# Research and Application of Service Design Thoughts in Subway Advertisement Design

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**Abstract.** This paper explores the design of subway space advertising forms from the perspective of service design. Firstly this paper analyzes the concept of service design. On this basis the necessity of applying the design method to design subway advertising forms are analyzed. Secondly, through the analysis of the subway space and population factors, find where and when we should use the method of service design to design subway space advertising forms, and the application of service design methods in the field is explored. At last, combined with the case of a specific subway advertisement design, summed up the innovation points and follow-up research direction.

With the development of smart city and the arrival of service-oriented society, subway system, as a vehicle responsible for urban residents travel will further extend and develop in smart city construction and will be closely related to people's daily life. Subway advertisement, as a significant part of subway, has a great influence on passengers' travel experience. Most existing subway spaces adopt traditional advertisement as their media form, whose thoughts embodied in the design little meet passengers' real demands. Therefore, the lack of originality leads to passengers' less satisfaction. On the basis of the service-oriented thoughts and ideas, this paper explores new ways and thoughts for subway advertisement design and strives to tightly combine design and service together by breaking through traditional thoughts. Furthermore, this paper tries to create maximal benefits and the best solution based on limited resources.

**Keywords:** Service design · Subway space advertisement design · Subway service

## 1 Introduction

### 1.1 Concept of Service Design

The combination of the two concepts "service" and "design" as a relatively new field in the development of design is a new concept put forward after Modernism. Service-oriented design mainly studies how to systematically apply the theories and methods of design into the creation, definition and planning of service. Its design philosophy is built on interactive service, creative service and service economy. To explore the social value and commercial value of service-oriented design in social

development by the collaborative design of user group is a concentrated reflection of "people-oriented" design philosophy in the aspects like user experience, value creation and social innovation.

Service design means to create useful and applicable experience for users by innovation or integration and establish an efficient and distinctive service from the perspective of service provider so as to create a better experience and deliver greater value for users. The application of exact approaches and tools of service-oriented design can help us figure out how to realize these principles and objects in corresponding stages of service design and how to make service-oriented design meet or even surpass users' demands. Different stages of service-oriented design ask for corresponding tools and approaches.

(1) Establish role models: The establishment of a role model may help the designer to have an intensive understanding of users from the perspective of design. To learn about users' lifestyle, living habit, attitudes toward life and users' experience and the pattern they adopt in service plays a significant role in service-oriented design.
(2) Draw a user experience map: user experience map as a tool to understand the interaction between users and product, service and system, aims to assist to clearly analyze the problems emerging in service so as to improve user experience based on this. An experience may can directly reflect user operation flow, expectation, their specific goal, emotion and the whole experience chain and determine the potential touch points between the user group and service product so as to actively and entirely control and assess the experience that a product provides.
(3) Analyze service touch point: in the thought of service-oriented design, it is just the design of service touch point that embodies the value of design. There is a wide range of forms of touch point: from the communication among people, the details in users' interaction on platform products to the activities in specific scenes. All of these may trigger service touch points. And touch points are usually made up of four aspects: people, object, process and environment.
(4) Service blueprint: Service blueprint is a kind of planning map describing the realization of system function in details, which can also concretely show the value orientation in service. Service blueprint shows its service in the following aspects at the same time: describes the process of service implementation, the place for user reception, the role that service provider plays and other elements that may appear in service-oriented design. Service blueprint provides an approach to dividing service into several blocks and then describes the steps, tasks, methods and the tangible exhibitions that customers can feel one by one.

Service design has various approaches and tool kits. In daily service design, designers have to select the ones they need based on practical problems so as to properly solve the problems emerging in service-oriented design.

## 1.2    Information Transmission Analysis in Subway Space

In the information society, information and knowledge have become the strategic resources and basic elements of economic industrial development. The value of

information depends on the extent to which it is used and how is transformed. The advertisement communication in the subway public space plays a carrier role for video, text and graphic information. The information transmission of advertising from the sender to the receiver in the subway space is a propagation phenomenon. Advertising information dissemination is the process of transferring advertising information between the communication subject, passengers and the advertising media.

From the present situation, the main problem of subway public space information dissemination is the information asymmetry between advertisers and recipients, which is mainly caused by the following reasons:

(1) The information dissemination media diversification caused by information overload. Print media, electronic media, online media and face to face interpersonal communication are involved in the dissemination of subway advertising information, resulting in a substantial increase in the amount of information, information overload become an inevitable phenomenon.

