

DEMAND PLANNING ON SMALL AND MEDIUM-SIZED ENTERPRISES IN MEXICO: A CASE STUDY OF A CONFECTIONERY FIRM

Abstract

Organizations that efficiently complete a demand planning process gain a competitive advantage. The current demand planning literature mostly studies relatively large organizations. However, SMEs invest a significant amount of resources into improving demand planning practices. Moreover, the context of SMEs in Latin America, and specifically Mexico, has not been explored sufficiently by the current literature. Thus, the purpose of this paper is to understand demand planning in a Mexican SME. The paper involves a case study of a confectionery firm based in Jalisco, Mexico. To make sense of the empirical findings, the Kilger and Wagner (2008) theoretical framework of demand planning was utilized. This paper concludes that Mexican SMEs have a different context compared to larger firms in developed countries. Thus, how Mexican SMEs envision and implement demand planning is unique, specifically in demand planning structures and controlling.

Keywords: Demand Planning, Manufacturing, Small and Medium Enterprises, Mexico, Case Study.

Topic Groups: Business Strategy, Economic and Business Decisions, Production and Operations Management.

INTRODUCTION

Small and medium-sized enterprises (SME's) play a vital role in the economy of emerging markets. Therefore, it is important to implement processes, such as demand planning, for the optimization of resources, and economic growth. Demand planning helps businesses remain in the market and increase competitiveness by reducing uncertainty, increasing revenues, and adapting to favorable environmental conditions. In this sense, demand planning represents a model of uncertainty reduction.

In recent years, demand planning has been recognized as the first link in the supply chain. However, its use can vary slightly between developed and emerging countries. This suggests that there are processes or mechanisms involved that have not been considered predominant or that are not necessarily homogeneous among all countries. The case of demand planning in emerging countries is interesting because it provides information about variables that were not generally considered in current theories of demand planning; thus, it will be the focus of this study.

Furthermore, this research aims to demonstrate the impact of demand planning on SMEs, specifically in emerging markets. Finally, this document provides an approximation of what the optimal conditions, models, and rules for its operation are. These factors contribute to delivering positive results such as high levels of customer service, optimal inventory levels, minimal waste of materials and reduced risk of obsolescence which, at the end of the day, resulting in reduced costs and hence, profitability; variables that determine growth in companies in the current environment. This is indisputably necessary to understand the past and present new scientific knowledge on the subject and make an original contribution.

BACKGROUND

When firms sell their products, their goal is to provide customers with the exact amount of demanded goods (Mentzer et al., 2001). Providing fewer products would result in less income, while an oversupply might incur extra costs in sales expenses. Thus, companies intend to forecast the exact amount of sale goods. However, such a task is a complicated challenge (Lambert and Cooper, 2000). Furthermore, without financial support, firms can rarely complete any organizational process. As stated by Kaufman and Covaleski, "*Activity can only occur through financial support for staff and related expenses, and a significant indicator of activity deemed legitimate is its priority for resource allocation*" (2010, p. 54). Forecasting demand is a complex activity because it involves a large number of variables that are usually exogenous to the firm. For instance, customers might change their desire to acquire goods from the company without giving previous notice (David, 1993). Additionally, customers might drastically change their previous consumption behavior, making it impossible to forecast future trends with historical data. Furthermore, the demand for goods is affected by macroeconomic variables that are sometimes impossible to foresee (Hugos, 2018). However, as difficult as the task seems, demand planning is a crucial activity in SCM due to its impact on income and expenses (Tayur et al., 2012).

In the context of SMEs, demand planning is even more relevant. Due to their size, SMEs are usually required to minimize selling expenses (Quayle, 2003). SMEs tend to have less liquidity and smaller credit lines than larger organizations, making efficiency a must (Sesar et al., 2018). Successful demand planning for SMEs can give them a competitive advantage as it might help

them to reduce their costs and maximize their potential sales (Vaaland and Heide, 2007). In other words, a firm that's successful at demand planning might be able to have a leaner and cheaper production-distribution process, allowing them to set competitive prices for their goods.

