

Planejamento de vendas e operações (S&OP) e transformação digital: uma revisão narrativa

Sales and Operations Planning (S&OP) and Digital Transformation: A Narrative Review

Planificación de ventas y operaciones (S&OP) y transformación digital: una revisión narrativa

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Resumo

Este artigo discute o conceito de transformação digital relacionado ao planejamento de vendas e operações (S&OP) e como isso pode beneficiar os negócios. Essa visão de vínculo é um conceito relativamente novo no campo da iniciativa de pesquisa de negócios, e ainda resta muito trabalho para estabelecê-la. A metodologia utilizada foi a revisão narrativa que identifica o que foi escrito sobre um tópico ou tópico. Os aspectos de complexidade que aparecem no S&OP estão obtendo dados 'limpos' dos sistemas de negócios da empresa para alimentar o processo. Após uma visão geral da evolução dos estudos sobre Transformação Digital e S&OP, verificou-se a relação do objeto de análise desta revisão com o negócio. Por fim, o artigo fornece uma breve introdução à Transformação Digital e concentra-se nas razões e vantagens do processo de S&OP.

Palavras-chave: S&OP; Transformação digital; Planejamento de vendas e operações.

Abstract

This article discusses the concept of Digital Transformation related with Sales and Operations Planning (S&OP) and how it can benefit the business. That link vision is a relatively new concept in the field of business research initiative, and much work remains to be done to establish it. The methodology used was the narrative review that identifies what was written about a topic or topic. The complexity aspects that appear in the S&OP are getting 'clean' data from company business systems to feed the process. After a general overview of the evolution of the studies on Digital Transformation and S&OP, the relationship of the object of analysis of this review to the business was verified. Finally, the article provides a brief introduction to Digital Transformation and focuses on the reasons and advantages for S&OP process.

Keywords: S&OP; Digital transformation; Sales and operations planning.

Resumen

Este artículo analiza el concepto de transformación digital relacionado con la planificación de ventas y operaciones (S&OP) y cómo puede beneficiar al negocio. Esa visión de enlace es un concepto relativamente nuevo en el campo de la iniciativa de investigación empresarial, y queda mucho trabajo por hacer para establecerla. La metodología utilizada fue la revisión narrativa que identifica lo que se escribió sobre un tema o tema. Los aspectos de complejidad que aparecen en el S&OP están obteniendo datos 'limpios' de los sistemas comerciales de la compañía para alimentar el proceso. Después de una descripción general de la evolución de los estudios sobre Transformación digital y S&OP, se verificó la relación del objeto de análisis de esta revisión con el negocio. Finalmente, el artículo proporciona una breve introducción a la Transformación digital y se centra en las razones y ventajas del proceso S&OP.

Palabras clave: S&OP; Transformación digital; Planificación de ventas y operaciones.

1. Introduction

In recent years, many companies have made remarkable progress with operational excellence and supply chain integration. Sales and marketing managers have concurrently begun to exploit increasingly deep knowledge of consumer preferences and their responses to promotions and dynamic pricing. The internet has provided unprecedented ability to gather

this information, while other innovations are creating opportunities for employing dynamic pricing in traditional stores (Grimson & Pyke, 2007).

Faced with increasingly competitive markets within a dynamic economic environment, more and more enterprises have turned their attention to supply chain management. Along with this scenario, Sales and Operations Planning (S&OP) is gaining increasing recognition. Up to present time, research on S&OP has focused on its definition, processes, activities, implementation procedures, and case studies addressing the benefits after its implementation (Feng et al., 2008).

Thus, the objective of this work was to conduct an exploratory research on Digital Transformation and how they relate to the Sales and Operations Planning (S&OP) process in the business. In addition, from this exploratory study, we sought to know the subject in greater depth, in order to make it clearer. Finally, considering the above, this set of research evidences the relevance of studies for research on S&OP, especially for enabling mechanisms for business decision making.

