A Study of Integration of the System Elements as Service

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ABSTRACT

The definition of service design is to integrate various elements related to human into service using user experience, story and meaning and make it a valuable system. In service engineering, it define service design as “It define value proposition of service, and make its structure of function clear”. Functional structure of service consists function proposed values and structure of implementation and network of relationship between stakeholders proposed values. Service contain both tangible and intangible in its functional structure. This study define service as a system based on systems approach, and It make clear that service system consist system elements of business, UX, technology. In short it define value proposition of system elements for implementation of service, and it is necessary to consider each restrictions between system elements and have to design function of value proposition. Business element are function of marketing research, business model, pricing, planning of income and expenditure. UX element are function of value proposition, journey map, and persona. Technology are function of definition of system requirement, usecase, definition of function requirement, interface design.

Keywords: Service, System, Business, User Experience, Technology,

1. Introduction

The definition of service design is to integrate various elements related to human into service using user experience, story and meaning and make it a valuable system. This is Prof. Yamaoka Proposed.

In recent years, the attention of service design has increased, but academically clear definition still does not exist. Also, it is argued that the purpose of service design is realization of customer-centric management and permanent improvement of customer experience [1].

In this research, as a method of designing complex services, we propose a method of defining services by integration of system elements, using the concept of system approach to define services as systems.

2. Definition of Service

Service is said to have four characteristics of intangibility, simultaneity, annihilation, heterogeneity [2]. Intangibility: Services cannot touch as things
Simultaneity: The service exists only when the recipient accepts the service from the provider
Annihilation: After the service is finished, the service no longer exists
Heterogeneity: The value depends on the recipient of the service

In service engineering, it define service design as “It define value proposition of service, and make its structure of function clear”. Functional structure of service consists function proposed values and structure of implementation and network of relationship between stakeholders proposed values. Service contain both tangible and intangible in its functional structure.

Therefore, in the design of the functional structure of the service, both of them are subject to the design.

Services are defined as above, but there are various approaches to the actual design method and it is an interdisciplinary research field [3].

Traditionally, service related research has been carried out individually in business science, marketing, information engineering and design engineering, and it has d
developed. However, in order to realize a good service that is good from the customer's point of view, cooperation between social science, human science and science and engineering is necessary, and the integration of industry practice and academic circle theory is necessary. In this way, it is necessary to develop a system that establishes academic understanding for services and co-creates high customer satisfaction with customers [4].

3. Problem of Service Design

One of the approaches for service design is User Experience (UX).

UX is defined as the perception and reaction of people arising from the use of products, systems, services, and/or anticipated usage [5].

Here we include all of the emotions, beliefs, preferences, perceptions, physiological and psychological responses, attitudes, and achievements of users that occur before, during, and after use of the targeted service.

The five principles of service design thinking define Co-Creative, Sequencing, Evidencing, and Holistic besides User-Centred [6].

The concrete approaches are listed as concepts of iterative process and AT-ONE method from the viewpoint of Actor, Touchpoint, Offer, Needs, Experience and finally integrating them into Holistic Is.

4. Service as a System

In order to actually release the service, in addition to UX, it is necessary to consider services by combining the viability of the business and the feasibility of the technology. These elements are in the enabler relationship for service realization.

If it use systems approach for service, the integration of the system elements must establish the relationship between the effects that organizing the elements has on their interactions and how these effects enable system to achieve its purpose [8]

So this study define service as a system based on systems approach, and It make clear that service

![Figure 1. General purpose system design process (Yamaoka, 2013)](image-url)
system consists system elements of business, UX, technology.

As shown in Figure 2, each system element can be represented as an independent design or operation.

In short, it defines value proposition of system elements for implementation of service, and it is necessary to consider each restriction between system elements and have to design function of value proposition.

5. System elements constituting the service

5.1 Business

Business system element are function of marketing research, business model, pricing, planning of income and expenditure.

The business plan of the service is designed with this elemental approach based on business administration. Especially the price of the service greatly influences the value judgment for the customer.

5.2 UX

UX system element are function of value proposition, journey map, and persona.

The experience value based on ergonomics, design studies, cognitive psychology approach is designed with this element.

UX not only improves the attractiveness of the service but also brings about sustained engagement with customers.

5.2 Technology

Technology system element are function of definition of system requirement, use case, definition of function requirement, interface design.

Engineering-based approach designs technology indispensable for realization of service with this element.

Regardless of hardware and software, functions and physics specify the form of service provision.

4. Discussion

This study define service as a system based on systems approach, and it make clear that service system consists system elements of business, UX, technology.

We will evaluate V & V in actual project and clarify the evaluation of system approach of service design in future research.

In recent years services have become large and complicated, and it is becoming difficult to express as a figure.

![Figure 2. Model of service as system](image)
single system.

Therefore, it is also necessary to design it as a system of systems by a plurality of service systems.

Based on the human-centered thinking, it is increasingly required to draw a balanced service of UX, business, and technology systems.

References