Emerging markets provide an interesting context for the study of demand planning (Cedillo-Campos and Sanchez-Ramirez, 2013). Generally, emerging economies are associated with scarce capital and a shortage of credit lines. Thus, saving on production and sale expenses becomes critical in the survival of a firm (Esfahbodi et al., 2016). Demand planning offers firms in emerging markets an opportunity to create cheaper budgets, allowing organizations to operate at lower costs. With proper demand planning, firms can achieve more efficient inventories, giving them relief in their search for working capital. Furthermore, organizations in emerging markets are exposed to external institutions, which are generally different from developed economies (Omazic et al., 2020). Such institutions affect how the organizations develop their internal practices; "*Organizations deal with multiple sociocultural pressures that define appropriate ways of doing things*" (Ramus et al., 2017, p. 1253). This study incorporates such contextual influences and acknowledges the specific features of emerging markets.

The Mexican market represents one of the most complex economies in the world. Its relationship with foreign markets, the size of the internal market, and the complicated regulatory framework makes the Mexican economy a challenging scenario for demand planning (Van Hoof and Thiell, 2014). Forecasting gets easier as macroeconomic forces tend to be more stable. In the case of Mexico, the macroeconomic landscape is turbulent and, to some degree, unpredictable (Garcia-Reyes and Giachetti, 2010). Regulatory changes, increasing market regulations, and inequality in national wealth make it difficult to forecast the behavior of consumers. This paper argues that, in the end, demand planning activities are "*Socially constructed historical patterns of material practices, assumptions, values, beliefs, and rules*" (Thornton & Ocasio, 1999, p. 84).

Demand planning in the context of SMEs in an emerging economy such as Mexico seems like a huge challenge (Mangan and Lalwani, 2016). However, the outcomes of successful demand planning are exponentially positive for Mexican SMEs. This paper will use Kilger and Wagner's (2008) framework of demand planning to make sense of the empirical data gathered in the case studies. The following subsection presents the framework and aims to signpost the relevant processes in demand planning.

A framework for Demand Planning

Demand Planning is a critical activity in SCM as knowing the demand for products is the first step in the production and sales processes. Without a proper forecast of the demand, it is impossible even to prepare an accurate budget. Thus, financing the firm is also dependent on the success of demand planning. However, when organizations intend to plan the demand, it can be extremely chaotic. For instance, some firms might sell too many different products, or even an infinite number of products, if they sell customized goods, such as is the case with Dell. Furthermore, forecasting demand can be complicated if the time frame is not well defined. Sometimes, companies sell products without knowing how long their product is going to be on sale.

To clarify how demand planning is carried out in the companies studied in this paper, a demand planning framework will be used. The framework organizes the demand planning process into three features. Through this framework, it is possible to visualize what type of activities are carried out in the organizations and it makes it easier to compare them with different firms. As the purpose of this study is to analyze the demand planning of SMEs from the chocolate industry in Mexico, using this framework of demand planning seems appropriate.

Furthermore, the same framework has been used in other studies with similar research objectives. For instance, Kannegiesser et al. (2009) developed a demand planning model for the chemical industry. The authors used the demand planning framework to make sense of the empirical data that they collected and to structure their own. Moreover, Vlckova and Patak (2012) carried out a study to understand the effect of outsourcing on demand planning in Czech firms. The framework of demand planning helped the authors to organize the processes studied. Besides, the framework allowed them to assess the effects of outsourcing in a specific subprocess of demand planning.

The framework of demand planning is divided into three features that are subsequently divided into more specific mechanisms, which will be explained in this subsection. The three main features are: structures, processes, and controlling.

Demand Planning Structures

Demand planning structures are important because these set the basis on which demand planning will operate. Structures set the assumptions that the firm will use to forecast the demand for the goods that they sell. Demand planning structures are important because failure in setting the appropriate assumptions can lead to a wrong forecast. Min and Yu (2008) did a study of supply chain partners and concluded that a key factor in the success of chain value management was correctly setting the structure in which they operate. According to the authors of the framework, a demand planning structure is divided into three mechanisms: (i) time, (ii) products, and (iii) aggregation/disaggregation.

