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Defining Demand Management

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Practical implications: This study contribute to a better understanding and a broader view of demand management. The framework proposed has considerable applicability for practitioners providing guidance to implement demand management process in order to overcome the challenges of combining customer needs and supply chain capabilities.

Originality/value: The demand management concept and framework have not previously been studied in great depth. The paper provides new knowledge and further contributes to academic thinking by clarifying demand management concept and proposing a guidance for demand management implementation.

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1. INTRODUCTION

Demand management is an emerging topic in supply chain management. It is focused on a fast and adequate integration of supplier needs in order to balance and strategically align demand with operational capability in the supply chain. Lack of accurate information is among some of the progressive demand alignment problems in a supply chain, which leads to inefficient customer service, poor stock rotation, and high obsolescence rate aggravated by the wide diversity of products.

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Some authors highlighted the need of further research on demand management (Adebanjo, 2009; Kaipia *et al.*, 2006; Simatupang and Sridharan, 2002; Taylor, 2006; Taylor and Fearne, 2006) after finding, through empiric research, that the lack of alignment between supply and demand was indeed a major and expensive problem in a number of supply chains that suffered losses due to waste, lack or surplus of inventory, and low profitability.

There is little information available on demand management (Adebanjo, 2009; Taylor, 2006; Taylor and Fearne, 2006). According to Hilletoth *et al.* (2009), demand management is a way for organizations to obtain substantial benefits focusing on customers, besides emphasizing the need of collaboration between marketing and supply chain management in order to generate value. Nevertheless, these authors point out that the application of demand management concepts is still fairly recent, and therefore it needs further investigation.

According to Mentzer and Moon (2005) demand management, as well as the concept of demand per se, have not been well understood by supply chain agents. Many companies have failed to realize that achieving chain coordination is not possible without an adequate understanding of demand. Practitioners and academics have used terms like Demand Management, Demand Planning, Demand Forecasting, Sales and Operations Planning (S&OP), Collaborative Planning, Forecasting and Replenishment (CPFR), Integrated Business Planning (IBP), Vendor Managed Inventory (VMI) to designate similar but distinct activities and processes. Therefore, there is a confusion behind the term 'Demand Management'.

Some authors discuss the need for demand management in the supply chain and the interactions that involve such process (Esper *et al.*, 2010; Hilletoth *et al.*, 2009; Juttner *et al.*, 2007; Mentzer and Moon, 2005; VICS, 2010), but they do not provide a guidance for its implementation. Croxton *et al.* (2008) propose a demand management framework whose structure allows the understanding of demand management from all its interfaces providing an integrated view of its relationship with other seven supply chain processes proposed by the Global Supply Chain Forum (Croxton *et al.*, 2008; Lambert, 2004; Lambert and Cooper, 2000; Lambert; Cooper; Pagh, 1998). Nevertheless, these authors do not describe how the demand management process can be implemented independent of the other seven business processes proposed by the Global Supply Chain Forum.

Thus, the objective of this study is to define demand management in supply chain in order to clarify this concept. In addition, this article aims to provide a guidance for the preconditions that need to be in place in order for a company to implement demand management with its suppliers and customers. In order to develop this research, a systematic literature review (Tranfield *et al.*, 2003; Tranfield *et al.*, 2004) on demand management was conducted.

Therefore, the importance and contribution of this study are justified by the fact that supply chain management is considered a new, not yet consolidated concept which requires further and deeper investigation and definitions. Hence, the aim of this study is to contribute for a better understanding and wider approach to demand management, which can lead organizations to implement it in order to overcome the challenges of combining customer needs and supply chain capabilities.

This study was structured into three sections. Initially, the research methodology is discussed

including the three phases of the systematic literature review. Next, the literature review results are reported describing the demand management definitions and requirements. The last section presents the conclusions.

II. RESEARCH METHODOLOGY

The purpose of a literature review is to enable researchers to map and analyze the significant literature published on a topic and to establish a particular issue for its deep investigation. An alternative to literature review is its systematic review (Tranfield *et al.*, 2003). The systematic literature review is a methodology that uses relevant literature to a particular issue as data source providing a selection, critical contribution evaluation, analysis, and summary of each work. It describes the evidences leading to reasonable conclusions about what is known and not known about the topic (Denyer and Tranfield, 2009).

Hence, this research is divided into three stages: planning the review, conducting the review, and reporting the review (Table 1).

Table 1 : Stages of a systematic review

<p>Stage I: Planning the review Phase 1 – Scoping study Phase 2 – Producing a review protocol</p> <p>Stage II: Conducting the review Phase 3 – Identification of studies Phase 4 – Data synthesis</p> <p>Stage III: Reporting the review Phase 5 – Data analysis Phase 6 – Discussion, limitation, and conclusions</p>

Source: Adapted from Tranfield et al. (2003, p. 214); Tranfield et al. (2004, p. 380)

Next, a description of the stages that compose the process of development of a systematic review is presented.

a) *Stage I: Planning the review*

The purpose of this review is to identify the concepts of demand management from a perspective of

the supply chain management and its frameworks. Therefore, a research protocol was prepared including information on how the studies would be found and selected from the literature and the criteria for including those studies (Table 2).