(2) From the theory and practice on the subway advertising information seriously inadequate. From the view of the subway travel attribute, the formation process of the subway advertisement information dissemination effect is the process which affects passengers cognition and guide passengers behavior, involves the communicator, the media, the information contents, the passenger itself, the physical environment and many kinds of elements, Subway advertising information dissemination effect is complex and unstable.

(3) Ignore the subway advertising information users, the effective dissemination of subway advertising information feedback is not sufficient. Subway passenger's interest, the level of understanding, social status and other individual factors and social factors will have an impact on the dissemination of advertising information. Passengers not only accept information but also use information, not only selectively receive advertising information, and can explain its information feedback to the advertising information management department.

In order to solve the problem of poor communication of advertising information in the subway public space, firstly we need more cross-application with information technology so as to speed up the dissemination of advertising information, reduce the cost of advertising information and optimize the dissemination of advertising information. For subway passengers, advances in information technology have resulted in more flexible, centralized and interactive communication between subway passengers and subway advertising management department. Taking "interactive advertising" as an example, the media can publish advertising contents and deeper functions (transactions, payments, etc.), users also can participate in modifying the form and contents of real-time media environment.

More importantly, it's need to make clear service design as a subway space advertising design methodology, "user-centered design" no longer stay on the surface, through design tools such as user experience map, service touch points, service blueprint and other tools to guide the overall promotion of the subway advertising information dissemination of the overall effects and optimization user experience constantly.

## 2   The Significance of the Service Design Thought into Subway Advertisement Design

In the actual subway context, the revolutionary development of information technology changes both the form of advertisement and the service philosophy. The diversity of the original carrier, structure and marketing mode of subway advertisement and the appearance of equipment like new light box and interactive touch screen make subway passenger- participation design possible. With the arrival of the era of "experimental service", the function of subway advertisement has gradually changed into providing in-demand information to passengers, which realizes customized autonomous service mode.

Centering on improving passenger experience, the service-oriented design easily stimulates the participation and initiative of subway service-provider and passenger group. To discuss subway advertisement design from the perspective of service-oriented design, the design should be based on passengers' actual demands and the elements including user characteristic, feature of technique and environment so as to provide valuable and high-quality service that passenger group needs.

The application of service-oriented thought into subway advertisement design makes the designer more thoroughly understand passenger's behavior and lets the design provide different advertisement functions and experience to passengers through the integration of sense judgment, emotional experience, thought experience, action experience and relevance experience into subway advertisement.

Driven by service design, not only the development strategy of subway advertisement will be innovated based on current situation, but also the commercial value of subway and the overall quality of city will be improved. Furthermore, the subway advertisement itself will be given a more meaningful form; moreover, the specific context of subway and interaction pattern will be given brand new definitions.

## 3   The Application Path of Service Design Thought into Subway Advertisement

The fundamental attribute of service-oriented design is a system design for the relationship among people, thing, behavior, environment and society. Located in the subway system, subway advertisement not only creates commercial value, but also great user value and social value. In the era of the experience of service-oriented economy, subway advertisement can adopt multiple ways to attract passenger group's attention, provide the service in demand and produce better subway-taking experience. Therefore, the design of subway advertisement from the perspective of service-oriented design has to take the functions and features of subway and passenger's psychological and behavioral traits into overall consideration. Furthermore, based on various elements of subway, this kind of design lets passengers directly experience, feel and participate and makes the subway advertisement have much benefit of advertisement.