The time frame is very important when planning the demand. Firms need to think carefully about what time frame they will use. The time frame should allow firms to include seasonal changes in demand and supplier availability. For instance, a fast-food restaurant might set its time frame daily since fast food restaurants usually supply their raw materials every day. In contrast, a cloth retailer might resupply their inventories weekly; thus, it makes sense if the cloth retailer sets the time frame of their demand planning to a weekly basis.

The product feature is critical when firms set the structure on how they will do the demand planning process. Product refers to the unit of analysis that the firm will use to forecast the demand. Firms can forecast specific products using the SKU (stock-keeping units). For instance, a beverage firm can forecast the demand specifically for its cola soda of 500 ml presentation and independently forecast the cola soda of 750 ml. Furthermore, firms can choose to forecast a family of products. For example, the same company can choose to forecast using a family of products and they will forecast cola sodas regardless of the presentation.

Firms should also set if they want to aggregate or disaggregate their demand planning. Aggregating means that the firm starts from the smallest unit of analysis related to the products and from there they plan the demand to higher levels. For instance, if the beverage firm from the previous example decides to apply an aggregate perspective, they should plan first their demand using specific products and then add all the products of each family to calculate the total. In contrast, a disaggregating perspective suggests that the firm will do the demand planning based on the family of products, and from that, they can state the specific demand for each product. In the end, regardless of the perspective the firm chooses, their numbers at the family or product level should match. For instance, if the firm decided to disaggregate and they planned demand of 100 cola sodas, the sum of the 500 ml and 750 ml of soda colas should be 100 in total.

Demand Planning Processes

Once the structures are set, firms also need to establish the phases of demand planning. Defining the phases is a critical part of demand planning as it allows the organization to schedule the activities involved in demand planning. The core of this stage is to generate an outcome that would permit the firm to foresee the future demand for their products. It is also important to mention that this stage needs to be coherent with what was established in the structures of the demand planning, otherwise the disconnection between the stages might produce mistakes in the way in which the firm forecasts demand. Demand planning processes consist of three mechanisms that organizations should clarify: (i) phases, (ii) participants, and (iii) forecast.

The phases in the demand planning process might differ in different organizations. For instance, some firms might consider fewer phases than other firms. Usually, the level of complexity in the supply chain decides the number of phases identified by each organization. Examples of phases include gathering data, computations of statistics, judgmental forecasting, and the release of forecasts. It is important to note that each of these phases needs to be based on the structures that were previously set by the organization.

Defining the participants of the demand planning process is another crucial procedure that firms should complete. It is impossible to invite everyone in the organization to participate in demand planning. Thus, it is an operational need to define who will participate and who will not. In some organizations, senior managers carry out the demand planning process alone. In such cases, organizations believe that senior managers hold all the information required to complete the demand planning process. In other organizations, mid-tier managers are also invited to participate in the demand planning process. Such organizations are usually large and complex, so they require the participation of more members. Finally, some firms decide to invite external members to participate in the demand planning process. These organizations intend to extract information from outside of the firm and include it in their demand planning process.

The core of the demand planning process is the forecast. During the forecast, the firm uses a previously established methodology to forecast the expected demand for their products. As the current literature states, there are three main ways an organization can forecast the demand: qualitative, quantitative, and mixed methods. Qualitative focuses on the subjective opinion of individuals in the organization to forecast the expected demand for a product. An organization might find it easier to rely on the experience and knowledge of their managers to establish the expected demand, whilst other firms rely on complex mathematical and statistical methods to

forecast the demand. By using such methods, the organization analyses the gathered data and forecasts the possible demand. Finally, it is also possible to mix qualitative and quantitative methods. In this case, organizations might use a quantitative approach to set an objective baseline for the forecast, then they might use a subjective judgment by senior managers to polish the forecast.

Demand Planning Controlling

Once the organizations have finished with the forecast, it is necessary to supervise the real outcomes of the firm. This stage is critical in every organization, but the context of SMEs highlights its importance. Davila and Foster (2009) found that startup firms that monitored the expected demand had a better performance than organizations that only focused on forecasting demand but never documenting what happened. Similarly, Shi et al. (2011) concluded that controlling demand planning is a critical stage that allows organizations to improve their production processes. Demand planning controlling is divided into two mechanisms: (i) incentives-responsibilities and (ii) Key Performance Indicators (KPIs).