Table 2 : Review protocol

<p>1- Access to supply chain management published material: Ballou (2006); Cooper <i>et al.</i> (1997); CSCMP (2009); Fisher (1997); Lambert (2008); Lambert (2004); Lambert and Cooper (2000); Lambert <i>et al.</i> (1998); Mentzer <i>et al.</i> (2001); SCC (2009).</p> <p>2 - Access to book chapters on Demand Management: Croxton <i>et al.</i> (2008); Mentzer and Moon (2005); Mentzer <i>et al.</i> (2007).</p> <p>3- Access to the following databases: Science Direct, Emerald, and Wiley-Blackwell. Advanced search using the terms: 'demand management', 'demand supply chain', 'demand chain', 'demand chain management' as title keywords or as text keywords.</p> <p>4- Access to the Brazilian Digital Library of Electronic Theses and Dissertations. Advanced search using the terms: 'demand management', as title keywords or as text keywords.</p> <p>5- Access to the major Brazilian scientific journals covering subjects such as Production Engineering and Management. Advanced search using the terms: 'demand management', as title keywords or as text keywords.</p>

6- Access to proceedings of major Brazilian scientific events on Production Engineering and Management. Advanced search using the terms: 'demand management', as title keywords or as text keywords.

b) Stage II: Conducting a review

The literature review began by surveying the topic "Supply Chain Management" on international and national books and classic international journals on this topic.

During the selection of articles, the titles and abstracts that included demand management in supply chains were evaluated. Book chapters, articles, theses, or dissertations that covered demand forecasting only were excluded. Among the international and national books on supply chain management, the chapters on demand management were selected.

Information from the following databases Science Direct, Emerald, and Wiley-Blackwell, available on Capes' Journal Citation Reports Portal, were analyzed retrospectively up to 2011. An advanced search was conducted using the terms: 'demand management', 'demand supply chain', 'demand chain' 'demand chain management' as title keywords or as text keywords considering "every year" (available in the database up to 2011) and 'journals only' as filters. Table 3 shows the total number of articles that resulted from the literature review per database and terms searched.

Table 3: Total Number of articles that resulted from the literature review per-database and terms used in the search

Advanced search: terms used as title keywords or as text keywords ('every year' and 'journals only')	Number of articles per database		
	Science Direct	Emerald	Wiley-Blackwell
Demand management	100	47	37
Demand supply chain	100	14	5
Demand chain	100	11	6
Demand chain management	48	6	1

Hence, around 200 articles were analyzed, from which 47 were selected. Those included the concept and/or frameworks and/or challenges of demand

management from a supply chain management perspective. The databases and respective journals from which the articles were selected are shown in Table 4.

Table 4: Databases and respective journals from which the articles were selected

Database	Number of Articles	Journals
Emerald (34 articles)	1	European Business Review
	2	Industrial Management and Data Systems
	1	Integrated Manufacturing Systems
	1	Journal of Business and Industrial Marketing
	1	Journal of Consumer Marketing
	1	Journal of Contemporary Hospitality Management
	1	Journal of Enterprise Information Management
	8	Journal of Logistics Management
	1	Journal of Operations and Production Management
	6	Journal of Physical Distribution and Logistics Management
Science Direct (12 articles)	1	Journal of Retail and Distribution Management
	10	Supply Chain Management
	2	European Journal of Purchasing & Supply Management
	2	European Management Journal
	4	Industrial Marketing Management
	1	International Food and Agribusiness Management
	1	Journal of Operations Management
2	Journal of Production Economics	
Wiley-Blackwell	1	British Journal of Marketing

The analysis of the selected articles shown in Table 4 indicated the need of further search in different

databases. Therefore, 18 other articles were selected and analyzed (Table 5).

Table 5: Databases and respective journals from which other articles were selected

Database	Number of Articles	Journals
Academy of Marketing Science	3	Journal of the Academy of Marketing Science
Gale	3	Harvard Business Review
Informs	1	Management Science
Wilson	3	Journal of Marketing
Other databases accessed through Michigan State University or School of Management at Cranfield University (8 articles)	1	Conradi Research Review
	3	Food Logistics
	1	Journal of Business Logistics
	1	Journal of Logistics Research and Applications
	1	Journal on Chain and Network Science
	1	Production Engineer

The search of national (Brazil) scientific publications included the digital library of electronic theses and dissertations, articles published in journals, and scientific events' proceedings on Production Engineering and Management.

The digital libraries accessed were: Digital Library of Electronic Theses and Dissertations (CAPES), Digital Library of Electronic Theses and Dissertations (USP), and the library of the Federal University of São Carlos (UFSCar). An advanced search was conducted using the terms 'demand management' as title keywords or as text keywords resulting in 4 publications. Among them, only one thesis and one dissertation were selected. In addition, following fellow researchers' suggestions, two other dissertations held by the library of Methodist University of Piracicaba (UNIMEP) that addressed demand management were also analyzed.

The Scientific Electronic Library Online (SciELO) was accessed in the search for articles in the following journals: *Produção* (Production) and *Gestão & Produção* (Production and Production & Management). No publications resulted from the search using the terms 'demand management' as title keywords or as text keywords in the RAUSP – *Revista de Administração da Universidade de São Paulo* (journal of management of the University of São Paulo) and using 'demand management' as keywords (search restricted to author and keywords) in the RAE - *Revista de Administração de Empresas* (journal of business administration).

Fifteen articles that included the terms 'demand management' in the title were found in the proceedings of scientific events. Among them, 4 were selected for analysis (Table 6).

