

7th Industrial Product-Service Systems Conference - PSS, industry transformation for sustainability and business

## SERVICE VALUE CREATION CAPABILITY MODEL TO ASSESS THE SERVICE INNOVATION CAPABILITY IN SMEs

Nader Nada \* Zulfiqar Ali

*Fatih University, Buyukcekmece Campus, Istanbul Turkey  
City University of Hong Kong, Kowloon, Hong Kong*

\* Nader Nada. Tel.: +90 507 9288511. *E-mail address:* [dr.nader.nada@gmail.com](mailto:dr.nader.nada@gmail.com)

---

### Abstract

SMEs need to innovate in services in order to survive and to create value. Service SMEs are facing the challenge of offering their customers continuously improved or completely new services and hence require service innovations to achieve and sustain competitive advantage. We used service value creation capability to assess service innovation capability of SMEs. Service value creation capability is a holistic approach which consists of Strategic capability, Managerial capability, Organizational capability and Adaptive capability to transform an SME into a value creation SME. It offers an overview of service value creation capability and activities against which service SMEs can critically reflect their service innovation performance. Our research primary focus is to explore and to find the relationship of service value creation capability with service innovation capability and to assess the service innovation by using a proposed model for service value creation capability. The model is empirically validated in Danish and Turkish SMEs to identify the correlation between the service value creation and service innovation through an integrated service value creation capability model analysis. The empirical data analysis reveals that there is strong positive correlation between the SME's service innovation capability and service value creation capability (strategic capability, managerial capability, operational capability and adaptive capability).

© 2015 Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the International Scientific Committee of the 7th Industrial Product-Service Systems Conference - PSS, industry transformation for sustainability and business

*Keywords:* Service innovation capability; service value creation capability; strategic capability; managerial capability; operational capability; adaptive capability

---

## 1. Introduction

SMEs strive for service innovations in order to experience sustainable growth, high quality and productivity levels of services, respond to changing customer requirements, needs and expectations, or to gain superior competitive service advantage [1, 2, 3]. The challenge is to “offer the continuously improved, if not new, services” [4]. Service innovations are value addition (value creation) not previously available to the customer and result from changes made to the service concept and the delivery process [5]. To find the ways and methods by which companies are innovating services and service design is considered to be a top priority for all the agile and dynamic SMEs [6].

Several tools for service innovation or improvements have been proposed e.g., service blueprints [7], [8], six sigma for service processes [9], and procedure models for service design [10], [11]. Still, the development of new services is considered to be among the least understood topics in the service management and innovation literature [6]. What is lacking is a holistic framework that depicts the constituents and linked dimensions of service innovation capability [12]. Service innovation has recently been studied from a dynamic capability perspective [12], [13] and we tie into this school of thought. But the previous work has been done in area of dynamic capabilities by identifying three key dynamic capability areas and their activities needed for successful service innovation. In this paper, we proposed a holistic conceptual framework of service innovation capability which consists of business capabilities (Managerial capability, Operational capability, Strategic capability and Adaptive capability) to assess the service value creation capability. Also we proposed design thinking process to innovation or improve services.

We provide the theory background in the next section concentrating on both service innovation and the understanding of service innovation as dynamic capabilities. In next section, we develop our framework which outlines service innovation capability as a set of capabilities clustered in the areas of strategic, operational, managerial and adaptive. Also how we can develop new services and operationalize them by using design thinking approach. In the last section, we draw conclusions; show the relationship of service innovation capability with service value creation capability of SMEs.

## 2. Literature Review

Literature review revealed that most of the research was focused on service innovation but very few work has been done to find the relationship of service value creation capability by dynamic capability and service innovation capability of SMEs. Also there is absence of a holistic model to access the service innovation by using service value creation capability.

### 2.1. Service Innovation

Despite the growing awareness that innovation is not confined to technical processes and products alone, contemporary research on innovative activities is still largely focused on technical innovations in the manufacturing sectors. Until recently, researchers began to recognize that there are differences in the nature of innovation in services in comparison to manufacturing. A service is the application of competences for the benefit of another [14]. It is “a time-perishable, intangible experience performed for a client who is sometime acting as a co-producer to transform a state of the client.” [1] Hence, the customer owns or controls inputs that the service provider is responsible for transforming according to mutual agreement [15].

