with average load-bearing capacity
				Wooden wall coverings, most commonly made of chipboard	Recycle several times before landfill/incineration	Non-load-bearing veneer panels
Furniture	Off-wall Frame		The entire frame hardly ever use it again. The individual bars will be reused.	Putty powder	Straight to the landfill/incineration	Cheap, lightweight and decorative. Putty powder is one of the most widely used materials in the decoration industry and is mainly made of heavy calcium, light calcium, wollastonite, cellulose, water-soluble starch and titanium dioxide, which are added to a mixer and mixed well before.
				Stainless steel bars with baking paint of Polyester epoxy resin, polyurethane (the most common occasion)	Recycle	In the case of a frame structure with a large span, it will act as an expensive load-bearing structure
	In-wall Frame		The entire frame hardly ever use it again. The individual bars will be reused.	Aluminum alloy + painted (the most common occasion)	Recycle	Light , and easy to assemble .
				Lightweight steel keel (the most common occasion)	Recycle	Made from steel, a metallic material that can be recycled and reused many times over.
	Cabinet		Whether to reuse depends mainly on the brand idea. (The better quality cabinets will be used twice. If the brand decides to recycle, in most cases will be disassembled by a dedicated company will be left with the panels, the external finish will be stripped and sanded off (generated pollution).)	Pine wall keel (the most common occasion)	Recycle	Biodegradable
				Acrylic	Recycle several times before landfill/incineration	Carrying a small amount of cosmetic load-bearing
				Metal	Recycle Non-renewable	Non-load-bearing finish panels, mainly stainless steel, brass and aluminum
				Mirror Glass	Recycle	Non-load-bearing veneer panels
	Chairs		High probability of being reused multiple times	Transparent glass	Recycle	Non-load-bearing veneer panels
				Leather	Recycle several times before landfill/incineration	Non-load-bearing veneer panels
				Chipboard (Made from recycled wood products)	Recycle several times before landfill/incineration	Non-load-bearing veneer panels
				Plywood (Made from recycled wood products)	Recycle several times before landfill/incineration	Load-bearing structural panels. Plywood materials have the advantages of light weight, high strength and durability, and are relatively inexpensive to produce.
Electrical Equipment	Tables		High probability of being reused multiple times	Pressed plywood	Recycle several times before landfill/incineration	Wooden skeleton. A kind of board made of multi-layer thin wood or other materials after gluing and compression, with good strength and stability.
				Mix materials	Reuse	
	Track spotlights/lamps/bulbs/multimedia equipment/sound		High probability of being reused multiple times	Mix materials	Reuse	
				Metal shell (Aluminum) + COB lens (light source) or LED	Reuse	
Art Installation	Mix materials		Hardly ever use it again	Materials are not fixed, the general choice of materials are aluminum, acrylic, led light source and so on.	Straight to disposed	To appear as a device of attraction. Easy to shape, brilliant effect (decorative oriented)
Facing Material	Mix materials		Hardly ever use it again	Materials are not fixed, the general choice of materials are paper, cardboard packaging, wood painting, glass	Straight to the landfill/incineration	For decoration

Figure 2.6 Material information of each part after dismantling the typical HPP structure of brand D (source: self-drawn by the author)

The typical HPP of brand D is mainly composed of structures, furniture, and electrical equipment. Among them, makeup chairs, tables, and unit lamps are the most likely to be reused multiple times. The reason is that these components are not strongly related to the theme of a single event and have a high degree of organizational freedom.

Wall surfaces, flooring, art installations, and finishes are highly likely to be dismantled and discarded after a single event, as they need to be customized to match the theme promotion, and the customized content usually includes brand information and logos. However, most of the materials used in these objects can be recycled. To protect intellectual property, the brand sacrifices material recycling to a certain extent.

In an ideal scenario, the frame part can be recycled, especially metal frames. If an HPP uses a large frame composed of unit frames or a frame welded by steel bars, the frame can be disassembled after the event and reassembled according to the frame size required for the next event. This reveals that modularity remains a highly effective sustainable solution. However, an analysis of several recent HPP events held by brand D shows that their frame shapes differ to some extent, and modularity has not achieved the ideal state in practical application.

Therefore, in subsequent indicator calculations, the frame, as a very important component, will enter the recycling or disposal process together with other materials after the HPP ends, rather than being reused.

Cabinets are the furniture with the most complex functions in HPP and involve the most types of materials in application. They are usually composed of multiple materials such as metal, glass, leather, particleboard, plywood, and pressed board. The wide selection of materials means that subjective intentions can intervene in material selection, allowing for the conditional choice of materials with high recycling efficiency. However, sometimes brand D abandons using highly recyclable materials in pursuit of higher quality and perfect effects. Through interviews, the researchers learned that whether cabinets are reused mainly depends on the brand's decision and requires authorization to be transported back to the warehouse. However, during on-site investigations at the factory, the researchers did not find cabinets in the warehouse and learned that due to time constraints on site dismantling, the brand usually does not have time to authorize the reuse of cabinets. Therefore, the probability of cabinet reuse is low, and they are included in subsequent calculation processes.

3.PROPOSED SYSTEMATIC DESIGN STRATEGIES FOR THE HPP BUSINESS SEGMENT OF BRAND D

3.1 Systemic design analysis of brand D

3.1.1 Stakeholder map of brand D

In today's complex and ever-changing business environment, it is crucial for any brand to comprehensively and deeply understand its ecosystem, and brand D is no exception—especially when it comes to its critical HPP activity operations and structure construction. A meticulous analysis of numerous influencing factors is required. To achieve this goal, researchers used a stakeholder mapping tool, and the results are shown in Figure 3.1.

This analysis helps clarify the scope of stakeholders and systematically identify all parties that may influence or be influenced by brand D, including internal employees, shareholders, management, and external customers, suppliers, partners, government agencies, communities, media, etc., to avoid missing important stakeholder groups.

It also clearly presents the relationships and interaction patterns among stakeholders, such as capital flows, information transmission, and influence exertion, enabling the enterprise to intuitively understand the structure and dynamics of the entire stakeholder network.

In addition to enabling more effective resource allocation and determining management priorities, the most important value of stakeholder analysis for this study lies in identifying the key actors who support the implementation of sustainability goals. These actors are like allies on the path of sustainable development, whose support and participation can provide strong momentum and guarantees for the enterprise's sustainable practices.

For example, environmentally conscious consumers may prefer brands that actively practice sustainability, and their purchasing choices can incentivize enterprises to increase investments in sustainability; socially responsible suppliers may provide eco-friendly materials and sustainable production solutions to help enterprises achieve sustainable production; government agencies may introduce relevant policies and incentives to encourage enterprises to carry out sustainable practices. By identifying these key supporters, enterprises can obtain strategic references for long-term and stable investments in sustainable practices, thereby achieving economic benefits while actively fulfilling social responsibilities, promoting the creation and enhancement of long-term corporate value, and realizing sustainable economic, social, and environmental development. This enables enterprises to maintain steady and far-reaching growth in the future and gain broader recognition and acclaim.

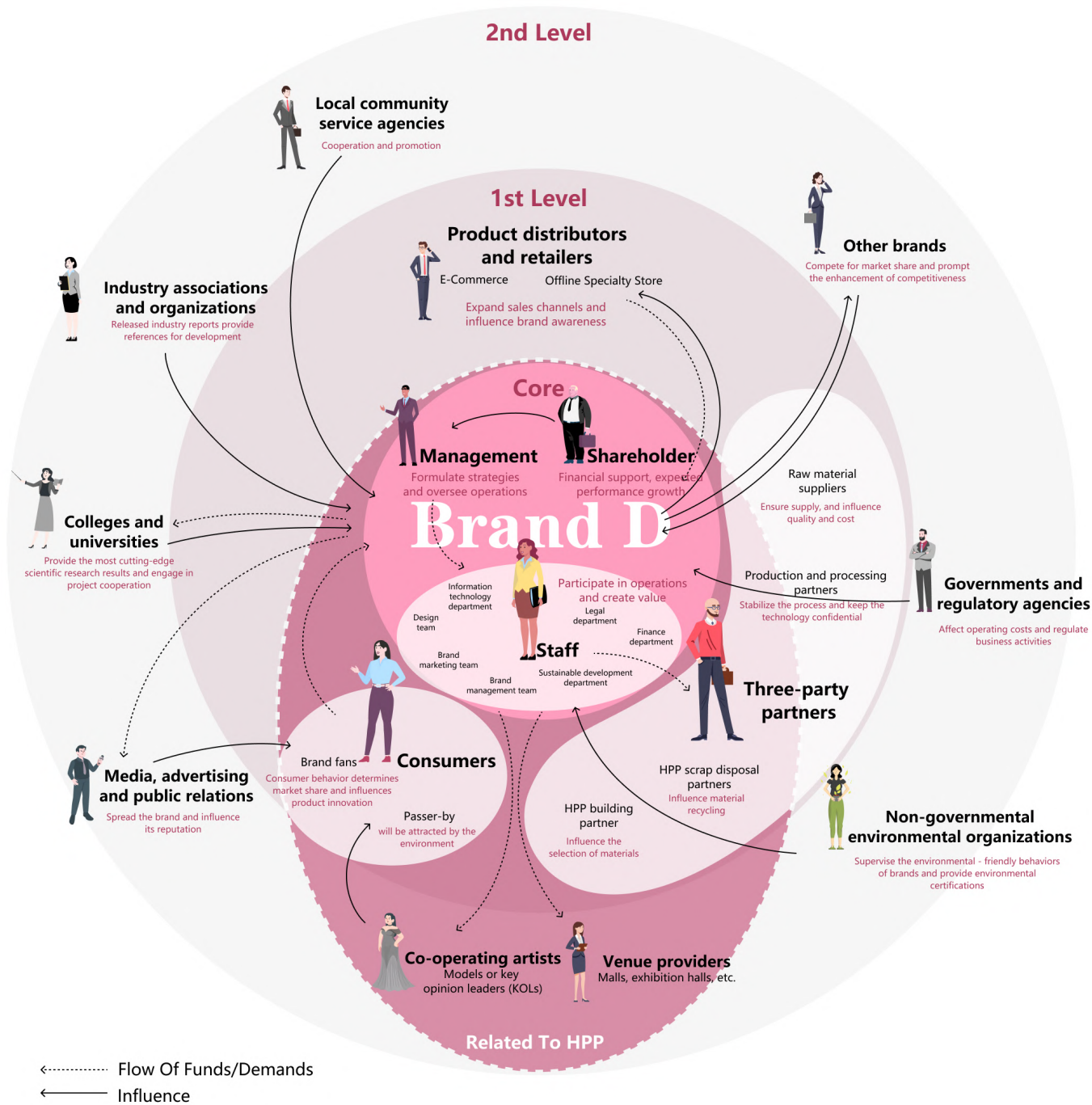


Figure 3.1 Stakeholder map of brand D
(source: self-drawn by the author)

The diagram is primarily divided into three tiers. The core circle of brand D is located in the center, encompassing shareholders, management, and employees. The second tier consists of long-term collaborators and consumers who have close relationships with brand D. The third tier comprises broader entities that engage in temporary interactions. Among them, the oval-shaped dark pink area represents stakeholders who have a more intimate impact on the HPP business division of brand D. In this diagram, attention can be focused on the dashed arrows representing the flow of capital and demand, as well as the solid arrows indicating influence. It is evident that consumers are highly susceptible to influences from media, advertising, public relations, and celebrities. Therefore, when attempting to enhance the brand's sustained influence in the future, prioritizing capital investment in these two entities is advisable.

As shown in the diagram, the main task of tripartite partners is to fulfill the brand's requirements. Based on the previous field research, the choices made during the construction and decommissioning of HPP are primarily guided by compliance with the brand's overall requirements. Thus, the formulation of the brand's strategies and goals serves as a critical entry point for upgrading the HPP system. Additionally, government regulatory agencies, non-governmental environmental organizations, industry associations and institutions, local community service agencies, universities, and other brands all influence brand D's strategic formulation and serve as vital information sources. For example: Changes in policies and regulations by government regulatory agencies may prompt the brand to adjust its strategic direction to adapt to new regulatory requirements. Environmental initiatives and supervision by non-governmental environmental organizations can guide the brand to place greater emphasis on sustainable development and integrate environmental concepts into strategic planning.

Reports and exchange activities by industry associations and institutions can provide valuable industry information and experience for the brand, helping it grasp industry trends and formulate forward-looking strategies. Feedback and suggestions from local community service agencies enable the brand to better understand community needs and expectations, promoting harmonious development between the brand and the community. Scientific research achievements and talent resources from universities can support the brand's innovative development. The brand can carry out industry-university-research cooperation to transform universities' knowledge and technology into competitive advantages. Market dynamics and competitive strategies of other brands can provide references for brand D, prompting it to continuously optimize its own strategies and enhance market competitiveness.