## 3.1    Analysis of Subway Environment

Subway space generally falls into station hall, platform, pedestrian path, tunnel, train and elevator. With the rapid growth of urban population and the improvement of subway, the capacity of subway space is continually expanding. Subway advertisement plays an important role in increasing economic benefit, shaping city image and improving passenger's travel experience. Different subway spaces have different forms of advertisement. For example, the advertisement forms used on the ground of stair in subway include carpet decal advertisement, ground projection advertisement, integrated design covering both ground and wall etc. (as shown in Fig. 1). Based on the
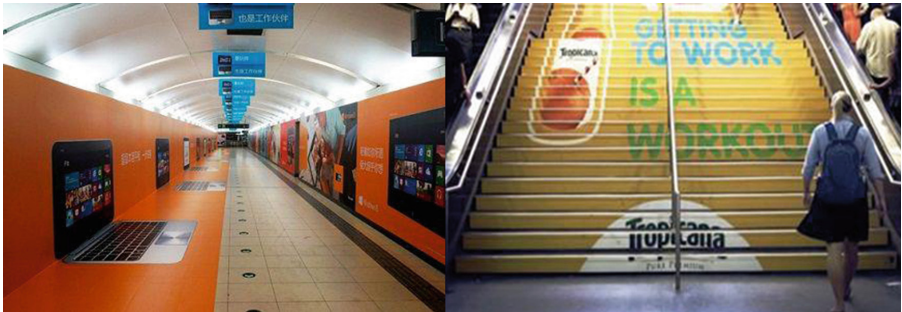


**Fig. 1.** Subway advertisement integrated design

| | | |
|---|---|---|
| Other | Elevator | Elevator |
| | | Escalator |
| | Train | Body |
| | | Carriage |
| Top surface of subway station | | Subway platform top |
| | | Subway channel top |
| Subway station cylindrical | | Column |
| Wall of subway station | | T card |
| | | Channel U shape space |
| | | Channel on both sides of the wall |
| | | Tunnel wall |
| | | Screen door wall |
| Subway station ground | | Blind ground |
| | | Platform floor |
| | | Channel ground |
| | | Stair floor |
| Subway space | | Advertising media |

**Fig. 2.** Categories of subway advertisements

spatial position and the characteristics of media, the categories of subway advertisements in form have been shown in Fig. 2.

## 3.2    User Role Model of Subway Passengers

To more thoroughly understand the status of the development of the subway advertisement in Wuhan, we handed out some questionnaires about Wuhan Subway Line 3 by the way of O2O and sampled 500 valid ones for study. The result shows that the age range of subway passengers is fairly wide mainly from 15–60. Most of the passengers have received high school education or above; the majority of them are middle-income office workers and students. Their purposes of travel mainly include commuting, going to school, going shopping, joining a party etc. And almost all passengers have a specific purpose of travel. Affected by the features of subway environment, passengers sometimes are nervous while sometimes relaxed with the characteristics of their behaviors changing from free ones to orderly ones. When a passenger is relatively relaxed with free actions, the attention he pays on subway advertisement usually improved greatly.

In our survey, we also found out that the advertisement in the carriage of subway and the light box advertisement on the platform more easily raises passengers' concern. And passengers generally pay attention to public benefit and tourism advertisement, especially show great interested in dynamic and interactive advertisements. The previous user study and situational analysis lay a foundation for the following designs.

## 3.3    Study of User Behavior and Deficiencies

Passengers' behaviors in subway are always uniform with similar purposes. The analysis of passengers' path and passenger's path-finding behavior is a significant component of the study of subway passengers flow. To determine the main flow in subway can help us understand the features of subway passengers' behavior. The survey shows that subway passengers' behavior flow includes three steps: enter into the station and get on the subway, transfer, get off the subway and walk out of the station. These three steps form a complete experience of taking the subway (as shown in Fig. 3).
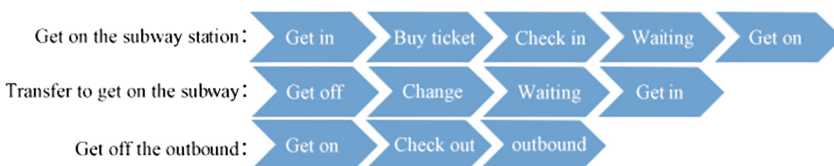


**Fig. 3.** Complete experience of taking subway

Although subway passengers' behaviors are generally similar, in different stages and steps, not only passengers' physical and mental state changes continuously, but also the communication effect of subway advertisement is influenced to some degree.

Subway advertisement, as an important component of subway, can improve or weaken passengers' experience of taking the subway. To further explore the potential deficiencies in subway service, we thoroughly analyze passengers' physical and mental state, their actual demands and the problems in subway service after passengers complete tasks.

