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**Research Report: ZLC-2011-11**  
**Improvement of an existing S&OP process**  
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# Improvement of an existing S&OP process

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## Summary:

This thesis investigates the management approaches and process characteristics that allow cross-functional integration for supply chain planning activities. Different frameworks are used to propose a process that aims to coordinate the information flow and problem solving requirements of aligning supply and demand and allow cross-functional integration despite of incentives misalignments of different areas inside a company.



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## KEY INSIGHTS

1. Forecasting error has a financial impact in holding cost, master production schedule changes, expedition of raw materials, lost sales, heavy discounts and obsolescence.
2. A supply chain planning process that uses data and assumptions available to all functional areas to reach a consensus forecast at an aggregate level, is able to reduce the forecasting error and better balance demand and supply.
3. S&OP allows executives to have more control over operational results by attaching the process with master production schedule, distribution schedule and materials resource planning.

## Introduction

The risks and costs of poor decision-making in matching demand and supply are increasing. Excess inventory is usually sold at a loss and customers are not willing to wait for unmet orders. New product proliferation, shorter product lifecycles, the increase in complexity of the global business environment, together with the reduced profit margins due to higher competitiveness, results in higher demand and supply uncertainty.

The Consumer Packaged Goods (CPG) like many other industries, is characterized by heavy competition and fast new product introduction

despite the steady global demand. The apparition of private labels has intensified price competition and threatened customer's loyalty to a brand. Marketing campaigns and promotions are common in increasing demand and gaining market share, increasing sales variability and reducing forecasting accuracy.

Most supply chain decisions are based on an estimate of future demand, with a direct impact on strategic planning, investment and allocation of resources decisions. The quality of forecasts can be compromised by limitations and biases, both intentional and unintentional. Incentive misalignment is a common source of bias in the forecasts.

Sales and Operations Planning (S&OP) is a management process that is used to balance supply and demand on a continuous basis, to align volume and mix, and to integrate operational plans with financial plans (Wallace and Stahl, 2008), facilitating master planning, demand planning, and the flow of information between these two (Oliva and Watson, 2011). Some reported benefits of S&OP from practitioners, consultants and researchers are: reduction of raw materials and finished goods inventories, reduction of stock-outs, more stable production and higher visibility into the future.

## Reaching cross-functional collaboration

For an effective cross-functional planning process, communication, coordination and collaboration are necessary (Moon et al., 1998). A dialogue is needed

in which opinions of different departments are treated equally. The S&OP process has been widely used by many companies in the last twenty years with proven results, successfully improving communication between functional areas. However, the literature lacks a detailed framework and comprehensive understanding of cross-functional collaboration (Oliva and Watson, 2011). Focusing on the structure, responsibilities and best practices given as general guidelines is not enough to implement or improve an existing S&OP process.

This thesis used existing frameworks for integration and collaboration to analyze an existing operations planning process in the CPG industry that is failing to coordinate functional areas. A new process is proposed to reach integration while maintaining functional incentives so that each group remains focused on shareholder's needs.

### Research Site

The selected company has witnessed an increase of Stock Keeping Units (SKUs) with almost the same market share and total sales. The beverage industry is shifting from a low-mix/high-volume to a high-mix/medium-volume environment at a fast pace. The company faces a long tail of sales, with 69% of the SKUs representing 5% of sales by volume, adding additional complexities to the forecasting and operations planning and making lines more inefficient due to setup times.

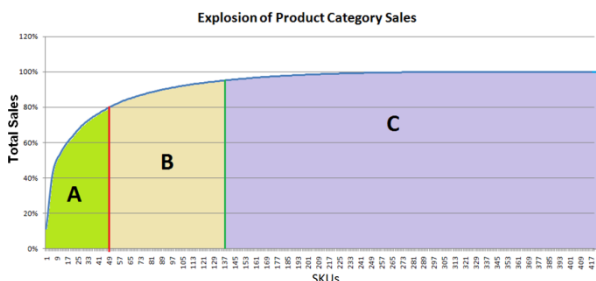


Figure 1

Forecasting errors and stock-outs are increasing, pointing out a problem in the current process. The industry is changing and more SKUs are expected to appear in the near future, increasing the long tail of sales and the need for accurate forecasts. Balancing volume and mix is becoming critical to maintaining market share, profitability, and successful new products introductions.

