Proposing a business-to-business service model: a systematic literature review and future directions

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Abstract
The objective of our paper is twofold. First, we review overall service management models and propose a comprehensive business-to-business service model. Second, based on this model, we make a systematic literature review of service operations journals to provide an overview of papers published and point future research directions.

Keywords: B2B Service, Service Process, Model, Systematic Review

Introduction
Services are responsible for a significant amount of economic activity in the world (Chase and Apte 2007). Approximately, two thirds of gross domestic product of most countries, which include USA, Canada, and Brazil, results from activities of service sector. Similarly, about 75% of workers are related to service activities (Fitzsimmons and Fitzsimmons 2008, Oliveira and Roth 2012). This is one of the major reasons for growing attention placed by scholars in service operations and supply chain management (Chase and Apte 2007, Heineke and Davis 2007).

In the last decades, the service operations management literature has been infused with several models and frameworks attempting to organize and provide managerial insights regarding the large variety of services existent in the real world. These models contributed to the literature by providing managerial insights about how operations can handle participation of customers during the production process (Chase 1978, Sampson 2000, Wynstra et al. 2006), organize different forms of delivering services (Froehle and Roth 2004, Huete and Roth 1988), create new services (Froehle and Roth 2007, Menor and Roth 2008), among other contributions.

These previous studies and models are characterized by (i) focusing on specific parts of service provisions and (ii) on business-to-consumer (B2C) services, leaving room for further contributions. By focusing on specific parts of service provision, most of these models and frameworks do not provide a whole perspective of service operations, including formulation, delivering, and controlling of service outputs as well as the relationship between business-to-business (B2B) customer and service providers. By focusing exclusively on B2C, these models do not take into consideration characteristics of B2B services and markets. For example, organizations buy services in large quantities, while individuals buy services in small quantities. Organizations involve many people during the decision making process, while individuals do not. Such characteristics make the purchasing process longer and more complex for organizations than for individuals (Cook et al. 1999, Oliveira and Roth 2012).

The objective of this paper is twofold. Firstly, we seek to provide a general B2B service model that provides a comprehensive framework, which includes all stages of service operations management, since definition of service strategy until management of relationship with B2B customers. This model also provides a process view of service provision, including all major processes existent in the provision of B2B services. Secondly, we make a systematic literature review and analyze a sample of 31 papers published in the journals with the highest impact factors. The major goal is to classify these papers according to our framework and understand which topics have been most addressed by scholars investigating B2B services. Such model and resulting analysis may serve as a guide for other researchers to understand what has been done in the field of B2B services according to a process view framework.

The rest of this paper is organized as follow. First, we review some service models presented in the literature. Second, we present and discuss our model. Third, we present the methodology employed to make the systematic literature review and select the papers to be analyzed. Fourth, we present and discuss our results. Finally, we present limitations and suggestions for future research.

Literature review

We review models of service operations management proposed by other authors in the literature and analyzed their major contribution. Table 1 shows these models.

Table 1 – Service process models

Authors	Main contribution
Shostack (1984)	Introduces the blueprint concept, which describes details aspects of service operations.
Mill and Morris (1986)	Analyses the customer participating actively during coproduction process (partial employee).
Siehl et al. (1992)	Presents the service encounter viewed as a ritual of integration between service provider and customer with emphasis on information exchange.
Bitran and Lojo (1993)	Shows strategies to implement services taking into account service characteristics as well as internal and external environment of service provision.
Congram and Epelman (1995)	Presents a model with description of service tasks.
Karmarkar and Pitbladdo (1995)	Analyses the sequence of steps involved in transactions services from the perspective of the customer.
Edvardsson and Olsson (1996)	Discusses the concept, process, and delivery of services.
Youngdahl and Kellogg (1997)	Investigates the role of customers for quality of services and the potential ways of managing it.
Sampson (2000)	Introduces the dual role played by customers in the service supply chain.
Goldstein et al. (2002)	Discusses the influence of service concept for service design planning and service recovery.
Roth and Mennor (2003)	Provides an overview of service strategy and deploys it in strategic choices such as structural, infrastructural, and integration aspects.
Apte et al. (2010)	Presents a model for information intensive services.
Sampson (2012)	Introduce the concept of Process-Chain-Network as an evolution of the blueprinting.

