Business-to-business service operations: 
a systematic literature review and content analysis

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Abstract
This paper explores the main topics under investigation about B2B service operations. We developed a general model of B2B service operations to serve as a guide for our analysis. We collected data from 106 papers and perform a content analysis. Results show a series of interrelated topics and constructs.

Keywords: B2B Service Process, Systematic Review, Content Analysis

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, delivery, and control 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 threefold. 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 106 papers. 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. Finally, we make a content analysis of constructs that were revealed during the systematic literature review. Results show the constructs that were mostly studied and the relationship among them providing a conceptual map of B2B service model constructs.

Our paper is organized as follow. First, we review the literature related to stages of our B2B service model, in order to explain, in details, each part of the process. Secondly, we introduce the methodology of systematic literature review and content analyses. Then, we show the results of our research. Finally, we present some final considerations.

**Literature review**

In our paper, we developed a b2b service model in order to explain the process of providing services in b2b marketplace. Our model consists of seven phases: strategy development, negotiation process, inputs provision, service delivery, service output, control of outputs and relationship between B2B buyer and seller. Figure 1 below shows our model and the relationship between each one of the phases.

![Figure 1 – Business-to-Business Service Model](image)

The first stage of our model is the development of strategies. In this stage, both buyer and seller have to develop their own strategies to achieve their own goals. In the case of a buyer company, the service would be a component, a semi-manufactured item, an instrumental piece or a consumption element in its own offer, but it will never be its core competence (Apte and Mason 1995; Jackson et al. 1995; Wynstra et al. 2006). The buyer has to develop its strategies in accordance to the usage of service. On the other hand, the service itself is the seller’s core competence and the seller has to develop it in terms of the service concept, the service delivery system and the target market (Edvardsson and Olsson 1996; Froehle and Roth 2007; Heskett 1987).
In the second phase, the buyer and the seller companies start to interact and they bring their needs and offerings to the market (Day and Barkdale 2003; van der Valk and Rozemeijer 2009). This stage is so difficult because the inherent characteristics of business services, like intangibility, coproduction, risk management, buying centers, etc (Ellram et al. 2007; File et al. 1994; Jackson and Cooper 1988). In the negotiation process, seller and buyer act in different ways, as their nouns predict. The seller has to sell its service through the process of preparing a favorable environment, searching the buyer’s needs, capturing who is/are the decisor(s) in the buyer company and, finally, showing its offer (Plank and Dempsey 1980). By contrast, the buyer company has to do the process in accordance to its structure, identifying its needs, searching possible suppliers, asking proposals, choosing one supplier and, finally, buying the service (Smeltzer and Ogden 2002; Stock and Zinszer 1987). In the final moment of the negotiation process the buyer and the seller formalize a contract which describes the responsibilities of each one of them in the provision of service (Grover and Malhotra 2003; Xue and Field 2008).

After the negotiation process, both buyer and seller have to arrange their own bundle of inputs in order to coproduce the service (Fließ and Kleinaltenkamp 2004). In B2B context, inputs are discussed as resources and they can be categorized into three groups (Barney 1991; Froehle and Roth 2007). Organizational inputs are those that put functionality in the firm like formal and informal structures. Physical resources are tangible items like devices or buildings. Intellectual resources, finally, are those linked to people such as experience and skills of employees.

In the fourth stage, the service is coproduced and delivered. In this phase, both buyer and seller have to execute each role they assumed in the negotiation process in order to transform inputs into outputs (Mills et al. 1983; Sampson and Froehle 2006). The process of delivering can be standardized or customized depending on the offer negotiated (Goldstein et al. 2002; Schmenner 2004). Also, the process can be made in front of or behind the buyer’s visibility or, yet, it can be made by the usage of technology (Buzacott 2000; Froehle and Roth 2004; Silvestro et al. 1992). Here, there are many tools to help both buyer and seller in the execution of their own roles in the delivery of service (Sampson 2012; Shostack 1984).

In a consequence of delivering, the fifth stage of the process are the outputs of service (Karmarkar and Pitbladddo 1995; Sampson and Froehle 2006). Here, again, some characteristics of services, like intangibility, put complexity in the seller’s and buyer’s point of view of outputs (Fitzsimmons et al. 1998). Moreover, output is the core competence of the seller and, on the other hand, it is a piece in the production process of the buyer company (Edvardsson and Olsson 1996; Goldstein et al. 2002; Wynstra et al. 2006).