2. Method

For the development of this study, theoretical reviews of the literature were carried out. For this, an objective theoretical review develops a conceptual framework or model with a set of propositions or research hypotheses and can usually begin with a broad review question that is often refined as more evidence is collected and analyzed (Pare et al., 2015). Therefore, since the objective of this study was to systematize the search for scientific production regarding the use of Digital Transformation and S&OP, the question for which answers are sought is: how has Digital Transformation with S&OP studies been developed?

Through an exploratory study, we sought to know the subject in greater depth, in order to make it clearer and the exploratory research is developed to provide an overview of a given fact (Gil, 2002). Besides that, some important purposes of exploratory studies can be highlights, such as: to bring the researcher closer to the subject and object of study; construct important research questions; provide an overview of a particular fact or problem; to deepen preliminary concepts on a given theme; identify a new aspect about the topic to be researched; and make possible the first approximation of the researcher with the subject of study, regarding the analysis of examples that stimulate the understanding of the researched subject (Reis, 2008).

In this way, exploring the subject means gathering more knowledge, as well as

searching for new dimensions that were previously unknown, seeking to provide a familiarity with the problem in order to make it more explicit, being the main objective, the improvement of ideas or the discovery of intuitions, allowing the consideration of the most varied aspects, related to the fact studied.

3. Digital Transformation

Over the last two decades, we have identified that economic, social and technological forces are transforming the world in a way that few can clearly understand. In that scenario, platform's business model can be highlight as a new business model that uses technology to connect people, organizations and resources in an interactive ecosystem in which incredible amounts of value can be created and exchanged. Thus, it is verified that the power of this digital transformation enables interactions that create value between producers and external consumers (Parker et al., 2016).

In construction, a platform is something that lifts you up and on which others can stand. Hence, by building a digital platform, other businesses can easily connect their business with yours, build products and services on top of it, and co-create value (Choudary, 2013). In addition, the combination of data acquisition and data porosity is the most important step towards moving to platform models. So that, the companies that acquire and leverage data well will find new ways of understanding their users and allowing them to participate in the business in new forms (Choudary, 2013).

As a result, the digital transformation can be described as strategies and differentiate them from related concepts, describe their main elements as parts of a general framework, and show opportunities for further research in this field. And, the exploitation and integration of digital technologies often affect large parts of companies and even go beyond their borders, by impacting products, business processes, sales channels, and supply chains. Consequently, digital transformation strategies should be subject to continuous reassessment, in which both the underlying assumptions as well as the transformational progress to date are evaluated (Matt et al., 2015).

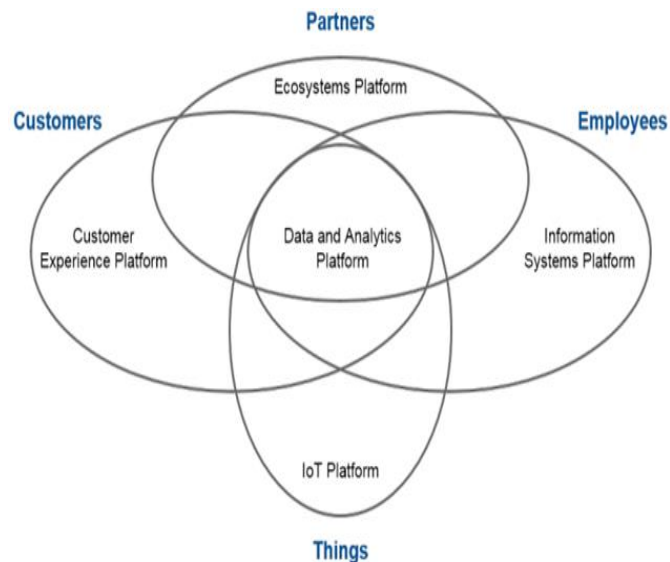
So that, the rapid evolution of consumer needs is creating new opportunities for entrepreneurs and requires traditional companies to continually re-invent themselves. Increasing complexity and frequent changes in market dynamics are also placing massive pressure on traditional business models. Collaboration with partners, suppliers, customers and other stakeholders along the value chain involves deeper and more comprehensive exchange

of information, including data for planning and production purposes (Tse & Hendriks, 2015).