Setting incentives and responsibilities is critical when firms carry out the demand planning process. Organizations might focus on how they can foster the successful implementation of demand planning without harming the production process of the firm. In this sense, senior managers might focus on stimulating individuals in the organization to accomplish the forecast. Once senior managers realize that the demand forecast has been accomplished, they can provide organizational members with bonuses as a reward for their effectiveness. On the contrary, when the forecast is not met, senior managers should be able to identify the organizational members responsible for such a variance and act accordingly.

However, when the senior managers contrast what happened with the forecast, they usually find it hard to judge if the outcome was positive or negative. Furthermore, even if managers can determine whether the outcome was positive or negative, it is difficult to assess the degree of success or failure. Due to these difficulties, senior managers develop KPIs that allow them to evaluate, as objectively as possible, if the outcomes of the process were positive or negative. There are different KPIs that are used worldwide, but in this paper, three will be explored during the case study: accuracy, inventory, and field rate. Accuracy KPIs relate to how well the firm accomplished the stated forecast, inventory KPIs focus on the efficiency of inventory management and, finally, field rate KPIs focus on fulfilling the demands of the firm's clients.

METHODOLOGY

Demand planning has been studied using different methodologies. Authors have used quantitative (Peidro et al., 2009), qualitative (Akillioglu et al., 2013), or mixed methods (Okurut et al., 2015). Each researcher chose a methodology based on his abilities and the research question that he or she previously stated. In the case of this research, the most suitable methodology is qualitative (Apaiah et al., 2005). A qualitative methodology permits a deeper understanding of the case context (Goffin et al., 2012). Additionally, the qualitative methodology considers the individual interpretations of relevant participants (Mangan et al., 2004). These two features of the qualitative methodology are coherent with the research objectives of this paper.

This paper will use a case study to capture and analyze empirical data. A case study permits a deeper understanding of a phenomenon in a determined context (Yin, 2011). Since the purpose of this study is to understand how a company carries out a demand planning process, the case study method becomes the most suitable alternative (Scapens, 2004).

For this study, different types of empirical data were collected. Firstly, the researchers gathered external reports such as press releases from the company studied, where the firm explained to outsiders some of their production innovations (Merriam, 1998). Secondly, the researchers carried out interviews with organizational members of the firm. The researchers completed six semi-structured interviews, which allowed them to ask for critical information related to demand planning (Bromley and Bromley, 1986; Whiting, 2008). The interviewees were mid and senior managers from the firm studied. During the interviews, managers asked not to include the name of the company in the case study. Thus, the studied company will be called *Confectionery Inc.* Changing the name of the company is only to fulfill the ethical agreements of the case study, the findings and conclusion of this paper are not affected by the change (Tellis, 1997; Street and Ward, 2012). The Kilger and Wagner framework of demand planning (2008) was used throughout the whole data analysis period.

CASE STUDY

Confectionery Inc is a Mexican confectionary firm that was founded in 1942, one of the most important sweet companies in the country. Confectionery Inc's headquarters is located in Guadalajara, Jalisco México. The plants of Confectionery Inc currently are located in Tlaquepaque and Tlajomulco, where 350 products are made. Confectionery Inc continues to grow thanks to the fact that it continues to develop new flavors, formulas, and attractive presentations, using the best technology in the confectionery sector and moving its products throughout the country.

The structure of Confectionery Inc's 3 plants and a distribution system helps to deliver all products across Mexico. The single large-scale distribution center and great labor management system prove Confectionery Inc's commitment to innovation. Research and development are also a core element of their business strategy. The brands mentioned are quite popular among Confectionery Inc's consumers and in markets the company operates. Additionally, corporate social responsibility is a priority for Confectionery Inc. Since 2007, the company Confectionery Inc have helped their employees to finish primary and middle education. Furthermore, the firm applies for health and addiction support programs periodically, the combination of which has allowed the majority of their staff to achieve professional growth.

Demand Planning Structures

For Confectionery Inc, the task for demand planning is to predict future customer demand at different levels: by-product, set of products, category, total product, and region. The demand pattern for a particular product can be considered as a time series of separate values. For each product, there may be multiple time series representing, for example, historic data, forecast data, or computed data, like the accuracy of the forecast. The selection of the right time series and the planning horizon of the forecast (time frame) to be used in the demand planning process depends on the answer to the question: What is being forecast?