The creation of the stakeholder map clarifies the scope and relationships of brand D's stakeholders, comprehensively and systematically identifying all parties that influence or are influenced by brand D's HPP activity operations and structure construction. This lays the foundation for information screening in subsequent complexity mapping.

3.1.2 Analysis map of regional territorial complexity for brand D

The Complexity Map is a method used to take a macro view of the research object during the study using systematic design approaches. It is typically employed at the very beginning of the entire analysis and serves as a presentation form for the results of Holistic Diagnosis. The analysis in this step mainly includes two parts: Territory and Company. This study takes brand D's Shanghai HPP activities and structures as a typical case, so the boundary of the territorial scope for complexity analysis is primarily Shanghai. The results of the territorial analysis part are shown in [Figure 3.2](#).

The regional complexity map requires a comprehensive understanding of information within the set boundary, followed by information screening and logical sorting for the fields involved in the research object. Through collecting information from public online databases, the researchers gained insights into Shanghai's basic conditions from multiple aspects, including history, geography, transportation, population, cultural and tourism activities, economy, education, and waste management. Shanghai has a total of 16 districts in its urban area, with a total area of 6,340.6 km².

Among them, the seven central districts have a combined area of 660 km², accounting for approximately one-tenth of the total area, but accommodating about one-quarter of the city's permanent population. This indicates that most of Shanghai's population is concentrated in the city center. The researchers marked the location of brand D's office, the venues of three HPP activities in 2023, as well as the locations of HPP's construction factories and decommissioning factories. Relatively speaking, HPP activities are mostly held in high-end shopping malls in the city center, while both the pre-construction factories and the final waste transportation and decommissioning factories are located on the outskirts of the city center, approximately 20 km away from the activity sites and the main office headquarters.

From Shanghai's development history, it can be seen that the city's current reputation as an "international metropolis" is linked to the early entry of foreign capital and the iteration of management experience. In this context, the strategic and forward-looking decision of French brand D to establish its headquarters in downtown Shanghai becomes evident. Additionally, Shanghai's convenient public transportation, including adequate airport, railway, and metro facilities, forms the basic conditions for its robust tourism development and strong international atmosphere.

In terms of population structure, Shanghai's largest demographic group consists of young and middle-aged people aged 15 to 59, providing an abundant workforce and steady economic growth. From an industrial structure perspective, the primary industry (traditional agriculture, forestry, animal husbandry, and fishery) accounts for a negligible proportion, with the tertiary industry (services) playing a dominant role. This provides a favorable environment for the entry and innovation of many businesses, while the upgrading of the consumer market has simultaneously driven green commercial innovation. In recent years, Shanghai has nearly become a practice ground for green commercial innovation in China. The newly opened HAI550 in 2024 has become a new landmark for sustainable living, housing diverse sustainable retail brands. Many sustainable stores and brands, such as the secondhand recycling store De javu, have also chosen to develop in Shanghai. As one of China's most developed cities, Shanghai is at the forefront of circular economy and sustainability practices, with the world's largest number of new energy vehicles owned by any city. Universities here have also actively established majors related to sustainability and environmental protection. In waste recycling and treatment, Shanghai has a large number of registered renewable resource recycling enterprises and a systematic waste management system.

Complexity map of the territory

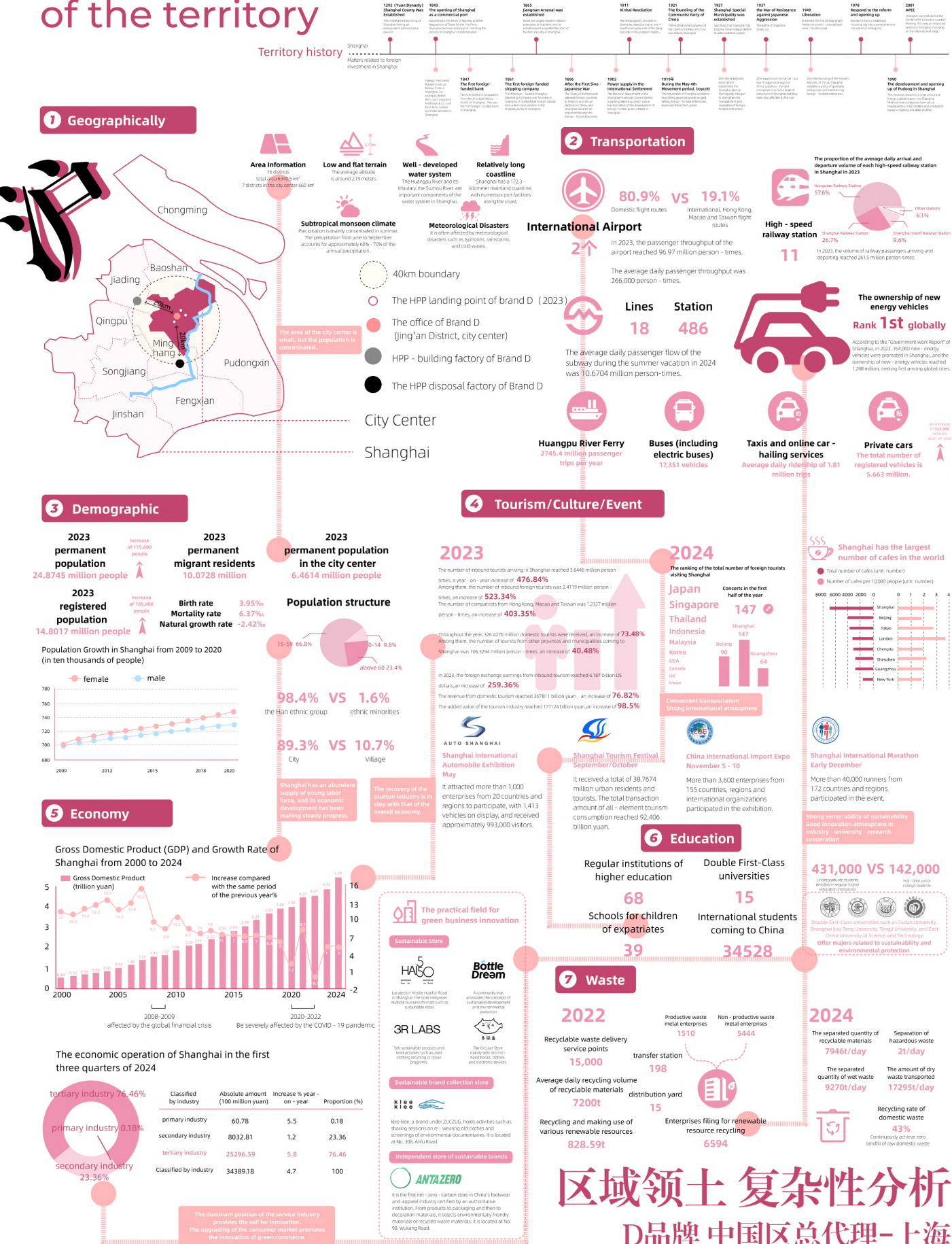


Figure 3.2 Analysis of regional territorial complexity for brand D's HPP (source: self-drawn by the author)

In summary, as a global metropolis, Shanghai possesses exceptional geographical advantages and an open, inclusive development philosophy, attracting diverse elements and establishing its key position in the global urban network. Economically, its continuously optimized industrial structure and remarkable innovation-driven development have strongly promoted vigorous commercial and economic growth. Socially, its rich human resources and convenient public service system create a dynamic urban atmosphere. In sustainable development, Shanghai actively explores and practices, achieving outstanding results in green innovation, resource recycling, and other fields, demonstrating a future-oriented urban development direction. For brand D to carry out sustainability-related practices in Shanghai, numerous opportunities exist, but challenges also remain. For example, the locations of brand D's HPP activities are far from its partner factories; the concept of sustainability no longer feels novel to consumers and even triggers reflections on "pseudo-issues"; and the implementation and supervision of waste sorting have declined. The specific challenges and potential points identified by researchers through the regional territorial complexity analysis can be found in Figure 3.5.

3.1.3 Complexity analysis map of brand D company

The Company Complexity Analysis Map helps analyze the overall workflow of the research object, the input and output of various resources, and the connections between different departments and stakeholders. As some information of brand D is confidential, the company complexity analysis focuses on its HPP business segment, omitting the company's historical background and its main fragrance and cosmetics product line. The specific results are shown in Figure 3.3.

As can be seen from the diagram, the main intersections between the French headquarters and the Chinese headquarters of brand D in the HPP business lie in the release of pre-event guidance manuals and the clarification of post-event waste disposal methods, with both processes primarily conducted online and the headquarters holding significant decision-making power. In the HPP material procurement phase, local Shanghai partners serve as the main channels for obtaining construction materials. However, since HPP activities are closely aligned with the brand's overall strategy and product launch plans, they involve specific thematic components and installations. Most of these customized parts require long-distance transportation to ensure the activities meet unified visual standards.

Complexity map of HPP (Brand D) of the company

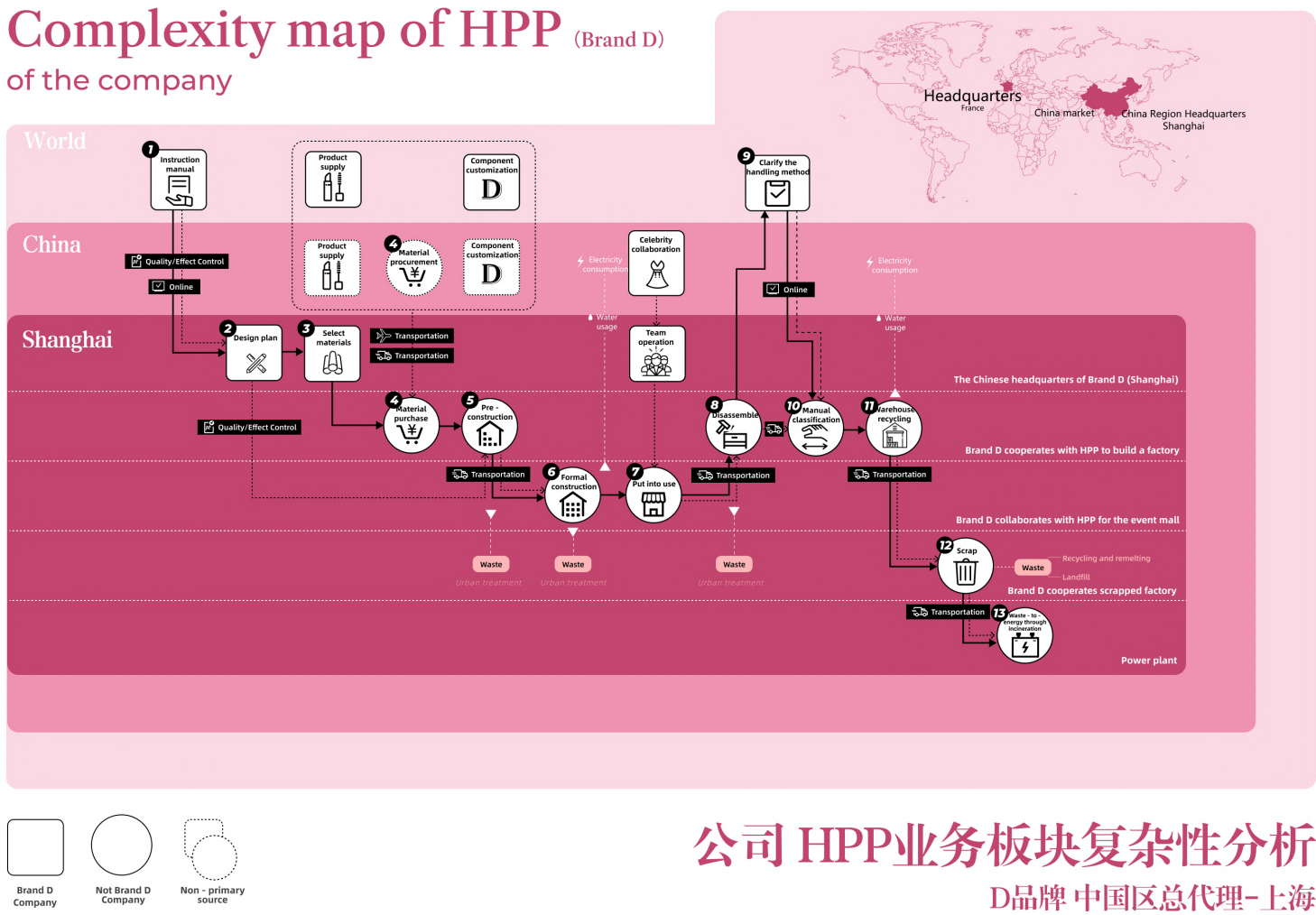


Figure 3.3 Complexity analysis of the HPP business segment of brand D (source: self-drawn by the author)

Additionally, the HPP business in Shanghai is primarily planned and organized by the relevant operational team at brand D's Shanghai headquarters, while the specific construction and decommissioning of HPP structures are executed by three-party partner factories. Except for the final decommissioning stage, waste generated in intermediate processes is mostly handled according to Shanghai's urban waste disposal standards, meaning brand-related departments do not intervene in these procedures. After the final dismantling of structures, reusable components are first stored in warehouses, and larger quantities of waste are decommissioned by partner decommissioning factories. The specific challenges and potential points identified by researchers through the company complexity analysis can be found in Figure 3.6.