Table 6: Articles identified and selected from Brazilian scientific events' proceedings

Scientific events	Number of articles	Number of articles selected
<i>ENEGEP (Encontro Nacional de Engenharia de Produção)</i> – National Meeting on Production Engineering - from 2000 to 2010	10	2
<i>SIMPEP (Simpósio de Engenharia de Produção)</i> – Production Engineer Symposium- from 2000 to 2010	2	1
<i>SIMPOI (Simpósio de Administração da Produção, Logística e Operações Internacionais)</i> – Symposium on Production, Logistics, and International Operations – from 2005 to 2010	1	1
<i>ENANPAD (Encontro da Associação Nacional de Pós-Graduação e Pesquisa em Administração)</i> – National Association of Graduate Studies and Research in Administration Meeting –all publications issued	2	2

The book chapters, articles, theses, and dissertations included in the systematic review were summarized highlighting their major points. The next section presents the findings of the systematic literature review according to stage III: Reporting the review.

III. RESULTS

The concepts and objectives of demand management discussed by several authors on Table 7 indicate that demand management cannot be

considered an isolated process or an activity restricted to sales forecasting. Those authors offer a more comprehensive concept that involves the creation of synergies between operations and marketing aiming at understanding the market and developing actions synchronized with the company strategy, production capacity and final customer needs.

Table 7: Demand management definitions

Authors	Demand Management Definition
Croxton <i>et al.</i> (2008)	Supply chain process composed of operational and strategic sub-processes that focus on determining sales forecasting, synchronize it with the production capacity of the company and the chain, incorporate the company strategy, and map customer needs.
Hilletoth <i>et al.</i> (2009); Hilletoth and Ericsson (2007); Juttner <i>et al.</i> (2007); Walters (2006); Walters and Rainbird (2004)	Alignment of demand creation and demand fulfillment processes within the internal functions of a particular company and across companies within the chain thus exploring the synergies between market and SCM aiming at obtaining competitive advantages.
Mentzer <i>et al.</i> (2007) Mentzer and Moon (2005)	An element of the supply chain management. Creation of a coordinated demand flow between the members of the supply chain network and their markets.
Vollmann <i>et al.</i> (2004)	Key interface between the production activities of a company, and planning and market control systems. It encompasses several activities including forecasting, processing customer orders establishing delivery dates, and balancing demand and supply.
Rainbird (2004)	Understanding of the current and future customer expectations, market characteristics, and available alternative responses that result from operational processes.

The literature review allowed the identification of two demand management frameworks that are summarized in Table 8. Among them, some marketing researchers defend the need for integration between marketing and supply chain management (Esper *et al.*,

2010; Hilletoth *et al.*, 2009; Juttner *et al.*, 2007; VICS, 2010) and others focus on supply chain and define demand management as a process or an element of supply chain management (Croxtion *et al.*, 2008; Mentzer and Moon, 2005).

Table 8: Demand management framework

Demand management framework	Authors	Demand management framework description
Demand management as an integration of marketing and supply chain management	Esper <i>et al.</i> (2010)	Suggest that the success of the supply chain in creating customer value requires an extensive integration between the processes focused on demand and those focused on supply.
	Juttner <i>et al.</i> (2007); Hilletoth <i>et al.</i> (2009)	Demand management is composed of the processes of demand creation and demand fulfillment, and the coordination of these processes through the collaboration of the two areas is necessary.
	VICS (2010)	Demand management as the integration of Sales and Operations Planning (S&OP) and Collaborative Planning, Forecasting and Replenishment (CPFR).
Demand management as a process or an element of supply chain management	Croxton <i>et al.</i> (2008)	Demand management as a process of supply chain management emphasizing the need to implement operational and strategic sub-processes focusing on understanding, influencing, and managing customers' demand achieving a fast response throughout the supply chain.
	Mentzer and Moon (2005)	Demand management is the creation of a coordinated demand flow between the members of the supply chain and their markets. They consider demand management as an element of supply chain management encompassing marketing and its coordination between the agents in the supply chain (internal and external) and demand planning.

Among the authors mentioned in Table 8, only Croxtion *et al.* (2008) propose a demand management framework that details the implementation process. Under this perspective, the model divides demand management into two parts: strategic sub-process and operational sub-processes. Figure 1 shows the interfaces between each sub-process with the other seven processes proposed by Global Supply Chain Forum.