In the case of Confectionery Inc, a mid-term master planning process requires a forecast for each product monthly (in cases, or production units, known as DFU - Demand Forecast Units). A long-term capacity planning process requires a forecast for each family monthly to meet the demand according to capacity. Finally, a long-term strategic planning process requires projections on each total product quarterly. See Figure number 1.

Figure 1
 Demand Planning Structure
 Time - Case Study Confectionery Inc



Source: Rodríguez Mauro, adapted with information from Confectionery Inc, 2020.

Currently, Confectionery Inc has a catalog of 300 SKU's which are divided into 11 large families (see Figure 2). Time-series statistical forecasting is also a necessity when a company produces hundreds of end items. It is inefficient to develop a demand plan for just a few major product lines. The turmoil caused by not planning for the demand for the other products disrupts production. Unplanned demand competes against planned demand for raw materials and production capacity (Crum & Palmatier, 2009). Customer service inevitably suffers, as do sales revenues and profit margins. Consequently, developing demand plans for all products is the best practice in the case of Confectionery Inc. For this, the company uses the Pareto diagrams to prioritize its demand.

Figure 2
Demand Planning Structure
Product portfolio - Case Study Confectionery Inc

<u>Product families</u>	<u># SKU's</u>	<u>Total company</u>
Mazapan	10	300
Tamarind	8	
Chocolates	34	
Lollipops	10	
Peanuts	3	
Hard candies	13	
Chewy Candies	9	
Marshmallows	5	
Others	208	

Source: Rodríguez Mauro, adapted with information from Confectionery Inc, 2020.

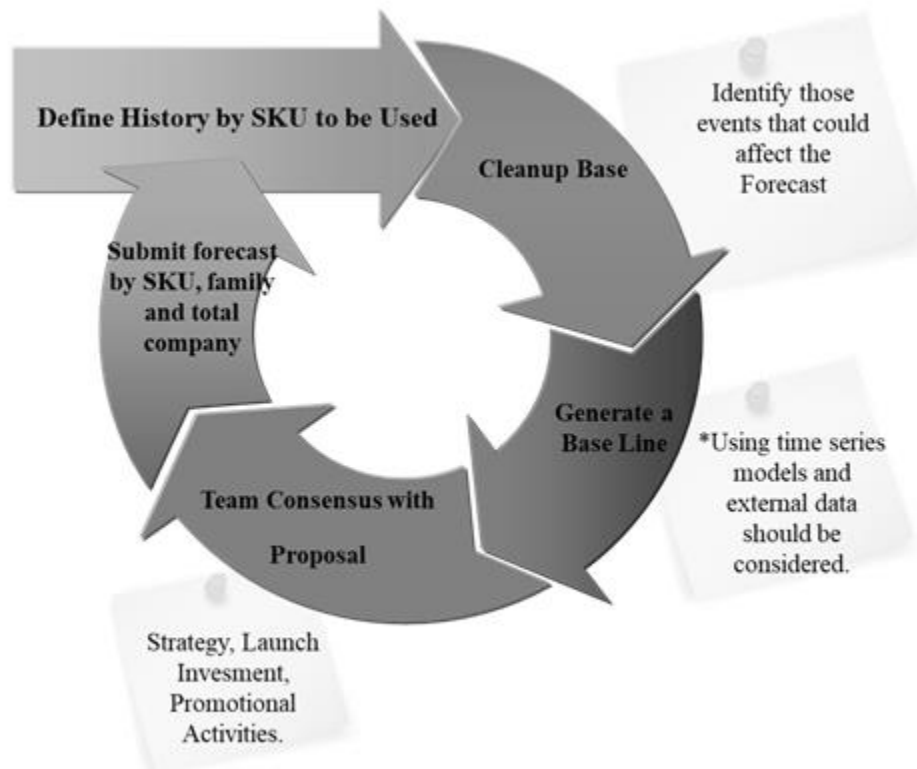
When product portfolios include a large number of SKU's, a planning strategy is needed to ensure that all of the items are adequately planned. A common strategy for Confectionery Inc is to develop an aggregate plan at a family level for each product, with over 12-months planning horizon for consensus planning. The demand plan at the item level can frequently be delayed as late as possible or until raw materials need to be purchased or, if the family uses common materials until the product mix needs to be purchased the closer in time it is to the actual sale. Whatever is the best method for planning the product mix, the demand plan at the item level must be managed and controlled on a daily and weekly basis. The demand team and the supply team, or master scheduler, work together to fine-tune the product mix plan.