The following characteristics are frequently mentioned when defining services or distinguishing services from manufacturing. Services are intangible and perishable [2]. Furthermore, the production and consumption of services is not separable, i.e., both happen simultaneously because the customer is involved as a co-producer [2]. Finally, services are heterogeneous as they tend to differ in nature and quality from time to time due to different employees as well as varying customer needs and input. In addition, a distinctive character of services is considered to be their process nature [16]. However, our understanding of service innovation is not limited by this perception. We agree with Vargo and Lusch that goods and services are not necessarily mutually exclusive [14].

The development of a new service is at least different if not much more complex than the development of a new tangible product [17]. To give an instance, changes to the service concept, i.e., the value proposition offered to the customer, and changes to the service process are mutually interdependent and considerably intertwined [18]. The management of service innovations comprises measures of both incremental (e.g., service enhancements or new constellations of existing service characteristics) and radical

change (e.g., introduction of totally new services) [19]. Service concept and process changes can be driven by different causes, which include arisen or anticipated environmental changes, market opportunities and internal capability evolution [20]. In this paper, the term service innovation capability refers to the ability to create fundamental new services and the incremental changes of existing ones.

The actual process of planning and implementing improved or new services is typically described as a deliberate affair in which organizations follow a formal, methodological procedure with well-defined steps [20]. In this regard, several procedure models have been suggested to guide service organizations in defining their approaches to service innovation. Such models comprise those activities, tasks, and information flows required of a service organization to conceptualize, develop, evaluate, prepare and offer services for the market [21]. Many of these models outline a rather sequential process whereas other approaches emphasize the iterative nature of service innovations that involves multiple circles of process design and marketing program testing [22]. Generally, it is expected that there is a performance advantage for those service firms that have a formalized innovation process in place. In the majority of service organizations, a distinct research and development (R&D) department does not even exist. In essence, the service innovation process tends to be “interwoven with the capabilities embedded in the processes and routines throughout an organization” [12].

Recently, some alternative frameworks have been suggested that aim at addressing the shortcomings of existing service innovation models. Den Hertog et al. [12] draw from dynamic capability theory to identify six dynamic service innovation capabilities. Kindström et al. [23] and Fischer et al [13] also refer to dynamic capability theory in order to explain how manufacturing companies can extend their solution portfolio through service innovations.

## 2.2. Service Value Creation capability as Business capability

The Resource-Based View (RBV) of the firm argues that organizations can be seen as collections of distinct resources [24], [25]. Following this perception, resources are most commonly framed as “anything which could be thought of as a strength or weakness of a given firm” [24]. Moreover, we understand resources as an umbrella term covering both assets and capabilities. In this notion, assets are anything tangible or intangible that can be used by an organization [25]. In contrast, capabilities refer to the ability of an organization to perform a coordinated set of tasks for the purpose of achieving a particular end result: a process [26].

An example could be an organization having access to gold (asset), the machinery needed to mine gold (asset), and the ability to use this machinery in an efficient and effective way (capability). Hence, we understand capabilities as repeatable patterns of action that utilize assets as input [25], [26]. The RBV argues that organizations that have certain assets and capabilities can achieve a competitive advantage as long as these resources fulfill the VRIN conditions, i.e., they must be valuable, rare, imperfectly imitable, and non-substitutable

[27]. However, researchers argue that a mere focus on the VRIN attributes is not sufficient for sustained competitive advantage, as this view might under-emphasize market dynamics. A position of competitive advantage that an organizational resource generates today cannot be sustained as changes in the environment may lead to erosion of the resource or replacement by a different resource [28]. A stable resource configuration cannot guarantee long-term competitive advantage as organizations have to adapt this configuration to the market environment [29]. This argument is even stronger in dynamic market environments where there is “rapid change in technology and market forces, and, feedback effects on firms” [30]. Hence, organizations need capabilities that enable them to adapt their resource configuration. These capabilities are called dynamic capabilities [30].

Literature reveals two types of capabilities from one another: First, the basic functional activities of organizations are called operational capabilities. Such capabilities are, e.g., plant layout, distribution logistics, or marketing campaigns [28]. Operational capabilities are needed for the operational functioning of the organizations and relate closely to the original conceptualization of capabilities from the RBV [31]. With relation to the understanding of operational capabilities as the ability to perform a coordinated set of tasks for the purpose of the operational functioning of the organization we understand the provision of services as an operational capability. Second, Teece et al. [30] introduced dynamic capabilities as the abilities of an organization to integrate, build, and reconfigure operational capabilities as well as external competences to address rapidly changing environments. Other researches build on this conceptualization and argue that dynamic capabilities are “a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness” [31]. Based on these arguments, we will understand dynamic capabilities as the firm’s ability to integrate, build, and reconfigure operational capabilities for the purpose achieving a fit with the market environment. Building upon the understanding of providing services as an operational capability we can thus understand service innovation as a dynamic capability enabling the adaptation of service processes to changing environments.