Demand Management

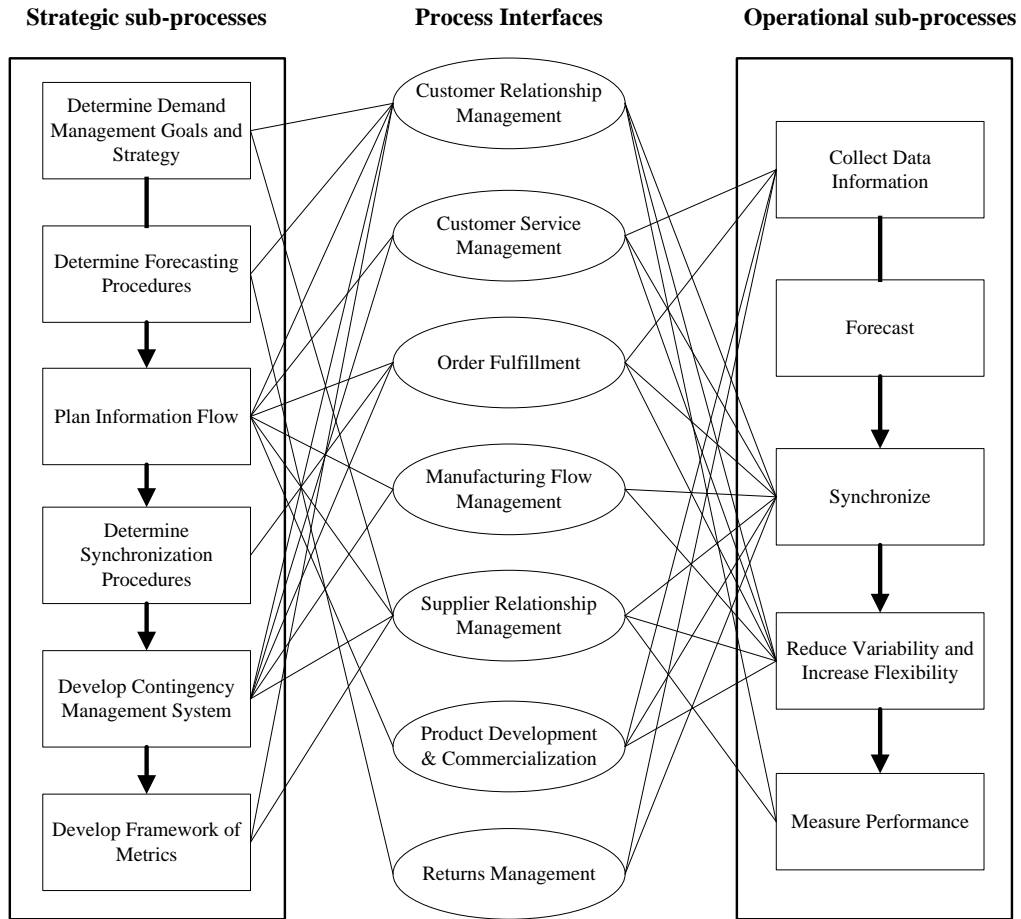


Figure 1 : Demand Management Process

Source: Croxton et al. (2008, p. 89)

The interdependence of the demand management process on the other processes limits the model proposed by the authors since the companies may not have implemented them. Hence, the literature review enabled the identification of the requirements for an effective implementation of demand management in order to eliminate its interdependence on the other supply chain processes. Those requirements are shown in Figure 2, and each one will be discussed next.

a) Collaborative supply chain management

According to Mentzer et al. (2001), supply chain orientation is a requirement for supply chain management that consists of the development of common, inter and intra-firms collaborative efforts. Those efforts represent the collaboration as proposed by Chen, Daugherty and Roath (2009); Fawcett, Magnan and Mccarter (2008); Holweg et al. (2005); Horvath (2001); Mentzer, Fonghin and Golicic (2000); Min et al. (2005); Sabath and Fontanella (2002); Simatupang and Sridharan (2002, 2004); Stank, Keller and Daugherty

(2001); Vieira, Yoshizaki and Ho (2009): information sharing; planning and execution of joint actions; risk sharing, costs and gains; development of inter and intra-firms relationships; financial and non-financial investments; definition and monitoring of performance indicators.

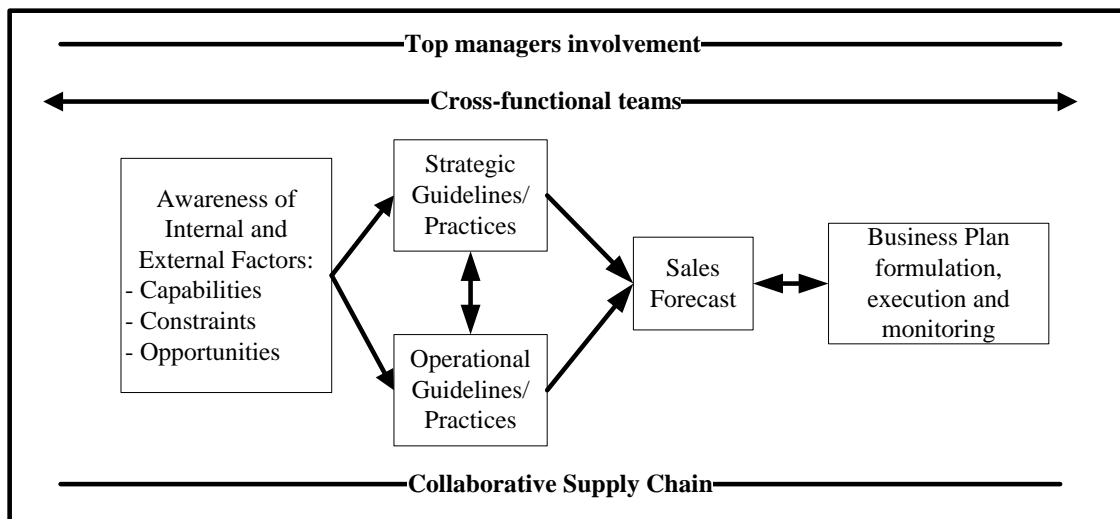


Figure 2 : Demand management requirements

b) Grasping market capabilities, constraints, and opportunities

In order to implement demand management, it is necessary to understand the market (Croxton *et al.*, 2008; Esper *et al.*, 2010; Hilletoth *et al.*, 2009; Juttner *et al.*, 2007; Mentzer and Moon, 2005; Rainbird, 2004) through the analysis of capabilities, constraints, and opportunities of internal and external environments of an organization. Grasping the organization's internal and external market will establish guidance as well as strategic and operational practices in the organization.

c) Grasping guidance and strategic/operational practices in organizations

It involves sharing strategic operational information between organizations aiming at identifying the difficulties and potentialities of partners (Vieira; Yoshizaki; Ho, 2009) and generating information as well as supply and demand forecasting (information on capabilities, initiatives, suppliers' strategies, technology, tendencies within the sector, stock level, transportation, and storage options) (Esper *et al.*, 2010). In addition, it aims at gauging partner's strategic intent that enables focusing on growing and developing, achieving market share, and improving the services provided (Min *et al.*, 2005).