A set of papers attempt to describe the service delivery process through the usage of blueprinting, a group of drawings that depict tasks and the role of each individual involved in the process, as well as the location for delivery. Shostack (1984) is one of the first authors to introduce this idea to service operations. More recently, Sampson (2012) revisited such maps, including buyers and suppliers characteristics for blueprinting discussion. Congram and Epelman (1995) introduce the Structured Analysis and Design Technique (SADT), which reduces the process through definition of inputs, mechanisms, control systems, and outputs for each activity.

Other set of studies is direct to strategies that can be used by service suppliers to provide successful service deliveries. Some authors discuss strategies for service characteristics such as intangibility, perishability, heterogeneity, simultaneity, transferability (Bitran and Lojo 1993, Karmarkar and Pitbladdo 1995), while others discuss strategies focused on customer characteristics (Bitran and Lojo 1993, Edvardsson and Olsson 1996, Goldstein et al. 2002). Another group of scholars proposed strategies to deal with customer participation during the coproduction process (Apte et al. 2010, Edvardsson and Olsson 1996, Goldstein et al. 2002, Roth and Menor 2003, Youngdahl and Kellogg 1997).

Participation of customers during the coproduction and delivery process is another topic commonly investigated by scholars. Firstly, studies investigate the purchasing and decision making process (Karmarkar and Pitbladdo 1995). Secondly, the customer can participate more actively, as a partial employee of the service provider (Mills and Morris 1986), and provide inputs necessary for service provider perform its tasks, assuming a role of not only customer, but also supplier Sampson (2000). As a result, customers have an impact in the quality of the services, which is analyzed by Youngdahl and Kellogg (1997).

The service encounter is other topic addressed by some scholars. Some authors consider the service encounter from a psychological perspective (Siehl et al. 1992), which have an influence for the delivery system designed by the service provider (Goldstein et al. 2002, Roth and Menor 2003). Apte et al. (2010) demonstrate that the relationship between service provider and customer must be integrated during the service encounter so that the quality of outcomes is enough to satisfy customers.

Finally, some models discuss the quality of services from the perspective of customers and from the perspective of service providers. Customers start evaluating service quality at the early stages of the purchasing process, and such behavior has led service providers to consider service quality since the conception of the service (Edvardsson and Olsson 1996, Karmarkar and Pitbladdo 1995, Youngdahl and Kellogg 1997). On the other hand, evaluation of services from the perspective of service provider tends to be difficult because of intangibility nature of services (Bitran and Lojo 1993, Goldstein et al. 2002). In this case, customer satisfaction becomes an important way to measure performance of service provider (Roth and Menor 2003). For this reason, recovery of services also becomes important for some models.

Proposed model

Our proposed model for B2B services operation management is illustrated in Figure 1. This figure shows seven steps or stages of service operations management of B2B services: strategy formulation, purchasing process, inputs provision, service delivery, service output, control of outputs, and relationship between B2B buyer and service supplier.