In this paper service value creation capability contains strategic capability, operational capability, managerial capability and adaptive capability which further consist of sub branches as shown in figure 1. In the context of service innovation this is a holistic approach by which SME can be transformed into a value creation SME. In line with this concept, we proposed that scholarly models for new service development, service engineering, service innovation, or service design can be seen and assess by specific descriptions of the service value creation capability model.

## 3. Service Value Creation Capability Model (SVC)

We structure proposed service value creation capability Model (SVC) into two sections: Service Innovation Capability

and Service Value Creation Capability. Similar to recent research [32], we set out to identify different activities within each of these sections. From service value creation capability perspective, agile SMEs address mostly problem knowledge due to its focus on identifying that a service innovation needs to be achieved. On the other hand, primarily solution knowledge is of need because the activities of adaptive SMEs focus on identifying how this change is put forward within the organization. In contrast other available model on service value creation by enhancing and strengthen service innovation capability, we proposed a holistic model which will transform a SMEs into an innovative and agile SME.

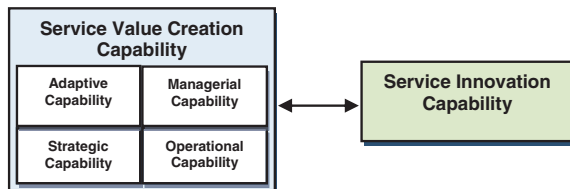


Fig. 1. Service Value Creation Capability Model (SVC)

The Service value creation capability part of this model consist of four branches, strategic capability, Managerial capability, Operational capability and Adaptive capability, which are further divided into several sub branches to access their performance.

In our proposed model we also answer the how of developing new services or improving the existing services. We proposed to use design thinking approach which is human centred and more collaborative approach. In this process multidisciplinary teams collaborate with each other and other stake holders, in variable and non-formal surroundings, recommended. The cross disciplinary collaboration ignites new perspectives which usually leads toward conflict. To mitigate and to manage the conflicts them team follow a process which is called design thinking process. The design thinking process consists of five steps.

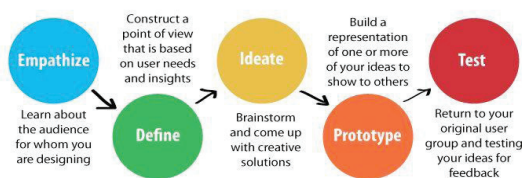


Fig. 2. Design Thinking Process

In our study we used design thinking process as innovation process of services in SMEs as this process leverage creativity and accelerate collaboration within teams. This process has plenty of tools and techniques to use in every step from idea generation to testing. As we are proposing a holistic approaching by focusing on service value creation capability which has further sub branches which are given in table.

Table 1. Service value creation capability and its sub branches

CAPABILITY	SUB-BRANCHES
<b>Strategic Capability</b>	<ul style="list-style-type: none"> <li>• Operating Model</li> <li>• Visual Strategy</li> <li>• Financial Management</li> </ul>
<b>Managerial Capability</b>	<ul style="list-style-type: none"> <li>• Leadership</li> <li>• People Development</li> <li>• Decision Making</li> </ul>
<b>Operational Capability</b>	<ul style="list-style-type: none"> <li>• Service Process Management</li> <li>• Service Performance Management</li> <li>• IT Infrastructure</li> </ul>
<b>Adaptive Capability</b>	<ul style="list-style-type: none"> <li>• Resilience</li> <li>• Horizon Scanning</li> <li>• Change Management</li> </ul>

The second section of proposed model is service value creation, which is the result of enhancing and strengthening the service innovation capabilities.

**4. Research Methods**

The empirical data was collected by using an online questionnaire which consists of 116 questions which were designed after formulating the research questions and hypothesis. The questionnaire consists of five major sections each dedicated for five major variables (Strategic capability, Managerial Capability, Operational capability, Adaptive capability and Service Value Creation). The questions of four capabilities are further divided into their sub branches but all the questions have equal weight age.

