

SALES AND OPERATIONS PLANNING WITHIN THE SOUTH AFRICAN BREWERIES LIMITED

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ABSTRACT

This research explores the implementation of a Sales and Operations Planning (S&OP) process in order to observe the results on the performance of the supply chain after an implementation. Based on the literature review, the effectiveness of the supply chain's performance is often criticised for not being optimal in supporting the complexity of businesses operating in the global environment.

In this study, the South African Breweries Limited (SAB) was selected as a case study to explore the implementation of an S&OP process and to examine the theoretical aspects of this model.

This research provides an overview supporting the implementation of the S&OP process in the case company. It also highlights the influence that this model had on the improvement in the performance of the supply chain: such as creating on-time-in-full order fulfilment and improving customer service. However, because the model is operational in nature, a brief review is provided to illustrate the challenges faced during financial integration.

DECLARATION

I, Stephanus (Fanie) Fourie, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

15 September 2009

DEDICATION

To my parents Kobus and Ellen Fourie, without whose love, encouragement and support, the completion of this degree would not have been possible.

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GLOSSARY OF ACRONYMS

APP:	Aggregate Production Planning
APS:	Advance Planning and Scheduling
ERP:	Enterprise Resource Planning
IT:	Information Technology
JIT:	Just In Time Planning
KPI:	Key Performance Indicator
MRP:	Materials Requirements Planning
MRP II:	Manufacturing Resource Planning
OOS:	Out of Stock
OPT:	Optimized Production Technology
SAB:	The South African Breweries Limited
S&OP:	Sales and Operations Planning
SCM:	Supply Chain Management
SCP:	Supply Chain Planning
SKU:	Stock Keeping Unit

CHAPTER 1: INTRODUCTION

The first chapter introduces the problem that gave rise to the research and outlines and explains the structure within the thesis.

1.1 Background to the Research

Traditionally organisations view themselves as independent entities, and require competition in order to survive. The challenge provided for the supply chain management is often a struggle, with even the basics of balancing consumer supply and demand within their organisations. This translates into retailers having excess inventory of certain Stock Keeping Units (SKU) on some products, while facing product shortages of others (Christopher 1998).

Organisations have often tried to reduce these growing costs by controlling the mismatch between demand and supply. Attempts at improving the forecasting accuracy, improved production and inventory planning, increased production capacity and reduced transportation lead times have all failed to address a number of drivers of this supply and demand mismatch (Van der Merwe 2006).

The difficulty in managing the supply chain within this demand and supply fluctuation is derived within the complexity and the unpredictability of the supply chain flow. The challenge increases, with the necessary corrections required in the supply chain to manage this unpredictability and the complexity without incurring unnecessary costs (Taylor 2004).

Pienaar and Rossouw (2006) suggest that the South African Fast Moving Consumer Goods (FMCG) Industry is regarded as a leader within supply chain integration and consumer demand orientation, due to its ability to manage this market demand and supply changes.

Ling and Goddard (1988) explain that business is moving rapidly into a new model where competitive pressures and reduced product lifecycles, higher customer as well as market expectations, margin erosion and the need for greater cost control, are driving businesses to become more reactive to market conditions.

Pienaar and Rossouw (2006) assert that this shifting environment has led to the development of the Sales and Operations Planning (S&OP) process. Competent S&OP is seen as a decision making process concerned with aligning the organisation with market demand complexities, while integrating the business strategy, as well as generating focus on supply chain synchronisation. They also describe the S&OP process as a cross-functional business process of Demand Management including (1) Data Collection, (2) Forecasting, (3) Supply Chain (SC) Synchronisation and (4) Reducing variability and increasing flexibility.

More organisations are now focussing on building into their respective supply chain processes, strong foundations for the implementation of the Sales and Operations Planning process (S&OP); this in turn will assist in aligning the decision making process within the organisation and integrating business strategy (Muzumdar and Fontanella 2006).

Reliable S&OP processes focus on creating forums that will enable business decisions to be made based on accurate Key Performance Indicator (KPI) and market data. Research suggests that many organisations are said to have formally implemented some form of S&OP process.

However, in many of these instances the full benefits of the S&OP process are never said to be sustained or even realised. The reasons suggested by Sharp (2006), are that this could be due to a sound process being misused over time, or that the basic process is poorly implemented.

Sales and Operations Planning (S&OP) is a monthly, continuous process that enables cross functional integration; this allows, principally manufacturing, distribution, sales and marketing, to meet on a formal basis to agree on a rolling forward plan that will balance customer requirements (demand and price) against costs, capacity, capability of manufacturing and logistics (supply), and budget (Wallace, 2004).

The balancing of supply and demand has the purpose of ensuring that the cross functional meetings are held in an organised and focussed manner, which will generate one overall agreed plan to strategically align the business in the future. One of the advantages of using the S&OP process is that immediate past performance may be assessed and a recalibration of the S&OP process can be done to improve the quality of the forward plan (McNeil 2008).

1.2 Purpose of study

The purpose of this research was to explore the implementation of an S&OP process and to view the results gained from such an implementation on the performance of the supply chain.

1.3 Main Research Question Statement

1.3.1 Main Question

Why are S&OP processes implemented and what is the influence of this implementation on the performance of a supply chain?

1.3.2 Sub-Question One

What performance improvements are found in the supply chain and customer service after the implementation of the S&OP process?

1.3.3 Sub-Question Two

What ownership roles do senior management and the CEO have in ensuring the success of implementation?

1.3.4 Sub-Question Three

Has management seen any improvements in the cross functional alignment and accountability after the implementation of the S&OP process, in the performance of the supply chain?

1.4 Significance of study

This study is significant as it looks at the primary aspects influencing the implementation of the S&OP process and the influence on the performance of the supply chain as a result of this implementation. It will allow the participants to indicate their experience with the S&OP implementation and could facilitate the achievement of future success using the S&OP process at other organisations.

1.5 Delimitations and limitations

1.5.1 Delimitations

This study was only conducted on the South African Breweries Limited (SAB) in the Gauteng Province.

1.5.2 Limitations

This study should acknowledge a number of limitations:

The study was limited to the beverage industry and particularly the South African Breweries Limited (SAB).

The research is limited to the sales and operations planning aspects of supply chain management of SAB with particular focus on the post implementation of the S&OP process.

The research does not attempt to prioritise the various principles nor approaches within this area.

The research does not attempt to generalise the S&OP model for implementation in a universal application, but rather focuses on the models provided by literature and those which are specific to the organisation.

CHAPTER 2: LITERATURE REVIEW

This chapter is utilised to review literature that has already been published pertaining to the research on the S&OP process. Firstly S&OP will be defined and the origin within the supply chain identified. Then the main activities of the S&OP process and the reason for implementation will be outlined.

2.1 Overview of Supply Chain Management

2.1.1 Supply Chain Management

The forces of globalisation, which primarily encompass privatisation, trade liberalisation and deregulation, have strongly influenced the structure of business in many countries (Amann and Nixon 1999). These forces have collectively brought about a business environment that is more competitive (Porter 1985), and have had an impact on the economic performance within organisations (Amann and Nixon 1999).

Various definitions have been formulated to demonstrate the aspects of supply chains and supply chain management by a variety of researchers in this field. To define sales and operations planning, it is essential to articulate how supply chain management is defined. Although the concept of supply chain management is seen as fairly new, the definitions demonstrated by these different researchers are very similar in focus and in their formulation.

The current thinking with regard to supply chain management is described by Cox (1999), as a method of thinking that is entirely dedicated to discovering different methods of providing an increase in the operational effectiveness and efficiency throughout the value chain, created both internally and externally to supply and support the existing corporate product and service offerings to the end customer.

Recently, supply chain management has increasingly been gaining attention in the development of a competitive advantage for organisations. In addition to this, it has also become a subject of increased interest to academics, consultants and operational management (Scott and Westbrook 1991).

Due to facing an increase in competitive markets within the economic environment, more organisations are turning their focus towards supply chain management (Feng, Amours and Beauregard 2008). Supply chain management serves in bringing the traditionally non-coordinated business units along the supply chain together to enable synchronization of the activities from the supplier to the customer (Cox 1999).

Supply chain management is described as focussing on a much broader span of concern and as a holistic approach at managing across business boundaries. It is recognised that there are substantial benefits that are to be gained by strategically trying to drive an entire value chain in the direction of satisfying the end customers (Pycraft, Singh and Phihlela 1997).