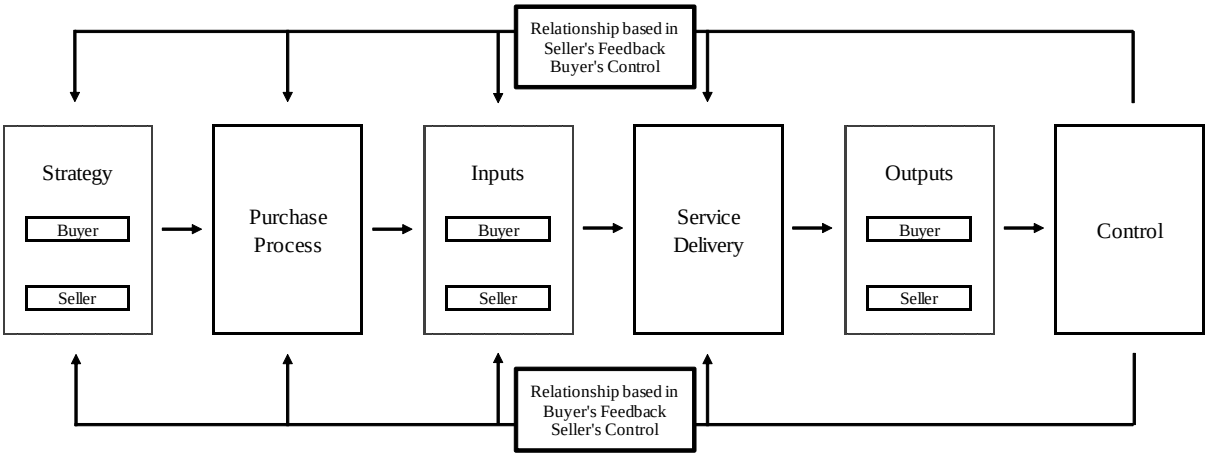

Figure 1 – Business-to-business service model

Service strategy is the first stage in our model. It should be based on external information, such as the targeted market, and on internal analysis of resources and competences, which is related to the service concept, and service delivery systems (Edvardsson and Olsson 1996, Kellogg and Nie 1995, Roth and Menor 2003). Other elements, such as strategic positioning, value-cost leveraging, and strategy-systems integration, can be viewed as integrating elements that help put together the conceptualized service and its customers (Heskett 1987). However, it is the strategy that is going to determine all major characteristics and drivers for service provision as well as determine the participation of customer during the delivery process.

The purchasing process is a consequence of the service strategy designed by the service provider and is the moment in which the B2B customer is going to search for information about the service and its providers in order to determine which one should be chosen (Jackson et al. 1995, Smeltzer and Ogden 2002). This process tends to be difficult for B2B customer due to service characteristics such as intangibility (Fitzsimmons and Fitzsimmons 2008). For this reason, the first step is to determine customer needs; otherwise it will be difficult to determine which service is the best alternative for purchase. Then, service requirements of each service provider are analyzed to evaluate its fit to B2B customer needs. The usage of formal contracts become important in the case of service consumption because it turns tangible some aspects of the service, helping to regulate the relationship between B2B customer and service provider (Grover and Malhotra 2003, Karmarkar and Pitbladdo 1995, van der Valk and Rozemeijer 2009). It is in the purchasing process that B2B customer and service provider begin to interact (Jackson et al. 1995, Wynstra et al. 2006).

The third stage is characterized by the provision of inputs from both service provider and B2B customer so the service can be coproduced and delivered (Mills et al. 1983, Sampson and Froehle 2006). Inputs can be tangible or intangible and include three categories. First, organizational inputs are those related to the B2B customer such as management systems and employees attitudes. Second, physical inputs are the physical assets like equipment and facilities. Finally, intellectual inputs are those related to competencies and knowledge of employees (Froehle and Roth 2007).

The fourth stage involves the coproduction and delivery processes of services. In this stage, the inputs are processed in order for the B2B customer to have the service delivered, which puts additional importance to some elements such as equipment, people, technology, and

process (Goldstein et al. 2002, Heskett 1987). These elements can be managed to standardize or customize the service offering (Kellogg and Nie 1995, Schmenner 2004, Skaggs and Huffman 2003) as well as can be managed to deliver the service away from B2B customer visual range (back office) or close to it (front office), or yet through the usage of technology (Chase 1978, Froehle and Roth 2004, Liu et al. 2008, Silvestro et al. 1992).

