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Exploring the relationship between marketing and operations: Neural network analysis of marketing decision impacts on delivery performance

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ABSTRACT

This study has the objective of exploring the relationship between two functional areas: marketing and operations. This relationship has been the focus of attention of other scholars, but much remains to be done in terms of providing a better understanding of it. To help fill this gap, we analyze the impact of marketing decisions on delivery performance. More specifically, we seek to know how sales, sellers, promotion and other variables that characterize marketing decisions impact delivery performance. We collected data about marketing decisions and delivery performance for a period of 30 months in a large manufacturing company in Brazil. We performed an artificial neural network analysis to assess how these marketing decision variables impact delivery performance variables in the company analyzed. Results show that seller characteristics are the variables that have the greatest impact on the performance of delivery operations.

1. Introduction

Integration among functional areas in an organization can have an impact on its success, especially if we consider the integration between marketing and operations (Tang, 2010). From the marketing perspective, acquiring and analyzing market information are important to gauge the demand to be met. From the operations perspective, demand information is necessary to structure the organization and its resources so that the organization can meet such demand. Due to the importance of these two functional areas, marketing and operations, the discussion about the interaction between them is recurrent in the literature. Shapiro (1977), in his seminal work, highlights that this interaction is like walking on a "tight-rope", that is, the company may be market-oriented, but this prevents manufacturing effectiveness. On the other hand, the organization may be focused on achieving manufacturing effectiveness, ignoring the market in favor of stable manufacturing. The walk on the "tight-rope", according to Shapiro (1977), means that conflicts may arise in the interaction between the two aforementioned functional areas. These conflicts can hinder positive business results because they are related to two key areas in organizations.

In order to gain a better understanding about the interaction between these two areas, we analyzed several studies devoted to this subject and identified four distinct streams of research (see Table 1 for information).

After analyzing the studies listed in Table 1, we could not identify any study showing the responsibilities and activities of marketing and operations that made a contribution to the emergence of conflicts between these areas. Some of these showed responsibilities and activities of marketing and operations that may generate such conflicts. However, there is no empirical data to support the relevant activities and responsibilities that are potential sources of conflict in the interactions between the respective areas.

According to Karmarkar (1996), interactions between marketing and operations is sometimes neglected or treated simplistically in the literature. However, improvement of these interactions can result in a competitive advantage for a company. For example, the operations area may be focused on cost management and, consequently, other decisions that may directly affect competitive advantage, such as, delivery time (Karmarkar, 1996). As in this example, many other decisions regarding operations and marketing may impact manufacturing performance. The performance impact of a competitive dimension, like delivery, may affect the company's image in the market and, consequently, its future results (Brown and Ozgur, 1997). According to Crittenden et al. (1993), on-time delivery is included in a zone of conflict between the areas of marketing and operations. For instance, marketing seeks high inventory levels to ensure availability of materials and

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Table 1
Streams of research and their rationale identified in the literature.
Source: devised by the author.

Topic	Approach	Authors	Rationale
I	Alignment between marketing and operations	Skinner (1974) Miltenburg (2008)	Infrastructure, technology, investment, and resources defined by the marketing area, even though such decisions may not be the best decisions for the company
II	Identification of variables that impact the relationship between marketing and operations	Bozarth and Edwards (1997) Hausman et al. (2002)	Understanding the relationship between these two areas, but not understanding the effects of such a relationship has little value
III	Analysis of marketing and operations impact on companies	Shapiro (1977) Malhotra and Sharma (2002) Karmarkar (1996)	Based on theoretical assumptions, these authors propose propositions for improvement of interaction between marketing and operations
IV	Definition of value to the customer	Sawhney and Piper (2002) Gale (1994) Lai (1995)	These studies do not take into account the concept of competitive differentials and trade-offs

supplies in accordance with the delivery dates promised to customers, while operations management aims at low inventory levels to improve business cash flow.