Supply chain management is also seen as strategically advantageous throughout the operations in any given supply chain to ensure that the end user is satisfied (Pycraft 2007).

As shown, a commonality that exists is the extent to which the flow of material and information within the activities involving suppliers, manufacturing and the end user of an organisation, are managed. These definitions emphasise the integration of various activities and not the actual interface of these activities (Cox 1999).

Often, several independent organisations are involved with manufacturing a product and providing this to an end user in a supply chain – raw materials, product assemblers, wholesalers, retailers and haulage companies are all members of the supply chain (La Londe and Masters 1994).

Several definitions explain that the supply chain is viewed as a network of organisations which are involved, using upstream and downstream linkages within the different processes and activities, in generating value in the form of products and services to the end consumer (Christopher 1992). Mentzer (2001) explains that the distinction between supply chain and supply chain management, is that supply chain refers to the phenomena that exist within industry and the other is the management of the process.

Supply Chain Management focuses on seeking synchronisation and convergence of aspects, both internally and externally, that are involved with unifying the strategic capabilities of the organisation into a convincing marketplace force (Ross 1998).

2.1.2 Supply Chain Alignment

In recent times, more market orientated strategies are found to be adopted by various organisations to compete in the competitive global market. These different strategies focus on streamlining and optimising the operations at all corporate levels, which will in turn allow the commitment to the creation and retention of customers and maximise value. Competition is currently seen to be greater between the efficiency of the different supply chains than between the different customers (Feng *et al.* 2008).

Cox (1999) explains that within this process of supply chain alignment is the aspect of a lean supply chain and a greater emphasis on getting the sales and

operations planning accurate. Further to this, he explains that a great deal of the supply chain management practice as it appears today, is an attempt to replicate, in a variety of products and service supply chains, the approach to external resource management originally pioneered by Toyota. This approach is often referred to as 'lean thinking' and focuses on waste minimisation within the operations.

2.2 Defining Integrated Supply Chain Management

Muzumdar (2006) explains how the advent of globalisation has changed organisations due to facing market factors such as shrinking profit margins, reduced customer loyalty and increased supply chain rate. Wallace and Stahl (2005) describe how organisations have dramatically improved their efficiency with the adoption of lean principles to ease the operating environment and the elimination of non-value-adding activities. Wallace (2004) clarifies that as an organisation's operational environment becomes more complex there is a greater increase in the need for coordination tools.

Wallace (2004) explains that unpredictable, slow customer service and high levels of inventory are often seen as problems that at present need to be addressed by organisations. S&OP is one of the main strategies that is used to respond in this ever-changing complex business environment. With the increase in customer demand for faster response required within market shifts, products and services, S&OP has the power to allow an organisation to achieve an instant improvement on their return on investment (Muzumdar 2006).

Olhager, Rudberg and Wikner (2001) outline S&OP as a process that is often referred to as providing an essential focus on maintaining the balance between total supply and total demand by using monthly updates of the annual business plan. According to Tearnan (2008) the sales and operations planning process is

widely recognised as a best management practice methodology for manufacturing, engineering and distribution organisations. He explains that the S&OP process operates on a monthly cycle consisting of a series of reviews where historical, forecasted and planned data is reviewed and these plans synchronised, with the focus being as long as 24 months.

Ling and Goddard (1988) outlined S&OP as a process whereby the executive level management of an organisation has the ability to manage its departments to work together by sharing information and to get production easily matched to meet market demand. Wallace (2004) describes S&OP as a decision-making process that balances demand and supply and integrates financial and operational measurement plans.

Sales and Operations Planning largely developed within traditional manufacturing and as process to support the functioning of the MRP II technology (McNeil 2008). A mature S&OP process enables strategic management visibility of the status of strategic initiatives and identification of gaps between current plans and the end strategic goals within supply chain synchronisation (Tearnan 2008). Recently the S&OP process has been applied to many different forms of supply chains, however, with the same principal objective of regularly balancing supply and demand within the business and also as a support for the functioning of Enterprise Resource Planning systems (ERP) such as SAP (McNeil 2008).

The sales and operations terminology was originally described in articles relating to MRP II, the manufacturing resource planning, or similar systems, where it has also been used interchangeably to refer to the term aggregated production planning (APP) (Muzumdar 2006). Since the 1980s, the definition of S&OP has been extended to include the sales planning process, thus providing the two components of sales planning (demand forecast) and production planning; this determines the capacity requirements (Ling and Goddard 1988; Olhager *et al.* 2001; Wallace 2004).

Olhager *et al.* (2001) explains that the S&OP process can be divided into a sales plan by using the forecasted demand and the production plan, with the focus on creating a balance between this sales plan and the production plan. He describes S&OP as being both tactically and strategically focussed due to managing the capacity constraints and influencing the long-term capacity planning via continuous feedback from the execution of the sales and production plan. As Olhager *et al.* (2001) describe, this divides the S&OP process into two sections, namely: those attempting to modify demand into matching the production constraints and those modifying the supply into matching the sales plan.

Sales and Operations are two core business functions in an organisation; decisions by these departments significantly impact the organisation's financial performance, operational efficiency, and service level (Feng *et al.* 2008). This demonstrates that the sales decisions typically focus on sales volume of products having greater profit margins, while production decisions focus on production costs, material efficiency, equipment utilisation and labour requirements. They have different responsibility and performance measures that tend to search for local performance improvements with little weight on the profitability of the entire organisation (Whalers and Cox 1994).

Wahlers and Cox (1994) propose that the aim of joining sales and production planning is to balance the demand of production capacity. In achieving this goal, there are two types of planning decisions: the one attempt to modify demand to match the production constraints (aggressive approach), and the other that modifies supply to match the sales plan (reactive approach) (Krajewski and Ritzman 1996).

Furthermore, the S&OP process is described as a long-term planning strategy in relation to sales and inventory and the interaction with management strategies (Whalers and Cox 1994).

However, other articles focus on S&OP as a tactical planning process: they define S&OP as a periodic planning process at tactical level that vertically links the long-term strategic and business plans with short-term operational plans, and

horizontally links the demand with supply capabilities, where supply capabilities mainly refer to the production and inventory capabilities (Ling and Goddard 1988; Wallace 2004; Feng *et al.* 2008).

Figure 2.1 illustrates the Integrated Business Planning Process as developed by Oliver Wight and the positioning of the S&OP process in aligning the supply chain across the entire business model.

