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A Service Value Creation Model and the Role of Ethnography

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1. Introduction

The importance of services has been growing in various fields in the 21st century. Service science has become a common thread in information and knowledge industries. Various service research proposals have been put forward, such as Service Dominant Logic (SDL) (Lusch & Vargo, 2006), persona marketing (Pruitt & Adlin, 2007), and service as a theater (Fisk et al., 2008). These new service-related concepts are based on the idea of “value in use”. At issue is how the person who receives a service recognizes the value of the received service. That is, discussions on service value are important to service businesses.

The application of ethnographic knowledge to services is one such direction of research. New terminology, e.g., “business ethnography” or “ethnography for marketers”, has emerged. Why is ethnography so important in service science? What is the role of ethnography in service value creation? The answers to these questions are very important if ethnographic knowledge is to be of use in service science. However, there is no theoretical foundation as yet. This chapter proposes the new theoretical framework for service value creation based on the concepts of the service field, which can explain the relationship between service value and ethnography.

In general, the value of a provided service depends on the situation (human characteristics, needs, place, time, cost, etc.). Even if an identical service is provided, its service value will still depend on the specific human characteristics involved and the particular situation. The “value in use” concept in SDL (Lusch & Vargo, 2006), for example, depends on the situation. Also, context-aware service (Kolari et al., 2004) considers the relationship between service value and its situation. However, to the best of our knowledge, there is no previous research that offers a theoretical framework for service value creation in which the situation-dependent characteristics of service value are considered.

We propose using a new concept to create a service value that depends on the situation. This concept is derived from the physical theory of the electromagnetic field, wherein the electromagnetic power is determined by the relation between the electric charge and the electromagnetic field. According to this analogy, the service value for customers is determined by the relation between the provided service and the situation where the service is provided. The identification of the service field is very important in this model, and technologies for analyzing human behavior such as ethnography, brain activity

measurements, and word-of-mouth data analysis, are indispensable for identifying the service field. In particular, ethnography provides a new methodology by observing human behavior, and it gives a different viewpoint from those of conventional methodologies such as questionnaire/interview analysis.

In this chapter, a systems engineering approach incorporating various humanities related fields of study such as ethnography is proposed for creating high service value for customers. First, the importance of service research in industry is explained. Then, the concept of the service system and the service field is explained, and it is shown that proper identification of the service field is very important for creating high service value. An ethnographic methodology is introduced as a way to identify the service field based on the findings presented in previous books on business ethnography and marketing ethnography (Mariampolski, 2006). After that, a successful example is presented to show the effectiveness of the ethnography methodology. Finally, a service innovation creation model in industry and a service management education curriculum based on the service value creation methodology are described.

2. Importance of service research in industry

2.1 Importance of innovation

There are many types of service business. They range from traditional services such as hotel, travel, maintenance, and outsourcing to new services with new business models such as those offered through the Internet. The importance of innovation in services has been discussed in various industries as a means of obtaining competitive advantages. As the name implies, services innovation fuses two methodologies. The first focuses on innovation in current service industries. It aims to give the means to improve productivity and quality in service industries such as hotel lodging, travel, and so on. The second methodology focuses on applying service concepts and individual service approaches. It emphasizes new value creation by using information technology to help customers in the 21st century. The rise of Google, mobile phone services, and IC card applications is clear indication that such an emphasis is needed. In this sense, service innovation is an important business issue in the era of the Internet and globalization.

Specifically, the targets of service innovation in 21st century are as follows:

1. Convergence of IT technology and services in the development and provision of new services
2. Servitization in the manufacturing industry
3. IT 'solution' services for various industries
4. Services in the information industry

To create such new services, service innovators should have skills in human science, social science, IT technology, and management. Their abilities range from conceptualizing a new service and being able to perform system integration to being able to empathize with service recipients and understand their needs.

There are two major reasons for stressing the importance of service innovation. One is the impact of IT technologies, and the other is the influence of product commoditization.

2.1.1 Impact of IT technologies

IT technologies have become indispensable in various industries. In particular, various IT technologies, including the Internet, smart terminals, data mining, etc., are being utilized to improve service quality and enhance value. As shown in Figure 1, they are used in the front stage, networks and in the back stage of the service system.

- a. **Front Stage**
The front stage of a service includes ubiquitous information terminals, such as car information systems, mobile phones, tablets, etc., which provide user interfaces with a network service environment. These intelligent terminals enable people to utilize information services through the Internet anytime and everywhere. Self-service functions on terminals such as ATM machines in banks also improve service productivity.
- b. **Back Stage**
Various information technologies, such as data mining technology, are used in the back stage to analyze customer data for marketing purposes. The results of these analyses can be used raise customer satisfaction and improve quality of service.
- c. **Network**
The most important network is the Internet. The Internet aggregates various services and provides them to the world at a very low cost. Many new business models have been created by using the Internet, and the long tail business model is one such example.

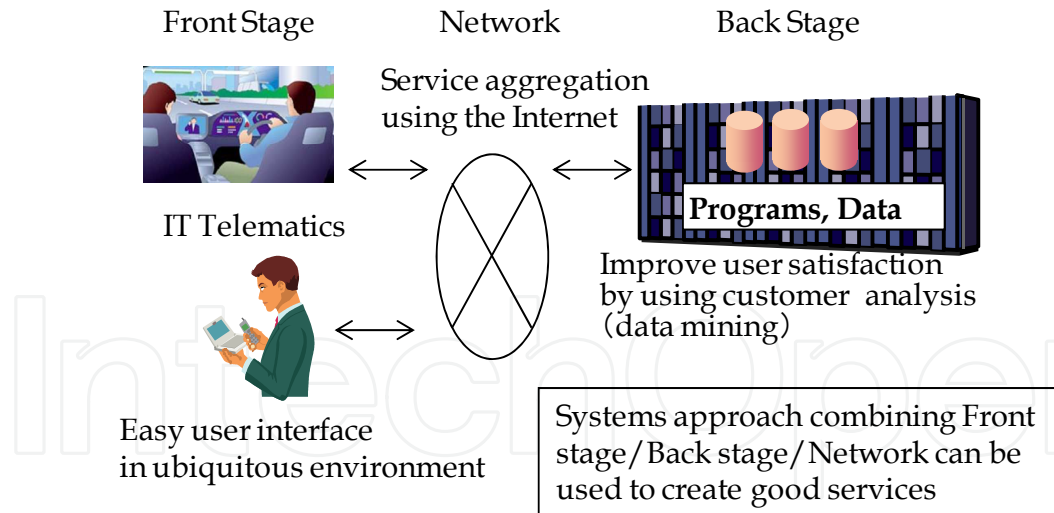


Fig. 1. ICT for service innovation

2.1.2 Impact of product commoditization

Figure 2 illustrates the concept of the customers' total value, as defined by Kameoka (Kameoka, 2007). The customers' total value consists of product value, service value provided by service providers, and customers' added value. Many products have become commoditized, and the value of products is in general decreasing. Consequently, services have become a larger portion of the customers' total value (Fig. 2). In particular,

