Chapter 16
A Value Co-Creation Model for Energy-Saving Service Business Using Inverters

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ABSTRACT

This chapter proposes a value co-creation model for the energy saving service business using inverters. The proposed model considers the effectiveness of the service business approach to reducing energy using inverters, where risk sharing between service providers and customers is very important to provide stable services to users in the long term. Service value co-creation in collaboration to share risks can be formulated and described in four steps of the KIKI model (Knowledge sharing related to the service system, Identification of the service field, Knowledge creation for the new service idea, and Implementation of the service idea). An example is shown to demonstrate the validity of the proposed model of collaboration.

1. INTRODUCTION

The importance of service has recently been discussed in various fields because the ratio of service industries in the gross domestic product (GDP) has been increasing. For example, this ratio is over 70% in advanced countries such as the USA or Japan, and it is increasing in developing countries such as South-east Asian countries. Moreover, research and education on service science has been thoroughly investigated, and new service concepts or methodologies such as service dominant logic (SDL) (Vargo & Luach, 2004) (Lusch & Vargo, 2006) or service as a theater (Fisk, Grove & John, 2008) have been proposed. Such new concepts are important for not only traditional service industries but also servitization in the manufacturing industry (Belal, Shirahada & Kosaka, 2012). In

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particular, according to SDL, value co-creation by collaboration between service providers and customers is indispensable. In this chapter, an energy-saving service business using inverters is introduced as a successful example of servitization in the manufacturing industry. Servitization using new business models is becoming popular in many business areas, and this seems useful for addressing the environmental problems of energy conservation and CO_2 emissions reduction. This example for addressing environmental problems demonstrates the importance of value co-creation in servitization in the manufacturing industry.

The energy-saving service business HDRIVE (Yabutani, 2010) (Kosaka & Yabutani, 2012) has been conducted successfully since it was started in 2002. HDRIVE has various business risks due to the changing business environment surrounding customers. Therefore, the key success factor of this service business is to develop a profit and risk sharing model for both customers and service providers. We developed two methodologies for value co-creation in HDRIVE from the viewpoints of service science and knowledge science.

One is the value-co-creation model based on the service field concept discussed by Kosaka, Zhang, Dong & Wang (2012). We consider that the collaboration process involves continuous service-value co-creation and exploit the concept of service fields within this framework to enable services to be designed with more effective behaviors. The framework for the collaborative value-co-creation process is built by repeating steps that identify the service field to clarify the necessary services (information and/or support actions). This process involves service providers and receivers collaborating to create knowledge, services, and technologies to achieve the objectives of service innovation. Moreover, when "value in use" is considered in each step of this process, user experience becomes a very important factor in the service value. Therefore, the KIKI model (Knowledge sharing related to the service system, Identification of the service field, Knowledge creation for a new service idea, and Implementation of the service idea) described in Chapter 2 of this edited book can be applied to the collaboration between customers and service providers in HDRIVE.

The other methodology is considered from the viewpoint of knowledge science. Here, we apply the new concept of knowledge space, which is discussed by Belal, Shirahada & Kosaka (2012). The knowledge space consists of multiple knowledge axes corresponding to independent disciplines, and a solution integrating different knowledge exists in this knowledge space. This concept is categorized as trans-disciplinary science and technology (Kosaka & Funabashi, 2010). In HDRIVE, the knowledge space consists of inverter knowledge, financial knowledge such as the option theory, Internet technology for monitoring, and environmental business knowledge such as the Clean Development Mechanism (CDM) (Sutter & Parreno, 2007). The solution of an energy-saving service business exists in this knowledge space.

In this chapter, first, the energy-saving service business HDRIVE is outlined. Then, various risks in HDRIVE due to the changing business circumstances of customers are considered, and the key success factor in this service business is explained as being to develop a risk and profit sharing model that is acceptable to both customers and service providers. To develop this risk and profit sharing model, collaboration between customers and service providers is indispensable, and the KIKI model is applied to the collaboration process in HDRIVE. Finally, the knowledge space concept is considered for integrating various pieces of knowledge to obtain suitable solutions for customers.