Outputs in a general way will be evaluated in the stage of control, which is the sixth part of our model. However, the control phase includes comparison with standards, performance measures and corrective actions in order to achieve goals (Chase and Tansik 1983; Karmarkar and Pitbladddo 1995; Roth and Menor 2003). Although the control is a very difficult action in services, it can be done based on what was discussed and contracted (Handley and Benton 2009; Xue and Field 2008). The evaluation of inputs can be done in an operational or in a relational point of view (Backhaus and Bauer 2000; Parasuraman et al. 1988; Stank et al. 1999). Otherwise, controlling can be exercised in a formal or in an informal way, based on behaviors or in output, which depends on the kind of service (Silvestro 1999; Stouthuysen et al. 2012).

The last stage of our model is the relationship between buyer and seller. The relationship is established by both parts after the service is provided and it will be represented by repurchases. Effective relationships provide many linkages between buyer and seller. Firstly operational linkages are represented by systems, procedures and routines that can facilitate operations (Cannon
and Perreault 1999). Secondly, commitment is the degree of perception that buyer and seller are plugged in a continuous businesses and is reflected in investments in the partnership and the stability of relationship (Prahinski and Benton 2004). In third place, cooperation is the perception that partners work together to achieve mutual goals and is related to market flexibility and conjunct problem solving, for example (Cannon and Perreault 1999; Prahinski and Benton 2004). All of this linkages can provide a strong relationship which will reduce costs and risks, and will increase profitability for both parts and attitudinal loyalty by the buyer firm (Kumar 2002; Stank et al. 1999).

**Methodology**

In our paper we utilized a systematic literature review as a major method and we used a content analysis to analyze and to reduce the results of revision. Our aim with these two methodologies is to find a lot of constructs and variables to explain in details our B2B Service Model presented above.

The systematic literature review is an approach that permits to reduce many evidences in an explicit and systematic way into an easy and short report that helps the reader to know and to understand something that she/he has an interest in (Pittaway et al. 2004; Tranfield et al. 2003). By using this approach, the researcher can reduce his/her own bias in the research in order to more explicitly appreciate and synthesize his/her own findings (Akobeng 2005; Tranfield et al. 2003).

Then, based on the approach’s guidelines we developed the planning, the conducting and the reporting of our research (Tranfield et al. 2003). Firstly, we revised a lot of papers in order to get a better understanding about the question we want to solve. After this whole understanding about the question, we define a lot of keywords in order to look for papers that can solve our question. Then, we did a collect of papers in a database. To do this, we used a combination of the words “service”, “b2b” and “business-to-business” in the Web of Science Database. With this proceeding, we found a set of 1157 papers. Then, we reduced this set of papers using the options provided by the database. We chose “articles” in the option “document type” and “Business”, “Management” and “Operations Research Management Science” in the option “Web of Science Categories”. After this proceeding, we excluded all papers published in marketing journals, because we choose to use the point of view of operations in our research. Then, after all of these proceedings we found a set of 115 papers, all of them published until 2012. In addition, we exported the database to HistCite Software and we analyzed their titles and abstracts to confirm their inclusions in our set of papers. By this way we, again, excluded 9 papers because they did not discuss subjects related to our research question. Finally our sample of papers consists in a set of 106 papers, divided into a set of 27 international journals (due the restrict space in this paper, the total list of a 106 papers and respectively journals is available with these authors; please, email us to receive this list).