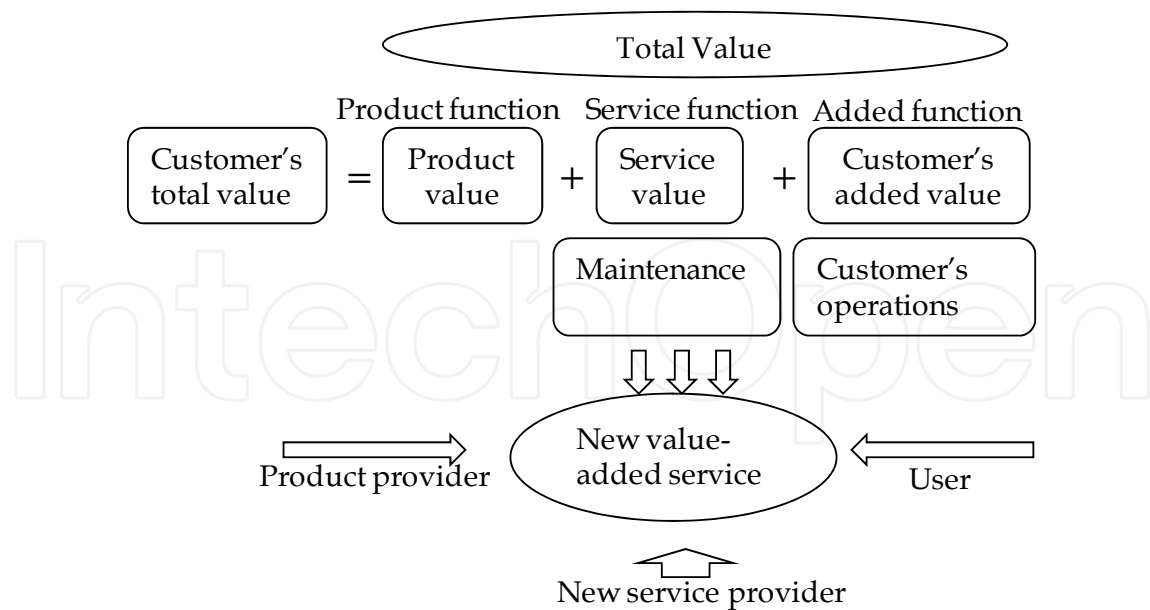


Fig. 2. Customers' total value, as defined by Kameoka

servitization in manufacturing is a key issue for obtaining a competitive advantage, and service value creation is indispensable for customers in 21st century. In knowledge science, a service can be defined as a knowledge creation process for customers' value, and knowledge creation for new service value is essential for service innovation. A value added service can be created by a product provider, new service provider, and user collaborating, and this activity leads to service innovation. The above definition of service value creation means that it is relevant not only to the traditional service industry but also to manufacturing and the information industry.

2.2 Service dominant logic (SDL) and goods dominant logic (GDL)

New concepts related to service science have been proposed. Vargo proposed the service dominant logic (SDL) concept and argued that our economy has shifted from a goods economy to a service economy (Lusch & Vargo, 2006). The key point of SDL is that its determination of value is different from that of goods dominant logic (GDL). In GDL, the value is determined by the producers, whereas in SDL, the value is determined by the customer on the basis of "value in use". Figure 3 compares SDL and GDL. Many service science researchers have examined the SDL concept and are looking for ways to maximize customer or personal satisfaction by combining it with the concept of "value in use." SDL leads to a new viewpoint of service through extension of its concept to include goods. This concept is very suitable for explaining global business in the 21st century. Moreover, the concept of "value in use" is essential in the service businesses of the new era.

3. Concept of the service system and service field

As regards service innovation, it is important to create service value for customers. In this section, such an activity is modelled as a service system, and a new concept, that of the service field, is introduced in order to create high service value. After that, it is explained that the service field must be identified in order to create service value for customers.

Dominant logic	Goods	Service
Role of the customer	The customer is the recipient of goods	The customer is a co-producer of the service
Determination and meaning of value	Value is determined by the producer	Value is perceived and determined by the consumer on the basis of "value in use"
Interaction	Customers are acted on to create transactions with resources	Customers are active participants

Fig. 3. Comparison of SDL and GDL

3.1 Definition of the service system

According to Kameoka (Kameoka, 2007), service is the activity of supporting human beings or organizations to enable them to achieve their objectives or desires. Sadahiko Oda, the chairman of Kagaya, Co., a famous Japanese spa hotel and a well-known services oriented company, describes service as an activity that provides professional techniques, satisfies the customer, and results in compensation for the service provider. According to these definitions, service is the most productive of human activities, and it covers various business activities. These definitions are illustrated in Figure 4.

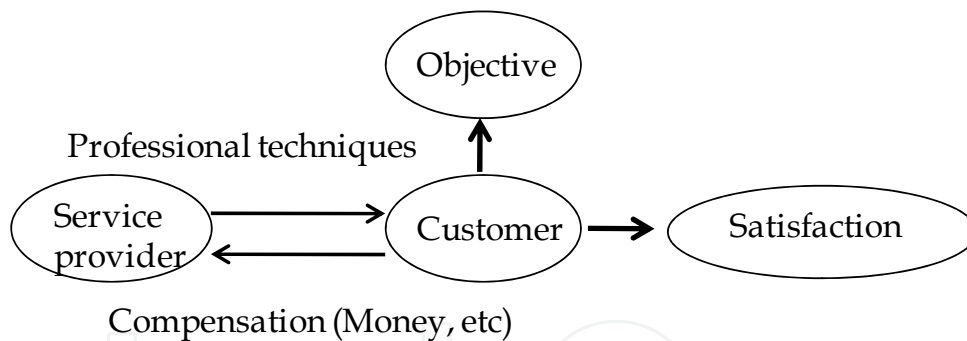


Fig. 4. Definitions of service

According to the above definitions, a service activity consists of three factors:

1. Service providers who perform professional techniques,
2. Customers who feel satisfaction from provided services, and
3. Customers who award compensate, usually in the the form of money, the provider for its services.

According to SDL, service value for customers is created through a collaboration between service providers and customers. A service can be described as a system (Fig. 5) that consists of customers, service providers, and service co-creation activities. In other words, a service system includes human beings, and its objective is to maximize the service value for customers as regards their objectives in order to assure their satisfaction. Various technologies related to human beings or system sciences are used to maximize the level of satisfaction.

The relationship between customers and service providers (the providers could be people, information systems, or social infrastructures) is very important in the service system. Three types of technology or methodology are required to maximize customers satisfaction. The first is a kind of human-related transdisciplinary technology for analyzing customers. It could be persona marketing, brain science, ethnography, etc. The second is a technology or methodology for co-creation of service value, e.g., service as a theater (Fisk et al., 2008), “Ba” in knowledge management (Nonaka & Takeuchi, 1995). The third is various system engineering technology for optimizing the service, such as service integration, simulation, optimization, and so on. Figure 5 shows that systems engineering approach seems to be an effective way of service value creation.

