

FUTURE AGENDA FOR THE SERVICE DESIGN METHODOLOGY

Akira Kondo¹, Naoko Kondo², Toshiharu Taura³, Yukari Nagai⁴

¹JAIST-Tokyo MOT, Graduate School of Knowledge Science, Japan Advanced Institute of Science and Technology, s0650505@jaist.ac.jp, ²CareBrains, Inc., Chiba JAPAN, kondo@carebrains.co.jp, ³ Kobe Univ./JAIST, taura@kobe-u.ac.jp, ⁴ JAIST Graduate School of Knowledge Science, ynagai@jaist.ac.jp

ABSTRACT:

The manufacturing industries have developed with the focus on the "product" as "MONO". However, a many people now feel that value is based on the user's experience as "KOTO", which is also called "service". User satisfaction now depends on whether the user feels good about the service or the product. "Innovative America" as conceived in the Palmisano Report, published in 2004, will depend on the competitive power of the U.S. service industries.

This paper considers the methodology to build a practical service business model from the concept of service as a knowledge creating activity. We would like to present the future direction of the methodology by examining the entire service design process and related process management issues.

1. INTRODUCTION

As Alvin Toffler pointed out in "The Third Wave", the manufacturing economy developed in the 20th century focused on the "product", but the world's standard has now changed to focusing on the experience of "service" when making a judgment on user satisfaction.

The future competitive power of the U.S. will depend on its service industries, according to the Palmisano Report published in 2004. Such a world is also referred to as the "Knowledge Society". Designer should be concerned about not only outward appearances but also services quality in the service economy world. I think that user's demand will change by time and situation in such a world, so we should research service design methodology.

This paper examines the service design methodology from the viewpoint of knowledge science, starting from the "SECI model" of knowledge creation, based on my survey of design and information engineering methods and economics theories.

This paper describes ISO13407 in design engineering field. ISO13407 considers the "human-centered design" process, in which products and services are designed for the purpose of satisfying the user. Demand engineering and CMM (Capability Maturity Model) are focused in information and system engineering. Furthermore, related research in service business administration, such as service marketing and service management, is reviewed. The characteristics of service design, such as simultaneity, disappearance nature, immaterial nature, heterogeneity are also taken into consideration. The paper will then conclude by looking at the direction of the methodology.

2. KNOWLEDGE SCIENCE

2. 1. DESCRIPTION OF KNOWLEDGE SCIENCE

Although knowledge science is not yet an established academic field, I would like to refer to Mr. Sugiyama of JAIST, who took the first initiative worldwide to conduct knowledge scientific inquiry. Knowledge

science is, according to him, "to rebuild the education system and find the knowledge creation mechanisms in wide-ranging academic subjects from natural science to social science".

I think service design is composed of the knowledge creation activities that find out how best to constitute human, objects, time, and system appropriately.

2. 2. SECI MODEL

The SECI model is a model of knowledge creation which Dr. Ikujiro Nonaka proposed and which involves the following processes:

New wisdom emerges as people socialize with one another. [S process]

The wisdom is turned into an expressed form. [E process]

By connecting various such wisdoms, newer wisdom emerges. [C process]

Such newer wisdom comes to be internalized and harnessed. [I process]

In this spiral model, knowledge gets created as the spiral goes up and grows large.

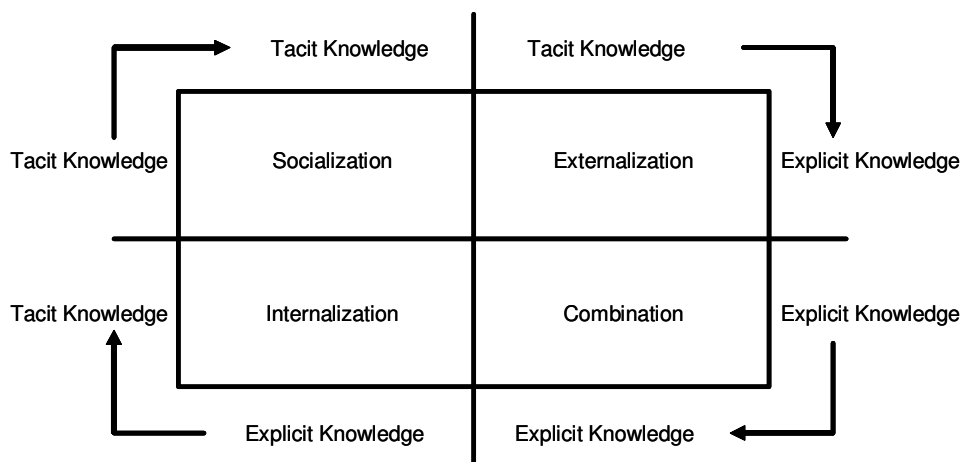


Figure 1: SECI Model [Ikujiro Nonaka (1996)]

This paper examines the model of knowledge creation as a methodology for practical service design.

