2022

A System Design and Inquiry of South Railway Station in Shanghai: From functional to symbolic

Wang, Ye, Xin, Yijia, Li, Bill and Shen, Jacky

A System Design & Inquiry of South Railway Station in Shanghai: From functional to symbolic

Ye Wang, Yijia Xin, Bill Li and Jacky Shen

Shanghai Normal University | Shanghai Normal University | UPerform Agile Consulting | UPerform Agile Consulting

Shanghai South Railway Station, an integrated transport hub, is no longer what its designers once envisaged, while the complex system of signs & things still supports people's actions, the actions have changed. Spontaneous gatherings of skateboards, square dancing, soliciting business, and even permanent settlement. In our observations of this complex system, we realised that the diversity of actions caused by the support of things is making system's design difficult. This interesting situation drew our attention to signs, things and behaviours, the multiple symbols of a complex system, the impact of spontaneous and changing actions, and particular implications of the nature of the community. We saw new perspectives and possibilities for systemic design.

We conducted a large analytical sample of the event and the groups involved, interviewed several secondary stakeholders, and used ethnographic in-depth and repeated interviews with three key informants over a three-week period, along with related cross-sectional research. We found that, in this case, the focus of system design has shifted from a functional to the impact of symbolic meaning on complex systems. The analysis of the characteristics and strengths of the community symbols generated by the transport hub itself suggested a participatory hypothesis. The use of service design methods to transform the design outcomes in specific design contexts and reshape the relationship

between the design scenario and the new community, thus changing and balancing the contradictions between the new symbols of the system and the pre-determined symbols. We are excited to see similar facets in other areas; it is likely a future research direction. The purpose of this paper is to revisit and explore the issues, goals and principles of systemic design through this research, calling attention to the new perspectives on a complex system.

KEYWORDS: complex system, systemic design, participatory, community, symbolic, spontaneous, innovation

RSD TOPIC(S): Cases & Practice, Society & Culture

Presentation summary

Today, we are increasingly aware of the existence and importance of the term "system" in both physical reality and conscious perception. How we live together is influenced by dynamic, naturally occurring systems, as opposed to logically designed and manufactured systems. In complex, large and interconnected experiential situations, the problem of system design is no longer about the material system itself but rather the problem of the interconnected parts of the system of things, the system of human life, and their overall appearance.

The interaction between people and products remains a key node in systems and inevitably enters into perception and cognition, with signs/symbols influencing cognition, things assisting the design of signs in the service of action, and behaviours providing service and guidance. *Visual Thinking* (Rudolf, 1998) and Donald Norman's *The Design of Everyday Things* (1988) have expressed a similar view. Richard Buchanan (2001) suggests that twentieth-century design can be seen in four orders: symbols, things, actions, and environments. Amos Rapoport, one of the founders of Environmental Behavioural Studies (EBS) (Amos, 1990), and Yan Yunxiang, a Chinese social anthropologist (Yan Yunxiang, 2009), have both suggested that the variability of culture and identity simultaneously interferes with the judgement of the actions involved. The

four orders are often interconnected and inseparable in an integrated and complex design system.

China's Shanghai Railway South Station (SRS) was officially opened in 2006. As the southern gateway to Shanghai's railway passenger transport, SRS is located in the Xuhui district and is equipped with various transport facilities. As an important hub for external traffic and interchange within the city, SRS completes the urban transport network and drives the rapid development of the southwestern (Hu Licheng et al., 2009).

In system structure, SRS abandoned the traditional 20th century concept of closed management, design, and customary practice of disconnecting the railway from municipal planning and construction. Rather, this complex system was designed to meet the various needs of passengers and provide better support. The government established the principle of unifying economic, social and environmental benefits at the outset of construction and positioned the surrounding area for business, intermediary, financial, tourism and logistics services (许凯, 2006)—similar to the Machu Picchu Charter, which criticised the mechanical functional zoning and physical spatialism of the Athens Charter (Lou Yongqi, 2018). But with the design of an integrated transport hub emerged new conditions: the connections made by the identification of signs & things & behaviours begin to extend into possible behavioural relevance, from transport to have meals, to leisure and entertainment, to socialising and even permanent settlement, they occupy their areas and are interconnected by signs & things of the system, gradually forming patterns.