d) Development of cross-functional teams

The demand management process involves an cross-functional team composed of members from different organizational levels and sectors and supply chain representatives (suppliers and customers) (Chen, Daugherty and Roath, 2009; Croxton *et al.*, 2008; Hilletoth *et al.*, 2009; Juttner *et al.*, 2007; Mentzer *et al.*, 2007; Vollmann *et al.*, 2004). This cross-functional team should have a complete understanding of the market and the guidance provided, and the strategic and operational practices in the organization (Croxton *et al.*,

2008; Esper *et al.*, 2010; Hilletoth *et al.*, 2009; Mentzer *et al.*, 2007).

e) Development of sales forecasting

Sales forecasting is a prediction of expected future market demand (Mentzer *et al.*, 2007), and it focuses on accuracy (Aghazadeh, 2004; Katz, Pagell and Bloodgood, 2003; Mentzer *et al.*, 2007; Taylor and Fearn, 2006). According to Croxton *et al.* (2008), in order to develop sales forecasting, it is necessary to determine the levels of detail and the scope of forecasting, to identify the information sources, and to define the forecast method, which could involve internal and external cross-functional teams.

f) Business plan creation, execution, and monitoring

Practitioners and academics have used terms like Sales and Operations Planning (S&OP), Collaborative Planning, Forecasting and Replenishment (CPFR), Integrated Business Planning (IBP), Vendor Managed Inventory (VMI) to designate similar but distinct activities and processes. S&OP is a cross-functional integration that focuses on conciliating marketing and operation plans in the organization (APICS, 2009; Croxton *et al.*, 2008; VICS, 2010; Wallace, 2004) and it can advance to higher S&OP integration, including inter-firms integration (Grimson and Pyke, 2007; Lapide 2005).

The CPFR is an initiative used by supply chain agents aiming at improving the relationship through the jointed planning and management of the processes and information sharing (Seifert, 2003). Therefore, in the CPFR the supplier is involved in demand planning, but according to VICS (2010), the sales plans, in general, do not include future initiatives such as marketing campaigns, promotions, and product launching. Thus, VICS (2010) proposes a combination of the S&OP and CPFR models to develop the IBP, in which the S&OP activities (internal alignment, monthly review cycle, scope of planning, involvement of decision makers, and

detailing of sales and marketing plan) are incorporated into the CPFR. For demand management, S&OP should be implemented first because according to Van Hoek and Mitchell (2006) and Gimenez (2006) the alignment should begin internal since most initiatives are crucially dependent on the active participation of other functions.

The VMI is the stock management by the supplier since the clients do not control their own inventory, which indicates that this chain tier needs to operate with limited collaboration and reliability (Claassen, Van Weele and Van Raaij, 2008). Therefore, the major difference between VMI and CPFR is that in the former the supplier is not involved in demand planning, and in the latter the supplier does not control client inventory effectively as to process resupply orders.

Therefore, it can be said that the organizations can implement different levels of initiatives of S&OP (Grimson and Pyke, 2007; Lapide, 2005), CPFR (Danese, 2007; Larsen; Thernoe; Andresen, 2003; Seifert, 2003), and VMI (Claassen, Van Weele and Van Raaij, 2008; Elvander, Sarpola and Mattsson, 2007) in the demand management process.

According to Min *et al.* (2005), the development of a joint business plan to be executed by the cross-functional teams of organizations is one of the consequences of collaboration as the partners' relationship improves. In the context of demand management, Mentzer *et al.* (2007) define "planning" as a set of specific managerial actions to be taken in order to exceed sales forecast. Based on the economic condition, competitors, Marketing, Sales, Production, and Logistic plans, the expected future market demand is determined. The business plan is therefore developed as an iterative process because if the resulting business plan is not aligned with the needs and the financial objectives of the organization, the demand forecasting should be evaluated again concentrating on determining additional efforts for a successful business plan thus guaranteeing a plan based on the financial and market reality faced by the organization in terms of logistic capabilities, production capabilities, and supply chain (Mentzer *et al.*, 2007).

With regard to the CPFR, the partner organizations will develop a joint business plan to identify the significant factors that affect demand and supply establishing sales forecasting and resupplying (VICS, 2004). S&OP involves an integration of customer focused marketing plans with the management of the supply chain in order to support the annual business planning (APICS, 2009). S&OP links the company's strategic plans and business plan to its detailed processes, this process requires a synchronized demand, supplies, and finance plan for a period between 18 and 24 months identifying the risks, opportunities, and action plans to solve problems (Wallace, 2004). VICS (2010) proposes the development of an integrated business plan, in which the S&OP activities, such as

internal alignment, monthly review cycle, scope of planning, involvement of decision makers, detailing of sales and marketing plan are incorporated into the CPFR.

According to Esper *et al.* (2010), applying the knowledge about internal and external environments and demand forecasting is made possible through the demand plans (4Ps of marketing: price; place, promotion and product). Therefore, in the demand management, the marketing and supply management work together in order to develop adequate relationships for different customers, customer priority strategies, and accurate information process to customers. They also focus on developing combined actions to conciliate value requirements and operational capabilities.