3. DESIGN ENGINEERING

3. 1. DESCRIPTION OF DESIGN ENGINEERING

Design engineering has focused on designing real objects as "MONO" to enrich human life. Design researchers have studied various learning domains, such as aesthetics, architecture, ergonomics, and material engineering, in a cross-disciplinary manner.

In recent years, research on "experience" is growing in popularity in areas like information design study, leading to more research on human-centered design focusing on use quality.

3. 2. HUMAN-CENTERD DESIGN

Human-centered design is a recent movement towards design for more user satisfaction. Many organizations have played a part in this movement by following the ISO13407 standard.

3. 3. ISO13407

ISO13407 is a standard for human-centered design. The standard advocates incorporating user's voices in the design process and designing products that are easier to use. It aims to implement product quality, improvement and assurance in the management system with a view towards deeper relations with users.

The user develops simultaneously with the product. Both become more skilled in relation to the operation of a product. However, the ISO13407 business process provides for only one cycle for raising the degree of satisfaction of a product or a service. I can say that this is not adequate.

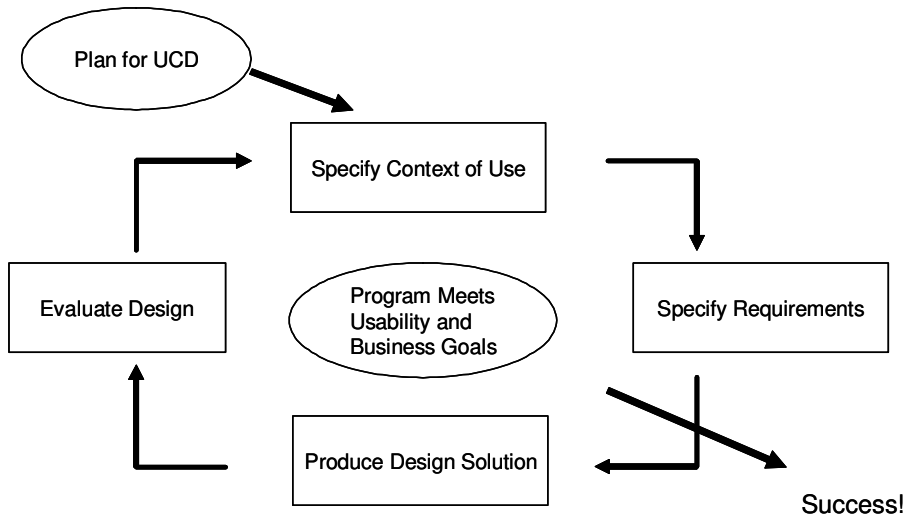


Figure 2: ISO13407 Basic Cycle [Masaaki Kurosu (2001)]

ISO13407 provides for knowledge sharing with the user on related elements.