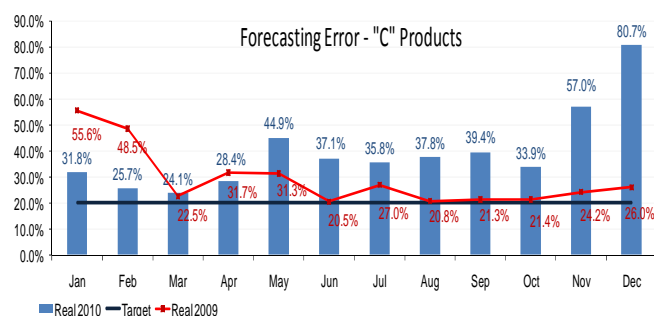


Figure 2

The company operates with a mature supply chain planning process, but is failing to reach cross-functional integration. In order to propose a process, the current process was mapped and after benchmarking with literature and industry best practices, omissions and improvement areas were identified. A management approach and coordination mechanism was selected, based on existing frameworks for cross-functional integration.

### The Proposed Process

The proposed process is not presented as a specific solution, but its mechanics are built around literature explanations of why some processes work to support cross-functional integration. The implementation of this project will help to determine the effectiveness of these propositions and frameworks.

The S&OP process is centered on aggregate forecasting and operations planning at the family level. Several criteria were evaluated to select the right families in which the meetings will allow an effective demand planning and supply planning process, in spite of not having aligned resources or dedicated production lines. The proposed process is divided into five steps, with different goals, activities, outputs, and participants.

The forecasting process merges the Business Plan Sales forecast with an aggregated bottom-up statistical forecast through a consensus meeting, using an aggregated statistical forecast at the family level as a reference point for challenging assumptions and deviations. This allows having a consensus forecast that takes into consideration the target for sales using market and economic conditions on the long-run, the expected volume lifts due to promotions and price changes in the short-term, and compares it with the baseline historical aggregate that presents less variability.

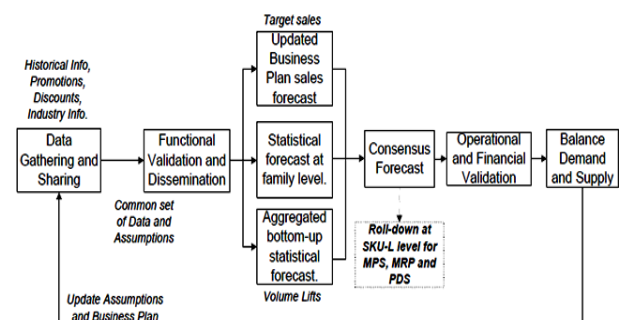


Figure 3

Basic assumptions for a family product based on weighted average values at an individual mix can be used to plan resources and forecast revenues (weighted average selling price, weighted average hours of machine X needed). These assumptions have to be validated if the individual product mix changes for a family or if a resource parameter

changes (machine X bottling speed, amount of raw material Y in certain SKUs).

A pilot project is preferred to improve the learning process, reduce the risk of disruption and allow for the new process and mindset to be fully understood and accepted by the team. Full financial integration appears after all families have been included in the process, allowing the creation of a financial plan that better represents the operations plans and the sales plans.

## **Conclusions**

This study used existing frameworks for cross-functional integration, knowledge from literature and practitioners about the forecasting process and management approaches, to propose an S&OP process that also addresses the organizational and behavioral context of the forecasting process.

The proposed process is not presented as a specific solution, but its mechanics are built around literature explanations of why some processes work to support cross-functional integration. The implementation of this project will help to determine the effectiveness of these propositions and frameworks.

The S&OP process will not only be able to balance demand and supply, detect future problems on time to add capacity or manage demand, but will also permit top management to compare the family level plans at the S&OP process with the master production schedule to avoid having a process that is detached from real operations. Executives will have more control of operational results and a more efficient process by which changes can be implemented and realized.

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