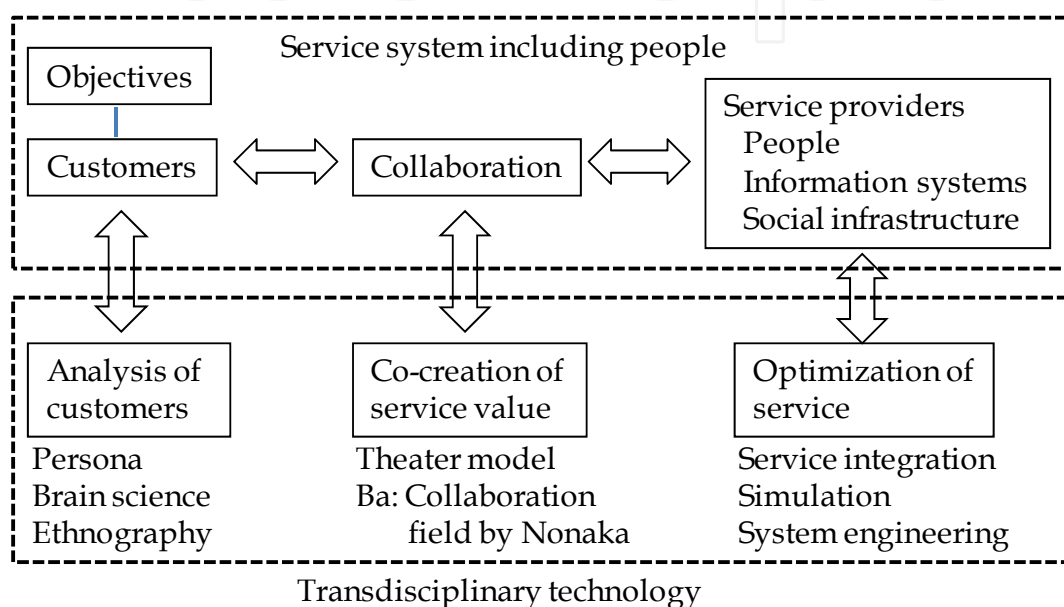


Fig. 5. Service system

3.2 The concept of the service field

In general, the value of a provided service depends on the situation (consumer characteristics, needs, place, time, cost, etc.). Even if an identical service is provided, the service value may differ due to the consumer's characteristics or situation. The “value in use” concept in SDL (Lusch & Vargo, 2006) greatly depends on the situation. Note that context-aware service also considers the relationship between the service value and the situation. However, there is no previous research that provides a theoretical framework for service value creation considering situation-dependent characteristics.

In this chapter, the concept of using a service field in service systems is proposed for creating service values dependent on the situation. This concept is an analogy of the electromagnetic field, where electromagnetic power is determined by the relation between the electric charge and the electromagnetic field. According to this analogy, the service value is determined based on the relation between the provided service and its situation.

In electromagnetic field theory, the electromagnetic power F is given by the equation $F = q \cdot (E + v \times B)$, where q is the electric charge, E is the electric field, B is the magnetic field, and v is velocity of the electron. In theory, even if charge q is large, there is no

electromagnetic power if there is no electromagnetic field. This relationship can be used to describe the creation of service value. Even if the service quality is high, there is no service value if the service is not required by a customer; that is, if there is no service field. The service value is determined by the relationship between a service and its service field, which shows how the customer needs the service.

The service field model can be specified as $(\text{Service value}) = (\text{Service}) \times (\text{Service field})$, where \times denotes the relationship between the service and the service field. The concept of the service field is shown in Figure 6. A high service value for the customer is generated when the services are provided in accordance with high potential values in the service field. A high potential means that the requirement for the provided service is high. Otherwise, the provided services cannot obtain a high service value. To maximize the service value, a service field should first be identified, then suitable services should be provided that correspond to the customers' characteristics and/or requirements.

This new proposal to create and improve service values is based on service fields and service systems, and it can be applied to various services where providers and receivers co-create service values. This means that the service system and the concept of service fields are applicable to modeling service value creation.

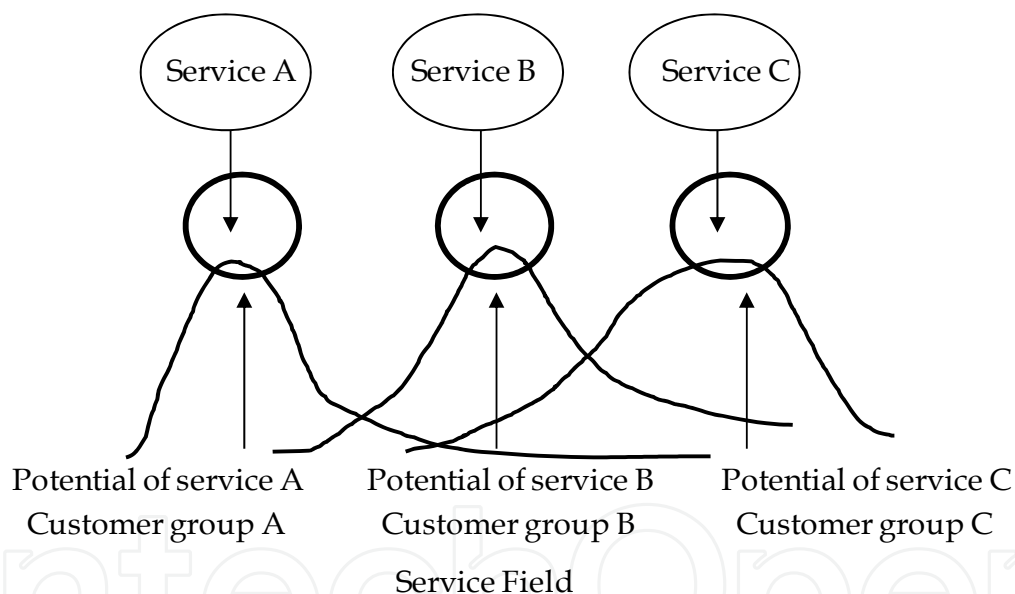


Fig. 6. Potential of a service in the service field

3.3 Identification of service fields

Figure 7 shows the basic idea of identifying a service field to create high service value. Once the service field is identified, it is easy to determine what kind of service is most preferable for the target customer. Once the field is identified, the most optimal service can be provided. The service field is determined by the relationship between customers and target services, and it expresses the intensity of the service requirement.

The service field should be identified to clarify what services are required by customers in various environments and situations. The procedure of such a methodology consists of three steps:

1. Collect data related to human behavior, thoughts and opinions, and so on,
2. Analyze data using various methods or technologies, and
3. Draw conclusions from the analyses.

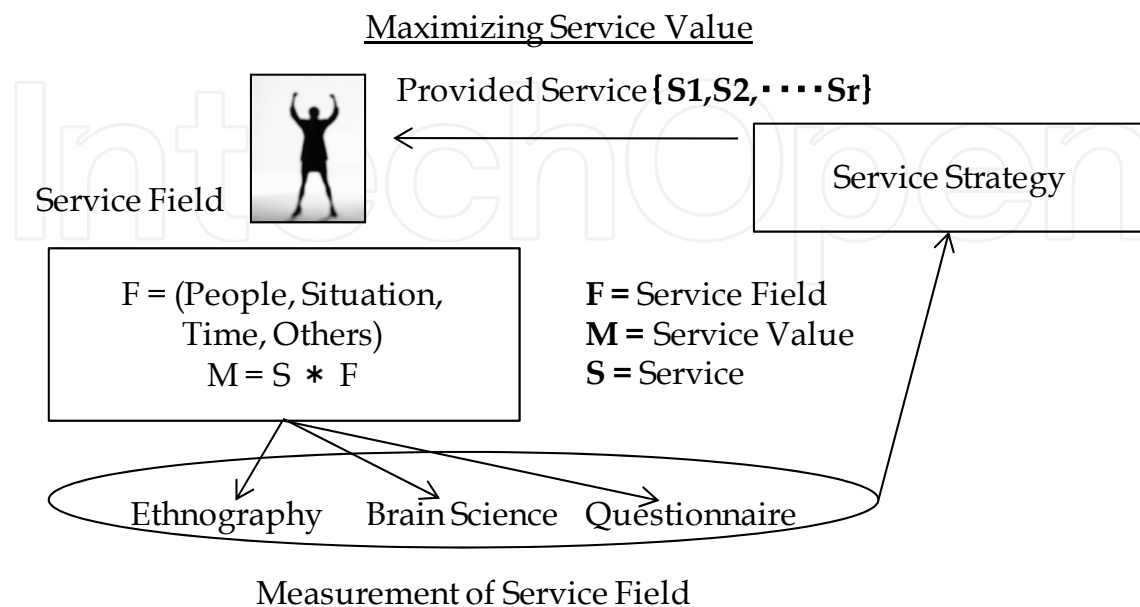


Fig. 7. Identification of service field

There are many conventional methodologies related to the identification of service fields, and they mainly fall into the categories of field research or questionnaire analysis in marketing. Recently, IT technology and brain science have been employed to analyze users' needs or inclinations. Ethnography has also been put to use for identifying users' needs in business or marketing through observations of human behavior. These methodologies are summarized as follows.