Through the detailed analysis of the deficiencies in subway service, we find out that passengers' mental expectation produced on pedestrian way, platform, subway and station is greater than the service supplied, which is reflected in four aspects: (1) passengers spend relatively long time in passing pedestrian way and the frequency is fairly high; (2) the service facility provided on platform is insufficient; the elderly and the weak physiological status is relatively weak; while other people are fairly relaxed and free, who always feel bored when waiting for subway; (3) time spent on taking subway is quite long; the chair for rest is insufficient, which may make passengers bored and anxious; (4) exits and passageways for passenger to walk out of station or transfer are numerous with chaotic guidance information which makes passengers nervous.

Based on the analysis and conclusion above, we find out that the improvement in the overall level of service is the main way to improve passengers' experience of taking the subway. Subway infrastructure has significant functions which cannot be changed randomly. Thus, to improve infrastructure is not a sensible choice. While, subway advertisement, as a part of subway, can be improved from the perspective of service experience in its form so as to improve the overall quality of service.

## 3.4   Service Touch Points

With regard to passengers' experience of taking the subway, the main flow of taking the subway mainly includes three aspects: enter into the station and get on the subway, take subway, get off the subway and walk out of the station. The service touch points in the first aspects include conductor, self-service ticket machine, ticket checking machine etc.; touch points in taking subway include broadcast, arrival information board, subway environment, chair, etc.; and touch points in the last aspect include ticket checking machine, map outside station etc. Since passengers' activities are carried out inside subway, the ubiquitous service touch point in subway is spatial environment including wall, ground, post, shielded gate, tunnel, subway, chair, guidance system, and carry-on smart equipment and article. As for the type of advertisement media, light box advertisement, interactive screen and mobile TV are all the objects considered to improve (as shown in Fig. 4).

What needs to be emphasized is that different subway stations have different functions, which include the station in business district, station for transferring, station in key culture district, characteristics station etc. Therefore, the behaviors and mental profiles of passengers in these stations are greatly different. In subway advertisement design, we have to analyze the touch points in a specific environment and explore design opportunity based on specific advertisement content and passenger features so as to continually improve subway's service quality (as shown in Fig. 5).
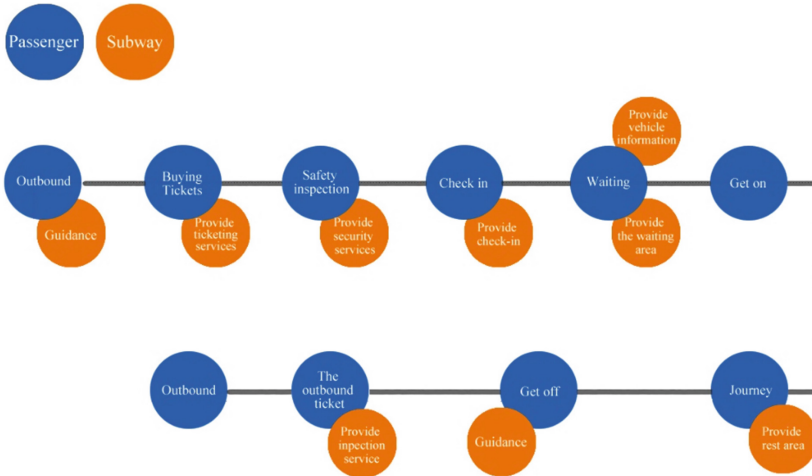
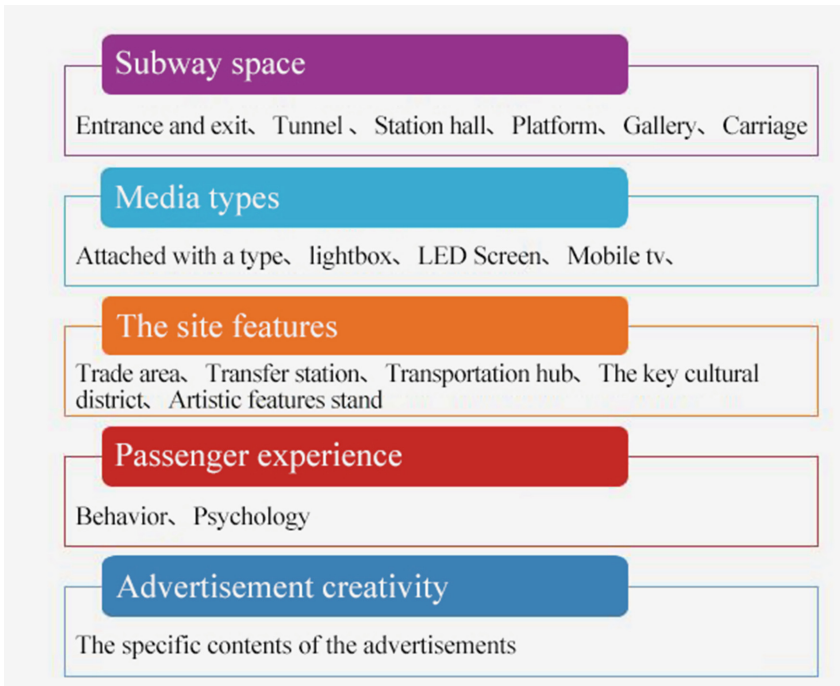**Fig. 4.** Service design blue prints