So, in order to analyze our set of papers we developed a content analysis method. Firstly we did a global analysis of each paper with the objective of classifying each one in each part of our B2B service model (Flick 2009). This classification followed the process of thematic categorization proposed by Grounded Theory (Corbin and Strauss 1990; Strauss and Corbin 1994). In first place, we sorted 4 papers in the discussion about all process of service. After, in order to categorize the papers we divided them according to co-production process. If the paper discusses something prior the coproduction process, we classified it in the Negotiation Process. But if the paper discusses some strategy to develop services, we included it in the stage of Development of
Strategies. Thus, the Negotiation Process accounts 18 papers and the Development of Strategies accounts 25 papers. If the paper discusses the process of co-production itself, we classified it in the Service Delivery stage, but if the paper discusses inputs or outputs we classified it in the respectively stages. Thus in the Service Delivery phase we classified 13 papers, and, unfortunately, there are no papers in the stages of Inputs Provision and Service Outputs. Finally, if the paper discusses something post co-production, we classified it in the Relationship stage, unless if the paper discusses methodologies of control. In this case, we classified the paper in the phase Control of Outputs. As a result, by the last classification process we included 32 papers in the Relationship stage and 14 papers in the Control of Outputs stage. The results of this process can be synthesized and shown in the table 1, below.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Number of papers</th>
<th>% of the total</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Process</td>
<td>4</td>
<td>3.77%</td>
</tr>
<tr>
<td>Strategy Development</td>
<td>25</td>
<td>23.58%</td>
</tr>
<tr>
<td>Negotiation Process</td>
<td>18</td>
<td>16.98%</td>
</tr>
<tr>
<td>Provision of Inputs</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>System Delivery</td>
<td>13</td>
<td>12.26%</td>
</tr>
<tr>
<td>Service Outputs</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Control of Results</td>
<td>14</td>
<td>13.21%</td>
</tr>
<tr>
<td>Relationship</td>
<td>32</td>
<td>30.19%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>106</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

After the classification of all 106 papers, we developed a set of qualitative analyzes in accordance to its content (Bardin 1979; Bauer and Gaskell 2008). Then, we used a sequence of classifications, firstly into an open categorization using the construct’s and variables’ names, after into axial categorization following the relationship between constructs and variables, and, lastly into selective classification putting similar constructs and variables together (Flick 2009; Strauss and Corbin 1994; Suddaby 2006). All of this process was provided with the help of the software Atlas.ti, including the maps of constructs putting together into each stage (Flick 2009; Weitzman 2000). By the end of this process we found a big set of constructs and variables included in each phase of our B2B service model. These sets we will present in the final stage of systematic literature review: the report. The report will be presented in the next section since it is of great importance for this study.

**Results**

The systematic literature review claims that the report of research can be made based on a qualitative or a quantitative approach (Tranfield et al. 2003). In order to achieve the aims of this study we used the qualitative approach because we want to explore the set of papers in a deep way. So, a little group of 4 papers was included in the all process of service group. We divided this group into three categories of constructs and variables. The first one put together the approaches used by researchers in their discussions about service: the Nordic School, the Germany and the American one. On another category, we included a set of roles the buyer company performs into service process both in B2B and B2C context. Finally, we added in the last category the discussions about the complex context of service systems, those entities that integrate resources to achieve joint outcomes.
In the point of view of strategy we sorted a set of 25 papers in seven categories. The first one ranked the strategic options (cost or quality) that can be chosen by the firms. The second one encompassed strategic contexts such as e-marketplace, brand management, relationship management, networks of firms, internationalization process, or even servitization. The third category sorted external, relational and internal aspects of strategies. The external aspects are related to industry characteristics, supplier competition, target market and client preferences. In the relational aspects, we included social capital and inter-relationship between firms. The internal ones are considered the resources, the organizational structure, the service attributes and the entrepreneurial attitude. The last four categories of strategy are related to call-center business models, market orientation, new service development studies and internal strategies such as internal services and service orientation to excellence, for example.

In the second stage of our B2B service model, we analyze a set of 18 papers, all of them are linked to negotiation process. The papers were divided into five categories. The first one considered e-marketplace as a very different context of negotiation process. In this category we put together constructs and variables that discussed e-reverse auctions, e-procurement, success factor and barriers in adopting e-commerce, and even, e-trust. The second category of this stage gathered discussions about desired inputs in the point of view of both seller and buyer, such as price, needs and specifications of service, among others. The third category sorted undesirable inputs like wrong specifications, for example. In the fourth category we jointed undesirable outputs like conflicts or dissolution of contract. Finally, in the fifth category we classified the desirable outputs of negotiation process: contracting and a long term relationship.