3.1.4 Challenge and opportunity map of brand D

After the previous complexity analysis, many challenge points and potential points for achieving the sustainable optimization of the HPP structure system can be identified. The specific definitions of the recurring nouns "challenges," "potential," and "opportunities" in the text can be referenced in Figure 3.4. Among them: Challenges refer to current insights below the horizontal line that have a certain negative impact on achieving goals. Overcoming them presents significant opportunities to achieve the goals. Potential refers to current insights near the horizontal line that may have a positive impact on achieving goals. Making full use of them offers great opportunities to achieve the goals.

Based on the regional territorial complexity analysis map and the company's HPP business segment complexity analysis map drawn earlier, researchers identified challenge points and potential points (Figures 3.5 and 3.6). For example, in the regional territorial complexity analysis map, potentials such as "numerous international events," "thriving cultural and entertainment activities," "development of tourism economy," "abundant sustainable innovation practices," and "mature sustainable waste recycling system" were identified, along with challenges like "high vehicle density and road congestion" and "long distance between activity locations and partner factories." In the company complexity analysis map, potentials such as "predominant use of local materials" and "team's emphasis on sustainable practices" were found in brand D's HPP business segment, alongside challenges like "limited design freedom at the Shanghai headquarters," "short service life of HPP structures," and "inadequate material decisions due to information asymmetry in waste disposal."

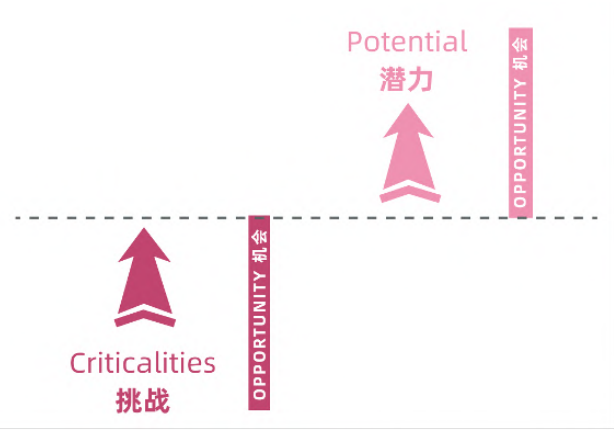


Figure 3.4 Schematic diagram of challenges, potentials, and opportunities (source: self-drawn by the author)

By sorting out the challenges and potentials identified from the complexity analysis maps, a series of corresponding opportunity points for improvement were generated, covering aspects such as environment, production, data empowerment, networking, and marketing. Some of these opportunity points draw on strategies used in similar cases to address the same issues, such as "using globally sustainable recognized materials and processes," while others are new strategies proposed for specific analyses, such as "formulating a preferred material list for brand HPP construction." Each challenge point and potential point was linked to actionable opportunity points that could be addressed or leveraged, and the frequency of each opportunity point being linked was calculated. A higher frequency indicates that the opportunity point addresses more challenge points and leverages more development potentials, as shown in Figure 3.7.

Through counting, it was found that the opportunity points with the highest connection frequencies include "cooperating with more professional local waste recycling companies," "collaborating with universities and laboratories to obtain more eco-friendly decoration solutions," "using new media to expose sustainable practices and material reuse to the public," "partnering with other companies sharing the same target customer base to transform waste components into tourist souvenirs," and "organizing international cooperation to attract foreign clients." The development of the Challenge and Opportunity Map fully demonstrates the analytical value of a systematic global mindset, providing directional references and validation for the formulation of subsequent design solutions.

Criticalities  Potentials 

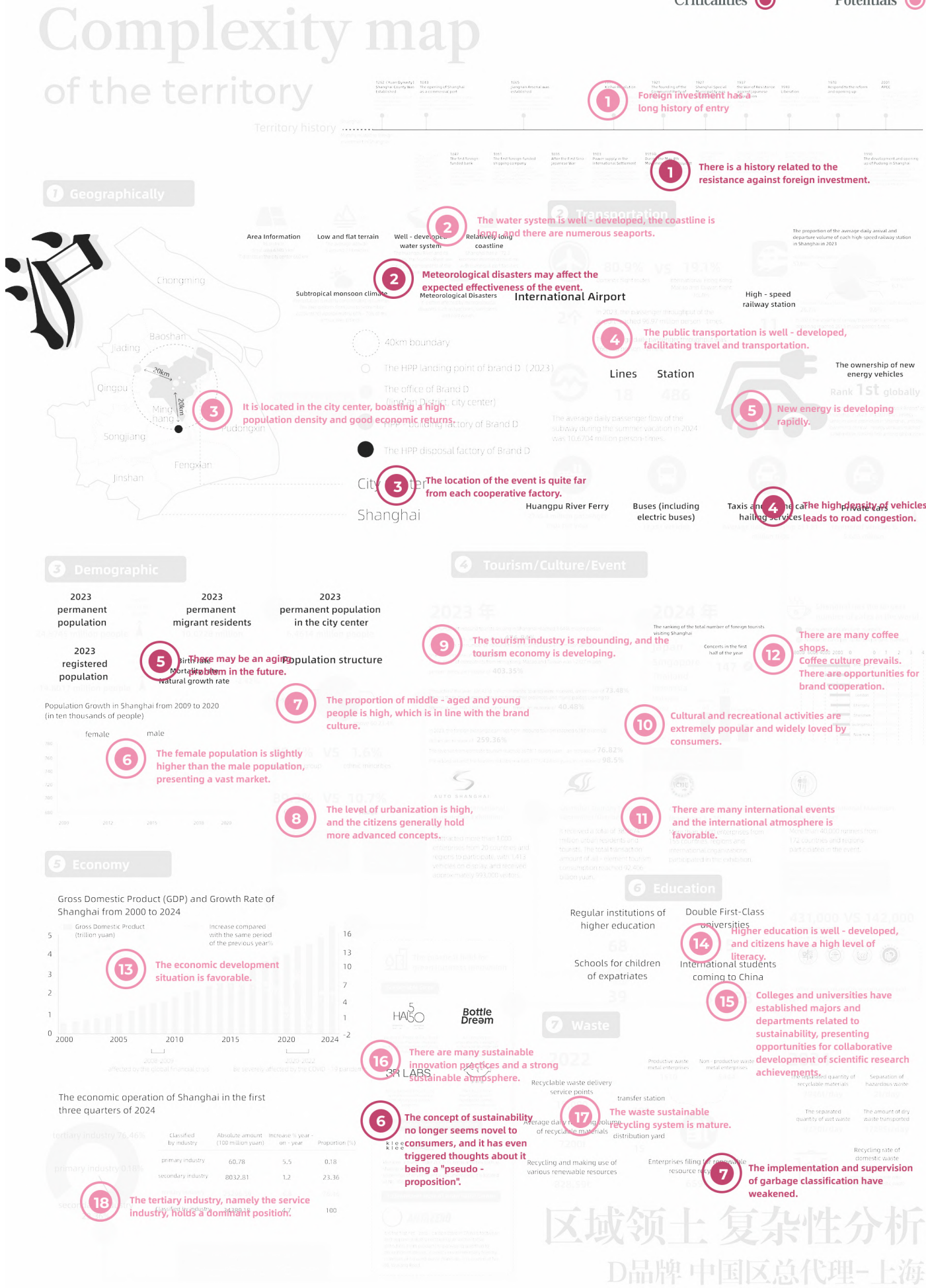


Figure 3.5 Identification of challenges and potential points in regional territorial complexity analysis (source: self-drawn by the author)

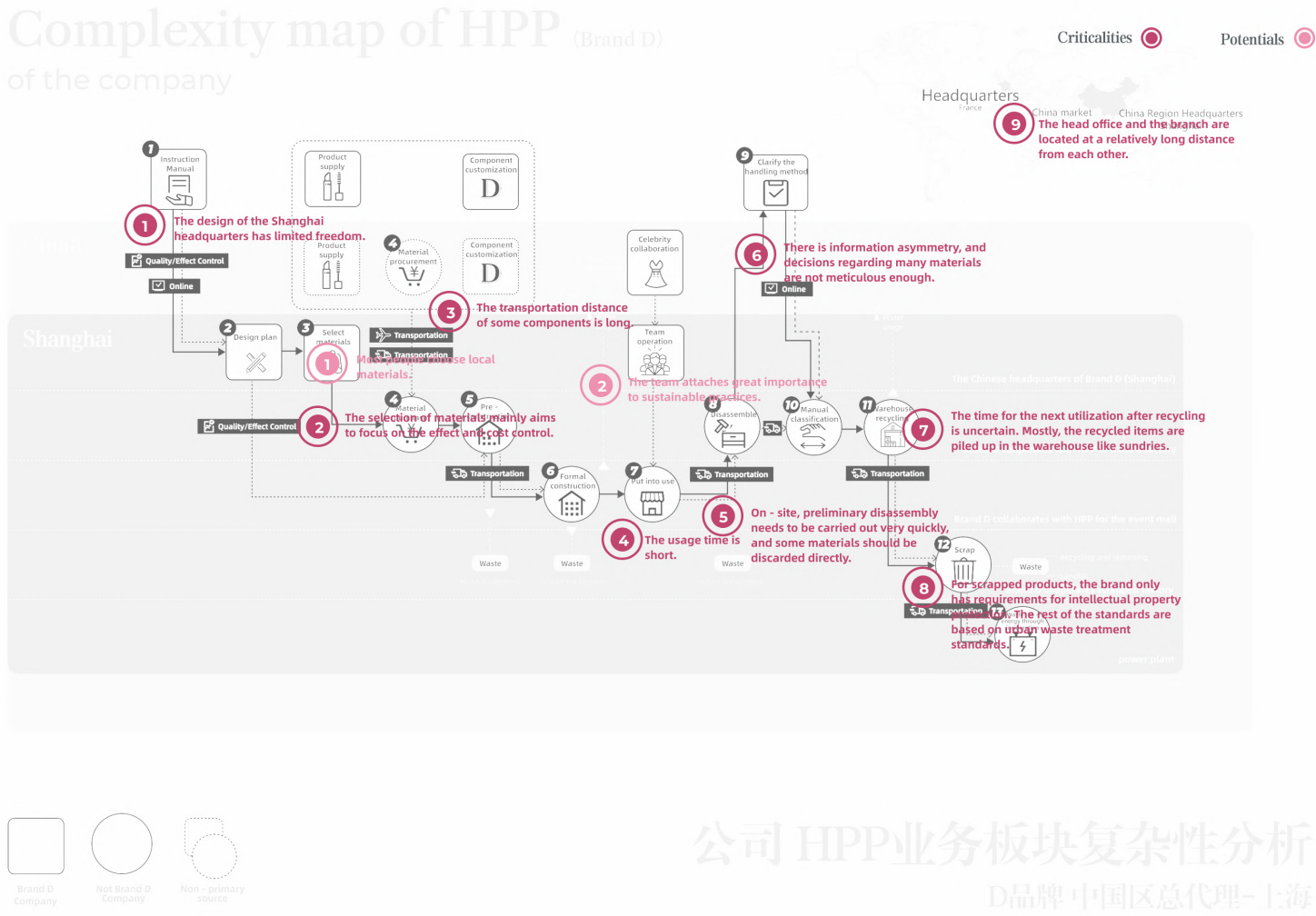


Figure 3.6 Identification of challenges and potential points in company complexity analysis (source: self-drawn by the author)