**Fig. 5.** Information analysis of design touch points

## 4  Service Design in Subway Advertisement—A Case Study of Wuhan Subway Line 3

In previous survey, we have found out that if passengers spend a long time in passing pedestrian path or pass many times, it may cause passenger anxiety. If there are many exits or passageways with disordered guidance information, it may cause passenger nervousness. To deal with the questions above, we choose the stair and passageway in subway as the place for advertisement design and propose an innovative scene-based designing plan.

### 4.1  "Hongtu Boulevard Station" Case Study

Take Wuhan Subway Line 3 as an example, one of the stations named Hongtu Boulevard is not only a transfer station, but also a junction station and a characteristic station with distinctive features. It covers a large area whose width is twice the size of typical stations also with a number of passageways. Due to this special environment, it is better to include environmental change in space design so as to clearly guide passenger's activity and travel path. Therefore, based on the characteristics of the stairs and passageways in subway, the fundamental function we have to realize first is to lead passenger enter into and walk out of the station, transfer and buy tickets. Moreover, Hongtu Boulevard, as a transfer station, can realize airport transfer and lead passenger to polar ocean world. Thus we decide to design a theme for the subway advertisement in this station. Through giving a feeling of freshness to passengers, we avoid passenger's boredom and tediousness produced in taking subway; instead, we give passengers a sense of belonging and identity of their destination (Fig. 6).



**Fig. 6.**  The original design of subway advertisement environment

Taking into account the Hongtu Boulevard station set transfer station, traffic hub station, art stand in one, as designers we should give full consideration to this more complex spatial characteristics in the design implementation. In addition to providing passengers with safe, punctual, comfortable and pleasant environment, but also should meet the emotional needs of passengers and individual needs. In addition to the closed space, mobility and stability of the subway transfer channel space, the lack of natural flavor, easy to lose sense of direction is the most urgent problem to be solved. Therefore, the overall environment of the channel environment design is the main way, that is, the combination of wall and advertising design. Wall decoration materials, environmental protection, between stations and the recognition of the environment and the shaping of the atmosphere is our main consideration.

Hongtu Boulevard Station - Polar Ocean World's export channel functional attributes to determine the area is a full use of the scene design of the subway space, staircase aisle on both sides of the wall can use 3D stickers to create a blue ocean fantasy atmosphere, Advertising box can be used diving courtyard of the circular shape, in order to increase of interest and attractiveness. In Hongtu Avenue station transfer airport line transfer channel, the same can be used to identify the way to shape the functional attributes and environmental atmosphere, the wall design for the cabin effect, advertising frame shape in accordance with the aircraft window design. It can be found that different sites should be designed according to different actual needs. This needs to balance the commonality and individuality according to the site function and passenger demands, and build a diversified metro visual culture on the basis of uniform subway line identifications (Fig. 7).
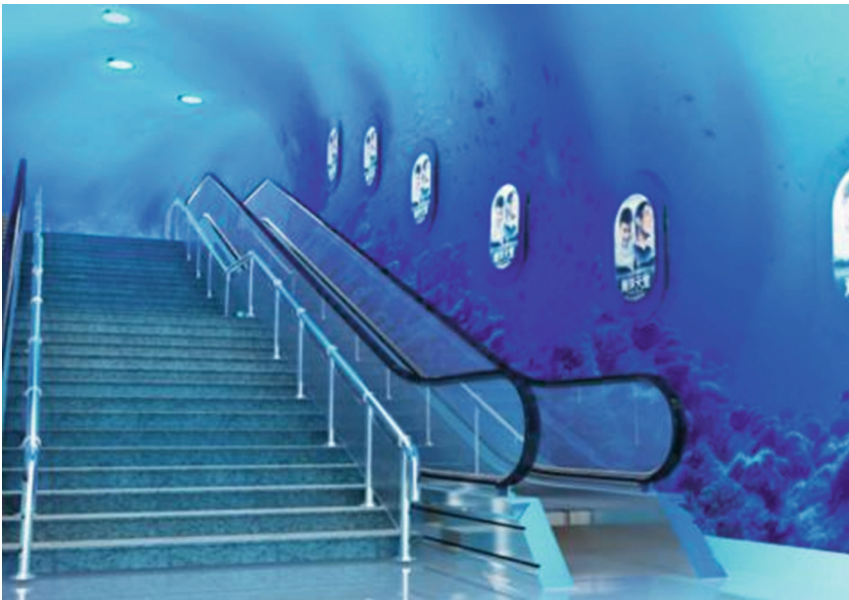