According to Croxton *et al.* (2008), the objective of executing a single plan is to balance Manufacturing needs and costs, Logistics, Sales and suppliers to meet an anticipated demand. Therefore, the terms "joint business plan" (Barratt and Oliveira, 2001; Min *et al.*, 2005; VICS, 2004), "integrated business plan" (VICS, 2010), "business plan" (Mentzer *et al.*, 2007; APICS, 2009; Wallace, 2004), "demand and supply management plans" (Esper *et al.*, 2010), and "single execution plan" (Croxton *et al.*, 2008) are used to designate the set of actions developed by partners in the supply chain management. Those actions include synchronizing marketing and operational management to better understand demands, and should be aligned with the strategic plans of organizations.

The process of collaboration should be formalized detailing the key performance indicators (Min *et al.*, 2005) that involve specific focus on costs, productivity, goals, and gains. In the demand management process, the cross-functional teams define the indicators to measure and monitor the process and establish performance improvement goals (Croxton *et al.*, 2008).

The aim to implement demand management is to create synergies between operational and marketing management in order to understand the market and develop actions aligned with organizational strategy, productive capability, and meeting final customer needs (Croxton *et al.* 2008; Hilletoft and Ericsson, 2007; Hilletoft *et al.*, 2009; Juttner *et al.*, 2007; Mentzer *et al.*, 2007; Mentzer and Moon, 2005; Rainbird, 2004; Vollmann *et al.*, 2004; Walters, 2006; Walters; Rainbird, 2004).

g) Top management involvement

According to Min *et al.* (2005), the internal alignment involves determining organization internal actions and the role of external partners. In order to guarantee this alignment, the top management group involvement is essential. The support of senior decision makers is important for both financial and non-financial investments. Furthermore, the interaction between top

management groups aiming at identifying opportunities and improvement areas is crucial to create an information sharing and communication environment among the supply chain agents (Min *et al.*, 2005).

The executive S&OP meeting requires the participation of top management group representatives to make decisions regarding the recommendations discussed in previous sections and to solve conflicts (Wallace, 2004). Lapide (2004) reinforces the need for senior decision makers' participation in the S&OP.

Hence, demand management should balance the customer needs and the company capabilities reducing uncertainties and providing efficient flow in the supply chain. Therefore, demand management is essential for the success of supply chain management. According to Croxton *et al.* (2008) proper implementation of the process can improve the level of services delivered to the customer and can derive substantial financial benefits such as inventory reduction, better use of assets, and product availability improvement.

IV. CONCLUSIONS

This study contribute to a better understanding and a broader view of demand management as an integrated process that guides the actions of organizations to overcome the challenges of combining customer needs and supply chain capabilities. It clarifies the concept of demand management as the creation of synergies between operations and marketing aiming at understanding the market and developing actions synchronized with the company strategy, production capacity and final customer needs. This paper identifies two frameworks for demand management: integration between marketing and supply chain management and as a process or an element of supply chain management. As such, it should help practitioners as well as researchers understand demand management.

The framework in Figures 2 has considerable applicability for practitioners providing guidance as to the preconditions that need to be in place in order for a company to implement demand management with its suppliers and customers. Thus, in order to implement demand management process, it is necessary to understand the market through the capability analysis, constraints, and opportunities of external and internal environments to the organization. Such knowledge, together with the guidelines and strategic and operational practices of the company, focus on designing an efficient operational system to synchronize supply and demand through sales forecasting. In order to do so, the company needs a collaborative supply chain that consist of establishing corporative efforts between internal functions and external agents to the company aiming at meeting the final customers' needs and obtaining competitive advantage.

Demand management can incorporate different initiatives such as CPFR, S&OP, VMI, and IBP. The business plans are developed based on sales forecasting done by the cross-functional teams of the organizations in the supply chain. Those teams have also the responsibility to execute and monitor the business plan in order to find combined alternatives to better serve the clients and redirect actions in difficult situations. The whole demand management process should be supported by the organization top management group to guarantee a successful implementation of the process. Therefore, it can be said that demand management process involves a cross-functional team composed of different level and sector members of an organization and some strategic supply chain representatives (suppliers and customers). This team will be responsible for the joint development of sales forecasting and for formulating, execution, and monitoring a business plan. Therefore, the external and internal agents in the chain should have supply chain orientation.

The business plans to be reached should be based on sales forecasting through the joint efforts of the supply chain agents. Besides the responsibility for the joint development of sales forecasting, the cross-functional teams of the focal company and its suppliers are responsible for executing and monitoring the business plan searching for joint alternatives to provide customers with better services and redirect actions in situations that diverge from expected. All demand management process should be supported by the company top management to guarantee a successful implementation of the process.

For researchers, Figure 2 provides a wealth of research questions to investigate: How demand management can be effectively coordinated within a company and across supply chain? What are the challenges for demand management? What are the key performance indicators for demand management? The results are based on a thorough review of the literature, thus this paper highlights the need for developing an empirical framework of demand management and the constructs and relationships proposed in Figure 2 is intended to guide this research.