According to Tang (2010), conflicts between marketing and operations begin at the moment that operations do not meet the deadlines determined by marketing. In practice, there is evidence that marketing decisions may impair the delivery performance and, therefore, operations performance, becoming the starting point for conflict between these two areas (Tang, 2010). One practical example occurred in 2011 between two major manufacturers of soft drinks in Brazil. A Brazilian business magazine reported on its website that the marketing area of a major soft drink brand had planned a sales promotion for 2 days. However, in the early hours of the very first morning of the promotion, there was no product available for customers to purchase, the company having already run out of stock, leaving room for competitors to enter (Exame, 2011b). The following statement was issued by the company (Exame, 2011b): “The promotion, ‘Double Pepsi’ far exceeded the already high expectations of the brand’s sales for the weekend. Operation and logistics had been planned to meet the peak in demand during the weekend. The volume of the product in the stores had exceeded one month of regular sales. Even so, several stores exhausted their stocks in a few hours and some stores decided to limit the amount each consumer could buy so that more consumers could participate in the promotion campaign. We appreciate the strong support given by consumers to our promotion and remain open to any questions they might have.”

Another piece of practical evidence to illustrate how marketing decisions can affect delivery performance is the case of another Brazilian beverage company. After a successful marketing campaign, the company failed to have products available for delivery in accordance with the demand. Given this situation, the following comment was made by the company owner, João Carlos Noronha – (Exame, 2011, publication 1026): “We were not ready for delivery given the high impact we had suffered; we had difficulties in manufacturing, distributing and selling our beer.” After the delivery failure, the company dismissed all the sales staff and about another 180 employees. The production capacity was cut to half of that prior to the marketing campaign. Three of the five main organizational areas were eliminated. The launching campaign of the beer in Rio and São Paulo, scheduled for early 2011, was also suspended. Debts due to the advertising campaign amounted to about 15 million dollars (Exame, 2011). This is empirical evidence showing how marketing decisions may affect, not only delivery performance, but also the performance of other competitive criteria, like quality and conformance. According to Brown and Ozgur (1997), meeting deadlines and delivery quantities are, in many cases, the main cause of conflict between the areas of marketing and operations.

As Shapiro (1977) argues, these conflicts cannot be eliminated, but can be kept under control. Thus, in order to contribute to such discussion, this study investigates the impact of marketing decisions on delivery performance, attempting to answer the following research question: What are the marketing decisions that affect delivery performance of operations? How do these decisions impact the delivery performance?

Based on these questions, this study seeks to evaluate which and how marketing decisions can influence delivery performance of a manufacturing company. Although these problems have been addressed by other studies, there are few empirical studies, if any, that provide support for the theoretical models proposed in the literature. By identifying and measuring the impact of marketing decisions on operations performance, we provide some empirical evidence to better understand this phenomenon. Empirical data provides a clearer picture about the behavior of marketing and operations areas regarding their decisions and impact. One contribution of our study is that it provides a starting point to question the mechanisms employed by companies to integrate and plan operations, like sales and operations planning activities, since they may fail to capture the nuances of the daily decisions made by these two areas. Questioning these mechanisms to integrate marketing and operations may reveal other details that influence company decisions such that a better overall decision will be made and better performance can be achieved. Another contribution of our study is to provide empirical evidence about this relationship between marketing and operations, extending the work of Tang (2010) and others.

2. Literature background

2.1. Relationship between marketing and operations

One of the first authors to discuss the relationship between marketing and operations was Shapiro (1977). He stated that, in order to reduce the amount of conflict between marketing and operations, these two areas must understand each other's characteristics. The marketing professionals should develop their strategies around the existing operating characteristics. It is clear that marketing people should understand operations management challenges and not only market needs.

To Karmarkar (1996), a greater interaction between marketing and operations occurs through interaction between the functions of both areas. These interactions are represented by joint decisions that can result in improved performance of factors, such as quality, lead time, cost and flexibility.

For Sawhney and Piper (2002), an important interface between the functional areas of marketing and operations involves structuring and managing the production capacity. This approach to