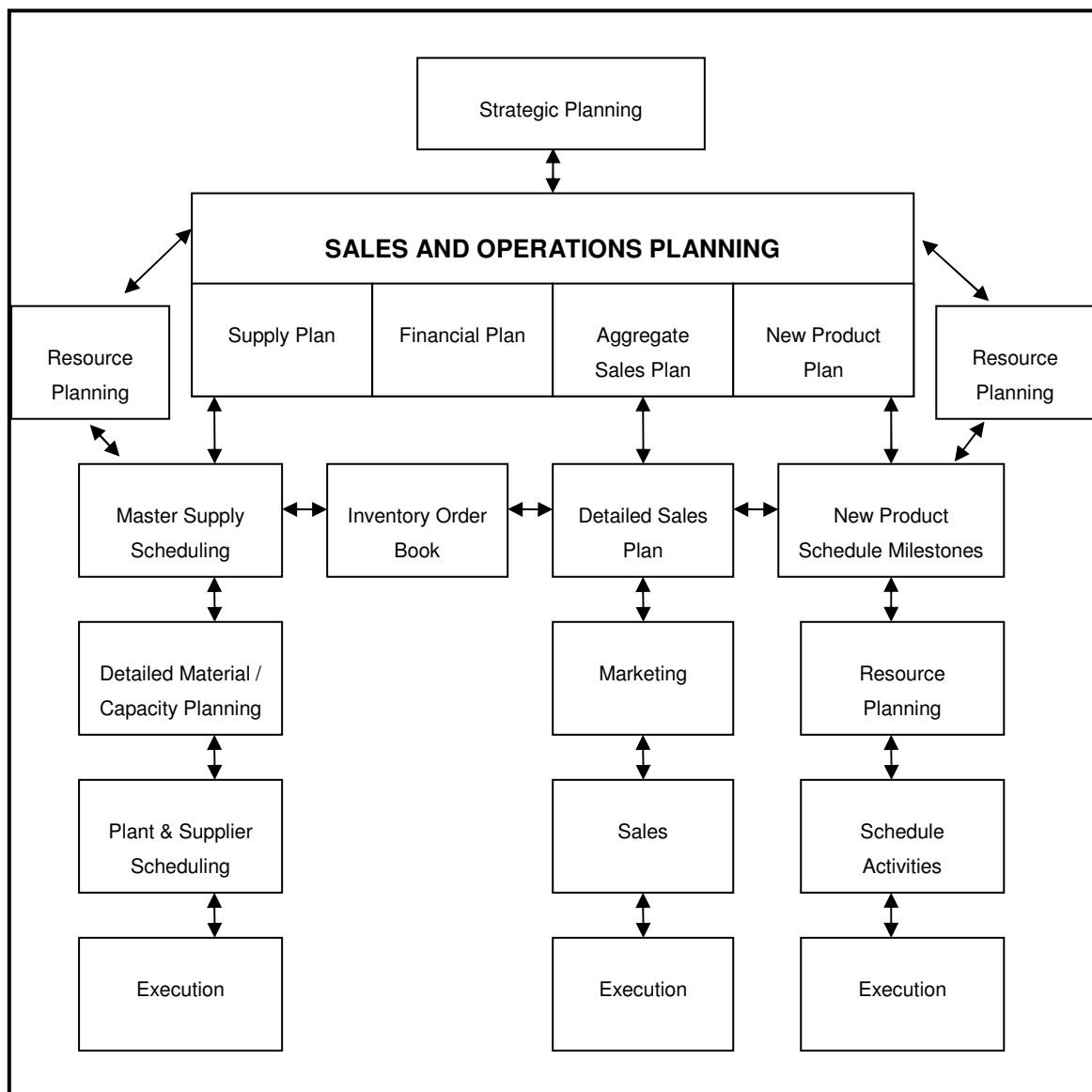


Figure 2.1: Integrated Business Planning Process (Hill 2002)

2.3 Integrating the S&OP Process

2.3.1 Introduction to the S&OP process

There is no doubt that S&OP processes and meetings have played an important role as a vehicle for building intellectual alignment within organisations to manage the cross-functional supply chain processes, however, the process of managing supply chains across different organisations still remains elusive and problematic (McNeil 2008). The evidence that S&OP is delivering real business benefits is now becoming more apparent and Muzumdar and Fontanella (2006), provided this evidence in one of their survey outcomes, which linked the best in breed of S&OP with greater levels of order fill rates, gross margin and customer retention.

2.3.2 The need for Integration

According to Corrêa and Giansesi (1993), when considering three approaches to production planning and control – MRP II, JIT, and OPT – the most suitable to deal with during the medium as well as the long term planning levels, is the MRP II planning system. This is because the MRP II system seems to be more adequate for higher planning levels and purchase scheduling, even in low variety, high volume production.

Giansesi (1998) explains that the advantage of MRP II systems, when well implemented, is that it seems to allow for proper linkages between short-term decisions and medium- to long- term decisions. He explains this by demonstrating that at the starting point of this advanced planning process within production planning, the MRP II system is usually seen to have a higher or more efficient

planning level in comparison. Ling and Goddard (1988) advocate the benefits of the formal implementation of this reviewed planning level of the MRP II system, and call this game planning or sales and operations planning.

Feng *et al.* (2008) illustrates that the sales and operation planning process (S&OP) is seen as the liaison element between manufacturing and executive management; and that it deals with production, sales and inventory levels and takes into account the monthly and quarterly periods. This allows the executive management to have a broader view of the manufacturing operations, with more detailed planning levels. It also portrays the ability to link manufacturing to other functional areas of the organization as far as planning or cross functional alignment is concerned (Wallace 2004).

Recent studies illustrated the S&OP process, as the synchronisation mechanism that aims at matching the demand forecast with the supply chain capabilities by coordinating marketing, manufacturing, purchasing and logistics, as well as the financing decisions (Croxtton *et al.* 2002). However this thought was later extended to encompass the concept that S&OP should profitably align the consumer demand with the supply according to the defined business strategy (Feng *et al.* 2008).

This process establishes a channel for both vertical and horizontal communication, within which the executive management meets the functional area managers in order to update strategies relating to production over a longer period of time (Feng *et al.* 2008).

This planning level allows executive management to consider the trade-offs between conflicting objectives within the different functional areas (Wallace 2004).

Volmann *et al.* (1992) comments that the lack of a systematic production planning process is the reason behind high inventory levels, poor service levels, excess capacity, long-lead times and failure to react to new opportunities.

2.3.3 The Influence of S&OP on the Supply Chain's Performance

In a market place of constant change, sales and operations planning (S&OP) has become one of the most critical business processes required to enable companies to achieve profitability and growth. S&OP strategies accomplish this goal by aiding organisations to make improved tactical planning decisions on the best combination of customers, products and markets to serve within the normal strategic planning period from that of a month to as long as two years (Muzumdar and Fontanella 2006).

Wallace and Stahl (2005) suggest that the following benefits could be derived from the S&OP process:

Quantifiable benefits:

- Improved focus on customer service
- Lower finished goods inventory levels
- Reduced customer order backlogs and shorter lead times
- More stable production rates and higher productivity

- Shorter supplier lead times
- Reduced obsolescence

Non-quantifiable benefits

- There is an improvement in collaboration within the organisation as a result of the holistic view of the organisation that is provided by the S&OP process.
- The S&OP process allows executive management to exert greater control over their organisations as the S&OP allows improved cross functional alignment.
- The S&OP process provides greater long term strategic focus and enhances the decision making process.

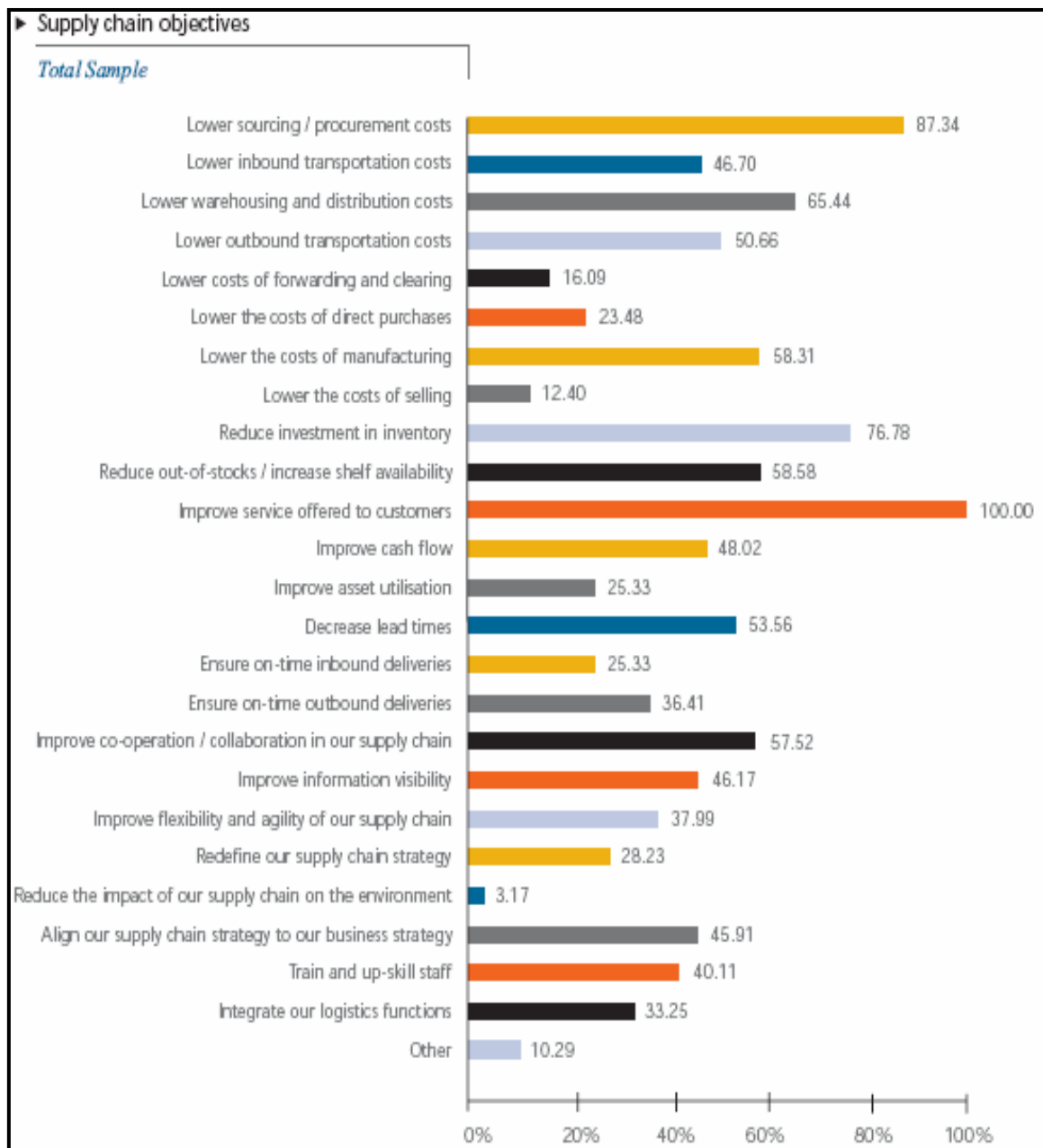


Figure 2.2: South African Supply Chain Objectives (Supply Chain Foresight 2008)