Above: The location and condition of SRS and other stations on the subway map.

Above: Basic information on the system structure and facilities of SRS.

The nature of the community: spontaneous

The system at SRS differs from that at the court, which is more symbolic in that the dynamics of behaviours in an integrated hub are key. Studies by systems scientist Charles West Churchman and Dr Junginger Sabine identify that the human system is different from the physical system, which is a living system designed to change or adapt (Junginger, 2015). As a symbol of an integrated hub, the station gives a richer prophecy and indication, inspiring the changeable and variable common life of the human system.

In Robert Ezra Park's[1] study, the community is defined as a "'collection of people occupying a more or less clearly defined territory" and "is not only a collection of people but also organisational systems." The American geographer Don Mitchell argues that the public depends on the creation of the people in the space rather than the properties of the space itself (Don, 1961). Public design, similar to the past social systems, is facing a unique new challenge, changing from a system of logical forms of regional division to spontaneous, fluid and flexible communities that continue to grow and are diverse, spontaneous and indeterminate. This paper argues that in today's functional community, thinking about designed systems in terms of products contradicts the natural and continuous reinvention and self rhetoric of the necessary forms of systems.

Pages 6 & 7: Community actions happening at SRS (four images).

---

[1] Robert Ezra Park (February 14, 1864 – February 7, 1944) was an American urban sociologist who is considered to be one of the most influential figures in early U.S. sociology.