1. Conventional interview or questionnaire analysis
Interviews and questionnaires are popular in conventional marketing surveys. These analyses collect interviewees' thoughts about a target product or service. The unstructured interview method is used for the sake of flexibility as regards the interview situation. The collected data are subjective and are affected by the intentions or biases of the interviewees. Therefore, the results of such an analysis are sometimes different from the true or actual needs.
2. Ethnography
Ethnography, which has been employed in anthropological and sociological studies, has been introduced to business for the purposes of marketing, design, and organizational restructuring. Ethnography in business aims at clarifying customers' needs by observing the behaviors of target peoples, recording them in the form of field notes, pictures, and video data, and analyzing these data. Through field work at real sites, ethnographers obtain findings related to the customers' true needs. However, the findings derived from ethnographic observations depend on ethnographers' subjectivity and ability, and ethnography is hence a qualitative form of research. The ethnographic approach to identifying customers' needs is described in Section 4.

3. IT technologies

IT technologies such as POS terminals or data mining technology have been utilized for identifying users' needs in the distribution industry and other service industries. The collected data in these cases are usually objective sales data or operations data. IT technologies are useful for identifying the service field. They are good for clarifying the users' true needs and enhancing the service quality. The most important form of IT is the Internet. In the Internet, there are many kinds of customer data, such as word-of-mouth data, web site access records, and so on. Service requirements and/or service satisfaction data are obtained and analyzed from word-of-mouth and questionnaire data collected from the Internet, the service field associated with the target customers is identified, a suitable service is provided, and ideally the customers are very satisfied. IT technologies are used for collecting and analyzing consumer data to identify the service field. Thus, IT is one of the most important factors in service innovation. For examples, IT has frequently been used to identify the service field during maintenance operations in manufacturing and for analyzing customer needs in Internet service businesses.

KOMTRAX (Kitatani, 2010) is a successful system of Komatsu, Ltd that collects real-time operation data about its products (construction machines) from all over the world and provides information related to the maintenance schedules and details of the target products. It is a way of identifying the service field associated with the products. The KOMTRAX system also offers a suitable service recommendation depending on the service field situation.

In most of the successful cases where IT has been utilized for service innovation, the role of IT has been to measure and identify the service field of the target customers.

4. "Human" technologies

Recently, "human" technologies, such as those used in brain science (Shirahada et al., 2010) and eye tracking equipment, have been used for the purposes of marketing, design, and so on. These technologies are very effective for identifying the service field because service value is dependent on the characteristics and thoughts and opinions of people.

For example, brain measurement technologies such as NIRS (Near Infrared Spectroscopy) can measure brain activities related to the feeling of satisfaction or decision making (Shirahada et al., 2010) and eye tracking technology can analyze eye movements in relation to the provided services. Accordingly, feelings of satisfaction can be quantitatively analyzed. A combination of brain measurements and eye tracking seems to be a promising methodology for identifying service fields from human characteristics.

3.4 Integrated methodology for identifying service fields

These methodologies have their own characteristics and can be categorized according to some criterion. For instance, ethnography and interviews belong to the realm of qualitative research; on the other hand, data analysis using IT or brain measurements are forms of quantitative research. Figure 8 shows a categorization of these methodologies from the viewpoint of whether they are subjective or objective about the data source and the analysis.

As explained above, there are many methodologies for identifying service fields. They have different characteristics, but their objective of identifying the service field is the same. That means these methodologies can be integrated to give a more precise identification.

		Data source	
		Subjective	Objective
Data analysis	Subjective	Interview analysis	Ethnography
	Objective	Questionnaire analysis	ICT technology Brain measurements Eye tracking

Fig. 8. Categorization of methodologies for identifying service fields

In systems engineering, the integration of many methodologies for identifying the same target will result in a more precise identification than would be possible with just one methodology. For example, in the case of multi-sensor tracking (Kosaka et al., 1987), sensor integration (different kinds of sensor data are integrated in some way) can obtain a more precise estimate of a target's situation. An analogy of multi-sensor tracking can be used to identify the service field. That is, the methodologies shown in Figure 8 can be integrated into one to identify the specific service field.

Figure 9 shows the concept of methodology integration for identifying the service field. How to integrate such methodologies will be an issue of future studies in this field.

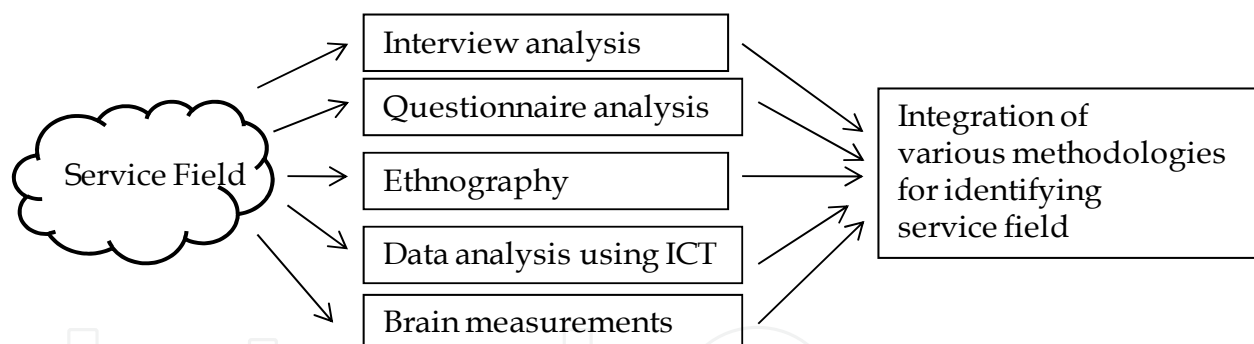


Fig. 9. Integration of various methodologies for identifying service fields

4. Role of ethnography in service value creation

The service field is formed from human characteristics, contexts, needs, and situations. Human factors have an especially significant impact. To identify the service field precisely, various approaches and their combination are required, as described in section 3.4. Ethnography is a qualitative form of research and provides a different viewpoint from that of conventional quantitative methodologies such as questionnaire analysis, customer data analysis using IT technology, and so on.

This section briefly summarizes the application of ethnography to business situations and demonstrates that it is useful for creating service value through an example of persona marketing.