Based on the work by Pienaar and Rossouw (2006) the following reasons are provided as to why focussed S&OP processes would need to be implemented by organisations:

- The S&OP process remains primarily focussed on improving product availability and transparency while reducing the variability in inventory levels.
- Demand creation is pursued by organisations that produce impulse products where availability drives demand and the integration of the supply chain is able to contribute to the shaping of these demands.
- Capacity utilisation is pursued by organisations that have traditionally utilised over-capacity to be able to service fluctuating demand while new investments are avoided to service further growth demand.
- Variable cost reduction is pursued by organisations that produce price-sensitive commodity type products and their competitive advantage is highly reliant on their cost structures.

2.3.4 The Constraints of the Traditional S&OP processes

Wallace and Stahl (2005) explain that within the current array of tools that exist for the S&OP process, certain short-comings still exist after implementation. They describe a few gaps that need to be filled to get the maturing S&OP process to the next level.

- The simulation capability needs enhancement to support complex businesses operating in the global environment. This is simulated that as organisations increase in complexity and rapid change they need more robust coordination tools to manage and plan effectively.

- The S&OP and Master Schedule need to be strongly joined and a more effective linkage and alignment between volume (S&OP) and mix (Master Schedule) are required. It is often necessary to simulate at the mix level and to ensure that the given alternative is do-able and thus to reflect that within the given volume picture; however, currently this capability does not really exist and this gap needs to be filled.
- A more robust capability to support financial projections is needed to realize the full potential of the S&OP process, as the integrator of operating plans and the financial plans.
- Within the ever changing environment of organisations the capability to easily combine data from dissimilar data sources and the provision of a unified view for analysis and decision-making at the S&OP level, is required.

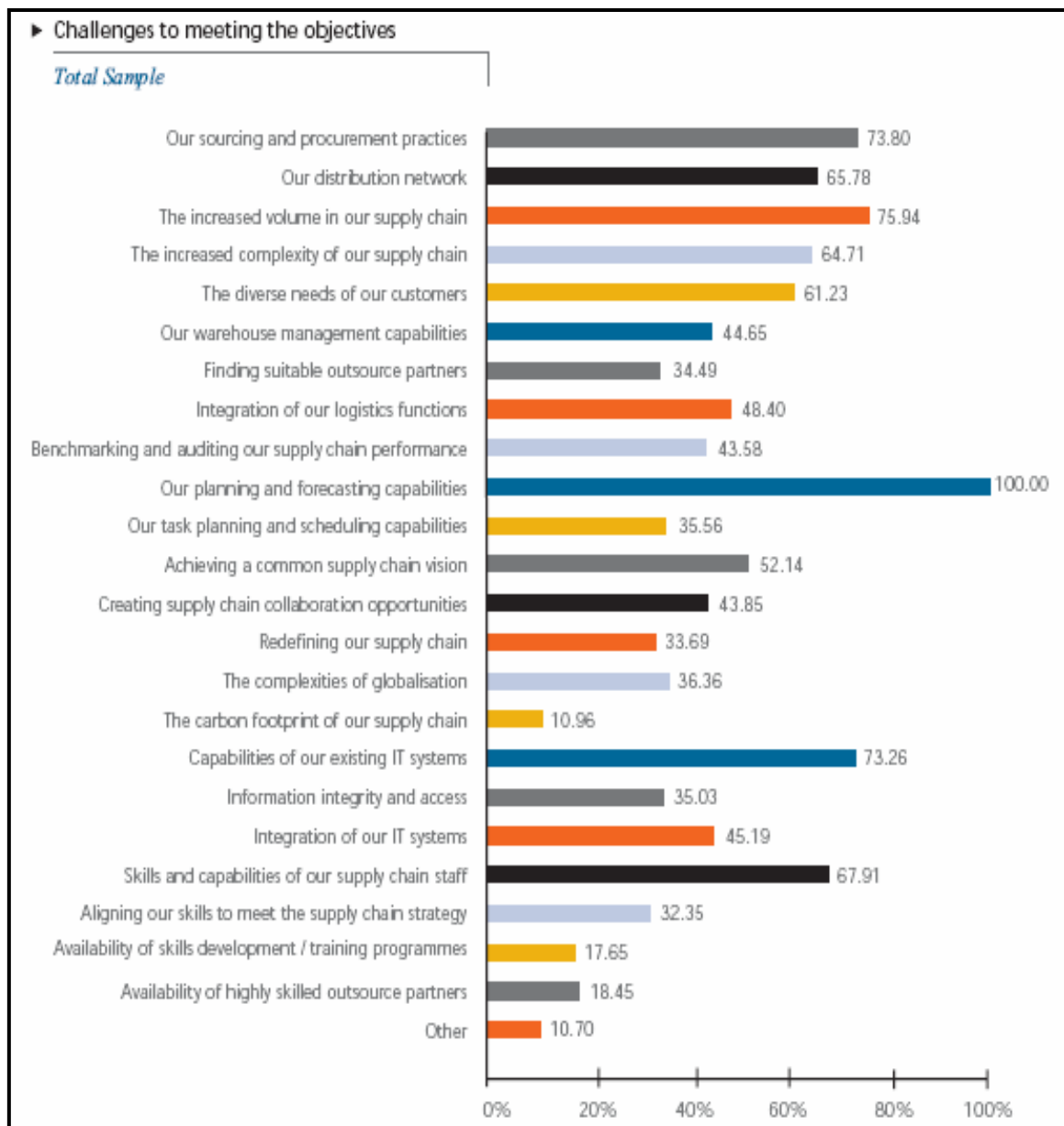


Figure 2.3: South African Supply Chain Challenges (Supply Chain Foresight 2008)

Pienaar and Rossouw (2006) developed further S&OP constraints based on a survey that was done:

- They determined that the most significant constraints demonstrated the shortage of skills to support the S&OP process within the organisation while the focus on “fire-fighting” limited opportunities to align the organisation.
- Organisational leadership issues, including the lack of executive alignment, represented significant constraints in successful S&OP implementation.
- Information technology related constraints (poor data integrity in enterprise systems) are sometimes evident and significant in certain organisations. This indicates that more organisations are focussing on overcoming their information technology problems with the utilisation of improved enterprise resource planning (ERP) systems.

2.4 The implementation and follow through of the integrated management system in the Beverage Industry.

2.4.1 The pre-implementation analysis

More recent models have found that at present the S&OP process is mainly an Aggregate Production Planning (APP) based model that predicts the production, inventory and workforce levels for a set of forecasts with the aim being to minimise production costs, while being subjected to the appropriate limitations (Olhager *et al.* 2001)

As the knowledge about the S&OP process is extended, a more comprehensive modelling approach is required that represents the fundamentals of the S&OP process, allowing organisations to observe the potential value prior to the actual implementation (Feng *et al.* 2001).

To explain this, the supply chain is divided into its four fundamental stages: procurement, production, distribution and sales (Fleischmann *et al.* 2002). These stages have always been managed independently and inventory is used as a buffer. Competition has created a current movement away from this independence to a more coordinated and integrated planning and control for their respective supply chain activities, in order to reduce total costs, improve performance and also increase the service levels (Feng *et al.* 2001).

2.4.2 The checklist for implementation

Pienaar and Rossouw (2006) explain that it is important to note that the implementation of S&OP should be supported by the Oliver Wight Class-A Checklist for Business Excellence.

This defines that:

- The “Integrated Business Management (IBM) process” ensures that the business is continuously managed to meet strategies, goals and commitments in response to changing conditions;
- The process comprises a series of integrated and interdependent business reviews, which are structured and focused, recognising the nature of the business and its organisational accountabilities;

- Each business review encompasses an assessment of demonstrated performance, future plans with clearly defined supportive data and issues or opportunities that may arise.