6
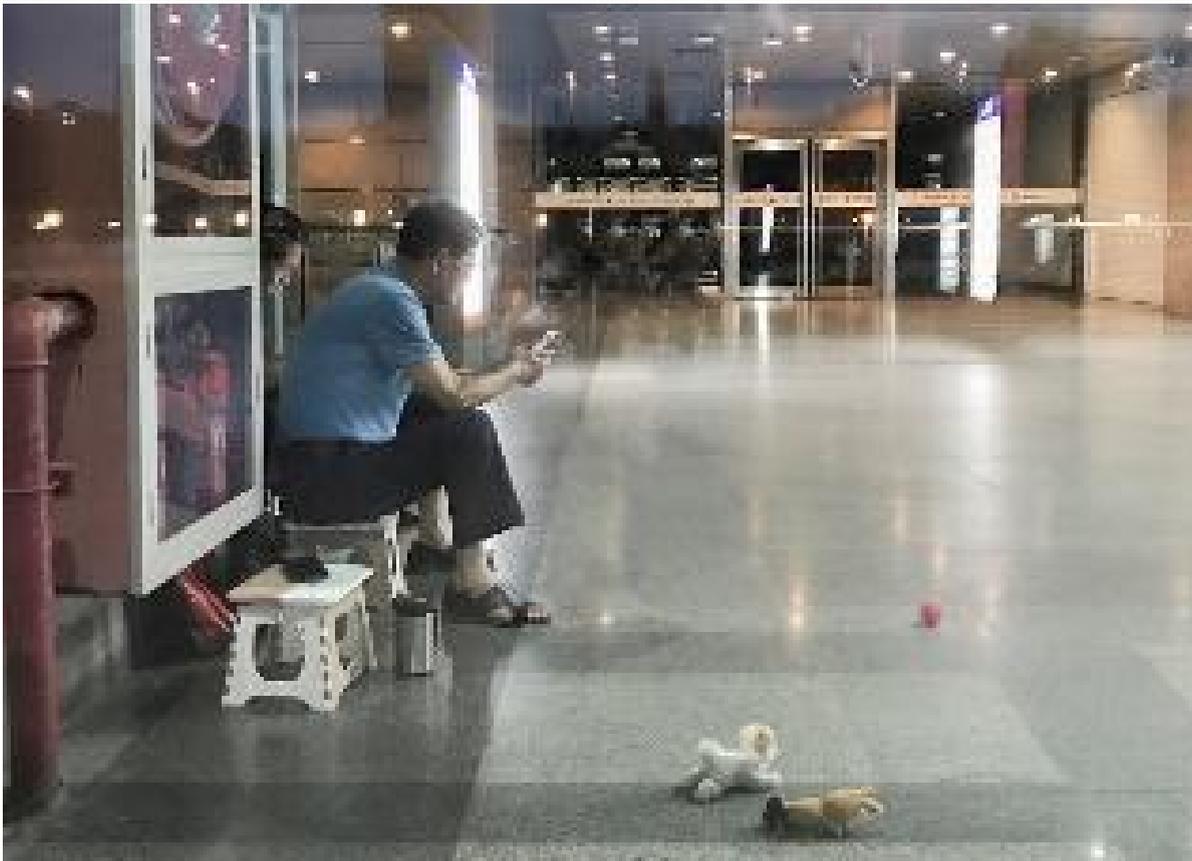
Method

Design research tends to focus on typical or specific groups, and the community-based group represented are the settlers. Research began with a week of interviews with several secondary stakeholders: neighbourhood shop staff, cleaning staff, police patrols, university volunteers, taxi managers, relevant public interest organisations, passing passengers and overnight waiters, to get a side-by-side view of the situation, as well as observations and interviews with nearly a dozen settlers. The fieldwork led to identifying three key informants among the settlers: a temporarily unemployed young male, a five-years settled male, and a male from a regular settlement group. The key informants were interviewed over a three-week period using ethnographic in-depth interviews and repeat interviews, which were conducted informally, one-on-one, and randomly outdoors in any site familiar to the settlers; explanations and requests for record availability were planned at the end of the interview. Related cross-sectional research was carried out, visiting a male and a female homeless person in Shanghai's landmark, the People Square, as well as the Shanghai Hongqiao Railway Station, an integrated hub that opened in 2010, to compare samples.

The analysis of the research data posed a challenge in identifying the authenticity of the information, as there was often conflicting and subjective information provided by settlers and stakeholders, requiring the combination of a large amount of data and testimonies to make a more objective judgement and selection of information.

Issues, problem

The Devereux interactive process model describes the significant influence of noise on the transmission of information, which does not take place in a closed vacuum(Claude E. Shannon & Warren, 1948). SRS's own wealth of information, its circular architecture and the unfamiliarity of first-time visitors all make wayfinding more difficult, and this problem is exacerbated by other actions emerging from the SRS, such as the advertisers and the settlers who are intervening in two different states of systematically designed messaging, with similar media producing different ways of interacting with information, the former as active interventions and the latter as more of a gravitational force.

The contradiction that exists between the act of settling and the integrated transport hub is also an important factor in the way. Strangers perceive and understand each other in public, similar to the model above, mediated by the impressions of signs & things & behaviours presented, and implicit meanings not only provoked by the symbols themselves but also by the relationship between signs & things & behaviours and the environment. The relationship inspires our judgments as an emerging view in the field of inclusive design that 'disability depends on the environment (Fu Gaoshan & Zhang Kaiyu, 2017).

The community symbols brought to SRS are not only useful and usable disruption but also a change in the experience of SRS, associated with 'chaos and badness'. The conflict is a reflection of the problem's nature: the heterogeneous actions provoked by the predetermined design system are not managed, the changing symbolism is not matched by design and is interfering destroying the original design system, and the relationship between the various elements is thus broken, the situation is also radiating to a wider range of stakeholders.

Above: People conducting a route search.