4.1 Basic idea of business ethnography

Ethnography was originally developed to study social life and institutions on a scientific basis. Anthropological and sociological studies are carried out through on-site observations, field work, and qualitative research. In classical ethnography, ethnographers may stay on-site for a long time. The characteristics of ethnography are observation without prejudice, learning from observation, context awareness, and using the ethnographer's intuition for revealing the reality or truth of their targets of study. These features of ethnography are suitable for gaining insights on consumer roles and for learning good product usage. The ethnographic methodology has been used in business for purposes of marketing, design, and organizational management. These aspects of business are deeply related to human intentions and characteristics. The characteristics of ethnography as a form of qualitative research are summarized as follows:

1. Reality: finding the truth from on-site observations
2. Collecting data only by observing targets on-site
3. Improvisation
4. Understanding in context
5. Intuition
6. Bridging from one to the other

Let's consider how ethnography is of use in product or service marketing where ethnographers observe how customers use the target product or service. This observation is done at the site where customers use products or services (reality (1)). The observed data are recorded as notes or pictures (2). Observations and collected data are forms of improvisation because how customers will deal with a product is not known in advance (3). How customers use the products or services should be understood in the context of their culture or context (4). By analyzing the recorded data, the customers' true needs can be identified and ideas for new products arise from the ethnographers' intuitions (5). This ethnographic approach is a bridging activity from the customer's daily life to the designing of products and services (6).

There are many textbooks and technical papers related to ethnography and its application to business (Kishimoto, 2009) (Mariampolski, 2006). In particular, business ethnography is aimed at applying qualitative methodology to fact finding in business situations. However, applications of ethnography to business have time and budget restrictions. Therefore, a methodology for business ethnography requires an engineering sort of procedure, i.e., a standardized procedure with supporting tools, etc., in order to shorten the project term. A combination of qualitative and quantitative research is used for reaching the objectives of business ethnography.

Let's consider the role of the ethnographer in business applications. Figure 10 shows the role of the ethnographer in identifying service fields. S/he observes human behaviors and artifacts, and listens to speech of customers that reflect the characteristics, needs, intents, and so on. These observations should be analyzed by taking into account the culture, social system, and history of the subjects. S/he interprets the customers' real needs or intents from the observations and interprets them into service requirements and product requirements. This is a bridging activity from a real situation where services are provided to the task of specifying the required services.

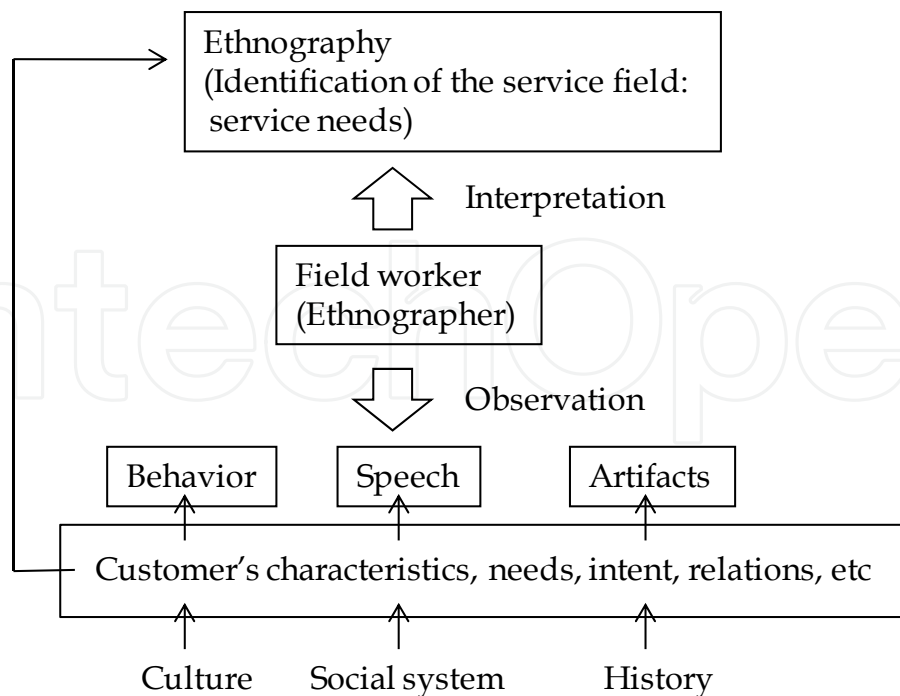


Fig. 10. Role of the ethnographer

4.2 Design of field work and analysis of collected field data

Ethnography as it is applied to business in the form of marketing ethnography or business ethnography must be able to find solutions within a limited period and under cost constraints. Therefore, the ethnographic fieldwork employs an engineering methodology that is formulated as follows:

Step 1. *Planning phase*

The objectives of ethnography are clarified first. Then, various information related to the target of ethnography is collected and analyzed. Next, the fieldwork, including determining the targets for ethnographic observation, the site, and the period, is planned.

Step 2. *Observation*

Ethnographers observe the target people's behaviors, speech, and situation. They record the results of objective observations by using various tools such as field notes, digital cameras, and IC recorders. The visualization of the actual behaviors of the target people is the most important task in this step. In addition, ethnographers sometimes relive the behaviors of their targets.

Step 3. *Team analysis*

The data collected in Step 2 is qualitatively analyzed by a team of ethnographers. Team members should create ideas and systematize these ideas into findings. The K-J method, which is a Japanese ethnology technique of analyzing data, or other idea generation support methodology is used in Step 3. The qualitative research is very important for developing an understanding the context of the collected data in field work. The quantitative research should be done by using various data collected by IT systems. A

hybrid analysis combining the qualitative and quantitative research can derive more precise understanding of the target.

Step 4. *Documentation*

The ethnographic documentation based on team analysis of Step 3 is summarized.

There are two types of qualitative field work. One is hypothesis verification, and the other is hypothesis generation. The qualitative research of ethnography is of the latter type, and ethnographers should generate a hypothesis and verify it through observations. Therefore, Step 2 and Step 3 are repeated several times in order to find a hypothesis and verify it iteratively. Finding new facts in fieldwork leads one to identify the service field and clarify what services are required.

4.3 Example: Persona marketing using ethnographic fieldwork

This section describes persona marketing using ethnography for identifying the service field of a small convenience store in a university for the purpose of improving services within the store. Here, the service field is the customers' needs corresponding to the time (business hours) and situation. If the service field is known, the service quality of the store can be improved.

1. Persona marketing

A persona is an imaginary person that can be determined by analyzing specific data related to target customers (Pruitt & Adlin, 2007). It can be used for effective service creation and improvement by studying its characteristics and requirements as well as its satisfaction regarding the provided services. If there are several patterns in a target group of customers, a clustering approach is used to identify customer groups and a persona is then determined for each group. The persona marketing approach is a way of identifying the target service field. That is, the target service field is categorized into groups based on various customer data by using a clustering methodology and it can thus be described by the characteristics of several personas.

Figure 11 shows the flowchart for using the persona marketing methodology. The flowchart combines ethnographic observations, interviews, questionnaires, and sales data analysis.

2. Ethnographic approach for identifying service fields

The convenience store sells commodity goods and food to customers that are made up of students, faculty, and staff. The service field is formed by the needs of the customer and their requirements for the store. The major customer group is comprised of male students, who account for 70% of sales during weekdays and 80% of sales during weekends. Female customers make up less than 15% of the customers. Therefore, the male students' behaviors and needs are the major factors influencing the service field and should be investigated.

First, ethnographic observations were performed to identify the service field. In this observation, a student who had researched persona marketing observed customers' buying behaviors from opening to closing time over a one-week period. Complete data on sales, including items, prices, time, and personae characteristics, were collected. In addition, the atmosphere of the shop and findings were recorded in the field notes.