2.4.3 The implementation process

Most companies use an open or implicit framework as described by Ling and Goddard (1988) for implementing sales and operations planning and are thus not concerned with all the characteristics as proposed for their strategic production planning process. Giancesi (1998) explains that the main benefit so far achieved within sales and operations planning implementation is the higher level of co-ordination between functions in the internal supply chain (purchasing, production, sales and distribution). He however warns that without the effective commitment of the executive management, it is seen as impossible to break down the internal organisational barriers and get manufacturing and marketing aligned.

Giancesi (1992) describes the learning process and the role of executive management as being twofold: (1) to act as a mediator in resolving conflicts between different functional areas, when middle management is still not aligned; and (2) to distribute the teamwork culture and properly educate the middle management to break the barriers. This process may be achieved by better understanding other functional areas' needs and limitations as well as through properly designed performance measurement systems that focus on the group rather than the individual performance. Giancesi (1998) explains that most companies plan with a time horizon of four or five months owing to being unable to consider their forecast to be reliable over a longer term. This however, implies greater emphasis on a reactive rather than a proactive planning process.

Another element that is critical to the implementation of the S&OP process according to Tearnan (2008) is the quality and reliability of the collective data from the different divisions within the organisations.

Although the concepts of SCP and S&OP are relatively new, the initial stages of coordinated planning is traced to the 1960s by Clark and Scarf (1960), who studied multi-echelon inventory/distribution systems. Although much research work has been done on supply chain systems, few models have attempted to address the integration of sales, production, distribution and procurement simultaneously.

Literature has described various aspects of the development of the SCP and S&OP processes and suggests how this implementation developed. Williams (1981) studies the coordinated scheduling of production and distribution using a dynamic programming approach, which determines both the production and distribution batch sizes and minimising the costs in an assembly and distribution network. Youssef and Mahmoud (1999) recommend a non-linear programming model that considers production economies of scale to study the trade-offs between production and transportation costs and the influence this will have on decisions regarding facility centralisation/decentralisation decisions.

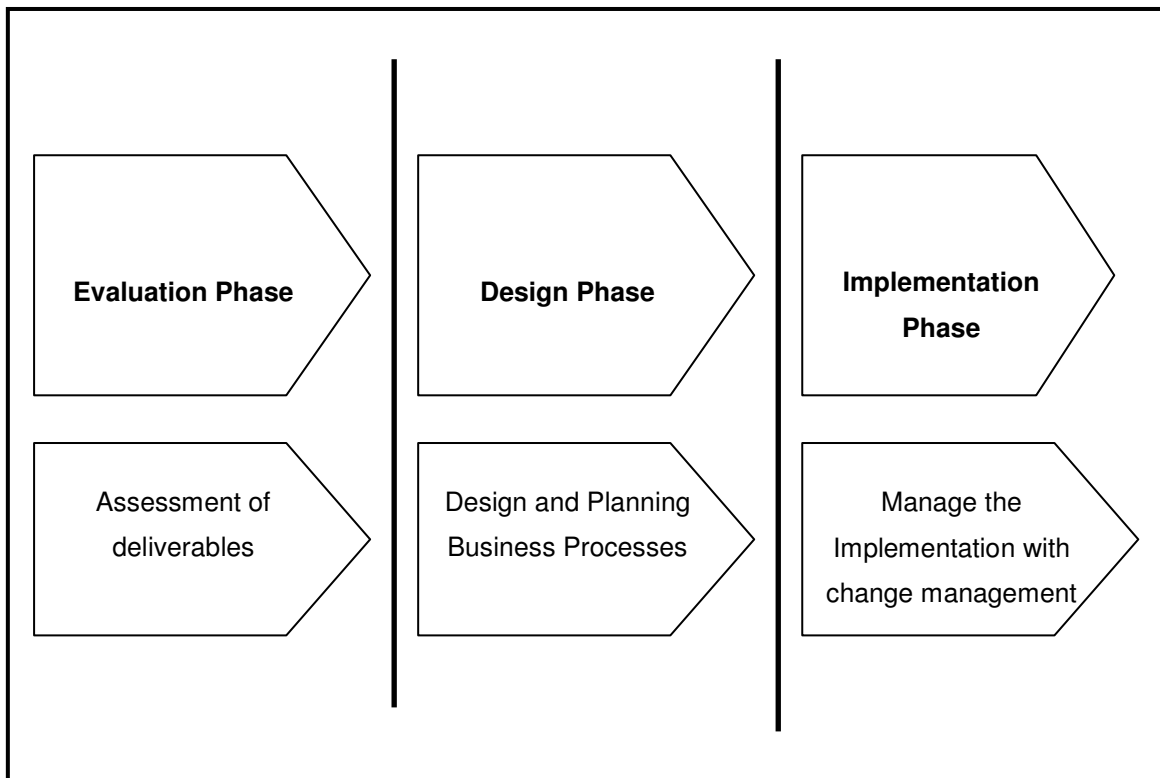


Figure 2.4: Initial Business Process Design for S&OP implementation (Pienaar and Rossouw 2006)

Cohen and Lee (1988) present a supply chain modelling framework and an analytical procedure that addresses the operating policies of material control, production and distribution using a hierarchical heuristic approach.

Park (2005) utilised a mixed-integer programming model, to investigate the effectiveness of the integrated production-distribution planning in a multi-plant, multi-retailer and multi-period logistical environment with capacity constraints while attempting to maximise the total net profit. This result demonstrates that such an integrated planning approach provides performance superior to the decoupled approach.

Building on these models Fleischmann *et al.* (2002), developed an integrated Supply Chain matrix model using the fundamental elements of the S&OP process and the Supply Chain Planning (SCP) matrix. He developed a two-dimension based SCP matrix, which classifies the planning tasks using horizon planning and the supply chain stages of procurement, production, distribution and sales as presented in Figure 2.5.