Above: Part of the research on settlers' passenger reactions.
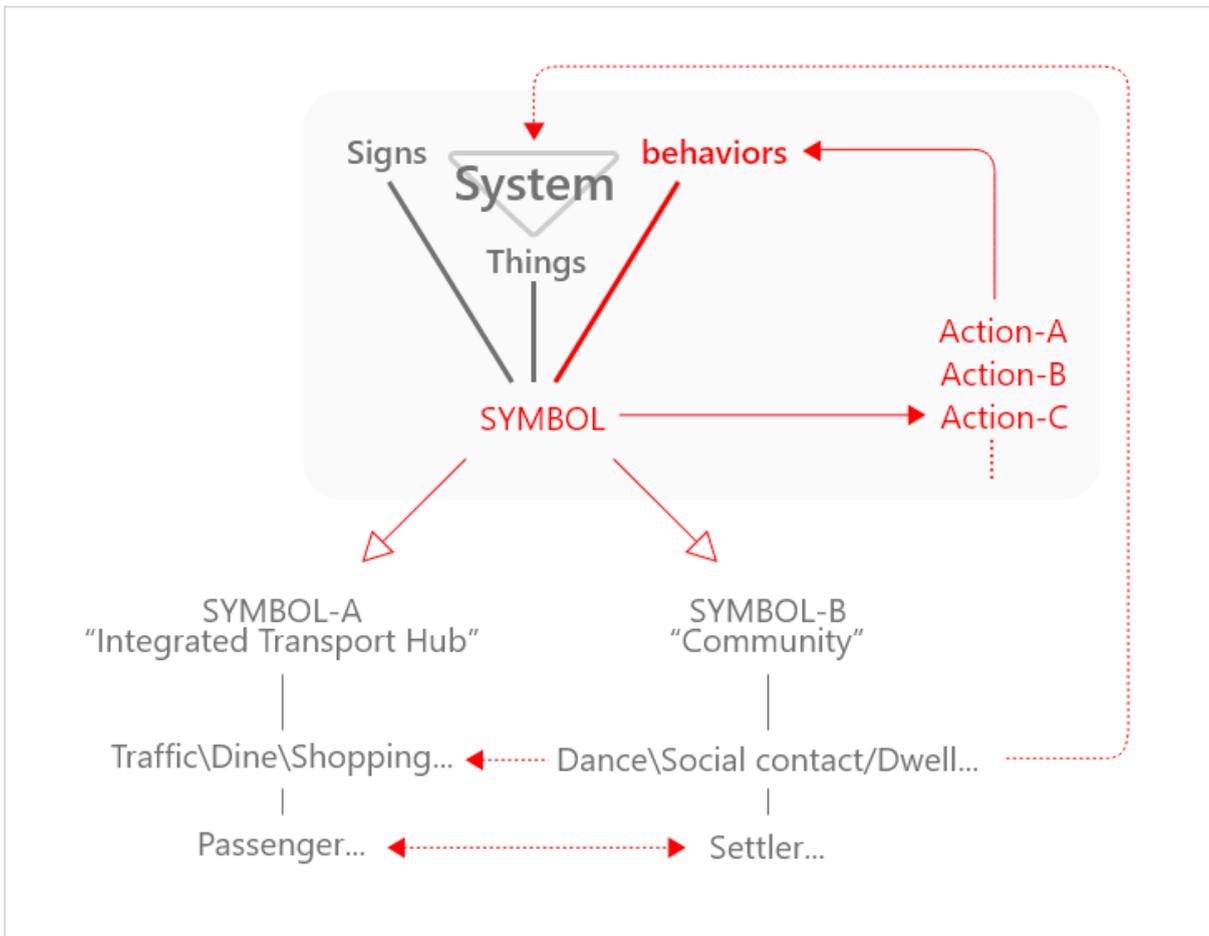
Above: Analysis of the situation and design problem in the case.

A breakthrough with the problem of passengers

In 1986, the *service theatre model* was introduced in service design, which compares services to theatrical performances (Fisk & Grove, 1992). The current study focuses on the issue between two symbols, where the community can be considered as the actors in the model, the audience as the service recipients as well as the community, and the SRS as the scene. The controversy above can be translated into the impact caused by the outcome of the performance. The design of the updated programme is precisely to reverse the results of the performance in the first place, and the poorly matched link between actors and scenery is one of the keys to the problem.

Design improvements necessarily need to meet the original object first and foremost. Revisiting the meaning of community, from the view of the design's intended, due to problems with the correspondence between signs and things, people often get lost at SRS, and for emotional reasons, people ignore the designed information system and choose to look for a pedestrian to ask and confirm. Based on a comparison of the relationship between the abstract of traffic and community with information, the difference made us realise the starting point for the design transformation.

The settler, representative of the community symbol, has far more power over information than design presupposes to serve. The balance of power is perhaps one of the breakthrough directions. In the case of station renovation abroad, it is argued that stations have a natural collaborative context (Village Well, 2006). Horst Rittel (1984) proposes design as an open-ended debate process. In the context of a specific community symbol, we see the possibility of a participatory hypothesis. Such possibilities were, in fact, hinted at during the research process. Such individual acts changing the plasticity of a system are quite common in open design, inclusive design, and service design today (Andy et al., 2013).