The introduction section of the questionnaire contained general questions regarding company profile including the number of employees, customers (suppliers), annual turnover. Also how companies rate their business in comparison to your competitors or business sector against three criteria namely market share growth, Productivity growth and Customer satisfaction. The first section is about strategic capabilities which assesses the business strategy is it in written form and communicated to all employees, whether it is aligned to the vision also how the business understands financial management and its current financial position. The second section is about managerial capabilities which assess the management style of managers within the business in terms of their approach, priorities, and interaction with employees. The business' approach to developing its employees and how decisions are made within the business and who is involved. The third sections highlights service operational capabilities which assesses whether the business understands, measures, and improves its service processes, and if the key service processes correlate with its competitive strategy, which key performance indicators are in place, how they are used, and if they align with the business' strategy. The fourth section is about adaptive capabilities which assess the business' approach to change and how it is managed, how the business survives and thrives, even when things go wrong and how the business understands what occurs in the external business. The fifth section is about service innovation capability which

explore the innovation in services and how the new ideas are implemented and overall innovation in services. In this section our major focus was to find which innovation processes and techniques are being used by SMEs to innovation their services. Also how the SMEs are managing service innovation.

The online questionnaire was randomly sent to 100 SMEs in Denmark and 350 SMEs in Turkey. Data collection was done in 3 months started from June 2013 till end of August 2013. 89 SMEs (55 Turkey and 34 Denmark) responded to online questionnaire with an overall response rate of 19.7 %. Due the insufficient data and large size of the company 9 responses were excluded from the data analysis. The collected data was analyzed and processed by using a software package JMP 10. For the data analysis we used the Pearson correlation to predict the relationship between variables which are service innovation capability and service value creation. We used Pearson correlation for all variables as they are normally distributed. All the correlation coefficients are positive and have moderately strong relationship.

Table 2. Correlation coefficients of service value creation capability, its sub branches and service innovation capability

	SVC	SIC	SC	MC	OC	AC
SVC	*					
SIC	0.642	*				
SC	0.628	0.748	*			
MC	0.373	0.666	0.328	*		
OC	0.601	0.745	0.958	0.303	*	
AC	0.502	0.840	0.502	0.273	0.488	*

Abbreviations:

SVC: Service Innovation Capability, SIC: Service Value Creation

SC: Strategic Capability, MC: Managerial Capability

OC: Operational Capability, AC: Adaptive Capability

## 5. Results and Conclusion

The above given table 2 shows the value of Pearson correlation for service innovation capability with service value creation capability in SMEs. All the relationships are positive and significant. The relationship between service innovation capability and service value creation capability is positive and significantly high with coefficient  $r = 0.642$ . The relationship of service innovation with variables is also positive and significant, highest value is with adaptive capability with coefficient value  $r = 0.840$ .

The objective of this research is to find the relationship of service value creation capability and service innovation capability in SMEs and also to assess the service innovation with the help of service value creation capability model (SVC). The model is empirically validated in 80 SMEs to identify the correlation between the service value creation capability and service innovation capability. The above

analysis validated the SVC model robustness and confirming our research hypothesis that service innovation capability is highly correlated with service value creation capability.