A synchronized and responsive supply of materials and products is the goal of the demand planning structure in Confectionery Inc, which is the very first step of supply chain planning. The efficient supply of materials determines the effectiveness of manufacturing and logistics operations in the chain. Propagation and magnification of the uncertainty of demand signals through the supply chain, referred to as the bullwhip effect, is the major cause of ineffective operation plans. Therefore, a flexible and robust supply chain forecasting system is necessary for Confectionery Inc planners to quickly respond to the volatile demand. Appropriate demand aggregation and statistical forecasting approaches are known to be effective in managing the demand variability for Confectionery Inc products. A very important finding of this case study is that disaggregation of a forecasted aggregated demand should be employed when the aggregated demand is very predictable through its positive autocorrelation. Moreover, the large positive correlation between demands can enhance predictability and thus, result in more accurate forecasts when statistical forecasting methods are used (Chen and Blue, 2010). Confectionery Inc uses the time series decomposition model with very good results.

Demand Planning Processes

The demand process of Confectionery Inc is simple and occurs in 3 phases: i) Historical data of the real sales by SKU, ii) Statistical projection with time series methods, and iii) Adjustment of the base forecast with the sales and marketing areas, representing a collaborative process. Demand collaboration makes such good sense for Confectionery Inc. If demand information can be communicated throughout the entire supply chain, each trading partner would know how many products to have available and when. Also, fewer inventories would be needed as a hedge against uncertainty. Figure 3 summarizes the demand planning process in Confectionery Inc.

Figure 3
Demand Planning Process
Phases at Confectionery Inc
Monthly cycle



Source: Rodríguez Mauro, adapted with information from Confectionery Inc, 2020.

In Confectionery Inc, the participants in the demand planning process represent the main areas of the company. It is made up of demand planning and the commercial area as well as operations and supply planning. The company follows the best practices of companies already consolidated in this process:

Demand planner

- Runs forecast models to make the baseline forecast, its basic raw materials are sales history in monthly buckets.
- Presents the demand plan information in a timely, accurate, ready-to-use condition.
- Interacts with sales to complete data collection and opportunities.
- Focuses on issues and addresses any disconnections with future forecasts.

It is the primary contact for issues related to the roll-up of sales forecasts, analysis of forecasts, and the development of the ultimate demand plan.

Commercial area (area represented by sales and marketing)

- Gathers intelligence from assigned customers and integrates findings into demand planning.
- Performs sales forecasting for their assigned customers, markets, or other sales segmentation.
- Knows the actual vs. forecast performance for sales, the reasons, and corrective actions.
- Updates the sales forecast monthly and speaks to senior management in the corporate sales review meeting.

Each individual is the primary contact for issues related to sales forecasts for their particular customer and families.

Operations

- Sets the expectation with the production and materials teams that they will help with developing the supply plan according to the process and run to that plan.
- Ensures that the aggregate level data to be presented is linked to all of the derived detailed planning.
- Chairs the monthly or periodic supply planning meetings.
- Speaks to inventory and backlog performance versus forecast in the executive S&OP meeting.
- Presents the actual vs. forecast performance for the inventory.

It is the primary contact for issues related to strategic operations/supply decisions.

Supply Planning

- Updates the inventory plan monthly or periodically.
- Maintains safety stocks, production rates, vendor performance, lead times, and other supply planning attributes.
- Speaks to the inventory detail in the supply planning meeting.
- Reviews orders, due dates, and the inventory, and determines via analysis what to build, when to build, and where to build per the supply plan.