At the same time, the digital business can be developed as the creation of new business designs by blurring the boundaries between the digital and physical worlds due to the convergence of people, business and things. At a minimum, the IT organization needs to be able to design the "big picture" (Figure 1) of all the new information and technology capabilities required to support digital business. Based on that, the data and analytics platform can be emphasized as contains information management and analytical capabilities.

Note that components from all parts of the digital ecosystem use together to create processes, experiment and other impressive features for digital businesses, as shown in Figure 1.

Figure 1: The Digital Business Technology Platform.



Source: Lehong et al. (2016).

Finally, with vast amounts of data now available, companies in almost every industry are focused on exploiting data for competitive advantage. When faced with a business problem, you should be able to assess whether and how data can improve performance. Understanding the fundamental concepts and having frameworks for organizing data-analytic thinking not only will allow one to interact competently but will help to envision opportunities for improving data-driven decision-making, or to see data-oriented competitive threats (Loukides & Blanchette, 2013).

Digital Transformation and a Digital Business requires much more than technology, since it also needs leadership, talents and skills and new business models. In other words, all these areas must be addressed to create new business models, blurring the boundaries between

the digital and physical worlds, due to the convergence of people, businesses and things.

4. S&OP (Sales & Operation)

Manufacturing firms have always sought ways to improve their competitiveness. Today, firms need to be competitive in many areas, such as quality, delivery, cost efficiency, and flexibility, and must therefore plan and control their operations accordingly (Olhager, 2013). And, this tactical planning approach requires profound cross-functional collaboration and decision integration over the decision-making units of a company supply chain network (Olhager, 2013).

Given the benefits of supply chain optimization, there is the Sales and Operations Planning (S&OP), a longest-term planning level in a manufacturing planning and control system. Thus, S&OP belongs to a manufacturing infrastructure decision category from a manufacturing strategy perspective. At the S&OP level, a production plan is developed based on a sales plan. Thus, the focus of capacity management from an S&OP perspective is on the rate of production relative sales (Olhager et al., 2001).

An effective sales and operations planning process (S&OP) is the foundation upon which superior supply chain performance is based. It provides a structured mechanism to provide a common view across the supply chain to sales, marketing, distribution, forecasting, planning, production and management, external suppliers and customers. An effective S&OP process will ensure that these resources are in place and the supply chain is best configured for anticipated demand in any particular time period (Ross, 2004).

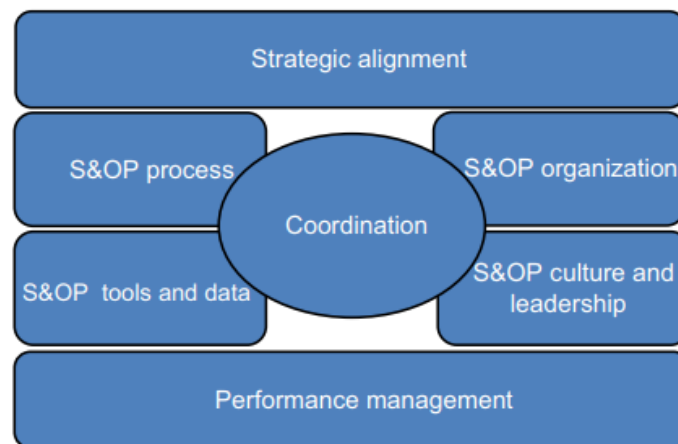
As shown in this definition, the literature has recognized dynamic capabilities as viable means for managing planning challenges in dynamic environments. The companies are more likely to be involved in using the data for better operational, strategic decision making and are more likely to utilize supply chain intelligence that aims to collect and analyze the data from their supply chain operations, in order to increase supply chain visibility and integration (Viswanathan & Sadlovska, 2010).