## References

- [1] J. C. Spohrer and P. P. Maglio, "The Emergence of Service Science: Toward Systematic Service Innovations to Accelerate Co-Creation of Value," *Production and Operations Management*, vol. 17, no. 3, pp. 238-246, May. 2008.
- [2] S. R. Das and C. Canel, "Designing service processes: a design factorbased process model," *International Journal of Services Technology and Management*, vol. 7, no. 1, pp. 85-107, 2006.
- [3] F. I. Stuart, "The influence of organizational culture and internal politics on new service design and introduction," *International Journal of Service Industry Management*, vol. 9, no. 5, pp. 469-485, 1998
- [4] H.-J. Bullinger, K.-P. Fähnrich, and T. Meiren, "Service engineering: methodical development of new service products," *International Journal of Production Economics*, vol. 85, no. 3, pp. 275-287, 2003.
- [5] L. Menor and A. Roth, "New service development competence in retail banking: Construct development and measurement validation," *Journal of Operations Management*, vol. 25, no. 4, pp. 825-846, Jun. 2007.
- [6] A. L. Ostrom et al., "Moving Forward and Making a Difference: Research Priorities for the Science of Service," *Journal of Service Research*, vol. 13, no. 1, pp. 4-36, Jan. 2010.
- [7] G. L. Shostack, "How to design a service," *European Journal of Marketing*, vol. 16, no. 1, pp. 49-63, 1982.
- [8] M. J. Bitner, A. L. Ostrom, and F. N. Morgan, "Service Blueprinting" *California Management Review*, vol. 50, no. 3, pp. 66-95, 2008.
- [9] J. Antony, "Six Sigma for service processes," *Business Process Management Journal*, 2006.
- [10] E. E. Scheuing and E. M. Johnson, "A proposed model for new service development," *Journal of Product Innovation Management*, vol. 6, no. 4, pp. 303-304, Dec. 1989.
- [11] I. Alam and C. Perry, "A customer-oriented new service development process," *Journal of Services Marketing*, vol. 16, no. 6, pp. 515-534, 2002.
- [12] P. Den Hertog, W. Van Der Aa, and M. W. De Jong, "Capabilities for managing service innovation: towards a conceptual framework," *Journal of Service Management*, vol. 21, no. 4, pp. 490-514, 2010.
- [13] T. Fischer, H. Gebauer, M. Gregory, G. Ren, and E. Fleisch, "Exploitation or exploration in service business development?: Insights from a dynamic capabilities perspective," *Journal of Service Management*, vol. 21, no. 5, pp. 591-624, 2010.
- [14] S. L. Vargo and R. F. Lusch, "Evolving to a New Dominant Logic for Marketing," *The Journal of Marketing*, vol. 68, no. 1, pp. 1-17, 2004.
- [15] J. C. Spohrer, P. P. Maglio, J. Bailey, and D. Gruhl, "Steps toward a science of service systems," *Computer*, vol. 40, no. 1, pp. 71-77, 2007.
- [16] H. Katzan, *Service Science: Concepts, Technology, Management*. New York, Bloomington: iUniverse, 2008.
- [17] A. Johne and C. Storey, "New service development: a review of the literature and annotated bibliography," *European Journal of Marketing*, vol. 32, no. 3/4, pp. 184-251, 1998.
- [18] H. Droege, D. Hildebrand, and M. A. Heras Forcada, "Innovation in services: present findings, and future pathways," *Journal of Service Management*, vol. 20, no. 2, pp. 131-155, 2009.
- [19] A. Oke, "Innovation types and innovation management practices in service companies," *International Journal of Operations & Production Management*, vol. 27, no. 6, pp. 564-587, 2007.
- [20] M. Shulver, "Operational loss and new service design," *International Journal of Service Industry Management*, vol. 16, no. 5, pp. 455-479, 2005.
- [21] M. R. Bowers, "Developing New Services: Improving the Process Makes it Better," *Journal of Services Marketing*, vol. 3, no. 1, pp. 15- 20, 1989.
- [22] S. Tax, "Designing and implementing new services: The challenges of integrating service systems," *Journal of Retailing*, vol. 73, no. 1, pp. 105-134, 1997.

- [23] D. Kindström, C. Kowalkowski, and E. Sandberg, "A dynamic capabilities approach to service infusion in manufacturing" in 550 PROCEEDINGS OF THE FEDCSIS. SZCZECIN, 2011 Proceedings of the QUIS 11 (11th Quality in Services Symposium): Moving Forward with Service Quality, 2009, pp. 331-340.
- [24] B. Wernerfelt, "A resource-based view of the firm," *Strategic Management Journal*, vol. 5, no. 2, pp. 171-180, 1984.
- [25] M. Wade and J. Hulland, "Review: The Resource-Based View and Information Systems Research: Review, Extension and Suggestions for Future Research," *MIS Quarterly*, vol. 28, no. 1, pp. 107-142, 2004.
- [26] C. E. Helfat and M. A. Peteraf, "The dynamic resource-based view: Capability lifecycles," *Strategic Management Journal*, vol. 24, no. 10, pp. 997-1010, 2003.
- [27] J. B. Barney, "Firm Resources and Sustained Competitive Advantage," *Journal of Management*, vol. 17, no. 1, pp. 99-120, 1991
- [28] D. J. Collis, "Research Note: How Valuable are Organizational Capabilities?," *Strategic Management Journal*, vol. 15, no. 1, pp. 143-152, 1994.
- [29] K. M. Eisenhardt and J. A. Martin, "Dynamic capabilities: what are they?," *Strategic Management Journal*, vol. 21, no. 10-11, pp. 1105-1121, 2000.
- [30] D. J. Teece, G. Pisano, and A. Shuen, "Dynamic capabilities and strategic management," *Strategic Management Journal*, vol. 18, no. 7, pp. 509-533, Aug. 1997.
- [31] M. Zollo and S. G. Winter, "Deliberate learning and the evolution of dynamic capabilities," *Organization Science*, vol. 13, no. 3, pp. 339- 351
- [32] S. Balaji and C. Ranganathan, "Exploring the key capabilities for offshore IS sourcing," in *Proceedings of the International Conference on Information Systems (ICIS 2006)*, 2006, pp. 543-552