Challenges & Opportunities map of the territory and of the company

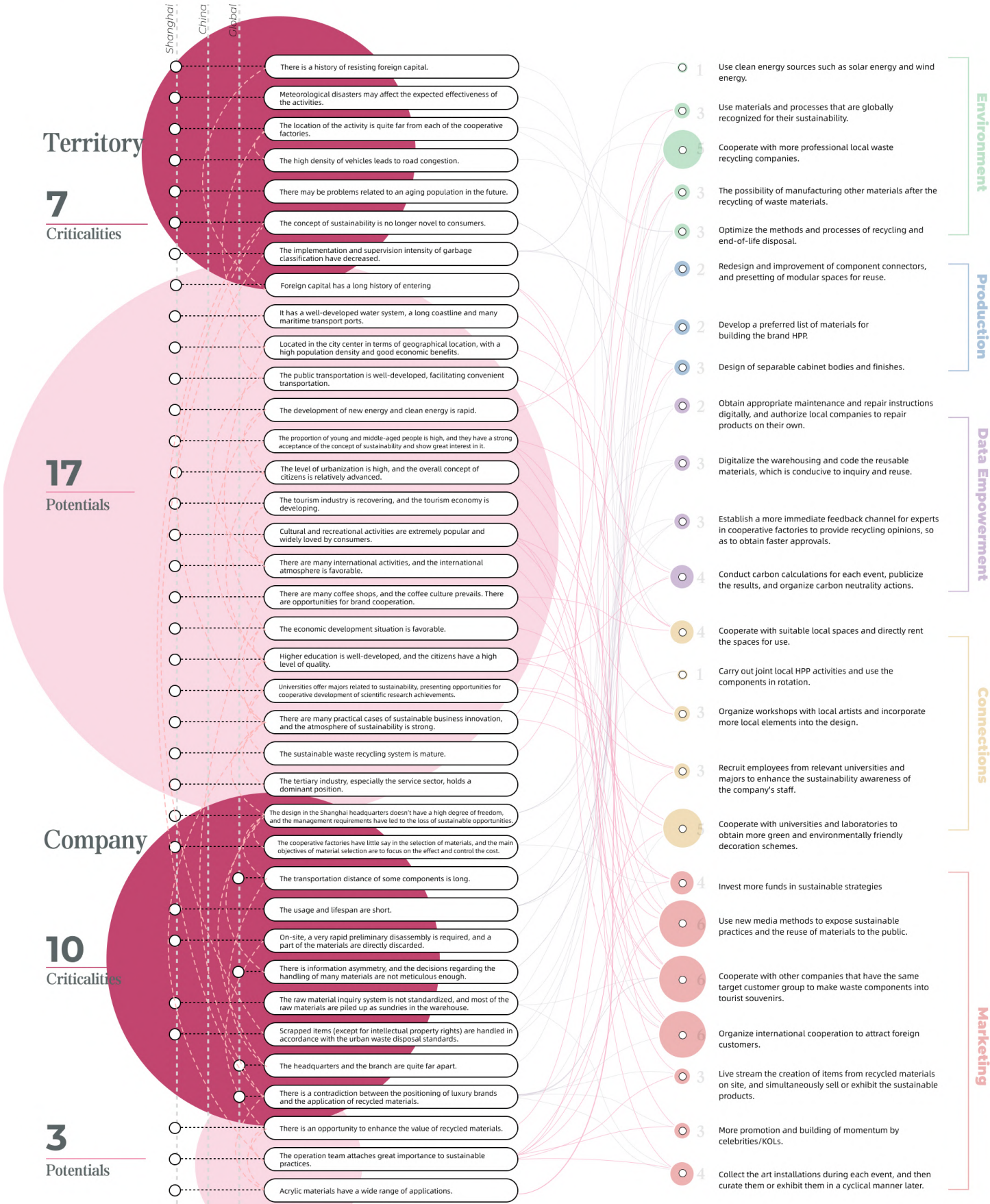


Figure 3.7 Challenge and opportunity map of brand D's regional territory and company (source: self-drawn by the author)

3.1.5 Opportunity selection matrix of brand D

At this stage of the systematic design analysis, after concluding the macro-level observations, we transition to a more focused phase—the Selection Matrix. The Selection Matrix is a tool used to analyze and select various opportunities related to specific challenges. Each set of opportunities is evaluated against different criteria to determine the final score for each opportunity. The criteria are always context-specific and defined according to the particular situation.

The Selection Matrix helps researchers examine how each opportunity point for a given issue performs across various indicators, thereby facilitating a better analysis of which opportunities are more conducive to achieving goals. Multiple opportunities with high final scores can be collectively formulated as the systematic optimization strategies for this project. The research objective of this study is to identify HPP system design strategies that balance the commercial value and sustainability of HPP activities, making commercial viability and sustainability key indicators to focus on.

The researchers first established evaluation criteria. In different studies, evaluation criteria can be tailored to specific needs, and the scoring process involves a degree of subjectivity. When conditions permit, scores can be averaged by subjects with different perspectives, or important indicators can be weighted.

The researchers aim to evaluate proposals from the following eight aspects:



(1) Impact on transportation distance: Proposals with higher localization receive higher scores.

(2) Location of potential actors: Proposals with stronger local engagement receive higher scores.

(3) Social impact: Scored from 1 (imperceptible) to 5 (revolutionizes).

(4) Positive impact on local communities: Scored from 1 (no benefit) to 5 (transformative impact).

(5) Economic impact: Scored from 1 (high demand) to 5 (high income).

(6) Change in stakeholder network: Scored from 1 (no expand) to 5 (more than two).

(7) Brand D’s heritage: Scored from 1 (be contrary to) to 5 (perfectly embody and even generate new interpretations).

(8) Environment: Scored from 1 (damaged) to 5 (creates a circular system).

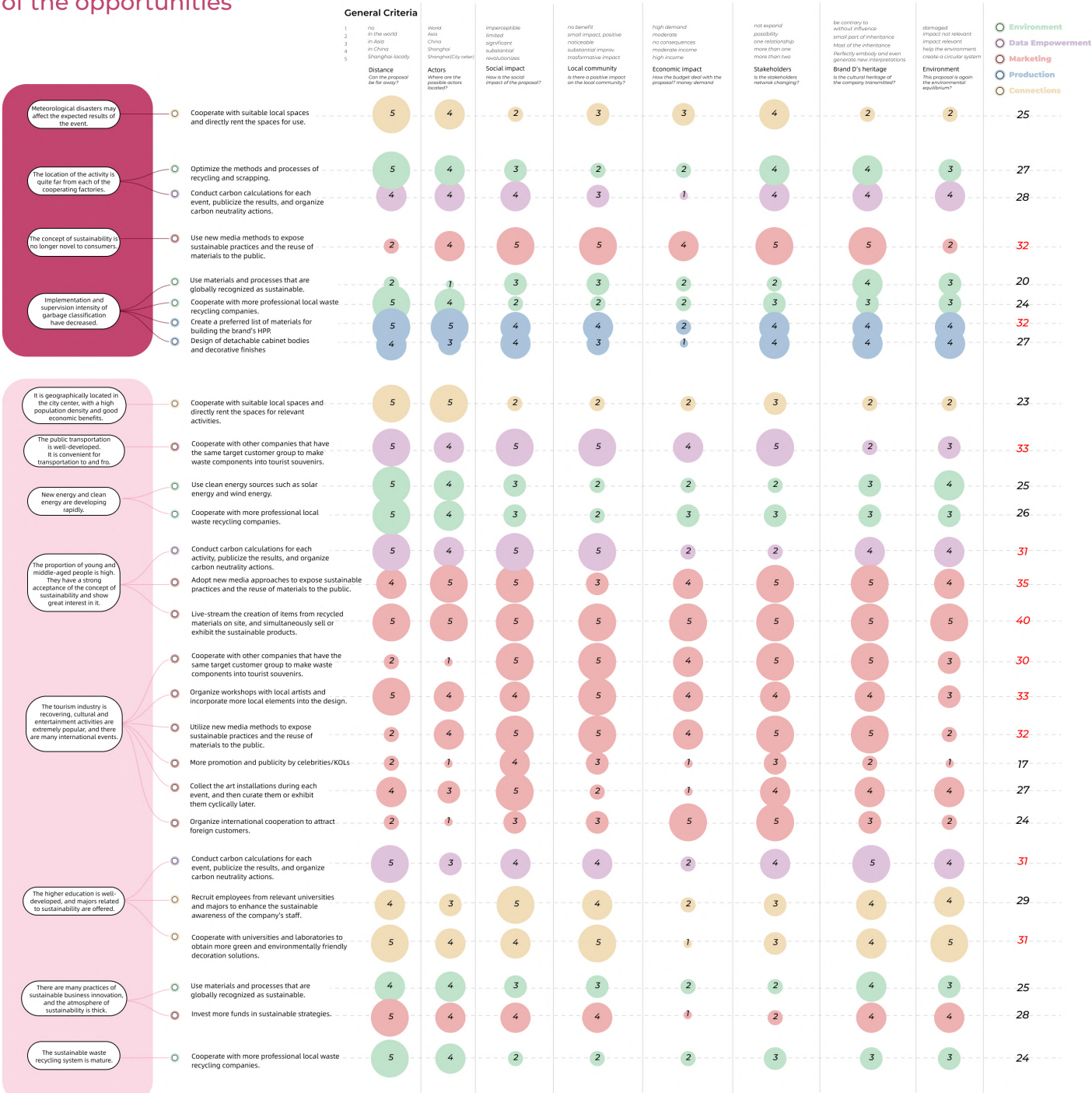
It should be noted that when drawing the Challenge and Opportunity Map in the previous step, the connections between challenge points, potential points, and opportunity points are not unique. In the Selection Matrix section, the researchers focus on multiple opportunity points for a single challenge point or potential point, and the same opportunity point may be mentioned repeatedly. However, the scores for the same opportunity point corresponding to different challenge points or potential points are not necessarily the same. For example, the opportunity point "Collaborate with universities or laboratories to obtain more eco-friendly decoration solutions" has different implications in different contexts:

When linked to the potential point "Shanghai's advanced higher education and sustainability-related majors" derived from regional territorial analysis, it specifically means that the relevant operational team at brand D's Shanghai headquarters can collaborate with local universities or laboratories in Shanghai to engage in industry-university-research innovation, organize relevant workshops, and jointly explore environmental solutions.

When linked to the challenge point "Contradiction between luxury brand positioning and application of recycled materials" identified through company analysis, it should be interpreted as the brand potentially achieving strategic collaboration with universities (not limited to Shanghai or even China), specifically those institutions focusing on sustainable development.

The specific scores assigned by researchers to each opportunity point can be found in Figures 3.8 and 3.9.

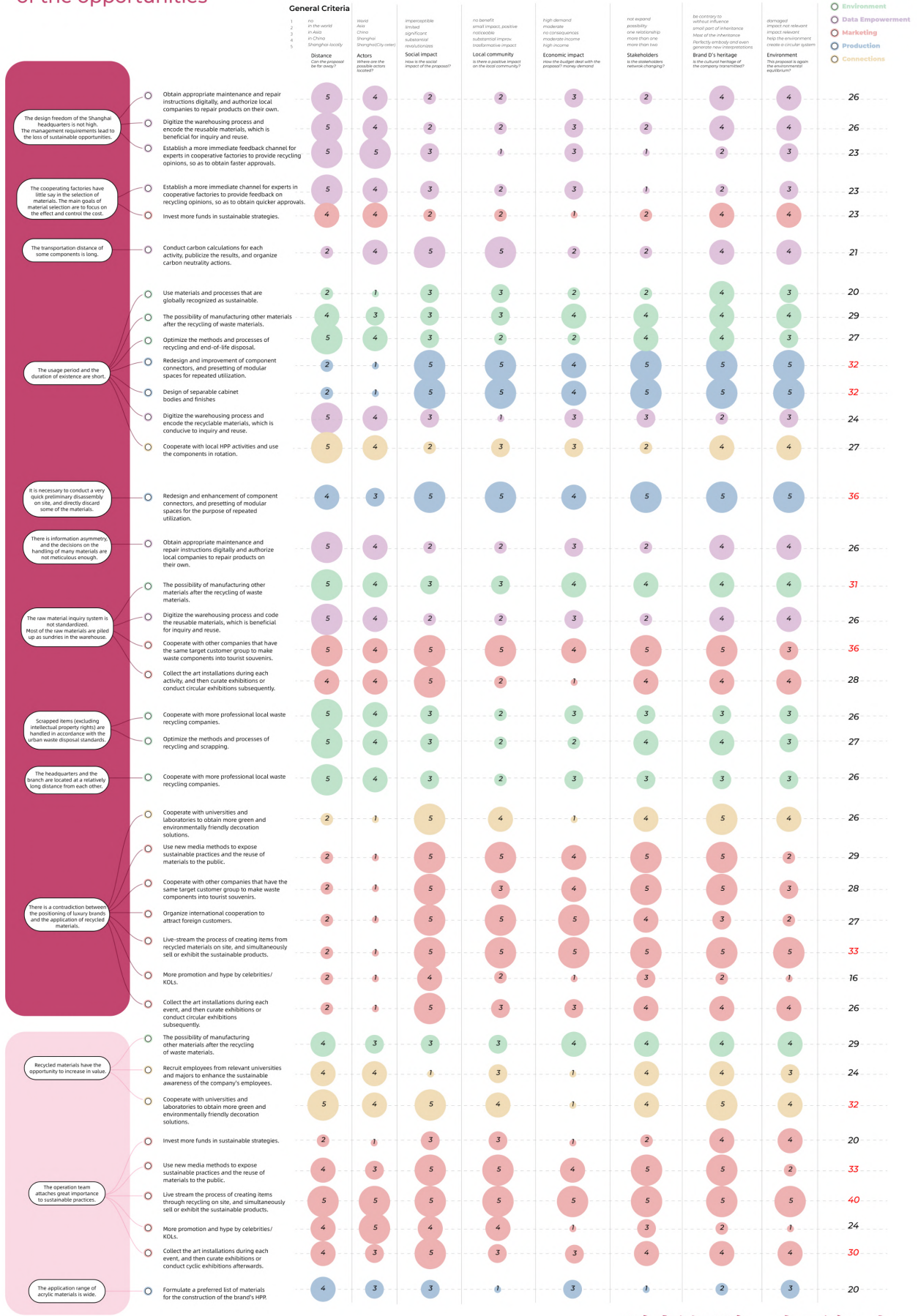
Selection matrix-Territory of the opportunities