Participatory information system as an attempt

According to the RCA Interaction Design Studio, in interaction design, unlike the perceived taboo, ambiguity is a design resource that encourages close engagement between individuals and the system (Gaver et al., 2003). The participatory approach is designing a system that collects and manages information in real-time through people's exploration, thereby providing a quicker response to the situation and problems of the SRS and coordinating the changing needs and wants. A trinity of mobile phone, fixed terminal and field display system is established; three functions are supported: information uploading, searching and navigation; the uploaded information is divided into functional and experiential, and the field display is updated by generating icons or graphics through artificial intelligence to suggest and change the meaning of the occasion.

In addition to responding to change, how to build community is also key to this case. In a typical vehicle for human activity such as games, the design of community and interpersonal relationships such as Death Stranding[2] and Journey[3] inspired our solution: a participatory approach that allows groups of various identities at SRS to share a common context in authentic creation and mutual support (JYJY, 2018).

---

[2] *Death Stranding* is an action game developed by Kojima Productions.

[3] *Journey* is an indie adventure game co-developed by Thatgamecompany and Santa Monica Studio, published by Sony Computer Entertainment, and directed by Jenova Chen(JYJY, 2018).
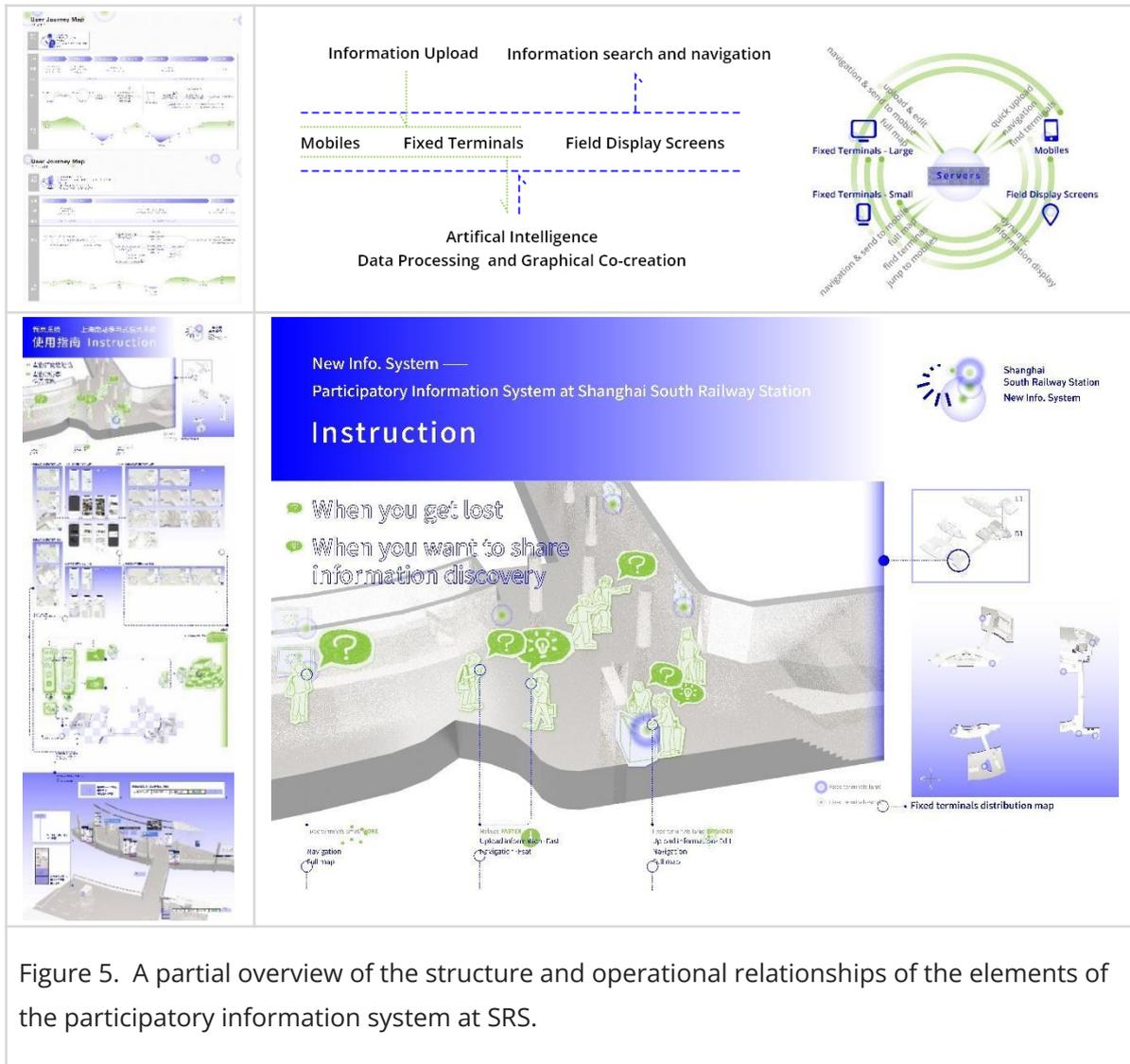
Figure 5. A partial overview of the structure and operational relationships of the elements of the participatory information system at SRS.