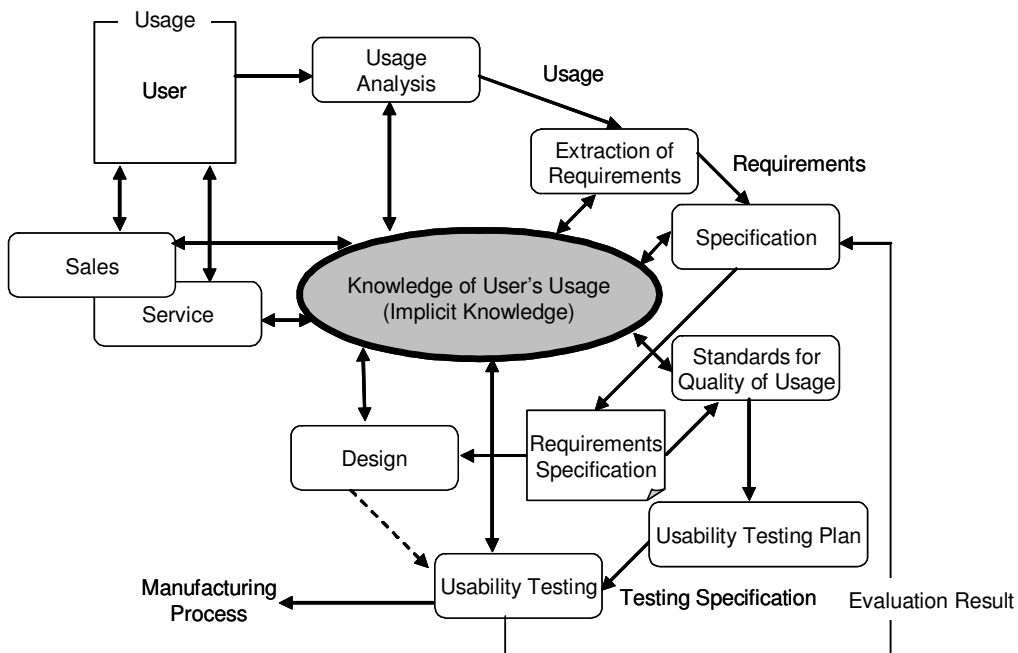


Figure 3: Knowledge Relation Structure [Masaaki Kurosu (2001)]

This model also changes with time. It is necessary to regard it as what carries the rising spiral in a process of knowledge sharing like the SECI model.

4. SERVICE BUSINESS ECONOMICS

4. 1. DESCRIPTION OF SERVICE BUSINESS ECONOMICS

Business economics is concerned about "how the company is managed in an environment seen as a social system". With "service business economics", the focus is on "service", and it is about how to manage a service business.

4. 2. SERVICE MARKETING

In conventional research, both western countries and Japan have continued to focus on "human service goods". Into the 21st century, P. Kotler advocates holistic marketing as a new framework.

The framework shows that marketing has extended itself in response to the digital revolution. Now, a company, a customer, and an enterprise partner interact on an electronic network, with the expectation that dynamic and comprehensive marketing will be developed. When designing present-day service, there are research findings that show the constituent factors.

The "place" where the business of a product or service is constituted is shown in Fig. 4. On this platform, it can be said that the characteristic of service is captured from a business perspective.

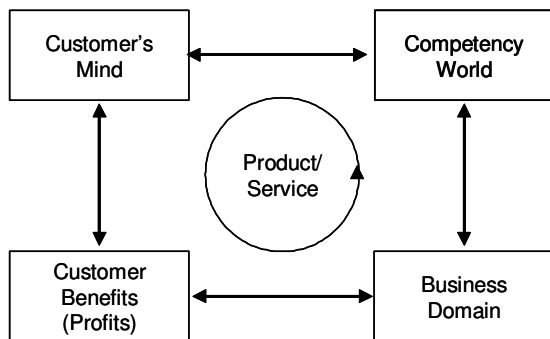


Figure 4: Platform of Product/Service [Philip Kotler (2002)]

In this area of investigation, researchers think that knowledge about the elements in the process of knowledge creation can be acquired.

4. 3. SERVICE MANAGEMENT

ITIL is a systematic guideline on employment and the administrative tasks of the computer systems upon which the British government decided in the field of ITC in recent years.

ITIL is intended to show the methodology that improves information systems continuously. The idea is also applicable to service design.

In this area of investigation, suggestions about ways to increase the validity of the model were obtained. It is contrasted with the result of a case study in the actual world, after the methodology of the service design has been modeled from the viewpoint of knowledge creation.

5. INFORMATION ENGINEERING

5. 1. DESCRIPTION OF INFORMATION ENGINEERING

Information engineering can be notionally referred to as "the synthetic field for using information in engineering, and involves generating of information, transfer of information, collection of information, accumulation of information, and processing of information".

5. 2. DEMAND ENGINEERING

This technique to manage the development process is shown in Figure 5 below. It is the content that carries the focus of the information system. This is a technique to manage by a documentation to develop a service continuously.