选择矩阵-区域领土部分
D品牌 中国区总代理-上海

Figure 3.8 Selection matrix for the regional territory part of brand D (source: self-drawn by the author)

Selection matrix-Territory of the opportunities



选择矩阵-公司部分
D品牌 中国区总代理-上海

Figure 3.9 Selection matrix for the company part of brand D (source: self-drawn by the author)

Through calculation, there are mainly 11 opportunity points with a total score exceeding 30, with the largest number involving marketing. The researchers believe this is primarily because marketing strategies can provide more economic feedback compared to strategies in other areas, thus performing more outstandingly in commercial indicators and achieving higher comprehensive scores. Details are as follows:

- **Marketing:**
 - (1) Use new media methods to expose sustainable practices and the reuse of materials to the public.
 - (2) Cooperate with other companies that have the same target customer group to make waste components into tourist souvenirs.
 - (3) Organize workshops with local artists and incorporate more local elements into the design.
 - (4) Live-stream the creation of items from recycled materials on site, and simultaneously sell or exhibit the sustainable products.
 - (5) Collect the art installations during each event, and then curate exhibitions or conduct cyclic exhibitions afterwards.
- **Production:**
 - (6) Create a preferred list of materials for building the brand's HPP.
 - (7) Redesign and improvement of component connectors, and presetting of modular spaces for repeated utilization.
 - (8) Design of separable cabinet bodies and finishes
- **Data Empowerment:**
 - (9) Conduct carbon calculations for each event, publicize the results, and organize carbon neutrality actions.
- **Connection:**
 - (10) Cooperate with universities and laboratories to obtain more green and environmentally friendly decoration solutions.
- **Environment:**
 - (11) The possibility of manufacturing other materials after the recycling of waste materials.

3.2 Analysis of the systemic design strategies for this project

After all detailed analysis work is completed, researchers conduct a comprehensive and in-depth review of the entire system to accurately identify opportunity points with potential value and development space within the system. At this point, in order to clearly, intuitively and efficiently present the process of transitioning from the current operation mode to the ideal system mode, researchers adopt the powerful tool and method of a roadmap (Roadmap), as shown in [Figure 3.10](#). Meanwhile, the roadmap is also a specific embodiment of the design strategies generated through systematic analysis.

The foundation of roadmap construction lies in determining the inheritance relationships in logic and function. By analyzing the logical connections between the existing system and newly selected opportunities, it becomes clear which functions can be continued and optimized, and which logics need to be adjusted and innovated, so as to gradually integrate new opportunities.

At the same time, based on a comprehensive consideration of the system's development rhythm and resource investment, several implementation steps within a certain time span are determined. These implementation steps are reasonably arranged according to the sequence of time and the degree of difficulty, with clear objectives and tasks in each step, ensuring that the transformation process of the entire system mode progresses in an orderly and gradual manner.

When defining the roadmap for this project, the short-term focus is on two core areas: product development and new marketing communication strategies. Through in-depth research, proactive development, and reasonable capital investment, the project will be rapidly implemented to drive brand growth.

Roadmap

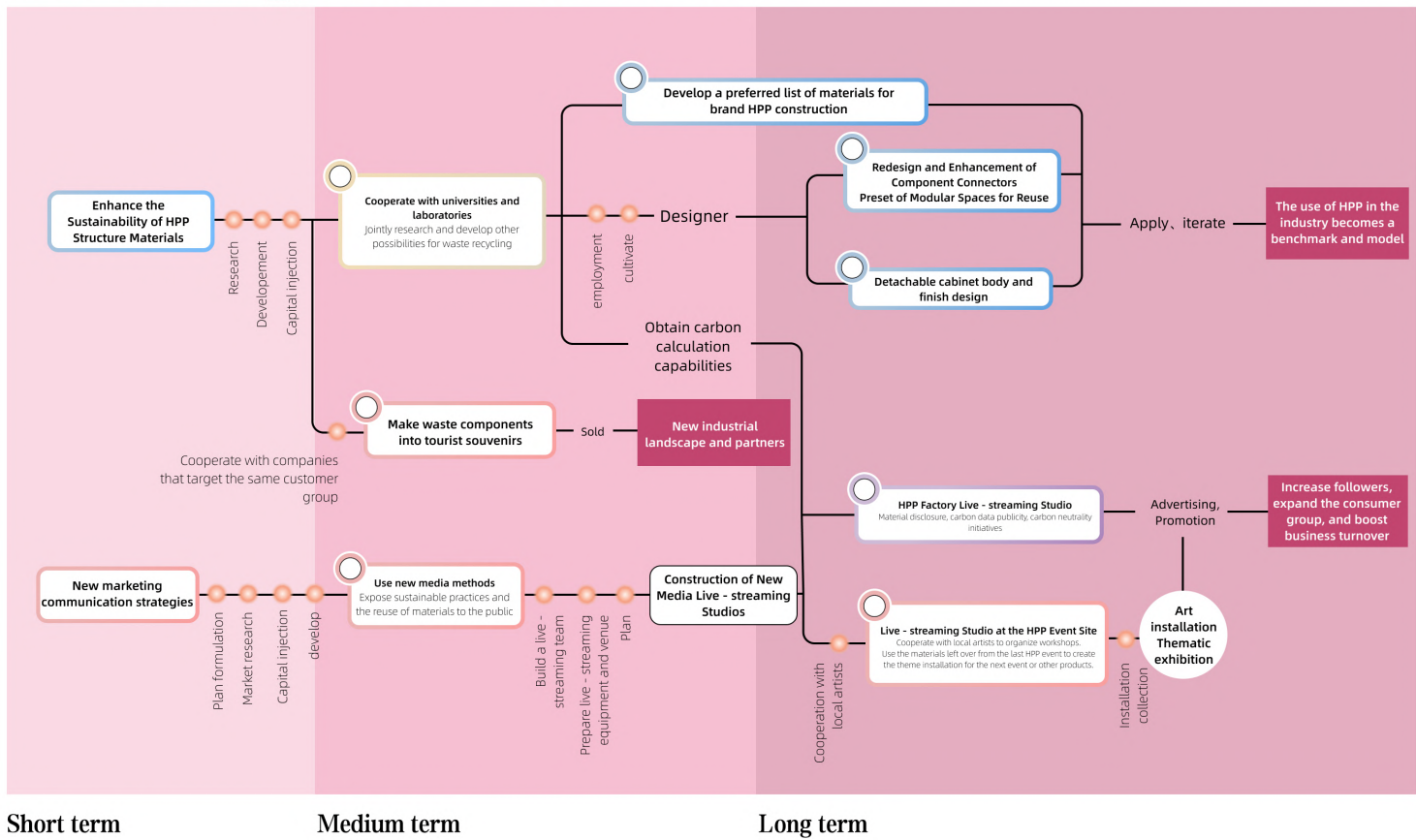


Figure 3.10 Roadmap of brand D's plan
(source: self-drawn by the author)

In terms of product development, the product department should actively engage in external cooperation. On one hand, it will seek out companies with the same target customer base, utilize waste components to carefully create unique new travel souvenirs, and launch them into the market through co-branding. This collaborative model will not only open up new industrial territories for brand D but also enable the brand to connect with like-minded partners, achieving resource sharing and complementary advantages. On the other hand, it will strengthen R&D collaboration with universities and laboratories. Together, they will formulate a preferred material selection list for the brand's HPP (modular prefabricated system) construction, and carry out in-depth redesign work on components, connectors, and modular spaces—such as designing separable cabinet bodies and finishes to effectively extend material service life. These R&D achievements will not only greatly optimize the brand's internal HPP industrial sector, enhancing product quality and competitiveness, but also help brand D emerge as a benchmark in the HPP field, leading industry trends.

For new marketing communication strategies, the core goal is to widely disseminate the brand's sustainable practices and attract more loyal consumers. Brand D can establish two live broadcast systems. One system will broadcast the material selection process in the factory, the construction stages, and the public disclosure of carbon data for each event, allowing consumers to clearly understand the product's production origins and environmental measures. To further expand brand influence, carbon neutrality initiatives can be organized to fully showcase the brand's efforts and commitment to sustainability. The other system will focus on live broadcasting from HPP event sites, collaborating with local artists to organize workshops within each HPP event space, ingeniously using materials leftover from previous HPP events to create theme installations or other creative products for the next event. At the end of a quarter, these installations—incorporating creativity and environmental concepts—will be re-collected and held for touring exhibitions. By leveraging brand D's commercial value and influence, more attention will be attracted, thereby generating higher economic returns and achieving a dual harvest of brand image and economic benefits.

4.DESIGN PRACTICE- SUSTAINABLE DESIGN OF HPP POP-UP SPACE SYSTEM

4.1 Design achievements

4.1.1 Recommended material list for HPP structures

After a series of design analyses in the preceding sections, the researcher proposes a series of design ideas and specific solutions for the systematic optimization of brand D's existing HPP business segment. These primarily include **a recommended building material list for structures, modular sustainable spaces, a PLANTING PLACE, and a PLANTING PLACE service system.** The following sections will elaborate on these details.

First, a recommended building material list (Figure 4.1) is prepared for designers and HPP operators. The recommendations in the list are primarily based on the popularity of relevant material applications and their performance. Material recommendations are also made for the basic component sections of HPP structures. If brand operators refer to this list during the design and material selection process, the sustainability of HPP activities can be effectively enhanced.

The various components of HPP structures can be divided into internal wall frames, external wall frames, wall surfaces, floors, finishes, furniture, electrical equipment, and art installations, which correspond to the previous research. For material selection of external and internal wall frames, mainstream choices such as stainless steel, aluminum alloy, light steel keels, and pine wood keels can be continued. The most important circular insight is that if modular components can be applied to the frame part, it can be reused to the greatest extent. Additionally, metal recycling processes are already relatively mature. Reusing frames and applying recycled metals in different HPP activities can significantly reduce environmental damage.



Figure 4.1 Recommended building materials for HPP structures (source: self-drawn by the author)

For wall surfaces, glass and wood panels are recommended. Relatively speaking, the texture of glass better matches the tone of light luxury fragrance and cosmetics brand HPP activities, with specific applications selectable according to different event themes. The materials used for finishes involve many theme-customized patterns, so they are basically not reusable multiple times. Materials such as paper, polypropylene (PP), and recycled metal that are easy to shape and have good performance indicators can be chosen.

In HPP structures, the floor primarily serves the same spatial demarcation role as the frame. It is recommended to replace commonly used polyvinyl chloride (PVC) flooring with solid wood flooring, glass, or polypropylene (PP). Currently, there are various floor products based on PP materials in the market, such as floating assembled floors and plastic flooring, which have better performance indicators. Take floating assembled floors as an example: some products are made of food-grade modified polypropylene (PP), which is odorless, waterproof, moisture-resistant, non-bacterial, environmentally friendly, safe, and hygienic, containing no heavy metals or volatile substances harmful to the human body. They are also recyclable and feature low thermal reflection, no moisture retention, and no lingering odors. Of course, when not necessary, choosing not to install flooring and directly building frames on the event site is a more environmentally friendly option.

For the furniture and electrical equipment sections, it is mainly hoped that designers and operators can pay attention to the energy-saving attributes of related finished products when purchasing, such as buying LED energy-saving lamps and multimedia equipment with energy-saving certifications, and effectively ensuring that they are stored in warehouses after the event for subsequent reuse.

The art installation section is the part with the most unpredictable material usage among all HPP components, but it holds great commercial significance for achieving HPP's high-profile promotion goals. Therefore, blindly restricting material usage in this part would contradict the objectives of this systematic upgrade. To better balance brand expression and environmental protection, the researcher has integrated a PLANTING PLACE into the modular space design of HPP structures. This space is intended to produce art installations during each HPP event, leveraging waste materials while enhancing the visibility and influence of the brand's sustainable practices. Specific details will be introduced in the following sections.

4.1.2 Modular sustainable space

The design of a modular HPP space aims to achieve sustainable development goals and lead new trends in HPP. The modular space is designed with a minimum unit of 3 m×3 m×3 m, which offers numerous advantages. From a sustainability perspective, it greatly facilitates the reuse of frameworks, effectively reducing resource waste and minimizing environmental impact. Of course, considering different spatial requirements and activity characteristics, some modules can be scaled up to larger sizes based on actual conditions. However, these larger modules are all expanded as multiples of the 3 m×3 m×3 m unit, ensuring both spatial flexibility and the overall design's standardization and coordination. The specific design is shown in Figure 4.2 below.