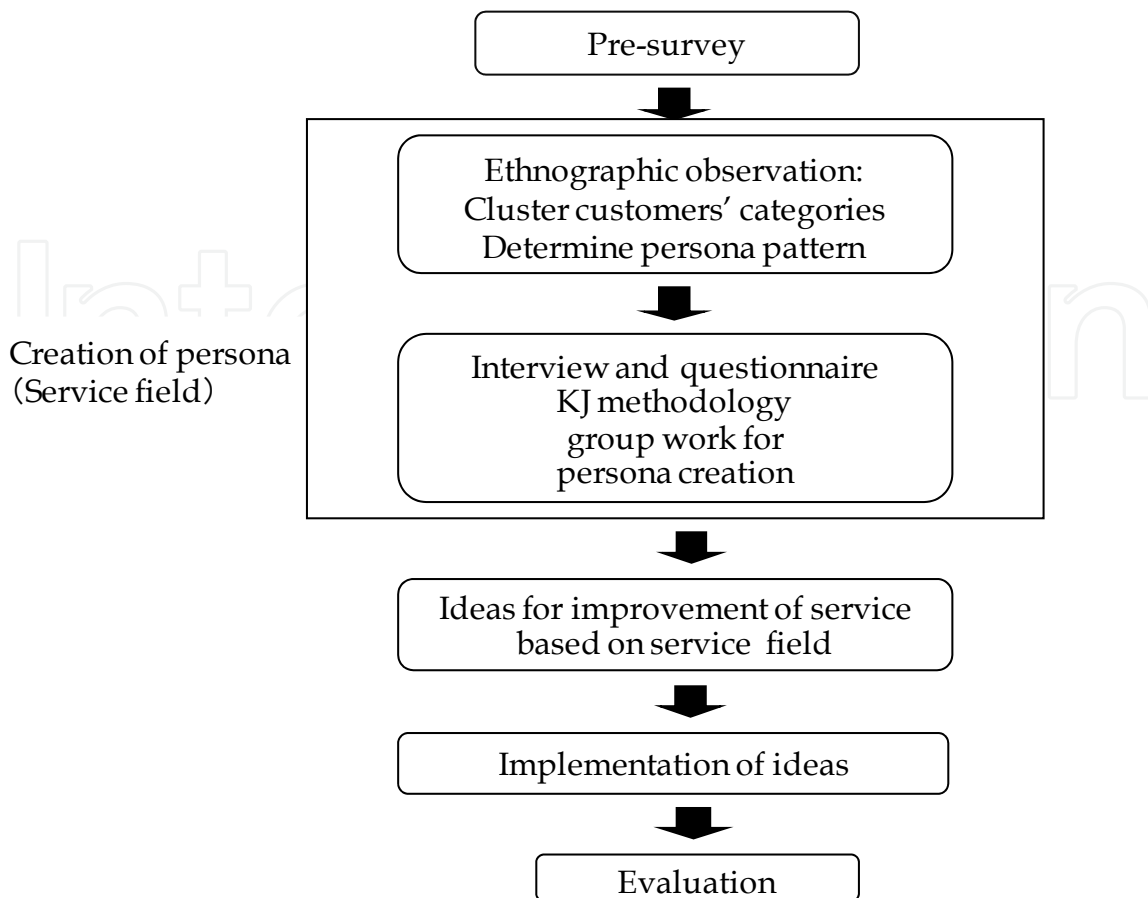


Fig. 11. Flowchart of persona marketing using ethnographic fieldwork

There were four observed sales patterns that reflected the customers' buying patterns. The male students' group was found to be categorized into two patterns: day-time customers and night-time customers. Analysis of the observations and the collected data showed that there were four customer groups: day-active male students, night-active male students, faculty, and women. Therefore, it was considered that the service field consists of the service needs and requirements of four personae.

3. Creation of personae

Based on analysis of the ethnographic observation and clustering methodology, it was found that four personae were needed to identify the service field. The relationship between the personas' needs and services offered by the store determine the quality of service.

Interviews and questionnaires helped to clarify the characteristics and daily behavior pattern of each persona. In addition, the K-J method was used in the group work to analyze the collected data. Persona specification documents that depicted the persona's daily behavior and needs as regards the store were written for each persona.

4. Improvement and evaluation

On the basis of the persona specification documents and the results of the service field analysis, several ideas for improving services in the store were proposed. The most significant improvement was to change the opening time of the store. Before the

analysis, the opening time on weekends was 9:00 a.m. However, the primary customers on weekends were male students who entered the store from around noon, so the opening time was changed to 10:00 a.m. Several other improvements were implemented. The variety of goods was increased in accordance with the students' requirements. Students and female customers wanted fresh vegetables, and so the amount of fresh food was increased. Various commission services were started. These improvements enhanced the quality of student life.

After improving the services of the store, questionnaires were given to the students. Eighty percent of respondents gave this project a positive evaluation. Thus, it seems that the identification of the service field by using ethnographic persona marketing seems to have been effective in enhancing service quality in the convenience store.

5. A model of the service value creation process using the service field concept

As described in section 3, the service value for customers is determined from the relationship between the provided service and its service field. To provide high service value for customers, the service field should be identified first; then, suitable services should be provided. In this section, a new model for service value creation using the service field concept is proposed.

5.1 Service value creation process based on identification of the service field

Service value depends on the relationship between a service and its situation, and a more suitable service can be provided if its service field can be identified. The following four steps are required in the service value creation process, and they involve collaboration between the service providers and receivers.

- Step 1. *Definition of the service system:* Both collaborators in the service value co-creation process understand and share the objectives of service value co-creation and the framework of its service system, as shown in Figure 5, which consists of service providers, customers, and the environment of the service. This is a process of socializing the targeted service to place it among the participants in the service system.
- Step 2. *Identification of the service field:* The service field is identified using various technologies and/or in collaborative work. The necessary supports for the service receivers are identified, as are the information and technical supports needed for both collaborators. This step is the identification of the service field, and it corresponds to the externalization of the customers' service requirements. Human-related technologies and methodologies such as those explained in section 3 and section 4 are used in this step.
- Step 3. *Creation of new service ideas:* Knowledge is created for the required services in the service field identified in Step 2, and suitable services are designed after the service field has been elucidated. Participants gain knowledge about the service by combining various service ideas and technologies.
- Step 4. *Implementation of new service idea:* The service idea created in Step 3 is implemented by considering the business model, price of services, and required information

systems. Collaborators in the service value co-creation evaluate the results of knowledge creation as regards the required services and take them into account in the subsequent process for enhancing services. This process is the internalization of the new service ideas.

The required services in the service value creation process are enhanced by repeating these four steps of service value co-creation. As the knowledge creation process is repeated, collaborators come to understand the service field much more fully. The result is that the participants understand the service field more deeply.

This knowledge creation process is similar to the SECI model, which is a well-known knowledge creation process (Nonaka & Takeuchi, 1995). The knowledge creation process is outlined in Figure 12. There are four modes in the SECI model, that correspond to Step 1 to Step 4, i.e., socialization (S), externalization (E), combination (C), and internalization (I). The SECI model is a typical knowledge creation process. So far, it has been applied to knowledge creation in organizations, and here, we have applied it to the service innovation process through service providers and receivers collaborating. The SECI model is a conceptual model of knowledge creation. However, the model for service value creation proposed in this chapter can be specified concretely in steps once the service field and its application to a suitable service are identified.