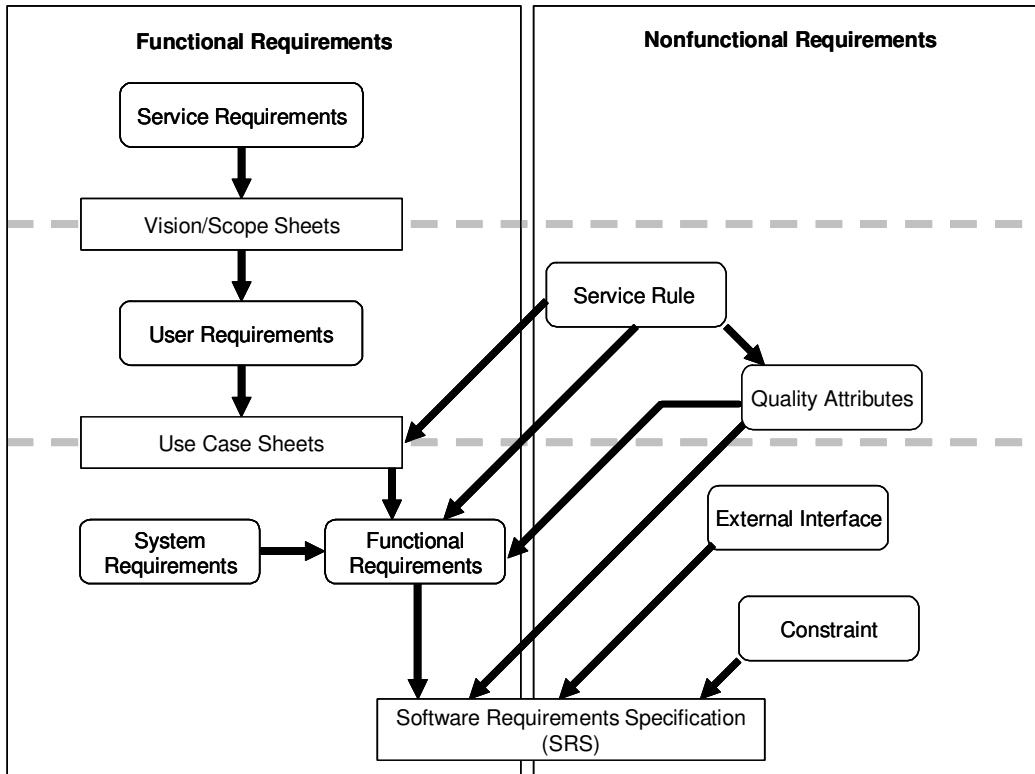


Figure 5: Requirements of Engineering Process [Karl E. Wilegers (2003)]

5. 3. CMM

As a model for the assessing a development process, CMM (Capability Maturity Model) as developed by the Software Engineering Research Institute of Carnegie Mellon University offers a way to measure a project team's readiness in terms of certain requirements for development, or its maturity in terms of the levels of the model.

With this model, assessment is carried out on the capability maturity of the project team engaged in the development process, but the user's maturity is not taken into consideration.

However, in a user participation type of design process, a user can also be regarded as a project member.

In the SECI model, by demand engineering, if the concrete method of combination is shown in the documentation of externalization and also process management, it will be caught especially in the area of information engineering.

6. CONCLUSION

6. 1. RESEARCH ISSURE

It is clear that there are plenty of research findings to refer to when developing the methodology of service design. Service at present-age connects with information systems through the Internet infrastructure. It is important whether a design brings user satisfaction. Previous research should be mapped from such a viewpoint.

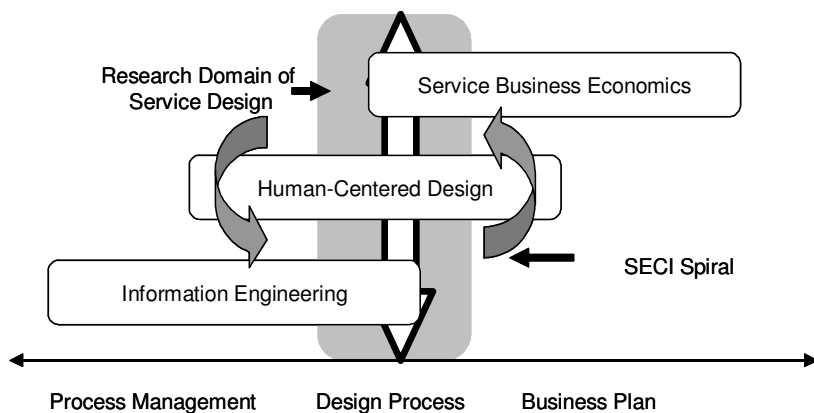


Figure 6: Service Research Domain.

A methodology and a system will be needed for service in the knowledge society under collaboration between the user and the service provider as shown in the above-mentioned figure without any difficulties. Moreover, in spite that service should be changed by time, situation and user, former researches have not been focused on the changing service process design. We should think about how to improve and maintain a service quality in business activities.

Although the methodology for human-centered design is complete notionally and is provided also by the ISO standard for design engineering, it has not come to be used in service business yet.

To implement it in actual business, I think that the technique of process management for developing information systems in the field of information engineering is helpful.

Moreover, it is necessary to develop the service designed with such methodology from the viewpoint of service business administration in order for it to grow. Development of new marketing techniques will also be needed. The service should be based also on what is accepted in society, and validated by the existing research.

6. 2. FUTURE DEVELOPMENT

I could consider the process of knowledge creation in a service design, and get useful suggestions from related research.

The research task will be tackled from now on. The user who receives service will get priority of attention over the expert who provides service. When the requirements of the service are embodied appropriately, the process will be clearly understood.

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