The outputs are defined as the consequences of the service provision and can be different for B2B customer and service provider. For the B2B customer, outputs of service provision can be (i) inputs for its own productive process, such as electric energy for machines, (ii) semi-manufactured services for final customers, such as users of ATM machines, (iii) helps execution of operations, such as telecommunication services, and (iv) delivered directly to end customers, such as baggage handling (Wynstra et al. 2006). For the service provider, outputs tend to be the final performance of the conceptualized service, which include measures such as number of offers free of errors (Roth and Menor 2003). It is based on these outputs that the evaluation of service occurs and future re-purchase and/or adjustment of service system (Edvardsson and Olsson 1996, Goldstein et al. 2002).

The stage of control serves for both service provider and B2B customer evaluate if the outputs are in accordance with those proposed in the contract that regulates the service provision relationship (Handley and Benton 2009, Mills et al. 1983). Controlling, however, is difficult because of the intangibility characteristic of services (Mills et al. 1983, Sasser 1976, Xue and Field 2008). Controlling processes are set up to reduce the negative effects of intangibility and help improving results (Handley and Benton 2012, Mills et al. 1983), which can vary depending on the type of service offered. For mass services, controlling should be formal and based on outputs, while for professional service, control should be informal and based on behavior (Kirsch et al. 2002, Stouthuysen et al. 2012).

The last stage is the management of relationship between service provider and B2B customer. Such relationship has the basic premise of cooperation and commitment (Handley and Benton 2009, Prahinski and Benton 2004), which are expressed in the information exchanged, operational links, more legal links, and adaptations from both parties (Bastl et al. 2012, Ryals and Humphries 2007). Such actions conduct to a long-term relationship and help reduce costs and risks between B2B customer and service provider (Finch 2007, Handley 2012), increasing profitability for both parties (Kumar 2002).

Methodology

Our study follows a systematic literature review approach to select papers that contribute for our understanding of how scholars have addressed topic of B2B services that can be classified to those topics presented in our model. The systematic literature review approach is based on a explicit and systematic way of determining the search and analysis of papers (Sampaio and Mancini 2007), which are replicable by other scholars, given that the procedures to select papers are clearly written. Such approach has the objective of reduce bias introduce by the researcher, providing more reliable and accurate results (Tranfield et al. 2003).

Following the guidelines suggested by Tranfield et al. (2003), we first determine the objective of our systematic literature review as looking for papers publised in journals of operations management with the highest impact factors that investigated services in the context of B2B customers. Then, we define a set of keywords to be used in the search, and such keywords were determined based on a prior analysis of few papers about the subject under

investigation. We read about 20 articles related to B2B services to have a sense os keywords commonly used by authors of these papers todescribe their work.

After determining the keywords, we procede with the searching process of papers in the databases. In December of 2012, we conduct a searching process in the ISI Web of Science. We chose this database because of its capacity to include all journals of operations management we were interested in at this stage o four research, which include approximately 30 journals. We started by entering the first keywords: "business-to-business", "b2b" and "service".As a result we obtained a total of 404 papers. We then export information about all these paper to the bibliometric software HistCite, allowing us to obtain more precise information that helped us categorize each paper according to common characteristics such as publication journal. We discarded all marketing journals as well as the journal Production Planning and Control because the ISI Web of Knowledge does not allow access to this journal. The number of papers reduced to 104 papers published in operations management journals that are related to B2B services. Due to time constraints to meet POMS conference submission deadline, we reduced our sample to 6 journals with the highest impact factor among all journals analyzed: MIS Quarterly, Journal of Operations Management, Strategic Management Journal, Journal of Service Research, Journal of Supply Chain Management, and Service Industries Journal. We, then, finally obtained our final sample of 31 papers that are analyzed in this study.

We read each paper in our sample to determine which topic, based on our proposed framework, the paper is addressing. Thus, we can have a preliminary understanding about how scholars are addressing the topics presented in our framework.