The six modules carefully designed in this project each undertake unique and indispensable functions. Like the intelligent brain of the entire HPP space, the Master Control Module plays a vital role. It precisely regulates the operation of each module and takes full responsibility for key functions such as cash register management, overall control, and guest reception, providing a solid guarantee for the smooth conduct of the entire event. With its eye-catching design, the Signage Module becomes a key element in strengthening brand impression. It houses a custom-made theme installation for each event, serving as the most eye-catching brand visual module in the entire space. Consumers are often attracted by its unique design, gathering here for socializing, photography, and check-in activities, which invisibly expands the brand's communication reach. Moreover, the specific size of this module is not fixed and can be flexibly adjusted according to the needs of visual installations and actual effects. The Experience Module is designed to allow customers to deeply feel the brand's unique charm. It includes a makeup area, a moderate number of table and chair sets, and displays the fragrance and beauty products that the brand hopes to highlight in the current period.

HPP Modular space design



The meticulously crafted modular HPP space aims to achieve sustainable development goals and lead the new trend of HPP. The modular space is designed with a minimum unit of 3m×3m×3m, and some modules can be selected in different sizes according to requirements. The master control module, like a smart brain, precisely regulates the operation of each module. The signage module reinforces the brand impression with its eye-catching design. The experience module allows customers to deeply feel the brand's charm, and the cabinets, tables, and chairs are environmentally friendly and durable. The "planting grass" module stimulates the desire to consume, and the promotional materials are reused. The display (storage) module arranges products in an orderly manner and has a powerful storage function. The T-stage module creates a dazzling stage for new product launches. All modules work together to help brands achieve a win-win situation in both business value and environmental protection concepts.

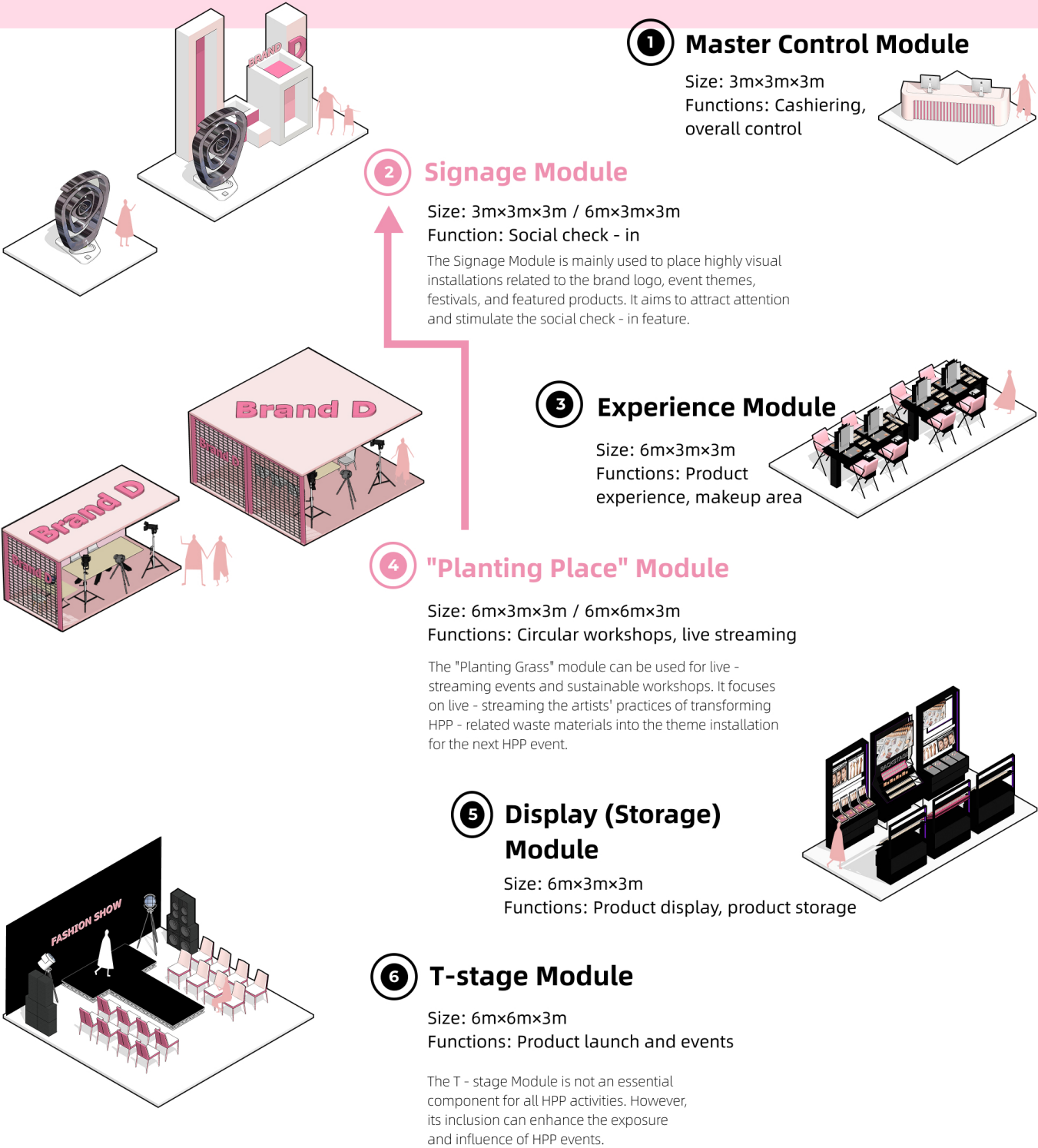


Figure 4.2 Modular HPP space design
(source: self-drawn by the author)

Through these arrangements, the brand can organize diverse product experience activities here, enabling customers to personally experience the products' advantages and thereby enhancing their recognition and loyalty toward the brand. The PLANTING PLACE Module is an innovative live-streaming space where the brand actively collaborates with local artists to unleash creativity by transforming the brand's discarded products and components into artworks or hosting related upcycling workshops. During HPP events, these wonderful processes are presented to audiences via live streaming, not only promoting the environmental concept of material reuse and conveying the brand's sustainable value proposition but also effectively stimulating consumers' purchasing desire. It is worth mentioning that the installations or products generated from a HPP event can be displayed in the signage module during the next HPP event, forming a good model of recycling and continuously spreading brand value. The Display (Storage) Module serves a highly practical function. It not only neatly showcases flagship products for easy consumer selection but also has a strong storage capacity to ensure the space remains tidy and organized. The T-stage Module is dedicated to creating a shining new product launch stage. The brand can organize various activities here, such as new product launches, speeches, and fashion shows, providing an excellent platform for promoting new brand products.

These six modules collaborate synergistically and closely, jointly helping the brand achieve a win-win situation between commercial value and environmental philosophy.

To visually and comprehensively display the design effects, this study cleverly combines and presents each design module to construct a standard HPP space (15 m×9 m×3 m), which can provide highly valuable references for subsequent practical applications. However, it should be noted that the specific combination forms and internal furnishings are not fixed and can be flexibly adjusted according to the specific needs of HPP events. As different events have distinct themes, scales, and target audiences, only through reasonable adjustments based on actual conditions can the functions of each module be maximized, achieving the best event effects.

Most HPP structures adopt a semi-open design concept, which aims to attract crowds to enter voluntarily and increase interaction and communication with consumers. For the design of the framework, it is recommended that after the module combination is completed, a 3 m ×3 m ×3 m basic unit be used to determine the final form, which can ensure the stability and standardization of the framework.

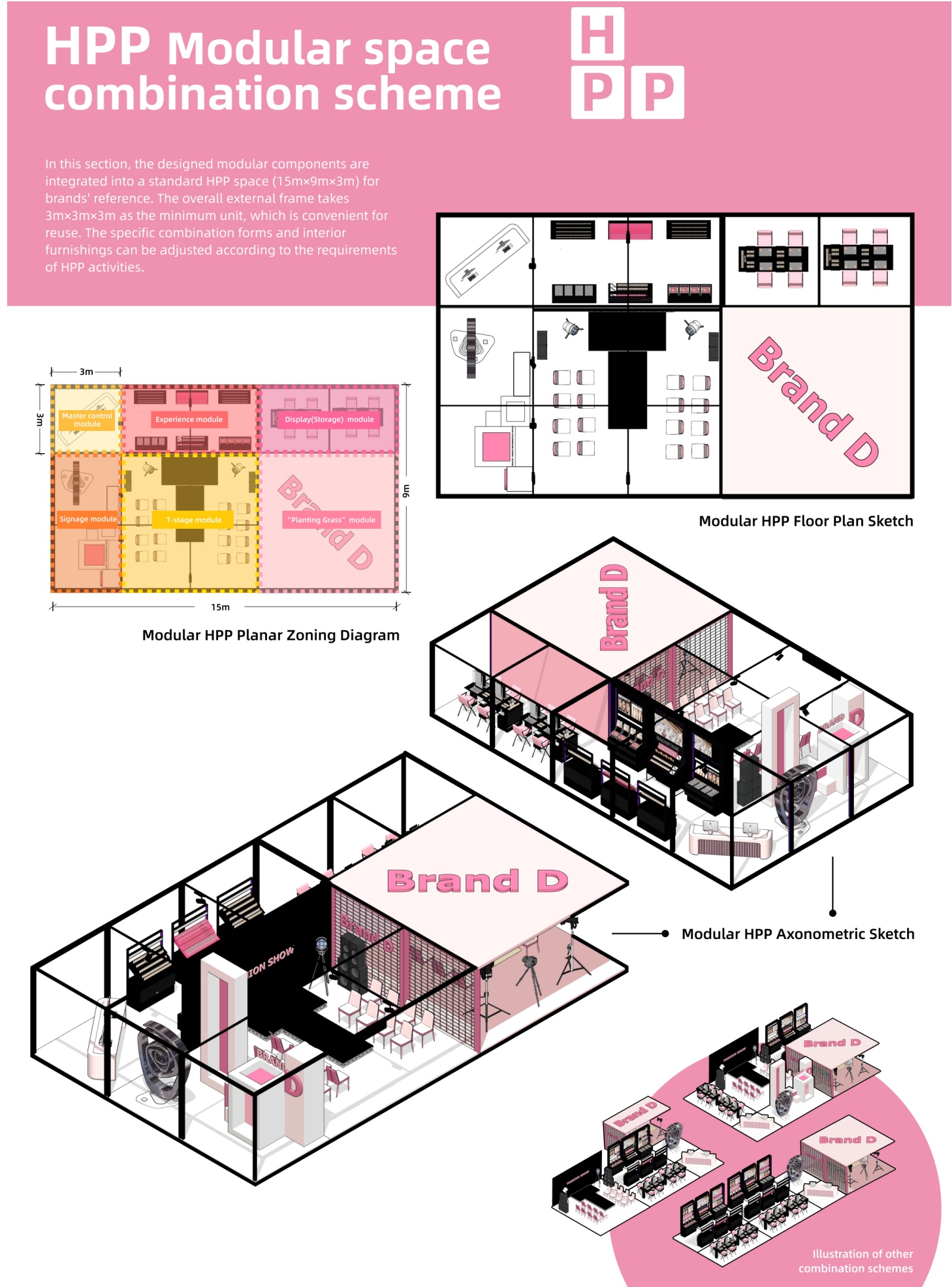


Figure 4.3 Modular HPP space combination scheme
(source: self-drawn by the author)

At the same time, tops can be added to some units according to actual needs. Since HPP events can be held in various venues, sometimes in indoor spaces such as shopping mall atriums and sometimes in outdoor public squares, different venue environments have distinct characteristics and requirements. Therefore, the setting of the structure's top must be accurately confirmed based on the specific venue of the HPP event. Taking the schematic plan as an example, a top was specially added to the PLANTING PLACE module because this space is mainly responsible for live broadcasting functions. The top brings multiple benefits to the live broadcasting environment, such as providing certain shelter and protection to prevent external interference during the live broadcast; it can also create more suitable lighting conditions, improve the quality of live broadcast images, and bring a better viewing experience to the audience.

In summary, the design of the modular HPP space is a comprehensive and systematic innovative solution. Every link—from the setting of basic spatial units to the meticulous planning of functional modules, and then to the flexible adjustment of overall spatial combinations and top configurations—revolves around the goal of achieving a win-win situation between sustainable development and commercial value.

The collaborative operation of each module endows the HPP space with rich functionalities and diverse experiences. The master control module's overall coordination, the signage module's brand shaping, the experience module's in-depth interaction, the PLANTING PLACE module's sustainable communication, the display (storage) module's product presentation, and the T-stage module's new product launches together form an integrated space that combines sales, display, interaction, and environmental education. This not only meets the brand's needs in different event scenarios but also brings consumers a new immersive shopping experience, deepening the emotional connection between consumers and the brand. The display of the standard HPP space provides a reference model for practical applications, while its flexibility ensures personalized customization according to the characteristics of different events. The semi-open structure design and site-specific top configurations further enhance the space's adaptability to different venues, enabling HPP events to be carried out smoothly in diverse environments.

