

Value Constellation Construction in Service Firms

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Abstract

The aims of this study were to identify how governmental technology development program (TDP) improves the service value in service firms and to investigate how service firms construct value constellations through relationships with other firms. A multiple cases study research is conducted, focusing on the Taiwan's service firms. The research main findings are: (1) ICTs enhance service value through six key factors: data envelopment analysis for customers; creating switching costs for industry entry barriers; integrating resources among the value constellation members and elevating productivity; improving internal and external communication for the organization; organizing activities, quick responses to customer needs and strengthening customer relationships; and identifying new members for the value constellation. (2) We categorised the service value enhancement of TDP firms into three types: internal operation improvements, industrial network enhancements; and transactional relations. Internal operation improvements primarily involved creating value within a TDP firm.

Keywords: Service Value, Value Constellation, Value Creation, Science and Technology Program, Service Industry, Information and Communication Technology

1. Introduction

The Executive Yuan of Taiwan has implemented various programs to enhance the vitality of the service industry. Some of these efforts include researching technological service value chains and creating programs that enable service industries to establish innovative consumer-based technological service value chains. These chains comprise various network devices and innovative business models that aid in the development of foreign markets and promote service exports through international collaboration mechanisms [1]. Building and enhancing the competitiveness of service value chains is critical for businesses.

Reference [2] proposed that an exemplary integration of the manufacturing and service industries must involve an understanding of the three-way relationship between technique, service, and innovation. Effective technological services and service-oriented technology can be accomplished through widespread use of service innovation. Scholars consider information and communications technology (ICT) to be the key determinant driving service innovation, and see technological innovation as a form of service innovation [3],[4]. Applying technology to the development of innovative services has become an industrial trend. This study examined how service providers integrate ICT into their innovative service schemes.

From the perspective of firm management, the concept of value constellations has come to replace that of the value chain. As both a theory and an innovative practice, value constellations are vital to formulating managerial strategies [5]. Previous domestic studies have mainly focused on evaluating value creation and service value according to technology development program (TDP) performance assessments [6]. However, few studies have conducted qualitative research to analyse how TDP projects can create or improve service value. This research is meant to bridge the existing research gaps.

The aims of this study were as follows:

- 1) to identify how TDP improves the service value in service firms;
- 2) to investigate how service firms construct value constellations through relationships with other firms, thereby enabling service provision.

2. Literature Review

2.1 Value constellation

Services are increasingly created by value networks, so it is important to adopt systems thinking for service design [7], a process that helps to define the firm's service concept within the context of its value creation. Reference [8] developed the concept of value constellations, which are representations of the network of actors that jointly create value, and the relationships between those actors. A value constellation can be viewed as a system of service systems. In value constellations, value creation is the outcome of the interactions among actors [9], and competitive advantages exist at a constellation-level, rather than at a firm-level [7]. By conceiving of value creation in the context of systemic business networks, firms can find opportunities to improve their effectiveness and adaptability [10]. Reference [11] argues that it is particularly crucial to cultivate relationships with other actors in a business network early in the process of moving toward service provision, when in-house infrastructures may be weak. According to [12], a firm must understand that its offering is one input into a system that creates customer value, and the inputs offered by other firms must also be considered. Normann's value constellation framework provides an insightful approach to positioning a firm's service concept into a value-creation system. This approach opens new forms of service logic innovation [13], such as encouraging a change in customer roles toward value co-creation, changing the firm's processes of value integration, or repositioning the firm in the value constellation. Value constellations include different modes of coordination [14], types of integration [15], and inter-firm adaptations [16].

2.2 Role of ICT in service innovation

Researchers and management are continually engaged in understanding, monitoring and implementing trends in ICT development for manufacturing and service companies. The development of ICT has led to the emergence of new forms of interaction, communication and operations in manufacturing and service firms. Computation and telecommunications have converged to enable technology, production platform and market opportunity for the evolution of the modern service economy [17]. Previous literature has provided ample evidence for the important role of ICT in service innovation [18], [19]. Service innovations are often technology-based, comprising either the introduction of new technology or a different use of existing technology [20]. There are three main roles for ICT in relation to service innovations: (1) ICT is an enabler of service innovation; (2) ICT is a support infrastructure for a service innovation; and (3) ICT is a utility for a service innovation. This implies that the use of ICT reduces costs while increasing the internal and external coordination of organizational activities. In addition, the development of ICT has led to some entirely new services, while altering and intensifying existing interactions between providers and users.

3. Methodology

The case study method involves using single or multiple cases to focus on social phenomena. Additionally, a substantial quantity of diverse and detailed data can be acquired from relatively few target cases [21]. A case study can be used to thoroughly explore the patterns or behaviours of individuals, groups, or institutions and the relationships, or between the associated factors of these subjects. Moreover, this type of study involves diverse data collection and comparison analyses for verifying the connotative traits or patterns of the research

subjects. Additionally, a logical thought process can be used to identify methods for resolving associated problems. Reference [22] asserted that case studies, which emphasise background contexts, can be used to demonstrate actual decision-making scenarios. In a case study, researchers can closely interact with target actors and investigate the actual process in which decisions are made to solve managerial problems. Consequently, a case study can be used to provide practical management knowledge [23]. This paper used a multiple-case study method to exploring and understanding the conditions and practical phenomena of the case subjects under actual situations. Additionally, multiple methods of data collection can be used to acquire information regarding an individual or several subjects (people, groups, or organisations) [24].