REFERENCES RÉFÉRENCES REFERENCIAS

1. Adebajo, D. (2009), "Understanding demand management challenges in intermediary food trading: a case study", *Supply Chain Management: An International Journal*, Vol. 14 No. 3, pp. 224-233.
2. Aghazadeh, S. (2004), "Improving logistics operations across the food industry supply chain", *International Journal of Contemporary Hospitality Management*, Vol. 16 No. 4, pp. 263-8.
3. Association for Operations Management – APICS (2009), "Sales and Operations Planning: the secret

- to world class supply chain”, available at: <http://www.apics-fraservalley.org/uploads/files/Year0809/april2009PDM.pdf> (accessed 29 November 2010).
4. Ballou, R. H. (2006), “The evolution and future of logistics and supply chain management”, *Produção*, Vol. 16, No. 3, pp. 375-386.
 5. Barratt, M. and Oliveira, A. (2001), “Exploring the experiences of collaborative planning initiatives”. *International Journal of Physical Distribution & Logistics Management*, Vol. 31, No. 4, pp. 266-289.
 6. Chen, H., Daugherty, P. J., Roath, A. S. (2009), “Defining and operationalizing supply chain process integration”. *Journal of Business Logistics*, Vol. 30, No. 1, pp. 63-84.
 7. Claassen, M. F. T., Van Weele, A. F., Van Raaij, E. M. (2008), “Performance outcomes and success factors of vendor managed inventory (VMI)”. *Supply Chain Management: An International Journal*, Vol. 13, No. 6, pp. 406-414.
 8. Cooper, M. C., Lambert, D. M. and Pagh, J. D. (1997), “Supply chain management: more than a new name for logistics”, *International Journal of Logistics Management*, Vol. 8 No. 1, pp. 1-14.
 9. Council of Supply Chain Management Professional – CSCMP, *Supply chain management Definitions*, viewed 10 April 2009, <<http://cscmp.org/aboutcscmp/definitions.asp?XX=1>>.
 10. Croxton, K. L., Lambert, D. M., García-Dastugue, S. J., Rogers, D. S. (2008), “The Demand Management Process”, in Lambert, D. M., *Supply Chain Management: Processes, Partnerships, Performance*. Supply Chain Management Institute, Florida, pp. 87-104.
 11. Danese, P. (2007), “Designing CPFR collaborations: insights from seven case studies”. *International Journal of Operations & Production Management*, Vol. 27, No. 2, pp. 181-204.
 12. Denyer, D. and Tranfield, D. (2009), “Producing a systematic review”, in Buchanan, D. A., Bryman, A. (Eds.), *The sage handbook of Organizational research Methods*, Sage Publications, London, pp. 671-689.
 13. Elvander, M. S., Sarpola, S., Mattsson, S. A. (2007), “Framework for Characterizing the Design of VMI Systems”, *International Journal of Physical Distribution and Logistics Management*, Vol. 37, No. 10, pp. 782-798.
 14. Esper, T. L., Ellinger, A. E., Stank, T. P., Flint, D. J., Moon, M. (2010), “Demand and supply integration: a conceptual framework of value creation through knowledge management”, *Academy of Marketing Science*, Vol. 38 No. 1, 5 – 18.
 15. Fawcett, S. E., Magnan, G. M., Mccarter, M. W. (2008), “A three-stage implementation model for supply chain collaboration”, *Journal of Business Logistics*, Vol. 29, No. 1, pp. 93-112.
 16. Fisher, M. L. (1997), “What is the right supply chain for your product?”, *Harvard Business Review*, Vol. 75 No. 2, pp. 105-16.
 17. Gimenez, C. (2006), “Logistics integration processes in the food industry”, *International Journal of Physical Distribution & Logistics Management*, Vol. 36, No. 3, pp. 231-249.
 18. Grimson, J. A. and Pyke, D. F. (2007), “Sales and operations planning: an exploratory study and framework”, *International Journal of Logistics Management*, Vol. 18, No. 3, pp. 322-346.
 19. Hilletoth, P. and Ericsson, D. (2007), “Demand chain management: next generation of logistics management”, *Conradi Research Review*, Vol. 4 No. 2, pp. 1-17.
 20. Hilletoth, P., Ericsson, D., Christopher, M. (2009), “Demand chain management: a Swedish industrial case study”, *Industrial Management & Data Systems*, Vol. 109 No. 9, pp. 1179 - 1195.
 21. Holweg, M., Disney, S., Holmstrom, J., Smaros, J. (2005), “Supply chain collaboration: making sense of the strategy continuum”, *European Management Journal*, Vol. 23, No. 2, pp. 170-181.
 22. Horvath, L. (2001), “Collaboration: key to value creation in supply chain management”, *Supply Chain Management: An International Journal*, Vol. 6 No. 5, pp. 205-7.
 23. Juttner, U., Christopher, M. C. and Baker, S. (2007), “Demand chain management: integrating marketing and supply chain management”, *Industrial Marketing Management*, Vol. 36 No. 3, pp. 377-92.
 24. Kaipia, R., Korhonen, H. and Hartiala, H. (2006), “Planning nervousness in a demand supply network: an empirical study”, *International Journal of Logistics Management*, Vol. 17 No. 1, pp. 95-113.
 25. Katz, J., Pagell, M. and Bloodgood, J. (2003), “Strategies of supply communities”, *Supply Chain Management: An International Journal*, Vol. 8 No. 4, pp. 291-302.
 26. Lambert, D. M. (2008), “Supply Chain Management”. In: Lambert, D. M. *Supply Chain Management: Processes, Partnerships, Performance*. Supply Chain Management Institute, Florida, pp. 01-23.
 27. Lambert, D. M. (2004), “The eight essential supply chain management processes”, *Supply Chain Management Review*, Vol. 8 No. 6, pp. 18 - 26.
 28. Lambert, D. M. and Cooper, M. C. (2000), “Issues in supply chain management”, *Industrial Marketing Management*, Vol. 29 No. 1, pp. 65-83.
 29. Lambert, D. M., Cooper, M. C., Pagh, J. D. (1998), “Supply chain management: implementation issues and research opportunities”, *The International Journal of Logistics Management*, Vol. 9, No. 2, pp. 1-19.