Results

We sum the amount of studies investigating B2B services in each topic of our proposed model. Table 2 shows the results.

Table 2 – Number of papers published in each stage of the proposed model

Stage	Number of papers	% of total
Whole process	1	3.23%
Strategy	7	22.59%
Purchasing Process	4	12.90%
Inputs	-	-
Delivery System	3	9.68%
Outputs	-	-
Controlling	5	16.12%
Relationship	11	35.48%
Total	31	100.00%

According to Table 2, studies in the literature have placed efforts to investigate the relationship between B2B customers and service providers with approximately 35% of papers devoted to investigate such stage of our proposed model. Other large percentage of studies (22.59%) attempted to understand service strategic issues related B2B customers. Studies related to controlling of service appear as the third most researched topic, while the purchasing process and service delivery system appear as the least investigated issues. Studies investigating only service inputs and outputs could not be found.

One paper is about the whole service process and discusses the eight roles played by individual customers for service coproduction and how such view should be applied to B2B customers (Sampson and Spring 2012).

Papers about service strategy focus on how external and internal factors, such as environment, employee behavior, and external collaboration, among others, are related to successful service performance (Neu and Brown 2005, Rosenzweig et al. 2011, Strong 2006). Other papers focused on factors influencing internationalization of B2B services, such as customer needs (Winch 2008) and lack of local service conditions (Simon and Welsh 2010), while still other papers analyzed the effect of flexibility (Hartmann and de Grahl 2011) and intelectual property (Leiponen, 2008) on performance.

Papers about the purchasing process focused on which factors could be related to a satisfactory purchasing process, like regional characteristics (Mai and Hoffmann 2011) and segmentation based on quality expectations (Pitt et al. 1996), and on reverse auctions (Hawkins et al. 2009, Schoenherr and Mabert 2008)

Three studies evaluated the use of information technology (Gil-Saura and Ruiz-Molina 2011), self-service technology (Bhappu and Schultze 2006), routines and operational systems (Nätti and Ojasalo 2008) to performance of delivery system.

Regarding to controlling, our sample shows five studies about service quality: one study investigated the evaluation of services by email and online (Deutskens et al 2006); one study adapted the SERVQUAL (Gounaris 2005); one study explored the opinion of customers when evaluating strategic alliances (Bourdeau et al. 2007); other study identify six dimensions important for evaluation of B2B customer (Howden and Pressey 2008); and another study explored the influence of cultures on tolerance of service mistakes (Reimann et al. 2008).

Finally, the relationship between B2B customer and service provider is the topic most investigated. Some studies addressed the antecedents of such relationship, like, for example, trust, cooperation, loyalty, and commitment (Huang 2008, Kiely 2005, Tsiros et al. 2009, van Doorn 2008, Čater and Čater 2009) while others addressed factors present in the relationship that generate benefits like improved operational performance (Dholakia et al. 2009), information exchange, quality, flexibility (Mithas et al. 2008, Ryals and Humphries 2007), cost reduction, and loyalty (Wallenburg 2009, Briggs and Grisaffe 2010). One study presented an instrument to measure the relationship between B2B customer and service provider (Mittilä et al 2002).

Conclusion

We review the literature searching for service operations management models to find models that helped us creating one related to B2B services and their characteristics. We created a general B2B service operations management model to deal specifically with such type of service. Based on this model, we conducted a systematic literature review in the top six journals of operations management to find articles that have addressed each part of our proposed model. In this first stage of our study, we found 31 articles distributed among the journals analyzed and obtained a picture of what has been published about this topic in the literature. These results suggest that most studies are concerned with the relationship between B2B customer and service provider, strategy, and controlling of service outputs. More articles have to be analyzed in order to provide a better picture of publication about this topic, however, our model and results can serve as a guide for scholars interested in developing research about B2B service operations management, a area still underdeveloped.

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