This study selected cases from 2013 MOEA Commercial Service Value Enhancement TDP in Taiwan, and we choose the top four performing companies listed according to the performance coaching ranking. We analysed the ICT application and value creation activities of these firms and reached conclusions. According to the principle of data triangulation, this study applied evidence from multiple sources and constructed a database for conducting the multiple-case study [24]. The secondary data, interview contents, and related word documents were used to establish the database that served as the basis for conducting subsequent analyses. Additionally, the following three procedures were applied to compile and analyse the collected data [24]: (a) The statements of each case firm were organised to indicate major findings. (b) Each case firm was analysed to identity its uniqueness. (c) A cross-case analysis was conducted to compile the data of the case firms, conclude our findings, and propose recommendations for associated organisations.

4. Case Study

4.1 Pac-Chieh Co., Ltd. (<http://www.chieh.com.tw>)

Established in 1987, Pac-Chieh was the first sanitation firm in Asia to obtain ISO 9002 certification. The firm promoted improved and innovative assistive medical devices while also offering property management and community planning services.

4.2 Artso International, Inc. (<http://www.artso.com.tw>)

Artso company was established in 2003 and comprises a professional marketing department, an operations department, a research and development department, and a logistic centre. The firm's goal is to provide high-quality safe furniture as well as thoughtful and refined marketing services, with an eye toward expanding throughout the Asian and world markets.

4.3 Arcoa Communication Co., Ltd. (<http://www.arcoa.com.tw/>)

Established in 1981, Arcoa Communication currently has an equity capital of NT\$1.34 billion and comprises 750 employees. The primary business operations of the firm include the wholesale and retail sales of telecommunications equipment, in addition to being a Type II telecommunication carrier (mobile virtual network operator).

4.4 Grand Information Co., Ltd. (<http://www.grandinfo.com.tw>)

Established in August 2003, Grand Information Company has an equity capital of NT\$6.6 million and mainly offers industry-specific enterprise resource planning (ERP) software. The primary business operations of the firm comprise two major domains: the retailing and manufacturing of automotive parts.

5. Conclusions

5.1 Applying Value Constellation to Analysis of Service Value Creation

Our results indicate that the concept of value constellations is applicable to the analysis of service value enhancement through TDP assessment. The content of the value enhancement matched the definition of a value constellation, in that service providers collaborate and interact with suppliers, competitors, complementary firms, and customers to create value and form a partnership system through diverse value-creation patterns.

5.2 How firms improve their service value

The results revealed two key factors in value creation: (1) the process by which firms create relational ties with customers and business partners, and (2) how they collaborate with competitors to form business collaborations. Effective value constellation formation is vital to creating and maintaining competitive advantage. ICT aided case firms in enhancing service value through the following six key factors: (1) data envelopment analysis (DEA) for customers; (2) creating switching costs for industry entry barriers; (3) integrating resources among the value constellation members and elevating productivity; (4) improving internal and external communication for the organization; (5) organizing activities, quick responses to customer needs and strengthening customer relationships; and (6) identifying new members for the value constellation.

5.3 How service firms construct value constellations through relationships with other firms

After compiling the key points discussed above and analysing the ways in which the four case firms contributed to service value enhancement, this study categorised the service value enhancement of TDP firms into three types (Table 1): (a) internal operation improvements, (b) industrial network enhancements; and (c) transactional relations. Internal operation improvements primarily involved creating value within a TDP firm.

Industrial network enhancements mainly involve service value constellation collaboration between a TDP firm and its business partners. Transactional relations place special emphasis on providing service value to consumers and attracting new customers. Internal operation improvements focus on coordination and communication between firm members. In the Arcoa Communication Company, for example, internal operational costs must be rationalized and resource consumption must be reduced through action spearheaded by company headquarters. By contrast, industrial network enhancements focus on fully utilising the abundant resources within a value constellation; the members of these industrial networks form relational ties that emphasise long-term and stable strategic cooperation for co-creating value. Alternatively, transactional relations accentuate satisfying customer needs, thus focusing on value activities such as procurement, production, and shipping. Customer evaluations are an essential aspect of service value in this type of firm. Only services that can satisfy customer needs are considered valuable from the perspective of transactional relations.

The results of this study also revealed two characteristics regarding service value enhancement: ICT application and inter/intra organisational activities. According to the service-value-enhancement characteristics and categories discussed above, this study proposes the following:

Proposition 1: The service value enhancement conducted by TDP firms can be classified into two constructs: 1) ICT applications and 2) inter- and intra- organisational activities.

Proposition 2: Service value enhancement conducted by TDP firms can be divided into three types: 1) internal operation improvements, 2) industrial network enhancements, and 3) transactional relations.

Table 1 Types of Service Value Enhancement Conducted by TDP Firms

Category		ICT application	
		Real-time	Analysis
Transactional relations	Inter-organisational (B2C)	Respond to customer needs, thus strengthening customer relationships	Identify new value constellation members
Industrial network enhancements	Inter-organisational (B2B)	Create conversion costs	Integrate the resources of the value constellation members and increase productivity
Internal operation improvements	Intra-organisational (Operation)	Improve internal organisational and external communicative activities	Conduct data-envelopment analysis

Source: Compiled by this study

5.4 Managerial Implications and Future Research

Information is a crucial aspect of business management. Virtual value chains have replaced conventional value chains and become an essential resource for creating competitive advantage. Future business developments must establish information-based services to integrate value-constellation members. When cooperation within a value constellation is based on a demand-pull supply strategy [5], transforming the inter-organizational supply chain is essential for improving competitive advantage. The integration of virtual and physical value chains can create an innovative scheme for developing value constellations. Future research could investigate factors affecting the ability of firms to quickly escape value constellations.

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