

# Designing a Service Innovation Measurement of SMEs

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**Abstract.** Enterprises have to increase their competency and ability to respond to the market variation and customer needs. Maintaining long term sustainability for enterprises has been an important topic, especially for traditional manufacturing businesses. With the attention of service around the world, many manufacturing enterprises gradually transform the product-driven business into the service-driven business. Service innovation is an important notion for manufacturing enterprises to apply. Developing a successful process of service innovation is an important event for enterprises. However, although there have been a lot of studies emphasizing the importance of service innovation, there is less research focusing on measuring service innovation. It is difficult for enterprises to systematically measure the effects and performances because different levels of enterprises have diverse choices of the service innovation categories. Consequently, this study is to analyze and define the critical factors of service innovation and build a systematical and quantitative service innovation measurement model by adopting system thinking.

**Keywords:** Design, service innovation, system thinking, SMEs.

## 1 Introduction

The service industry has been paid attention to by the governments in the world. The service industry in the Organization for Economic Cooperation and Development (OECD) countries performs main economic activities and generates high percentage of GDP. Accordingly, many large-scale enterprises transform the manufacturing orientation business to the service orientation business. These enterprises propose novel service concepts and define new value provision to customers based on service-dominant logic [7]. Customers can have unique experiences and gather specific values when they perceive delivered services from the new “service” enterprises.

In order to increase the core competence and business advantage, enterprises have to understand the importance and impact of “services” and also adopt “service concept and provision” as business strategies. Consequently, service innovation should be a critical way for enterprises to become a service companies and perform service activities [11], especially for the manufacturing enterprises. Service innovation is to leads enterprises to adopt innovative idea in the processes of service design, service marketing, service management and service delivery for the novel values co-creation with customers.

Small and medium enterprises (SMEs) are the core businesses in many developed countries, although the large-scale enterprises lead and dominate the market trend. SMEs focus on the traditional manufacturing businesses that still play an essential role to have significant effects on the economic profits. However, SMEs face much more difficulties than large-scale enterprises to transform the manufacturing orientation business to the service orientation business. This study plans to conduct small and medium enterprises as examples to demonstrate the feasibility of the service innovation measurement model. The objective of this study is to investigate the key factors which could influence the success of SMEs to implement service innovation. We can apply the service innovation measurement model into potential SMEs for creating values during managing the service innovation process.

## **2 Service Innovation**

Innovation has been an important concept for enterprises to design and create innovative products or services. Within the service-dominant logic, innovation in service sectors becomes a broad and essential topic for academic and practical fields gradually. Service innovation research composed many perspectives and aspects. Several important topics of service innovation include service innovation management [10], service innovation implementation [6], customer involvement [12], new service development [9] and service performance [8].

Service innovation can be considered as a catalytic element to create novel services and shape new markets for manufacturing enterprises to co-create values with customers. However, service innovation is also a complex and evolutionary process which is interactive, local, unpredictable and emergent [2]. Not only service sectors but also manufacturing businesses have to focus on how to adopt service innovation to increase their competitive advantages [3]. Finding the key factors of successful service innovation is a critical issue for enterprises to increase service performances [3, 4].

## **3 Method**

### **3.1 System Thinking**

System thinking is an appropriate approach to investigate the problems of real phenomena and advance the capability of dealing with problems [5, 13]. Besides, system thinking is to use the “macro” viewpoint to examine the casual relationships and performances among many variables of a system. System thinking provides a helpful approach to understand the structure responsible for designing a service innovation measurement model. According to different levels of managing the process of service innovation, it is a feasible way to measure the effects of service innovation based on the notion of system thinking.

### 3.2 Conceptual Framework Development

There has been a lot of pioneer research discussing the management of service innovation process. A novel innovation for service enterprises should be created by a design thinking way which is composed of inspiration, ideation and implementation [1]. Besides, according to [14], there are four main phases of the innovation process including idea generating, transformation into an innovation project, development and implementation. Dörner et al. (2011) divided the process of service innovation into three steps including defining new services, developing new services and launching new services [3]. These literatures give us a clear clue to the understanding of the key phases of service innovation. This study also summarizes and defines the main phases of service innovation including service concept and value definition, service development and service implementation based on the previous research (as shown in figure 1).

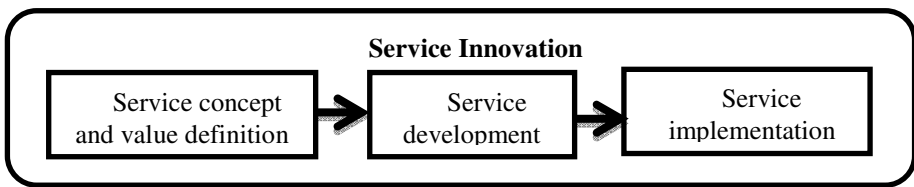


Fig. 1. The main phases of service innovation

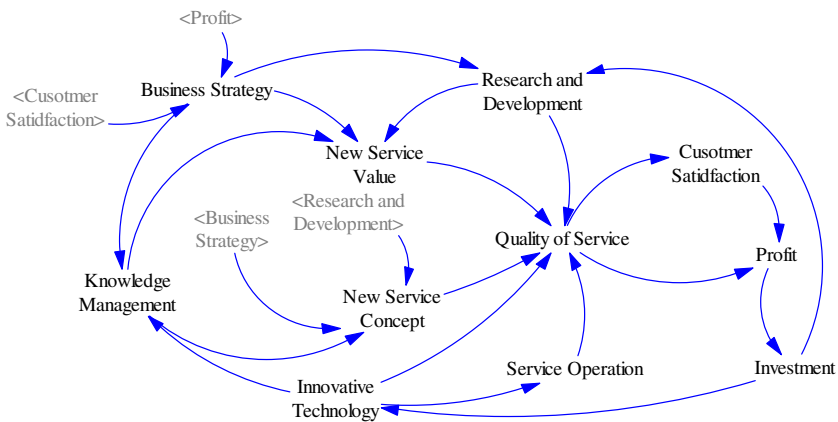


Fig. 2. The conceptual framework of service innovation

This study tries to build a conceptual framework of service innovation based on the proposed main phases by adopting the concept of system thinking (as depicted in figure 2). In the phase of service concept and value definition, new service values and new service concepts are defined as the main output. Quality of service can be considered as the evaluation indicator of service development phase which is affected by

new service values and new service concepts. In the final phase, this study applies customer satisfaction and service profits to estimate service implementation which is also influenced by quality of service. Hence, figure 2 shows the causal loop diagram of service innovation. Business strategies, knowledge management and research and development of the SMEs can directly influence the numbers and results of new service concepts and values. Then, the SMEs can employ innovative technology, research and development and appropriate service operations to increase quality of services in order to have high customer satisfaction and service profits. Therefore, when the SMEs can gain a lot, they can invest on research and development and innovative technology continuously. Meanwhile, high customer satisfaction and service profits can alter SMEs to select proper business strategies. Besides, business strategies also directly affect the strategies of knowledge management and research and development.

## 4 Conclusion

Service innovation for SMEs is a critical and complex issue which can be regarded as a complex system. There are many important factors to influence the success of service innovation. This study tries to apply system thinking to analyze the key indicators within SMEs for proposing a conceptual framework of service innovation. Further research should continuously build stock and flow diagrams to simulate and implement policies testing based on the proposed framework of the causal loop diagram.

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