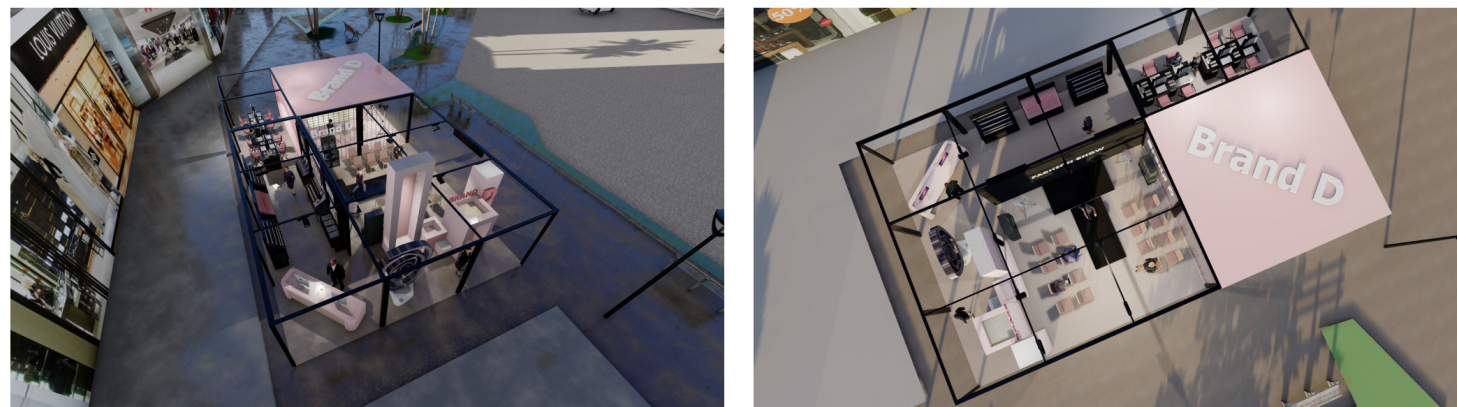


Figure 4.4 Schematic rendering of the new HPP space composed of modules
(source: self-drawn by the author)

This innovative design model not only provides a more forward-looking solution for current HPP events but also sets a new benchmark for the entire industry in terms of sustainable development and space utilization. With the increasing social emphasis on environmental protection and innovation, it is believed that modular HPP space design will be more widely applied and promoted in the future, continuously driving the deep integration of commercial activities and environmental philosophy to create more value and possibilities.

4.1.3 PLANTING PLACE and PLANTING PLACE service system

The concept of PLANTING PLACE is a strategy proposed for Brand D's HPP to achieve a balance between commercial value and environmental protection. In the design context of this Chinese context, PLANTING PLACE encompasses two layers of meaning:

The first layer is a literal fashion usage in the new retail sector, referring to recommending products to others or being influenced by certain information to generate a desire to purchase a product—essentially synonymous with "Plug" (a term meaning to enthusiastically recommend). The opposite term is "pulling grass," which means consumers originally intend to buy a product but abandon the idea after learning relevant information, considering actual needs, or financial circumstances. In the context of fragrance and fast-moving consumer goods (FMCG), PLANTING PLACE aims to promote the brand to a wider audience. The second layer is the literal understanding in daily life, referring to sowing grass seeds and planting herbaceous plants to create a beautiful ecosystem. In a sustainable context, PLANTING PLACE seeks to convey green and environmental concepts to consumers, fostering a positive impression that the brand is actively practicing sustainability and attracting more consumers.

Under this concept, the PLANTING PLACE module in the HPP space assumes a new mission and value as a communication space for the brand's sustainable value proposition. In this space, the brand can carefully plan and organize sustainable workshops, inviting consumers to participate in activities such as upcycling old items or recycling waste. Industry experts and environmental advocates can be invited to discuss green lifestyles with consumers. A creative and in-depth collaboration model with artists can be launched. Local artists are invited to create artworks using the brand's discarded packaging and leftover building materials from previous HPP events. These waste materials, transformed by the artists' ingenuity, will become the theme installations for the next HPP event. The entire transformation process will be live-streamed to increase the brand's online and offline exposure. These initiatives will invisibly deepen the emotional bond with consumers, enhance their brand recognition and loyalty, and embed the concept of sustainable development in the interaction between the brand and consumers, leading the industry toward green and sustainable growth.



Figure 4.5 PLANTING PLACE and PLANTING PLACE service system
(source: self-drawn by the author)

In terms of spatial design, the researchers propose two basic configurations. (1) 6m ×3 m ×3 m (Long strip-shaped): Suitable for traditional live-streaming formats, where two hosts sit at a desk to showcase content to the camera, with space reserved for co-hosts and other staff to operate. (2) 6 m ×6 m ×3 m (square): Offers greater spatial flexibility, ideal for workshops, as well as the creation and installation of artworks, allowing for better presentation of diverse activities.

The design of the PLANTING PLACE can not only enhance the offline popularity of events but also enable the brand's single HPP event to adapt to the current development of the internet, gaining higher online exposure and thus better achieving the commercial value of high-profile promotions. Of course, this also requires the establishment of a PLANTING PLACE service system.

When designing the service system, researchers initially envisioned that brand D or a single brand would operate a live-streaming application. However, for brands, designing and developing a dedicated APP for live streaming instead of using popular live-streaming platforms such as "Rednote" "WeChat," or "Taobao" would be excessively costly. Therefore, in this design, PLANTING PLACE is a third-party independent application APP, focusing on allowing consumers of luxury fragrance and beauty brands to experience an artistic and sustainable luxury lifestyle. Major luxury fragrance and beauty brands can join this application to live-stream sustainable workshops in the PLANTING PLACE or other sustainable initiatives of the brands during HPP events.

The PLANTING PLACE application is not only used for live streaming but also incorporates highly precise carbon emission calculation methods and an incentive mechanism. Users can earn carbon credits by watching live streams and completing carbon reduction tasks, which can be redeemed for carbon gifts provided by brands. Brands can promote new quarterly products and concepts within the APP, enabling more consumers to learn about HPP events and expanding their influence.

The PLANTING PLACE APP is highly convenient in both functional design and usage. After creating an account, users can click “PLANTING” to watch ongoing live streams. The live-streaming interface will display real-time information about the HPP event location and promotion plans, as well as details about collaborating artists and promoters. Meanwhile, the carbon reduction data for the event will be visually presented. The "Tasks" interface includes small carbon reduction tasks and goals tailored to users. Completing these tasks or achieving a certain number of daily steps, similar to watching live streams, can earn users carbon coins. These carbon coins can be used to redeem carbon gifts, such as brand souvenirs, sample fragrance and beauty products, or small accessories produced through the PLANTING PLACE, which are listed in the "Carbon Gifts" section to attract consumers to redeem them.

This motivates consumers to watch live streams and adopt carbon reduction practices in daily life. The "Brand Gifts" section resembles a limited-time online shopping page, where brands promote products currently highlighted in HPP events or upcoming launches, better aligning with offline activities to achieve desired promotional goals.

In summary, the PLANTING PLACE strategy and its related design provide an innovative and comprehensive development model for brand D's HPP on the path of sustainable development. From the dual connotations of the concept, to the mission of the PLANTING PLACE module in spreading sustainable values, to the ingenious spatial design and APP functionality, every link is closely interconnected and mutually reinforcing. Through the construction of the PLANTING PLACE and APP operations, brand D can not only gain higher commercial exposure and consumer favor, achieving high-profile promotion goals but also deeply integrate green and environmental concepts into brand-consumer interactions, strengthening consumers' awareness and recognition of the brand's sustainable practices and enhancing customer loyalty.

This innovative model offers valuable reference for luxury fragrance and beauty brands and even other industries in balancing commercial value and environmental protection. By fully leveraging the power of the internet, it organically integrates offline activities with online promotion and guides consumers to actively participate in sustainable development through interesting and meaningful incentive mechanisms. In the future, as consumers pay increasing attention to environmental protection and sustainable development, the PLANTING PLACE model is expected to continue evolving and improving, helping more brands achieve greater success in sustainable development and driving the entire industry toward a greener and more environmentally friendly future.

4.2 System diagram of brand D under new practices

After the above-mentioned design, revisiting the system diagram of brand D's HPP business segment (Figure 4.6) reveals significant changes and improvements. When creating the new system diagram, the researchers first redefined the ultimate goals of this system enhancement: enhancing the sustainability of the brand's HPP structures and activities, expanding the influence of the brand's sustainable initiatives, expanding the consumer base, increasing revenue, and balancing commercial value. In this process, the brand will form new connections with universities, experts, local artists, communities, sustainable investors, and other companies sharing the same vision. Meanwhile, new elements will be integrated into the system, including a new material design list, new spatial forms, sustainable workshops, a collaborative artist talent pool, a new live-streaming operation team, the new promotion channel PLANTING PLACE APP, new output forms for art installations and small products, and new exhibition formats.

The most noticeable change in Figure 4.6 lies in the innovative transformation of the HPP lifecycle brought by the new design. Originally, the HPP lifecycle followed a simple single-linear model: after the event, related structures were often dismantled, and materials were disposed of in a single manner, lacking an effective recycling mechanism.

However, under the new design philosophy, this process has undergone a fundamental shift, successfully transformed into a recyclable loop. This innovative transformation represents the core significance and outstanding achievement of this design.

Specifically, when an HPP event concludes, staff traditionally dismantle the HPP structures and recycle various materials into warehouses. In the past, these recycled materials might have faced idling, disposal, or low-value processing. In the new design model, however, these former "waste materials" gain new value and purpose. On one hand, they can be cleverly designed and processed into commemorative products for sale at the next HPP PLANTING PLACE workshop. These souvenirs not only embody the unique elements of the HPP event but also attract consumers with their distinctive environmental attributes, satisfying their pursuit of unique products while endowing the brand with new cultural connotations. On the other hand, the brand actively collaborates deeply with artists, leveraging their creativity and professional skills to transform these recycled materials into unique art installations, which demonstrate the brand's commitment to environmental protection and innovative practices during live-streaming events. These art installations will then be reused and displayed at the next HPP event, enhancing the overall quality and appeal of the event while replacing part of the substantial cost originally invested in art installations.

System map of HPP
of the company

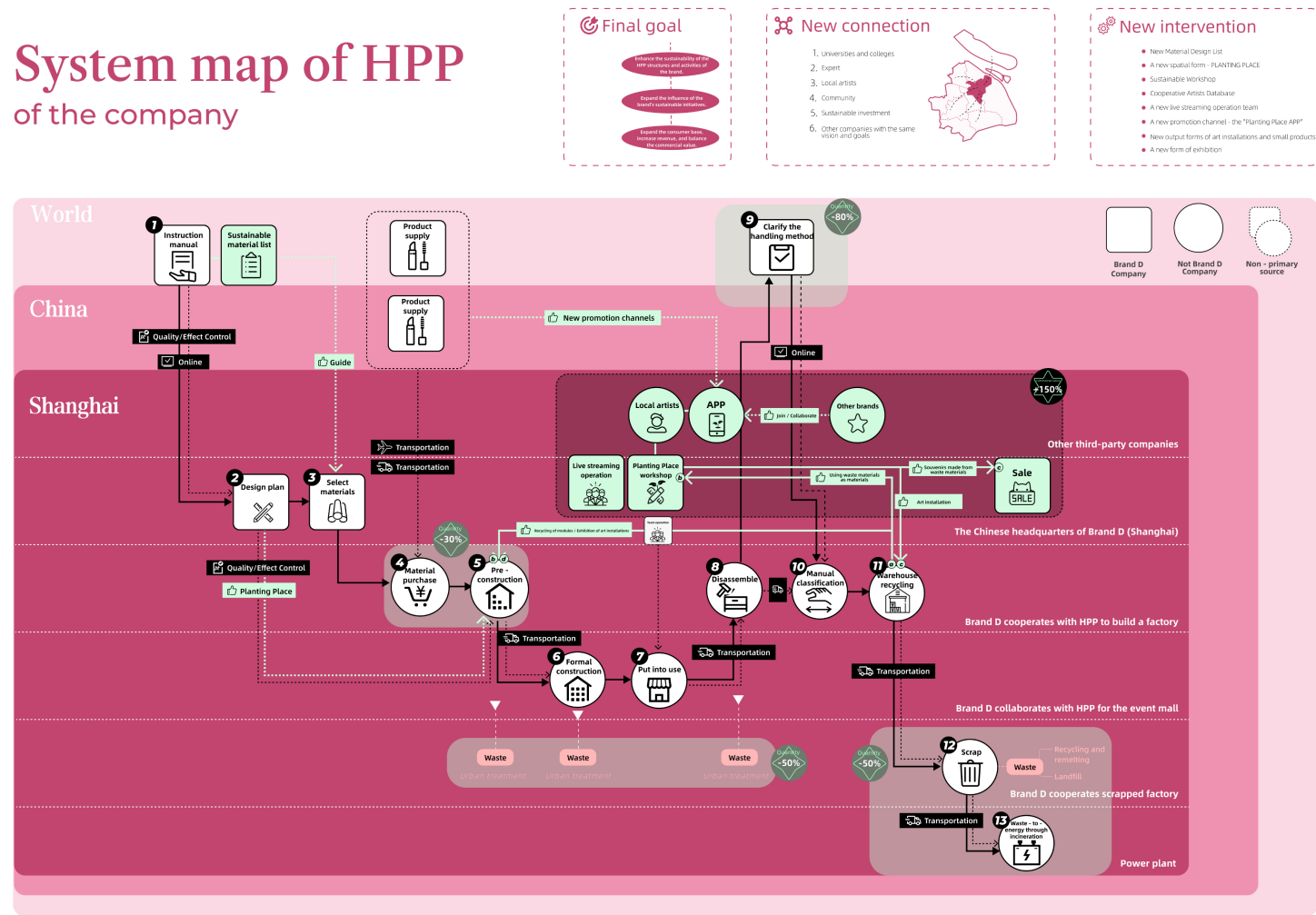


Figure 4.6 System Diagram of the company's HPP business segment after design intervention
(source: self-drawn by the author)

The positive impacts brought by such a circular model are multi-faceted. At the commercial level, it opens up entirely new product promotion channels for the brand. By selling souvenirs made from recycled materials and displaying art installations, the brand can attract more consumer attention, enhance its visibility and reputation, thereby increasing commercial value and revenue. At the environmental level, this model significantly reduces waste generation throughout the process. Previously discarded materials are fully utilized, achieving resource recycling and effectively reducing environmental pressure. Meanwhile, this circular utilization greatly reduces the amount of materials that require clear processing by the brand's headquarters, alleviating the burden of material management and processing for the headquarters and saving corresponding human, material, and financial costs.