The final forecast for Confectionery Inc is published every month on various platforms and is disseminated in all areas for decision making; the process is religiously run every month. For Confectionery Inc, demand planning is worth the effort and there are important benefits, i.e., a reduction in forecast errors, increased level of service, inventories reduction, synchronization of all areas. Table 1 provides an example of the demand plans from Confectionery Inc.

Table 1
Consolidation of multiple inputs into final demand plan
Confectionery Inc

Period	Statistical Forecast Input	Commercial Input	Customer Input	Final Demand Plan
1	5,000	6,500	7,000	6,167
2	7,500	9,000	10,000	8,833
3	6,000	8,000	9,000	7,667
4	11,000	13,000	14,000	12,667
5	4,000	4,500	5,000	4,500
6	4,500	4,700	4,500	4,567
7	8,000	9,500	10,000	9,167
8	3,000	4,000	4,000	3,667
9	3,500	3,750	4,000	3,750
10	10,000	12,000	14,000	12,000
11	12,000	15,000	16,000	14,333
12	11,000	12,000	13,000	12,000
13	5,000	6,500	7,000	6,167
14	7,500	9,000	10,000	8,833
15	6,000	8,000	9,000	7,667
16	11,000	13,000	14,000	12,667
17	4,000	4,500	5,000	4,500
18	4,500	4,700	4,500	4,567

Source: Authors' elaboration, adapted with data from Confectionery Inc, 2020.

Demand Planning Controlling

Organizations need to manage the assignment of responsibilities to their members concerning the activities that must be carried out within them. This means that it is not only necessary to apportion functions to each member of the organization to have an action plan of the work performed by every member for every activity but it also provides a global view, that is, a way to display and organize these responsibility assignments (Cabanillas et al., 2011). Confectionery Inc is no exception to this way of functioning, the company has a very defined model of responsibilities for each one of the staff that participates in the demand process, these responsibilities have an incentive that is in line with the results. The scheme of responsibilities that have been adopted by Confectionery Inc is a scheme known as RACI (Responsible, Accountable, Consulted, Informed). Table 2 illustrates responsibilities across departments in Confectionery Inc.

- **Responsible (R):** a person who must perform the work and is responsible for the activity until the work is finished and approved by someone accountable. There is typically one person responsible for each activity.

- **Accountable**, also Approver or final Approving Authority - (A): a person who must approve the work performed by the person responsible for the activity and who becomes responsible for it after approval. There must be one, and only one, the person accountable for each activity.
- **Consulted (C)**: this role includes all the people whose opinion is sought while carrying out the work and with whom there is two-way communication.
- **Informed (I)**: a person who is kept up to date about the progress of activity and the result of the work, and with whom there is just one-way communication. There may be more than one person informed of the work of activity.

Table 2
Responsibilities across departments
Confectionery Inc

A=	Responsibilities	Sales	Operations	Demand Planner	Supply Planning	Marketing
	Innovation Season & Core projects update	C	I	I	I	R & A
	Discontinue items process	C	I	I	A	R
	Sales Staff Meeting	A & R	I	C	I	A
	Sales monthly meeting (forecast review)	R	I	C	I	A
	Forecast base line by SKU and family	A	I	R	I	A
	Consensus Meeting	A	C	R	C	A
	Promotions, prices, new customers	R	I	A	I	R
	Production Planning and Capacity	I	R	A	R	I

Accountable C=Consulted R= Responsible I=Informed

Source: Rodríguez Mauro, adapted with information from Confectionery Inc, 2020.

Demand planning does not consist solely of anticipating demand. It also involves influencing, communicating, managing, and prioritizing demand. The ultimate aim of demand planning is to manage the level, timing, and composition of demand to achieve the company's goals in the most profitable manner. Performance measurements, therefore, should focus on the effectiveness of the demand management process, not just on the accuracy of the demand plan (Crum and Palmatier, 2003). All manufacturers have their business objectives based on a particular

organization. Each of these objectives is divided into several sub-objectives, which are evaluated according to the KPIs of each department (Urabe et al., 2016). The demand planning process of Confectionery Inc began by measuring its performance with three basic metrics: forecast error, inventory level, and the number of SKUs. With the evolution and specialization of the process, some additional metrics were added; a very relevant one that has contributed to monitoring the productivity of the portfolio is the velocity metric. Table 3 shows the current KPI's that Confectionery Inc uses to measure and control demand planning and the supply process.