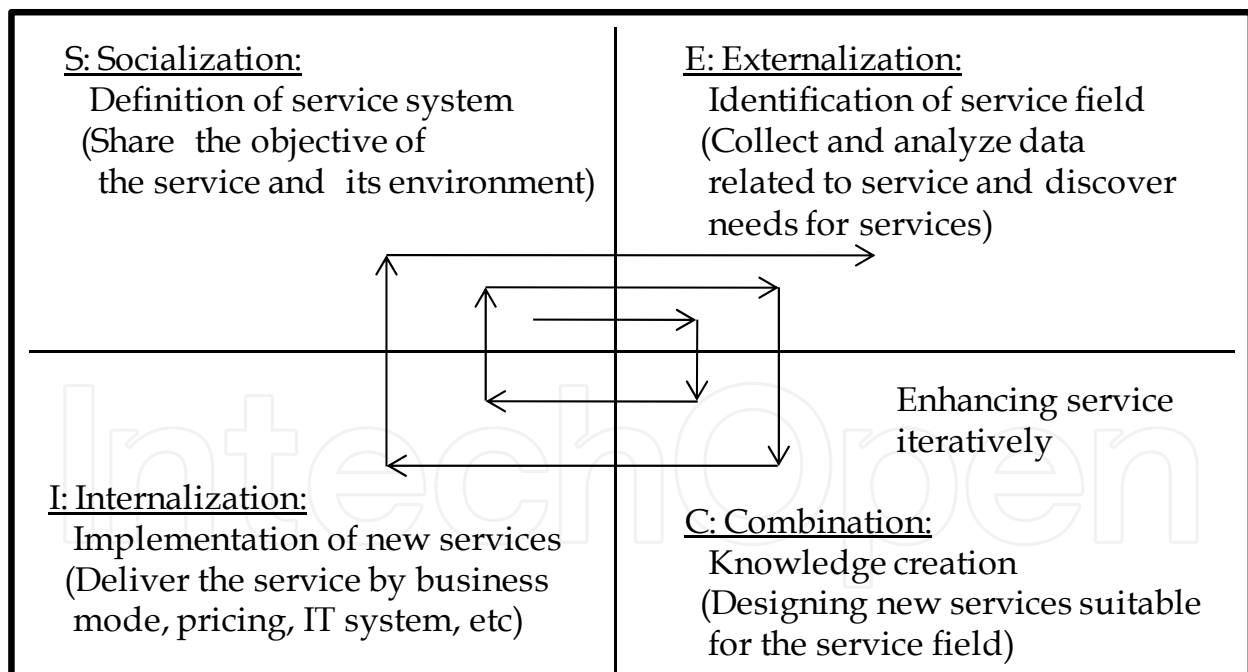


Fig. 12. SECI model for service value creation

5.2 Role of the service value creation process model

The model for service value creation process based on the service field employs various technologies and methodologies, such as network technology, terminal devices, brain

science, hospitality, ethnography, and human behavior. This model can cover many types of service, from traditional services and services in manufacturing to Internet services and information and knowledge services. The role of this model is shown in Figure 13. The service value creation concept (or model) is transdisciplinary and can be applied to various services. In addition, SDL can be formulated as a theoretical framework based on the service field concept proposed in this chapter.

Human-related studies such as ethnography and brain science are useful for creating high service value and seem to have great potential for innovation in various industries.

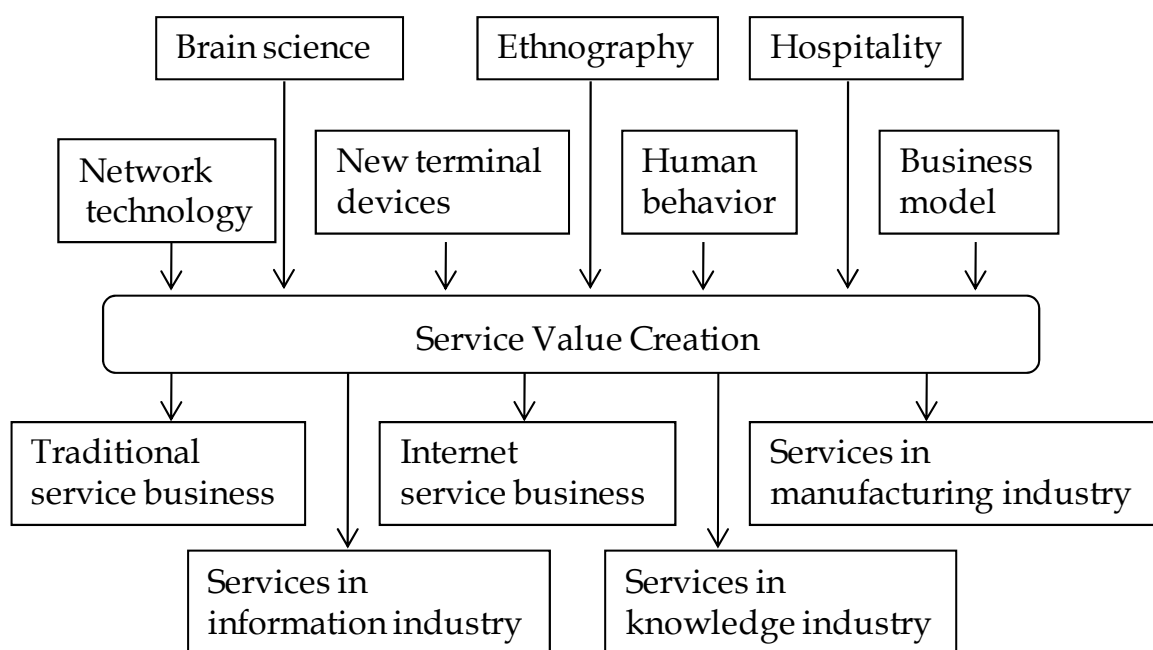


Fig. 13. Service value creation model for various services

6. Education for service innovators based on service value creation

With the purpose of educating managers in service value creation, a curriculum of service management education for service innovators was developed at the Japan Advanced Institute of Science and Technology (JAIST) (Kosaka, 2010). This educational course stressed the importance of knowledge science, including ethnography and design.

The importance of education, management, and science to services and services innovation has long been recognized, and subjects from these fields are taught at the MBA level. Furthermore, IT service technologies are now taught in many information science departments. Despite these encouraging developments, though, we should realize that successful innovation in the 21st century will also involve technologies and methodologies related to human behavior. We believe that knowledge sciences, such as ethnography and brain science, and information sciences studying the Internet and data management can be

exploited to enhance the quality of services. To ensure that society benefits from the new services that will appear in the future, we have developed a new curriculum of service innovation and education from the viewpoint of service value creation. The curriculum is based on knowledge science, information science, business science, and transdisciplinary sciences and technologies.

6.1 Basic concept of our education course for service innovation

The topic of how to educate people in services science has been discussed all over the world. According to a survey (Kameoka, 2007), services marketing and services management are being taught at the MBA level in United States, and IT services such as Web services and SOA (service oriented architecture) are topics in the country's information science departments. Many universities are trying to integrate services education and information science into the curricula of their MBAs in order to create a new education field of services science. Moreover, the trend in Europe is the same as in the U.S. Institutions in these countries recognize the importance of practical experience in services education, and they design their higher level courses by including lectures in services engineering management and seminars involving case studies and IT technology. They also offer internships (Stauss, 2008).