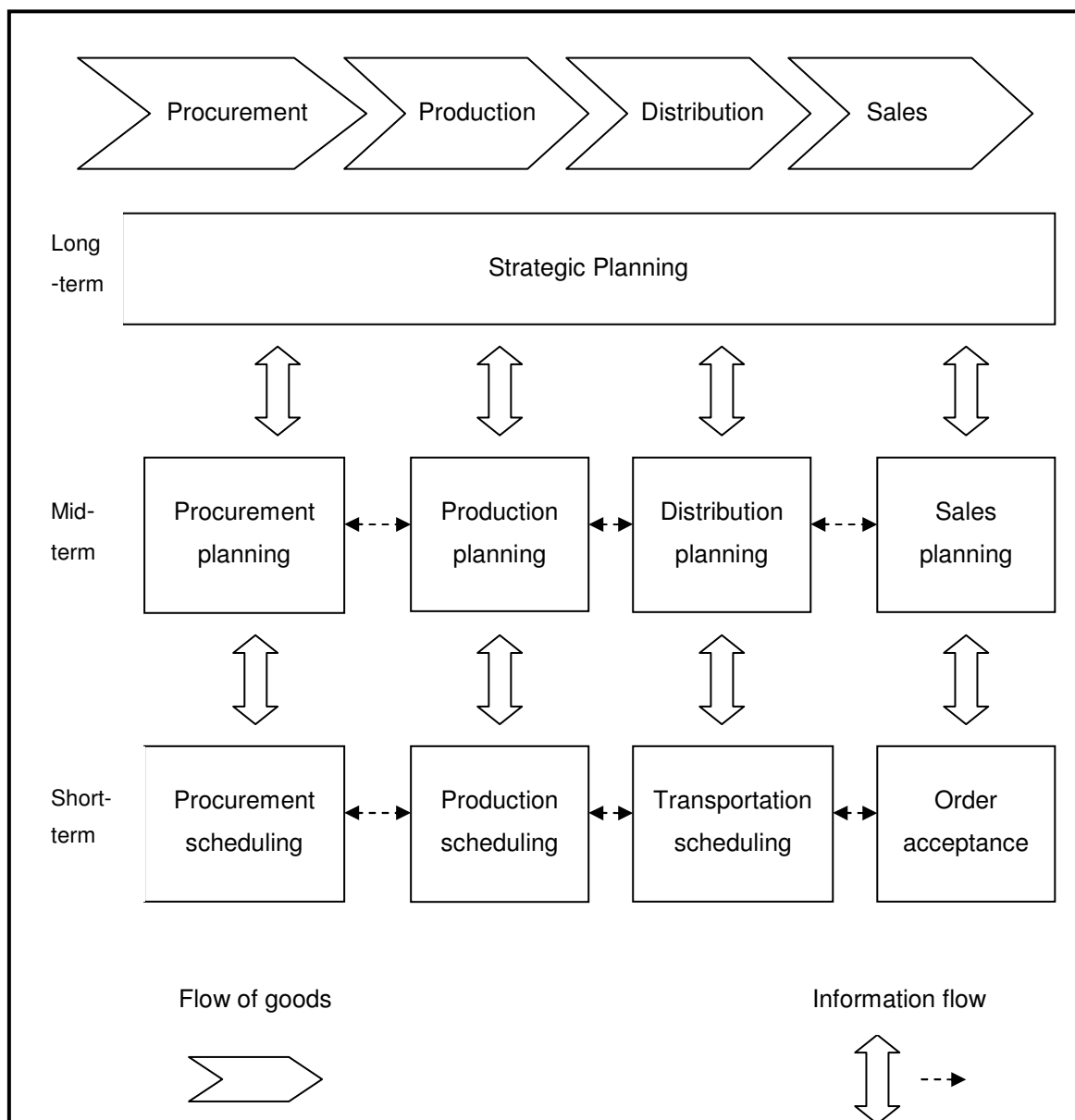


Figure 2.5: Supply Chain Matrix (Fleischmann *et al.* 2002)

Muzumdar (2006) describes five components that are seen as key components to the S&OP implementation to ensure success: people, process, technology, strategy and performance.

- **People:** This is the assurance of obtaining executive-level sponsorship and cross-functional team creation that will promote shared communication and collaboration. However, only operational metrics utilised by the S&OP team should be used and guidelines should be established that will aid real-time responses.
- **Process:** This ensures that all the consolidated demand for all product categories are reviewed, agreement on demand-side is achieved, the effects on key constraints are reviewed, all decisions and actions are documented, and possible process improvements are discussed.
- **Technology:** This aspect ensures that all the necessary software upgrades and enhancements are implemented as required.
- **Strategy:** This ensures that the formal alignment of supply and inventories on demand occur. Planning scenarios must be measured on their profitability impact and attention should be given to the collaboration between the customers and the suppliers.
- **Performance:** This ensures the utilisation of metrics that encompass the two-way impact of demand and supply decisions, rather than having separate unrelated metrics for each. KPIs must be linked to the value chain process, product and customer profitability, order fill rates and customer satisfaction or retention. However, it must be noted that the traditional metrics of sales forecast accuracy and actual versus planned sales volumes should not be utilised in combination with the holistic approach to S&OP.

2.4.4 The Monthly S&OP Cycle Process

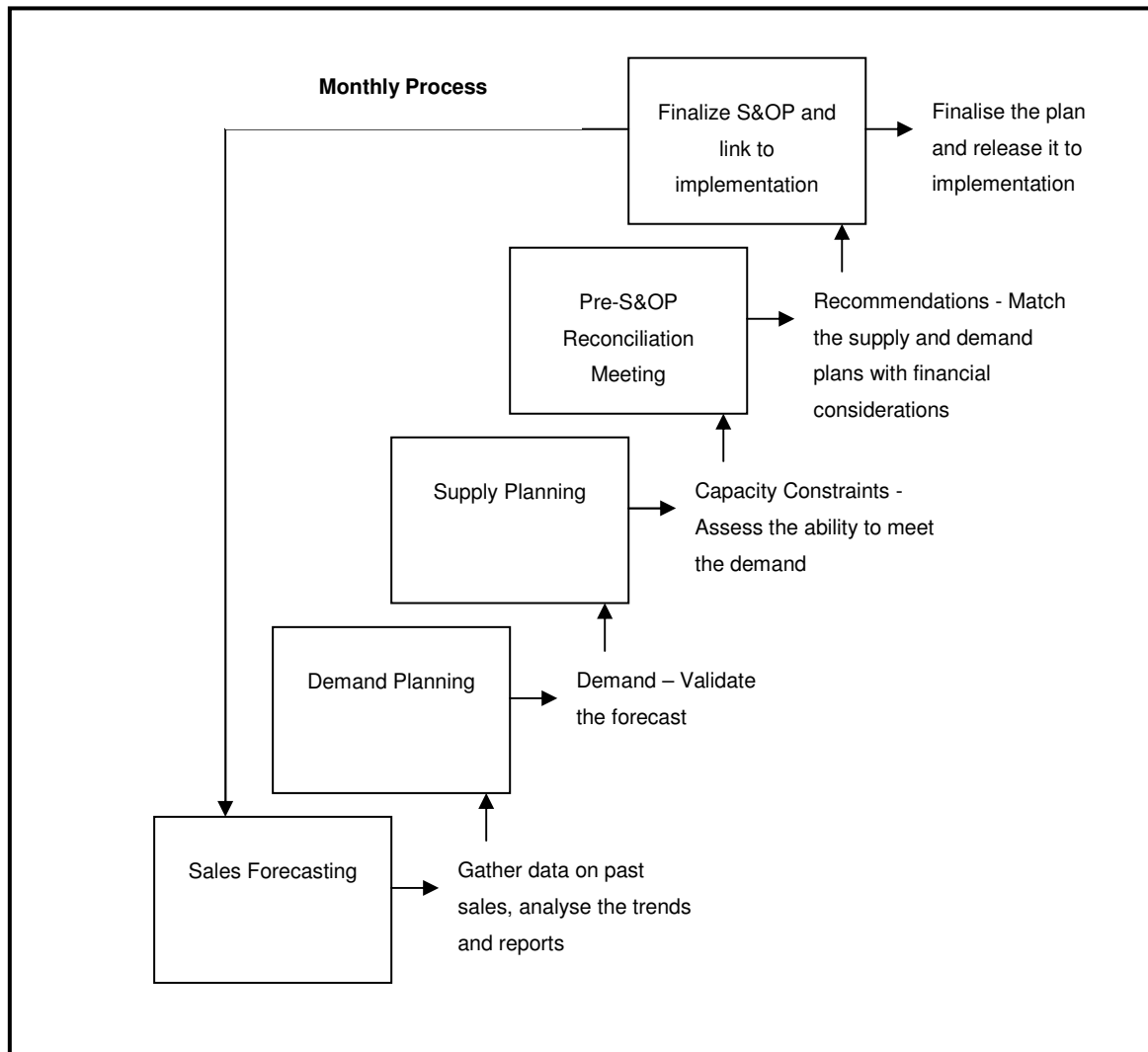


Figure 2.6: The Monthly S&OP Cycle Process (Wallace and Stahl 2005)

The S&OP process is seen as a long term process but should be reviewed on a monthly basis. This is to ensure that the process remains focussed on the strategic objectives as decided by the executive management in ensuring that the strategic objectives are aligned to the business plan.

Wallace (2005) explains that this monthly review of the process allows cross functional alignment to the business plan and ensures that all relevant departments share in accountability for the success of the S&OP process.

Wallace and Stahl (2005) describe these five stages of the process:

1. ***Sales Forecasting:*** Sales and marketing departments prepare the forecast
2. ***Demand Planning:*** Sales and marketing review the forecast based on the knowledge of the specific market requirements and any strategic or policy considerations.
3. ***Supply Planning:*** The purpose of this activity is to ensure that the requested production requirement is “do-able” and to evaluate this impact on supply chain and manufacturing costs. The ensuing inventory position plan is reviewed with suggested changes that are fed back to sales and marketing.
4. ***Pre-S&OP Meeting:*** These decisions are made by middle management from relevant functions that focus on balancing the supply and demand. This is to resolve any problems and differences and to provide the executive management involved with S&OP with a single set of recommendations.
5. ***Executive S&OP Meeting:*** This meeting is used to endorse the overall plan, resolving any conflict between business functions and recommending any follow up actions and projects to improve the functioning of the supply chain.