30. Lapide, L. (2005), "Sales and operations planning Part III: a diagnostic model", *The Journal of Business Forecasting*, Spring, pp. 13-16.
31. Larsen, T.S., Thernoe, C., Andresen, C. "Supply chain collaboration: theoretical perspective and empirical evidence" (2003). *International Journal of Physical Distribution & Logistics Management*, Vol. 33, No. 6, pp. 531-49.
32. Mentzer, J., DeWitt, W., Keebler, J., Min, S., Nix, N. and Smith, C. (2001), "Defining supply chain management", *Journal of Business Logistics*, Vol. 22 No. 2, pp. 1-25.
33. Mentzer, J. T., Foggin, J. H. and Golicic, S. L. (2000), "Collaboration: the enablers, impediments, and benefits", *Supply Chain Management Review*, September/October.
34. Mentzer, J. T., Moon, M. A. (2005), *Sales forecasting management: a demand management approach*. Sage, Thousand Oaks.
35. Mentzer, J. T., Moon, M. A., Estampe, D., Margolis, G. (2007), "Demand Management", In: Mentzer, J. T., Myers, M. B., Stank, T. P., *Handbook of Global Supply Chain Management*, Sage, Thousand Oaks.
36. Min, S., Roath, A. S., Daugherty, P. J., Genchev, S. E., Chen, H., Arndt, A. D., Richey, R. G., "Supply chain collaboration: what's happening?", *The International Journal of Logistics Management*, Vol. 16 No. 2, pp. 237- 256.
37. Rainbird, M. (2004), "Demand and supply chains: the value catalyst", *International Journal of Physical Distribution & Logistics Management*, Vol. 34, No. 3/4, pp. 230-51.
38. Sabath, R. E. and Fontanella, J. (2002), "The unfulfilled promise of supply chain collaboration", *Supply Chain Management Review*, Vol. 6, No. 4, pp. 24-9.
39. Seifert, D. (2003), *Collaborative planning, forecasting and replenishment: how to create a supply chain advantage*, Amacom, New York.
40. Simatupang, T. M. and Sridharan, R. (2004), "Benchmarking supply chain collaboration: an empirical study". *Benchmarking: An International Journal*, Vol. 11, No. 5, pp. 484-503.
41. Simatupang, T. and Sridharan, R. (2002), "The collaborative supply chain", *International Journal of Logistics Management*, Vol. 13 No. 1, pp. 15-30.
42. Stank, T. P., Keller, S. B. and Daugherty, P. J. (2001), "Supply chain collaboration and logistical service performance", *Journal of Business Logistics*, Vol. 22 No. 1, pp. 29-48.
43. Supply-Chain Council – SCC, *SCOR Tools & Resources*, available at: http://www.supply-chain.org/cs/root/scor_tools_resources/scor_model/scor_model (accessed 5 April 2009).
44. Voluntary Interindustry Commerce Solutions – VICS (2010), "*Linking CPFR and S&OP: A Roadmap to Integrated Business Planning*", available at: http://www.vics.org/docs/committees/cpfr/CPFR_SOP_Guideline_Ver1.0Sep2010.pdf > (accessed 29 December 2010).
45. Taylor, D. (2006), "Demand management in agri-food supply chains", *International Journal of Logistics Management*, Vol. 17 No. 2, pp. 163-86.
46. Taylor, D. and Fearn, A. (2006), "Towards a framework for improvement of the management of demand in agri-food supply chains", *Supply Chain Management: An International Journal*, Vol. 11 No. 5, pp. 379-84.
47. Tranfield, D., Denyer, D., Marcos, J., Burr, M. (2004), "Co-producing management knowledge". *Management Decision*, Vol. 42 No. 3/4, pp. 375-386.
48. Tranfield, D., Denyer, D., Smart, P. (2003), "Towards a methodology for developing evidence-informed management knowledge by means of systematic review". *British Journal of Management*, Vol. 14, pp. 207-222.
49. Van Hoek, R. I.; Mitchell, A. J. (2006), "The challenge of internal misalignment". *International Journal of Logistics: Research and Applications*, Vol. 9, No. 3, pp. 269-281.
50. Vieira, J., Yoshizaki, H., Ho, L. (2009), "Collaboration intensity in the Brazilian supermarket retail chain". *Supply Chain Management: an international Journal*, Vol. 14, No. 1, pp. 11 – 21.
51. Vollmann, T. E., Berry, W. L., Whybark, D. C., Jacobs, F. R. (2004), *Manufacturing Planning and Control for Supply Chain Management*, McGraw-Hill, Boston.
52. Voluntary Interindustry Commerce Solutions – VICS (2010), "Linking CPFR and S&OP: A Roadmap to Integrated Business Planning", available at: http://www.vics.org/docs/committees/cpfr/CPFR_SOP_Guideline_Ver1.0Sep2010.pdf > (accessed 29 December 2010).
53. Voluntary Interindustry Commerce Solutions – VICS (2004), "Collaborative Planning, Forecasting and Replenishment (CPFR®): an overview", available at: http://www.vics.org/docs/guidelines/CPFR_Overview_US-A4.pdf (accessed 22 December 2010).
54. Wallace, T. F. (2004). "Sales & Operations Planning: the how-to handbook". T. F. Wallace & Company, Cincinnati.
55. Walters, D. (2006), "Demand chain effectiveness supply chain efficiencies", *Journal of Enterprise Information Management*, Vol. 19 No. 3, pp. 246-61.
56. Walters, D. and Rainbird, M. (2004), "The demand chain as an integral component of the value chain", *Journal of Consumer Marketing*, Vol. 21 No. 7, pp. 465-75.

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