A relevant practice case on pharmaceutical company

Enterprise as a systematic human organisation, where each part of the system is made up of complex factors. Changes in each part of the system invariably affect the overall picture. One of the events of interest to the study is UPerform's[4] practice case with Chinese subsidiaries of multinational pharmaceutical companies.

Agile, a method originally born in the system-shaping industry (programmatic computing science), has come to the fore in this era of VUCA,[5] not as an inherent methodology but as a way of thinking about change. In this case, agile was used to restructure the business of value, as shown in the diagram below, transforming the traditional business model into a more responsive customer-centric architecture that empowers the business in the face of social and contemporary changes. Another practice during a long period of testing, UPerform added a flexible, fast and effective demand integration department to the system design, unifying user feedback into a single port of call and creating a closed loop of data links through platform integration.

---

[4] UPerform is a team of agile practitioners in China, bringing agile methods to business management, many of whose ideas have similarities to this research, more information can be found on the official website: https://www.uperform.cn

[5] VUCA is an acronym for volatility, uncertainty, complexity, and ambiguity.
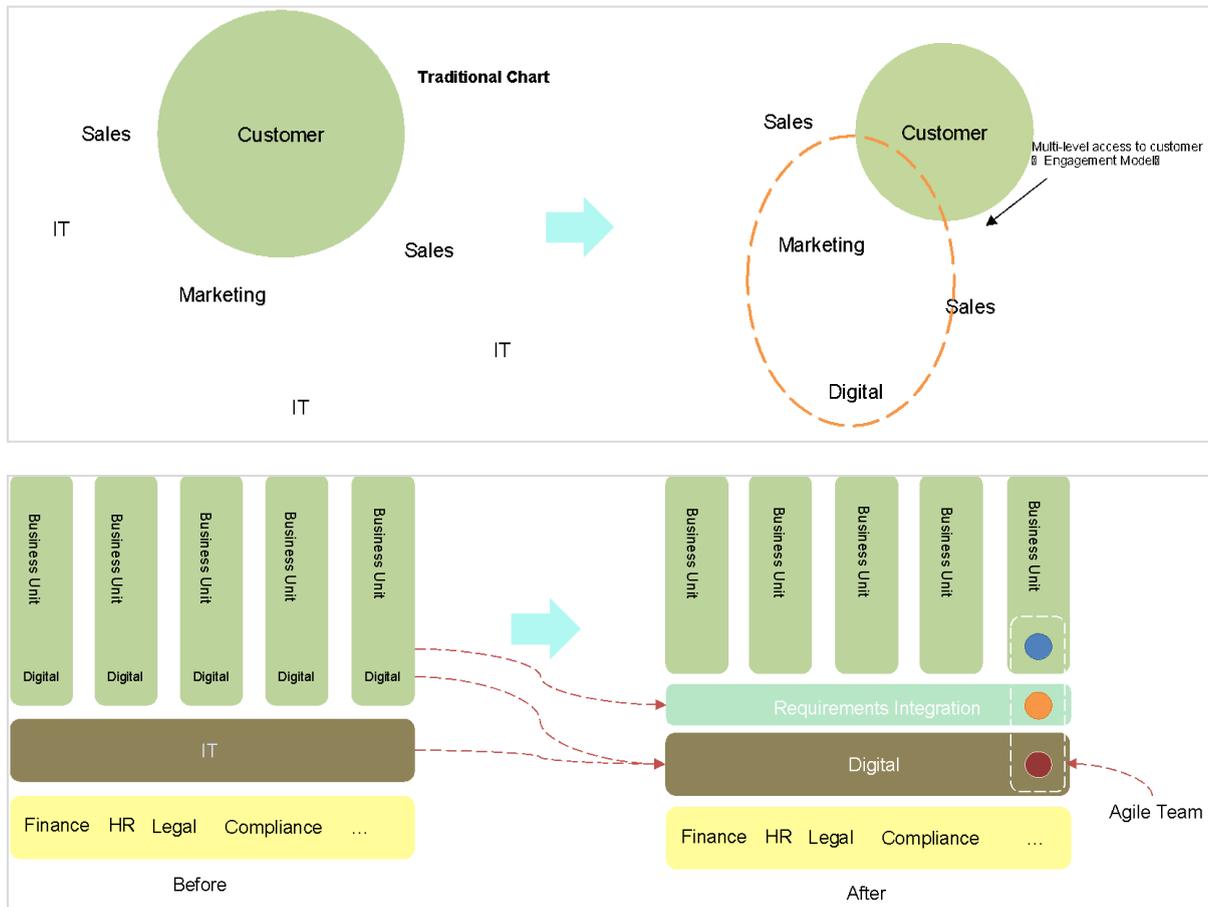
Figure 6. The company has transformed its business model through the agile approach (top); The agile team has been added to the organisational system (bottom).