2.5 The Implementation Pathway of the S&OP process

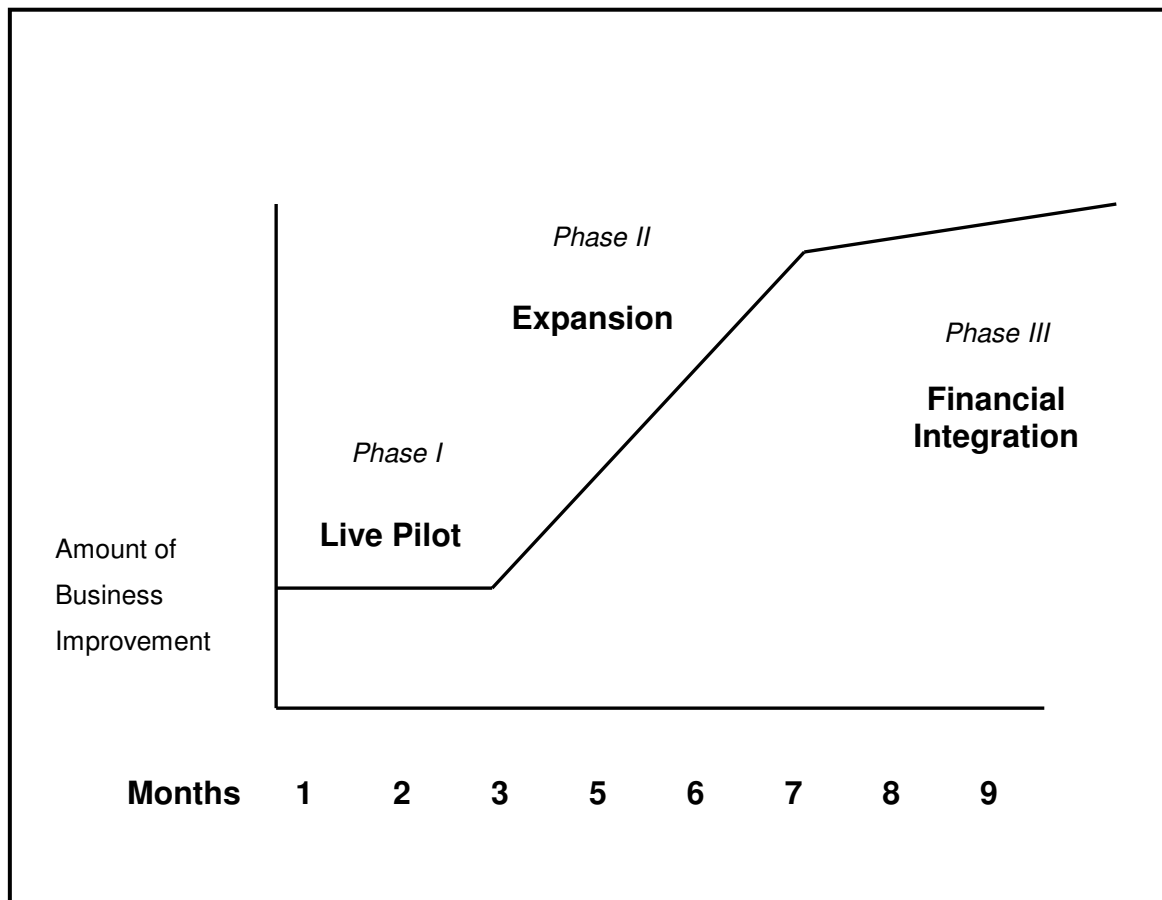


Figure 2.7: The Implementation Pathway (Wallace and Stahl 2005)

The Implementation Path can be divided into three phases of implementation as set out according to Wallace and Stahl (2005):

1. **Live Pilot:** This is primarily a demonstration to the executive management on how the process works within their organisation. This demonstrates the initial Go/No-Go decisions within the process. The Y axis illustrates the amount of business improvement that will be generated after each phase of completion.

2. ***Expansion:*** This is usually seen as a period of high improvement within the business as the balance of the products is cut over to the S&OP process.
3. ***Full Financial Integration:*** This is also viewed as the last phase of the implementation process. This includes financial simulation and data generation of pro forma Profit and Loss Statements and Balance Sheets. This is often the most difficult outcome but the most important during implementation.

For each of these objectives a detailed implementation plan is required that will enable effective management during the S&OP implementation project.

2.6 Defining the S&OP process enablers

2.6.1 Structuring the S&OP cycle (Synchronisation)

Pandya (2006) explains that every function and stakeholder has a plan and a planning cycle. However, the objectives and the metrics might be different for each, yet, they all need to be synchronised.

2.6.2 Defining ownership and accountability

Pandya (2006) explains that proactive performance management is vital for creating an empowered organisation and this is achieved by utilising the balanced scorecard at all levels to ensure alignment across the enterprise. He also explains

that these scorecards should contain the role and domain based indicators with the performance metrics, which should be monitored continuously and that alarms should be raised on defined thresholds, with capabilities for notification and escalation of alerts for resolution.

2.6.3 Senior Management accountability during implementation

With any new project implementation it is important to receive the approval of senior management to ensure alignment with the strategic business goals (Sumner 1999). Senior management must be dedicated to being involved and prepared to allocate valuable resources to the implementation effort (Holland *et al* 1999). Since the view from sales and operations planning is a long term view, it is important that senior management, including the CEO, has a long-term perspective of the benefits and not just the short-term view (Petroni 2002).

In addition to the implementation, the project sponsor commitment from senior management is vital to promote consensus and to oversee the entire life cycle of the implementation (Rosario 2000). The appointment of a steering committee is seen as vital (Petroni 2002) and should involve regular meetings with senior management for feedback. The utilisation of a project leader who is able to champion the project throughout the organisation is seen as essential (Sumner 1999).

2.6.4 Exception management

Pandya (2006) describes this as the process orchestration that facilitates the S&OP cycle, including all activities that influence review sessions, where key stakeholders are brought together to provide the input for decision-making in a

structured framework. This allows the alignment of authority and responsibility across all functional silos and because the S&OP process and roles change over time, rapid personalisation and easy deployment are essential characteristics of any system used to enhance the process.

2.6.5 Setting the S&OP process parameters

By utilising scenario planning it is possible to manage the risk from supply or demand upsets in a structured manner that will include the comparison and evaluation of possible scenarios and the means to gain consensus before the plan goes operational. There are however two levels of analysis which comprise: (1) the sensitivity analysis to identify the issues, limitations and possible impacts on a given plan and (2) an analysis for optimisation to identify the optimal combination of levers to resolve a potential situation (Pandya 2006).

2.6.6 Optimisation

McNeil (2008) suggests the use of Advanced Planning and Scheduling (APS) in optimisation that will enable the best of breed for S&OP. This is because it encompasses a range of tools and techniques within a software system that has applications in manufacturing and logistics, and highlights problems and consequences, and generates optimal plans and schedules. However, optimisation software usually offers linear programming and mixed integer solution solvers.

The reason McNeil (2008) suggests the use of APS within the S&OP process is that it allows supply and demand to be balanced more frequently and also assists in the use of weekly “mini-S&OP’s” which enables greater focus on the organisations’ agility in their planning and agility in their responsiveness.

2.7 Conclusion of the Literature Review

In conclusion, this chapter reviewed relevant literature in order to explain the principles of what S&OP is and the reasons for its implementation within an organisation. This chapter has described the S&OP process with the enablers and the prerequisites required for successful implementation. It also identified certain aspects that may influence or inhibit a successful implementation.

What primary aspects influence the implementation of the S&OP process and the influence of the implementation on the performance of the supply chain?

The literature also provided an illustration of the potential benefits on the performance of the supply chain with the S&OP process and showed that it is often possible to reach performance improvements in a relatively short period of time after initial implementation.

Research by Bonefeld, Hespel, Katch and Sanjay (2008) indicates that organisations have improved their customer service levels from less than 25% to more than 75% after the utilisation of a few of the S&OP cycles. This research also indicates that improvements of more than 15% in sales have also been achieved due to the improvements created by the transparency on the market opportunities and the available manufacturing capacities

By tailoring the process design around key decisions of each product segment, and by combining the focus on decision making, with senior management involvement in role modelling the right attitude and actions, it is possible for organisations to effectively balance supply and demand, as well as drive a sustainable performance transformation through the supply chain (Bonefeld *et al.* 2008).

Sales and Operations Planning remains an interesting challenge for the supply chain professional. With respect to the drivers for supply chain synchronisation, many organisations aspire to align their marketing, sales, production and procurement within the organisations. However, very few of these organisations realize the opportunity to extend this synchronisation beyond the boundaries of the organisation and achieve the end objectives of supply chain performance improvement, customer satisfaction and alignment, as was decided upon before implementation (Wallace 2004).

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

Methodology framework or research paradigm might be defined as a distinct way of approaching research with specific understandings of the purpose, data, analysis and, more fundamentally, the relationship between the data (Scott and Usher 1996).

An exploratory case study methodology was utilised in this research to collect, and to seek answers to, research questions.