Additionally, the development of a sustainable material list plays a crucial role in the entire design and operation process. This list provides clear guidance for designers and operators, enabling them to more scientifically and rationally evaluate the sustainable value of materials when making selections. Designers can prioritize environmentally friendly, recyclable materials with minimal environmental impact for HPP structure design based on the list, ensuring the sustainability of the design from the source. Operators can more accurately purchase and manage materials during event preparation and execution according to the list, ensuring that the environmental philosophy of the entire event is implemented.

In summary, the newly designed recyclable HPP lifecycle model and the sustainable material list complement each other, jointly constructing a green, efficient, and dynamic commercial activity system. This innovative model breaks through the limitations of traditional HPP events, closely integrating environmental protection with commerce, and lays a solid foundation for the brand's long-term development.

4.3 System evaluation map

The final key step in system design is to use the system evaluation map tool to conduct an in-depth and comprehensive envisioning of the specific outcomes that enterprises should achieve at various stages across different time spans (short-term, medium-term, long-term) and different scale dimensions (micro, meso, macro) within the current design content framework. This enables more effective realization of pre-conceived goals. This process is not a simple planning exercise but requires comprehensive consideration of multiple factors and meticulous analysis and prediction.

Through the system evaluation map (Figure 4.7), it can be clearly observed that a series of actions taken at the product level are specific measures from a micro perspective. For example, launching a preferred material list for brand HPP construction focuses on the selection of HPP construction materials, meticulously evaluating the environmental friendliness, durability, cost, etc., of each material to ensure that the selected materials not only align with the concept of sustainable development but also meet actual usage requirements.

The modular space scheme represents a micro-level innovation in spatial design, based on standardized modules to achieve flexible combination and efficient utilization of space. The design of reusable components and connectors also focuses on micro-level details, improving their reusability and reducing resource waste by optimizing the design of components and connectors.

From a more macro and meso perspective, the new marketing and communication strategies have given rise to a series of important design strategies. The construction of a new media live-streaming operation team leverages popular new media platforms to create a professional live-streaming team. Through live-streaming displays, it attracts consumer attention and expands brand influence. Collaboration with local artists integrates art with the brand's vision, using artists' creativity to inject new vitality into the brand and discarded materials, enhancing the brand's cultural connotations and artistic value. This collaboration not only enriches the brand's marketing tools at the meso level but also shapes the brand's unique image at the macro level, enhancing its competitiveness in the market.

System evaluation map systemic project

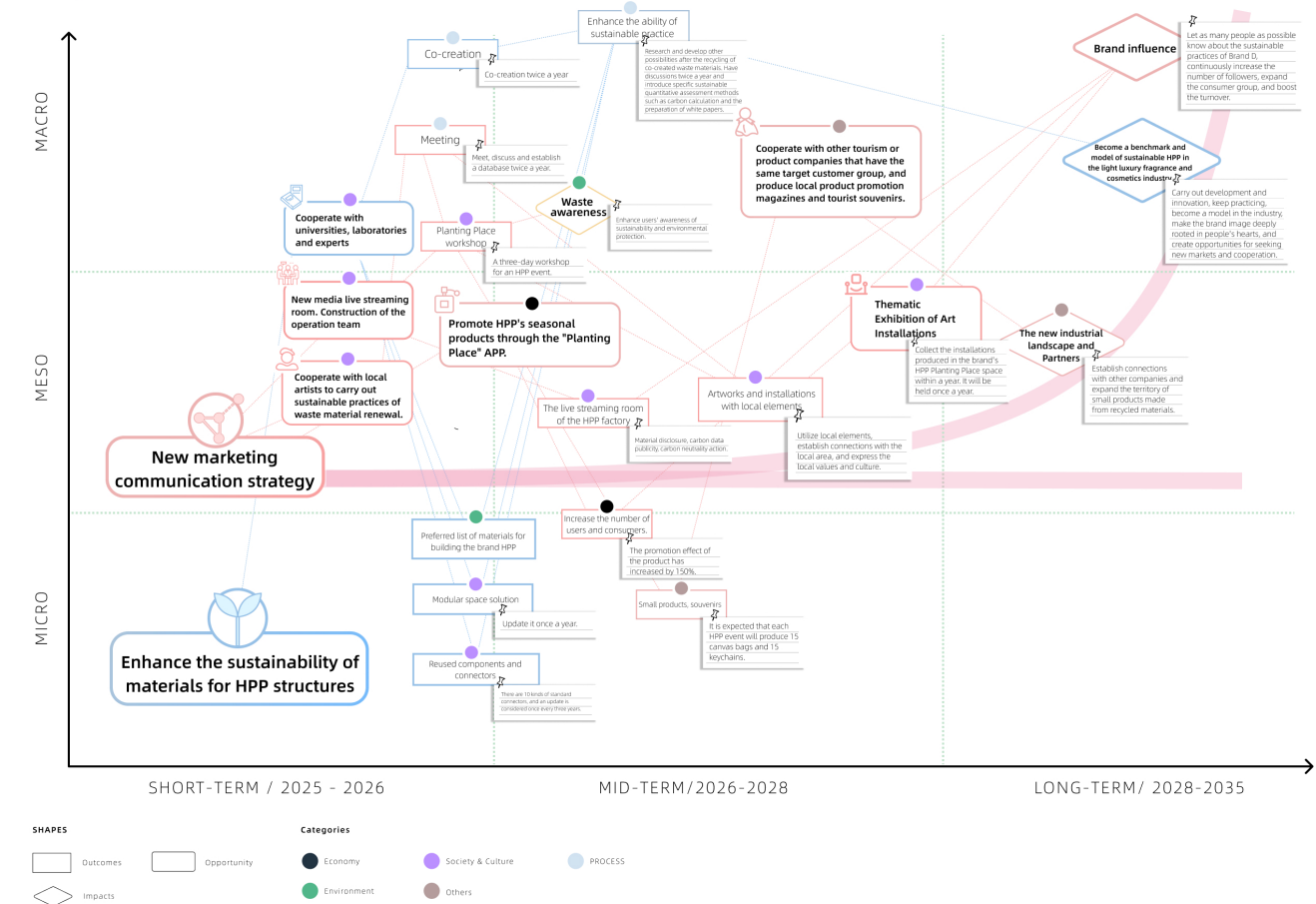


Figure 4.7 System evaluation map of this project (source: self-drawn by the author)

In the short term, the enterprise's primary task is to ensure the establishment of smooth cooperation channels with various stakeholders and the formulation of detailed, specific, and actionable implementation plans. This means fully communicating with suppliers, partners, consumers, etc., understanding the needs of all parties, clarifying the direction of cooperation, and laying a foundation for subsequent work. In the medium to long term, especially after 2026, the brand needs to strengthen implementation efforts and actively expand its operational scope. This includes opening up new market areas to attract the attention of more consumers in different regions and demographic groups, as well as building new industrial landscapes by entering mutually beneficial local strong industries such as tourism, to achieve the extension and expansion of the industrial chain. Through these efforts, the brand finally has the opportunity to become a sustainable HPP benchmark in the luxury fragrance and cosmetics industry, not only leading the industry in environmental practices but also significantly enhancing brand influence, standing out in fierce market competition, and winning consumer recognition and trust.

In summary, the system evaluation map plays a key role in enterprise planning and development. It constructs a comprehensive and multi-level development framework for enterprises from micro, meso, and macro levels, as well as short-term, medium-term, and long-term dimensions. For luxury fragrance and cosmetics brands, developing along such a planning path is expected to achieve the goal of becoming a sustainable HPP benchmark in the industry. This will not only promote the environmental upgrading of the entire industry but also bring inestimable value to the brand. At the same time, other industries can also draw lessons from this, using the system evaluation map to carry out development planning according to their own characteristics, explore suitable sustainable development paths, achieve a win-win situation of economic and social benefits, and jointly promote the process of social sustainable development.

5.CONCLUSIONS AND OUTLOOK

5.1 Conclusions

This study conducts an in-depth exploration of the retail HPP structure system from the perspective of circular economy and has achieved valuable results in multiple aspects.

As a type of pop-up event, HPP activities demonstrate unique advantages in the current business environment, creating good economic benefits for brands, especially in significantly enhancing brand awareness, attracting specific customer groups, and promoting new products. However, their own characteristics have also triggered a series of issues that cannot be ignored. Through on-site investigations of typical HPP activities of brand D, the study found that the short duration of HPP activities leads to greater environmental impacts compared to ordinary buildings, and the choice of different materials can result in huge differences in carbon emissions. Furthermore, through the application of systematic design methods, it was found that the current HPP business segment of brand D has a apparent linear system. Interventions can be made from two major directions: improving the sustainability of HPP structure materials and adopting new marketing communication strategies, so as to optimize the original linear system into a circular and sustainable system.

The study proposes a series of systematic design strategies aimed at balancing the commercial value and sustainability of HPP activities. In material management, a recommended list of construction materials for structures is introduced. By comprehensively considering factors such as material performance, cost, and environmental attributes, it provides clear guidance for designers on material selection, reducing environmental impacts from the source. In spatial design, modular sustainable spaces are proposed. These not only ensure spatial flexibility but also facilitate the reuse of structural frameworks. In marketing and communication strategies, a PLANTING PLACE and service system are introduced. This approach not only achieves higher commercial exposure and consumer favor but also deeply integrates green and environmental concepts into brand-consumer interactions, strengthening consumers' awareness and recognition of the brand's sustainable practices.

Although these strategies have a certain degree of innovation and feasibility, they still face many challenges in the actual implementation process. However, overall, this study provides useful references and guidance for various environmentally conscious brands willing to assume social responsibilities in pop-up space design and decision-making. Follow-up research can further explore how to overcome these implementation obstacles, promote the development of the retail HPP structure system toward a more sustainable direction, facilitate the harmonious coexistence of commercial activities and environmental protection, and jointly shape a greener and more sustainable socio-economic environment.

5.2 Summary of innovations

The innovations of the research work in this thesis are summarized as follows:

(1) Innovation in research perspective

This study breaks through the traditional research perspective of retail structures that is limited to single functions or appearance design. It innovatively explores the sustainable optimization path of the retail HPP structure system from the dual perspectives of circular economy and systems theory, helping to reveal the deep-seated problems and potential optimization strategies overlooked by previous studies due to one-sided perspectives.

(2) Innovation in Design Strategies

This study proposes a brand-new system design strategy dedicated to balancing commercial value and sustainability through specific system design analyses. In terms of material selection, it abandons the traditional approach of only considering cost or aesthetics, and instead selects green materials with low resource consumption, high recyclability, and minimal environmental impact based on life cycle assessment results of materials. Innovatively, the traditional linear structure system is upgraded to a circular system. By constructing material circulation loops, it achieves multiple reuse of resources within the structure and minimizes waste discharge, providing a practical operational guide for green design in the retail industry.

(3) Innovation in Spatial Design

This study designs an innovative commercial sustainable space featuring modularization and online-offline integration. The modular design enables retail HPP structures to flexibly combine spatial modules according to different commercial needs and site conditions, improving space utilization efficiency and adaptability. The online-offline integrated PLANTING PLACE fully leverages internet technology to break through physical space limitations, spreading the sustainable practices of commercial brands online and promoting purchasing behavior.

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Tool Guidance



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