Here we have to present a little explanation. We did not find any studies that discuss neither the stage of input provision, nor the stage of service output. Then we relate, now, the stage of service delivery. In this stage we found a lot of 13 papers and we categorized their constructs and variables into three groups. The first category sorted discussions about the way service have to be delivered, including characteristics and contingencies linked with the realization of the service concept. The second category ranked the technological base of service, including constructs that discuss trust seals, success factors and modelling of services. The third and last category of this stage grouped discussions about how many channels are used in the service delivering process, since firms can use face-to-face encounters, encounters realized by technology, or even a mix of them.

The sixth stage of our model grouped a lot of 14 studies and their constructs and variables that discussed control in the service process. Studies were gathered into six categories. The first encompassed service failure and recovery. The second one gathered the measures of performance, including those, which consider client in the center of measuring. Perceived value, satisfaction and perceived quality were the subjects of our next three categories. Perceived value sorted constructs and variables related to sacrifices and benefits that are perceived by the service clients. Satisfaction in a more deeply way rated discussions about basic, facilitator and driver dimensions of satisfaction, as well as the dynamic formation of satisfaction and instruments that can measure satisfaction. On another way, the category of perceived quality sorted constructs about the form buyer company build its quality, especially in terms of expectations and perceptions. Finally, the last category nominated repurchase intention grouped the motivations to repurchase, especially perceptions of quality, satisfaction and value.

The last stage of our B2B service model sorted constructs and variables about relationship between buyer and seller companies. In this stage, we grouped 32 papers and we classified them into 9 categories. The first one brought out the theoretical approach of the IMP Group that
encompasses an interaction approach to explain B2B relationships. The most important category in this phase grouped a set of non-contractual elements that antecedes the relationship. In one hand there are elements linked to tasks in terms of operational linkages, such as technology investments, quality of devices and equipments, processes, knowledge sharing, cooperation and collaboration between firms. In another hand, the interaction elements encompass items building up with day-by-day relationship, such as trust, commitment, flexibility and responsiveness. The interaction elements help the stability of the relationship between firms. The third category of relationship grouped discussions on systems used to manage the relationship. The fourth category sorted constructs about ongoing relationship, like changes in offers, for example. The fifth category ranked values that relationships can build over the years, such as financial, human, strategic or knowledge values. In a sixth category, we grouped elements that can influence quality in the relationship, like conflicts, external social linkages and historical performance among others. In the last three categories, we classified constructs and variables on evaluation of relationship, ending of relationship and loyalty. In evaluation, the set of constructs discussed effectiveness and strength of relationship, as well as evaluation of actions and attitudes providing by both buyer and seller. In ending of relationship, studies encompassed motivations and barriers that can move partners to finish partnering. Finally, the category loyalty was built up on probability of repurchase behavior, propensity to buy more and more, depending on time and, finally, word-of-mouth.

Conclusion

In this paper we attempted to introduce a B2B service model whose major constructs encompasses all main steps from strategy formulation to evaluation of outcomes and relationship between the buyer and the seller. Based on this model, we made a systematic literature review to identify papers that were published about the constructs in our model. Finally, we made a content analysis to understand the citation of various constructs related to our model and figure out how these constructs are related to one another.

Our results provide some insights for scholars in the service operations management field. First, our model provides an overall framework to understand how service provision in the context of B2B services can be unique and distinct from the service models for provisions of B2C services. The model introduced in this paper can serve as a guide to other scholars interested in developing their own model and improving the literature about this topic.

Second, results provided by our systematic literature review provides a picture about what other scholars have been done in B2B service provision. Our results showed that some constructs have received more attention than others, which leads us to two conclusions. First, some constructs are under investigated and could receive greater attention from scholars in order to advance the knowledge in this field. Second, constructs in our model may not precisely adhere to the perspective of other authors and, then, should be reviewed to better reflect the nature of B2B services.

Finally, results from our content analysis reviewed a set of relationship that can be useful for future research by portraying the constructs and their linkage with other constructs. In other words, these results provide a comprehensive conceptual map that can help other scholars in determining those relationships that are more relevant in their future research. In this regard, some constructs have shown a more central role in B2B service provision, while other constructs have less importance in this set of relationships.
Bibliography