**Fig. 7.** The new design of subway advertisement environment

## 4.2  Design Evaluation of New Subway Site Scheme

To alternative to the original "gray space" atmosphere, passenger repression has been improved by the new design scheme, not only in the passenger senses to give a more profound spatial transition information, but also for advertising interest and attractiveness has also increased. Compared with the traditional design of subway space transfer, the new design scheme pays more attention to the personalized and humanized design of advertising design. According to the location function of the station, the spatial characteristics of the corridor, and the psychological characteristics of passengers in the subway space environment, in the design process should pay more attention to passengers in the station or transfer their psychological feelings. In the provision of visual guidance at the same time, through the theme, the scene of the space advertising design, to give passengers a different experience, we not only create higher service value but also raise attention of the advertisement.

For passengers, the new design scheme not only completed the transition of service functions, provides passengers a waiting, rest and transit sites, but also help passengers complete the user experience optimization, relax before the psychological characteristics of tension. As for the subway system, the personalization subway environment design try to bring more possibilities for future development. According to local conditions, user-oriented design to comprehensively upgrade the value of the subway service, for shaping and dissemination of the subway cultural value also have obvious effects and meanings.

From the design evaluation point of view, with feedback from the current interview information can be learned, the new design has been widely recognized by subway management side, subway engineering side, the representative passengers. Follow-up evaluation of the data details are in the process in order to further improvement and constant optimization.

## 5  Contribution

Based on the service design concept and research method, combined with advertising communication and environmental psychology, this paper points out that service design thinking should be an important dimension to be followed in the process of subway space advertisement design, In the specific analysis process, this paper analyzes the design principles and key points of the subway space advertisement design through the study of the behavior psychology of the passengers, the relationship between cognitive laws and the subway space environment, and puts forward relevant design methods and strategies. And selected typical cases for analysis. Through the combination of theory and practice, this paper explores the feasible methods and strategies for the future design of subway advertisement space. So as to achieve high-quality subway space advertising design provides a new thinking way.

## 6   Conclusion

With the continuous development of society and the improvement of life, the rich material of modern society and the highly developed science and technology, making that passengers needs of subway space advertising are rising. The public role of subway space will have more and more important social significance. From the perspective of urban sustainable development, it is necessary to locate the subway space advertisement design and its interactive mode from the perspective of service design, pay more attention to the study of subway environmental impact and human behavior needs. In the subway space advertising design under service design ideas, will be able to focus on the subway passenger physical, psychological, cultural and other aspects of the real needs. Service design adhere to the "user-oriented" orientation, emphasizing the comprehensive study of multi-disciplinary, for the subway space advertisement design is very urgent need.

Compared with other public spaces, the space of subway advertisement has its distinctive features. To discuss the design of subway advertisement from the perspective of service-oriented design, we have to make analysis of subway environment and user characteristics and take the value created by service design and the expected user experience as the objective. Combining with mature new media and interactive technique, we provide a brand new experience and feeling to passengers by the application of sense judgement, emotional experience, thought experience, action experience and relevance experience in subway advertisement. The study of service design thought into subway advertisement design will promote the construction and development of urban subway service and put forward a service solution with social value, user value and economic value.

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