JAIST's service education course is based on knowledge science and information science. This course provides education related to services innovation for business people, whereas JAIST's service education course is meant to reinforce innovators' abilities. As described in this chapter, service innovators should have skills in human science, social science, IT technology, and management. Therefore, JAIST service education course focuses on the following four disciplines that are important for services innovation from the viewpoint of service value creation.

1. *Knowledge science*: Customer satisfaction is the most important factor for improving service quality. Knowledge sciences such as design, ethnography, and brain science can be utilized for creating new services and for determining whether a new service will satisfy the intended recipients. Therefore, knowledge science is indispensable for identifying the service field and thereby enhance service quality.
2. *Information science*: Information science and information technologies provide the means for realizing new services. Internet technology, ubiquitous computing technology, data mining technology, and so on can be utilized for services innovation. Information science is also important for identifying the service field.
3. *Business science*: Services marketing, quality assurance, business model development, financing, and operations research methodologies are basic activities in the services business, and these subjects are taught in business schools.
4. *Transdisciplinary sciences and technologies*: Transdisciplinary sciences and technologies are, or will soon be understood to be, essential for creating new services. By transdisciplinary, we mean a threefold idea of the integration of various technologies, extending concepts that are valid in one domain into concepts that are valid in various domains, and applying general methods for optimization and simulations to various problems.

6.2 Design of curriculum for service innovation and evaluations

To support the above four disciplines, 15 new subjects related to service innovation were developed. These can be categorized into four groups shown in figure 14.

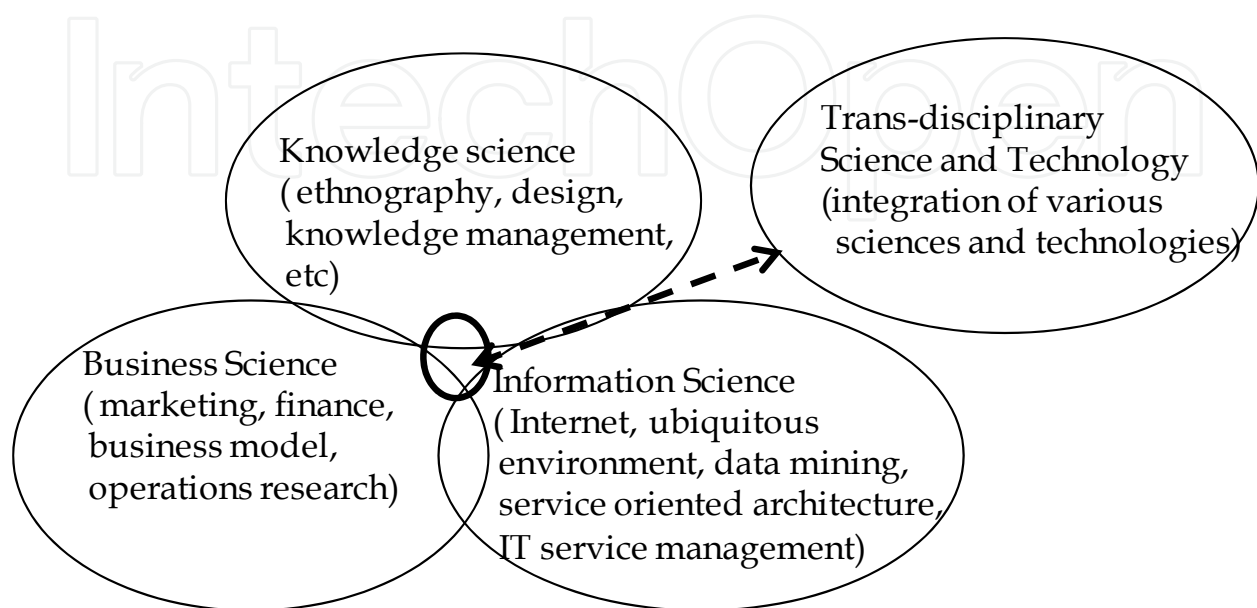


Fig. 14. Four disciplines for service innovation

[Knowledge science]

1. Service creation methodologies: methodologies based on hospitality management, service road mapping, and service value modeling.
2. Ethnography for services: applications of ethnography to service innovation.
3. Design and service innovation: design methodology and service innovation.
4. Networks and service innovation: how network technologies can foster service innovation.

[Information science]

5. Services in the IT industry: evolution of business models in the IT industry and open source resources.
6. IT service architecture: SOA, Web services, and system architectures.
7. Internet service systems: new Internet technologies, such as information retrieval technologies, and their application and new business models
8. IT service management: IT service management technologies such as ITIL and SLA and their application to outsourcing.

[Business science]

9. Introduction to service innovation: service innovation and services science trends, course orientation, outline of service marketing and IT services.

10. Marketing innovation: the importance of marketing based on services after the commoditization of products.
11. Servitization in the manufacturing industry: examples of services in the manufacturing industry in Japan, business models, and infrastructure for services.
12. Service risk management: investment risk, financial risk, risks of R&D in the service business.
13. Business system design based on IT technology: business design and IT governance, finance, and service innovation.

[Transdisciplinary science and technology]

14. Transdisciplinary technologies for services: significance of transdisciplinary technologies.
15. Services engineering and its applications: service engineering methodologies and good service business examples.

For the students' course evaluations, we drew up questionnaires containing 16 questions for students and 13 questions for lecturers. These questions evaluated the content of new subjects from the following viewpoints; Up-to-date knowledge such as ethnography on service innovation, Practicability in real service businesses, Basis of service technology, Suggested content for services innovation, and so on.

By analyzing the questionnaires' results, we found that this course seemed to provide up-to-date and practical knowledge such as ethnography or successful service business cases for service innovators. In particular, the "Services in the manufacturing industry" and "Services in the IT industry" courses were highly evaluated as useful for business people.

7. Conclusion

This chapter described the concept of the service field in service systems as a new service science. This proposal is a methodology for making the service dominant logic a concept of "value in use." A theoretical framework for the determination of such a service value has been lacking. Our proposed service value creation model is based on the service field. The service value depends on the relationship between the service itself and either the situation or the customer characteristics. To raise service value for customers, the service field should be analyzed. Human-related technologies and methodologies such as ethnography as well as IT technology are keys to identifying a service field. This concept can be applied to various services, and ethnography seems to be having an important role in service businesses.

Finally, we would like to emphasize the significance of service science. The 20th century was an era of industrialization, and various industrial products such as automobiles, consumer electronics, and chemical products enriched people's lives. Universities established engineering departments based on physics or chemistry. In the late 20th century, information and communication businesses had begun to satisfy our intellectual desires and provide new information services. Universities established computer science departments based on mathematics and logic. In the 21st century, it is possible the next frontier of civilization will be services that satisfy us by combining industrial products, information

technologies, and new service concepts. Service science based on human science such as ethnography and brain science will be indispensable.

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An Ethnography of Global Landscapes and Corridors

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The chapters presented in this book draw on ethnography as a methodology in a variety of disciplines, including education, management, design, marketing, ecology and scientific contexts, illustrating the value of a qualitative approach to research design. The chapters discuss the use of traditional ethnographic methods, such as immersion, observation and interview, as well as innovative ethnographical methods which have been influenced by the new digital culture. The latter challenges notions of identity, field and traditional culture such that people are able to represent themselves in the research process rather than be represented. New approaches to ethnography also examine the use and implication of images in representation as well as critically examining the role and impact of the researcher in the process.

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