According to S&OP process maturity model, there are 4 stages which presents the different stages of maturity that an enterprise can achieve, with the corresponding benefits to the organization in terms of supply chain performance goals. The stages 1 and 2 represent the initial stages of process maturity, with a focus on aligning operational planning and getting a better handle on demand. From stage 3 onward, there will be more than one layer of the S&OP process in place: one supporting the operational planning consensus and one

supporting the business and financial alignment. The objective of a stage 4 process has moved beyond profitability to include conscious trade-offs, on both the demand and supply side. In mature cases, IT can support this process and organizational maturity best by aligning technology projects with the progression through the stages of maturity (Gartner, 2011).

In S&OP coordination mechanism framework (Figure 2) the third mechanism is S&OP tools and data, which aims at providing S&OP with best-quality information and purposeful IT tools to create operational plans.

Figure 2: S&OP coordination framework formed as synthesis of concept analyses.



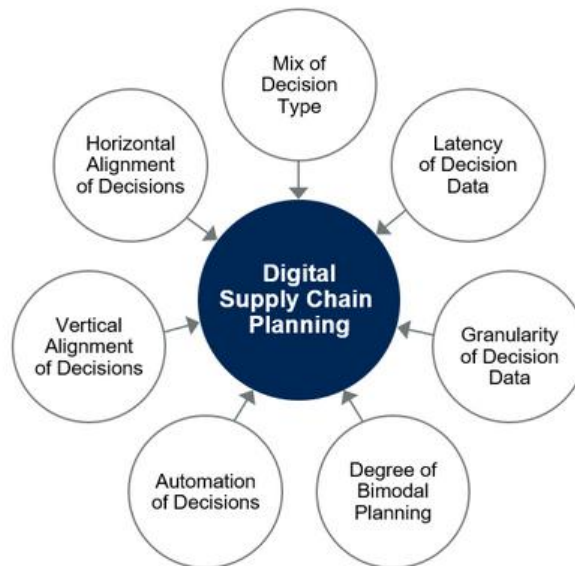
Source: Tuomikangas & Kaipia, (2014).

S&OP tools and data include constructs such as a common set of data and common validation and interpretation of data, which are also essential for effective decision making in the S&OP process. The advanced and proactive S&OP stages include integrated real-time data and external data from suppliers and customers. S&OP data quality requirements are defined according to the following dimensions: the need to be accurate, updated frequently, and appropriate in terms of both content and form in order to be trusted and useful for the participants in the S&OP process. Next, the methods for data processing and storage are defined, which may be manual, but when moving towards advanced and proactive S&OP stages, advanced IT solutions become more essential (Tuomikangas & Kaipia, 2014).

Many companies are pursuing digital supply chain initiatives, to achieve planning decisions that can be significantly improved using various techniques. Some of these techniques are enabled by the judicious use of digital technology. Digital planning is about driving toward higher-quality planning decisions using digital technologies such as cloud, big data, advanced analytics and AI (Payne, 2019)..

The use of digital optimizes the time planners take to focus on what is important, and the definition of Digital Supply Chain Planning can be through seven key dimensions as shown in Figure 3.

Figure 3: Seven Dimensions of Digital Planning.



Source: Payne (2019).

This is relevant because, as before explained, dynamics of evolution from S&OP data analysis could provide useful suggestions and advices to companies that intend to undertake the challenge of improving their S&OP process, by explaining how they could act on S&OP dimensions over time in a transition. Challenges exist when several events occur in the same period, and there is a need for extra transport capacity to analysis this data.

5. Final Consideration

After a general overview of the evolution of the studies on Digital Transformation and S&OP, the relationship of the object of analysis of this review to the business was verified. The first conclusion, in this sense, is that from the present database, there aren't several studies that associate the phenomenon of the Digital Transformation with S&OP. The second conclusion is that there are several theoretical studies and process frameworks available. And, the last conclusion, there are a little quantity of studies focuses on data analyses of S&OP, as these data originated from the explosion of the Digital Transformation.

Finally, it is hoped that the present article will contribute to the advancement in the

understanding of the topic Digital Transformation and that new studies be fomented to the consolidation of the theme in its diverse facets, contemplating the computation, the human and computational sciences, the business, the management and strategy.

As future work we suggest the complete description the proposed framework includes four S&OP data analysis dimensions and its contribution in the results of a company in relation to its competitors.

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