Table 3
Current KPI's for Confectionery Inc

Metric	Units	Periodicity
Demand Plan Accuracy (DPA)	%	Monthly
Inventory level	Days	Weekly
Days of Supply (DOS)	Days	Daily
Inventory turns	Times per year	Every six months
Service Level	%	Monthly
Velocity	Index	Monthly

Source: Rodríguez Mauro, adapted with information from Confectionery Inc, 2020.

These measures are usually included on a dashboard that shows a graphic of every metric, and this is published and communicated periodically.

DISCUSSION

This section describes the best practice for the demand planning process through the structure, processes, and performance metrics. With the exposition of this case, there is evidence that Confectionery Inc has, in the last two years, synchronized its demand generation process, and consequently its supply, which in the long-run has resulted in profitability for the company. The impact has also been positive in other areas, in the decrease of stress in human resources, for example. It is an example of success in emerging markets, and this process is trending in these types of companies (Vlckova and Patak, 2012).

To be specific, when analyzing the case of Confectionery Inc and its demand planning structures, it is clear that there are some similarities and differences when compared to the existing literature (Hugos, 2018). For instance, it is similar in the sense that Confectionery Inc uses linear planning. However, it differs from the existing literature by using a larger time frame to forecast the demand for sold products. In this sense, Confectionery Inc modifies how they forecast demand. Part of this can be explained by the lack of credit available for companies in emerging economies. Thus, it is more economic to forecast a larger time frame and complete all the financial budgets based on that.

Regarding demand planning processes, it is important to note that Confectionery Inc uses a hierarchical structure where employees and managers are accountable horizontally as well as vertically. This characteristic differs from previously assumed models where there is a clear

separation between horizontal and vertical responsibilities (Mangan and Lalwani, 2016). Part of this innovation in the demand planning processes is due to the nature of the goods sold by Confectionery Inc. Confectionery Inc sells more than 300 products, but all of them are somewhat related to each other in that they are all a variety of sweets and candies. As previously mentioned, Confectionery Inc efficiently defines responsibilities in a mixed way, by combining horizontal and vertical accountability.

Finally, regarding demand planning control, Confectionery Inc is more conservative and follows what is advised in the current literature (Shi et al., 2011). Checkups on the demand plans and actual outcomes are performed regularly and if the firm identifies a fluctuation, then adjustments are made. This is consistent with the existing systems mentioned in the current literature. The similarities between the case study and Confectionery Inc might be since, as organizations become larger, they rely more on formal systems of control (Gil, 2019).

CONCLUSION

This paper contributes to the existing literature on demand planning practices. In particular, this research highlights the particular features of SMEs in an emerging market. By incorporating the features of an emerging market, it is possible to identify and explain patterns. The conclusions of this paper are congruent with the suggestion of Ryan et al., “It is more appropriate to apply the logic of replication and extension, rather than a sampling logic, to case study research” (2002, p. 269).

Demand planning is a relevant stream in the current managerial and accounting literature. Furthermore, the context of SMEs in emerging markets permits us to observe new practices and novel interpretations of already institutionalized procedures. Thus, future research calls for more explanatory case studies on the subject. The findings from such studies might benefit the current state of literature in demand planning. In particular, incorporating other industries into academic studies will enrich the understanding of demand planning practices and systems. Apart from the possible theoretical contributions that the proposed future research proposes, practical contributions are also relevant in the development of knowledge; “*Just contributing to theory without any application of that theory should not be fulfilling to researchers in a professional school*” (Merchant, 2012, p. 339).

It is also relevant to acknowledge the limitations of this study. First, while measures have been taken to prevent response bias, it is not possible to eliminate this in qualitative research (Mehra, 2002). Although the organization in this case study was selected due to its interesting context and innovative practices on demand planning, it would be interesting to incorporate a second organization to compare its demand planning practices. Second, due to legal bylaws of the firm studied, only one researcher could complete the semi-structured interviews. In a later stage of this study, it will be interesting to incorporate a second interviewer to contrast the interpretations of each researcher.

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