Conclusion

The development of technology has provided more mature conditions for responding to spontaneity, but more importantly, the management of people and real situations. For example, as the group is made up of individuals of different wills, the adjustments of each part will have an impact on the whole. This is not developed further in this study but is discussed only in terms of representative attributes and trend characteristics in the current overall situation.

References

1. Amos, R. (1990). The meaning of the built environment : a nonverbal communication approach. University of Arizona Press.
2. Andy, P., Lavrans, L., & Ben, R. (2013). Service Design: From Insight to Implementation. Rosenfeld Media.
3. Claude E. Shannon, & Warren, W. (1948). The Mathematical Theory of Communication.
4. Don, M. (1961). The Right to the City Social Justice and the Fight for Public Space.
5. Donald Arthur Norman. (1988). The Design of Everyday Things. Basic Books.
6. Fisk, R. P., & Grove, S. J. (1992). The Service Experience As Theater. In NA-Advances in Consumer Research (Vol. 19). Association for Consumer Research. http://www.acrwebsite.org/search/view-conference-proceedings.aspx?Id=7341http://acrwebsite.org/volumes/7341/volumes/v19/NA-19
7. Gaver, W. W., Beaver, J., & Benford, S. (2003). Ambiguity as a Resource for Design.
8. Horst W.J. Rittel. (1984). Second-generation Design Methods. In Developments in Design Methodology (pp. 317–327). Chichester.
9. Junginger, S. (2015). Organizational design legacies and service design. Design Journal, 18(2), 209–226. https://doi.org/10.2752/175630615X14212498964277
10. JYJY. (2018, July 11). Looking at game sociality from Journey. https://indienova.com/indie-game-review/social-element-in-journey/
11. Richard, B. (2001). Design Research and the New Learning. Design Issues, 17(4), 3–23.
12. Rudolf, A. (1998). Visual Thinking Aesthetic Intuition Psychology.
13. Village Well. (2006). Train Stations as Places for Community Wellbeing. www.villagewell.org
14. Fu Gaoshan, & Zhang Kaiyu. (2017). Handbook of Inclusive Design Principles. https://www.microsoft.com/design/inclusive/
15. Lou YK. (2018). NICE2035: a design-driven experiment in community-supported social innovation. Decorating, 301, 34–39. https://doi.org/10.16272/j.cnki.cn11-1392/j.2018.05.007

16. Hu, L.C., Huang, Cheng Ke, & Wu, Chao-Ping. (2009). Overall design of a comprehensive transportation hub in Shanghai. Urban Transport Railway Transport and Economy, 31(7), 52–66.

17. Xu K. (2006, June 26). Shanghai South Railway Station opens to change the ecology of the Yangtze River Delta. http://news.sohu.com/20060626/n243930266.shtml

18. Yan Yunxiang. (2009). The social space in McDonald's restaurants. In The individuation of Chinese society (pp. 294–325). Bloomsbury Academic.