The objective of this case study methodology was to investigate the academic aspects compared with the reality of the case company, in order to determine the extent of the existing gap between such theory and current practice. It must be noted that the case study in no means attempts to generalise the philosophy of the Sales and Operations Planning process for general applications within supply chain management.

3.2 Research methodology

Case Study Methodology Research

SAB was selected as the case company to study. Case study methodology is seen as an ideal methodology when a holistic, in-depth investigation is required (Feagin, Orum and Sjoberg 1991). Yin (1994) defines case study methodology as an experimental investigation that explores a modern event within its real life context, when the boundaries between event and the context are not clearly evident, and in which multiple sources of evidence are used. It is particularly valuable in answering the, who, why and how questions in management research.

Stake (1994) explains that a case study describes an entire situation as a combination of different factors. The case study may focus on the description of a process or as a sequence of events. Galliers (1991) explains that the depth of the inquiry possible through the case study method is greater than any other research methods.

3.3 Research Design

3.3.1 Case Study Design

The case study examined the implementation of the S&OP process at SAB and the performance of the supply chain. The data for the case study was collected with relation to the implementation of the S&OP process and involved interviews, a

review of the reports, and observations, which provided data for analysis and was presented in the report on the study. In addition, the personal interviews were used to obtain further information that could support and explain the results within the case study.

The respondents were familiar with the implementation process of the S&OP process within SAB and their responses were evaluated using questionnaires and interviews. The interviews were compared by using a constant comparative method with the existing literature to measure the content for any differences between the experiences within SAB compared with that of other industries, and relating to the S&OP implementation.

This method comprised semi-structured interviews and was supplemented with secondary inductive research as described by Welman and Kruger (2001). Leedy and Ormrod (2001) also explain that this type of research is seen as aiming to understand complex phenomena as seen from the point of view of the participants within the phenomena. The deliverable of this phase is an enhancement tool with visible links to influential factors, key characteristics and possible improvement opportunities.

3.4 Population of relevance

3.4.1 Population

The population of relevance encompassed SAB within the Gauteng Province of South Africa. The population covered key operation aspects in the supply chain of the case company.

3.4.2 Sample

Punch (2000) indicates that a sample needs to be a function of the research aim with practical limitations.

A sample of eleven sets of observations were obtained from senior managers within SAB, with additional data gathered utilising the existing data. The managers were selected because of their familiarity with the S&OP process.

3.4.3 Sampling Method

The sampling method was divided into two parts.

Firstly, secondary data from within the organisation, based on the stock out events of 2007 and the subsequent implementation of the S&OP process was gathered and analysed.

Secondly, semi-structured interviews with the relevant senior managers were utilised as their opinion is vital to the observations of the research. The sample is convenient in nature as the people chosen are selected due to availability and knowledge of the implementation of the S&OP process.

3.5 The Collection of Data

The information for this research was collected using four methods of focus:

1. Distribution of questionnaires to the relevant managers.
2. Collection of secondary data reflecting the implementation of the S&OP process at SAB.
3. Industry information from the public media.
4. Collection of data through an interview process.

3.5.1 Data collection

Existing data from SAB, based on the stock out events of 2007, as well as leading reasons for implementation of the S&OP process, was gathered and analysed. The focus of this quantitative research is particular and the nature of the research is verified and objective (Thomas and Nelson 2001).

3.5.2 Semi-structured in-depth interview

The initial part of this research encompassed semi-structured interviews with directors or senior managers and examined their views as to the nature of the requirements of a successful S&OP system within SAB.

The interviews were based on categories identified as key enablers, as well as challenges within the implementation of the S&OP process.

During the interview a series of open-ended questions needed to be asked to extract from the respondents their interpretation of the application of sales and operations planning and the influence of this concept since implementation.

The respondents were asked to complete a process questionnaire. However, the questionnaire needed to be piloted first with the aid of independent senior supply chain managers, to ensure validity.

Gillham (2005) states that the main benefits of utilising semi-structured interviews are that they provide a balance between structure and openness and facilitate controlled data analysis. Leedy and Ormrod (2001) describe semi-structured interviews as revolving around a few central questions. The aim is to get the questions aligned with the objectives of the interview relating to defining, implementation and monitoring of the sales and operations planning process within supply chain management and to extract all relevant concepts.

All interviews were conducted in person and notes were taken during the interviews. The interviews were also recorded so as to facilitate the analysis and comparison of the various contributions.

3.5.3 Initial interview Design

Respondents were asked to identify what initially led to the focus on certain aspects of implementation of the S&OP process within SAB. The results were then presented using the core S&OP elements gathered from the research followed by the challenges of implementation. Discussion revolved around the key interest areas as stipulated by the objective of the research.

3.5.4 Execution of the Interviews

For the interviews a specific structure was constructed so as to allow proper guidance throughout the process. All the interviews were recorded so as to analyse and to allow comprehensive notes to be taken, and to review similarities and differences between the interviews.

3.5.5 Organisational Selection

SAB is an organisation that has been at the forefront of business and supply chain management, exhibiting strengths across many activities over the past hundred years. They are seen as market leaders in their respective field both domestically and globally. However, the stock out events of 2007, aided in leading to more structured changes in the supply chain management and the implementation of an S&OP process taking place, that would potentially focus on deriving maximum benefit from business alignment and improvements in supply chain performance. This was partially due to the realisation of the impact that competitive pressures, higher customer and market expectations, margin erosion and greater cost control, was placing on the business.

Based on the management involved in guiding the implementation of the S&OP process at SAB, a shortlist of potential interview candidates was decided upon. Five interviews were planned initially, with the priority of targeting senior management who were involved in all aspects of the S&OP initiative and implementation process. An additional two interviews were conducted with external consultants specialising in the S&OP field, to compare and enable the validity of the process.

3.5.6 Questionnaire Design

3.5.6.1 Principles

The questionnaire was formulated in accordance with the following ideology:

- The questions and the statements had to reflect the respondent's opinions or attitudes to each particular question or attribute.
- For each surveyed research question, there are a number of questions or statements that could test the respondent's opinion or attitude from different aspects.
- The questions had to be simplified, concentrated and clear.
- The frame had to be considerate, consistent and courteous.

3.5.6.2 The Structure

A questionnaire was designed, as shown in the Appendix, which encompassed rating statements. The survey questionnaire was developed using the feedback gained from the interviews as well as the literature review. The measures used to construct the study comprised multiple items, as well as the utilisation of the five-point Likert scale.

3.5.6.3 Rating statements

The questionnaire consisted of twenty question statements, with each statement representing commonly held opinions about the S&OP process.

The Likert scale ranges from strongly disagree (1) to strongly agree (5), and measured the opinion of the respondents within each statement. In addition the study had to rely on previous research done within the field of S&OP to ensure the content validity of the measures utilised, as well as its being reviewed by experts.

3.6 Data Analysis and Interpretation

The individual scores of the eleven respondents were used as a basis to determine the characteristics of the selected variables as well as to determine the relationships between the variables.

3.7 Validity and reliability

3.7.1 External validity

Leedy and Ormrod (2001) describe external validity as the degree to which the findings can be extrapolated to other organisations. The findings might have limited external value due to the nature of the sample.

Conclusions are possible due to the fact that the sample represented senior management within SAB and they were familiar with the implementation of the S&OP process.

However, this study might be able to allow future research focus across industry, as well as the ability to view the influence of an implementation in industries such as High Tech and Electronic Industries.

3.7.2 Internal validity

Leedy and Ormrod (2001) explain that internal validity is the extent to which a researcher is able to draw precise conclusions from the information obtained from the study respondents.

Secondary data was used and the senior managers interviewed were familiar with the S&OP implementation process. It is also very important to note that an interview guide was used as seen in Appendix B to provide structure during the interviews.

3.7.3 Reliability

Reliability is defined as the extent to which a similar approach would produce correlated results (Leedy and Ormrod 2001). To ensure consistency secondary data had to be gathered from the events leading to the implementation, while all the interviews were also personally conducted and these interviews were recorded.

3.8 Data analysis and interpretation

The technique that was utilised was the constant comparative method as described by Merriam (1998). The constant comparative technique suggests that the interviews need to be compared with the preceding interview to identify recurring observations or comments.

The transcripts from the interviews had to be content analysed with the data grouped and coded according to the identified barriers in the literature review. The benefit of utilising the constant comparative approach and the identified barriers is that the data could provide answers to the research questions. Constant comparison is also at the heart of the process of building grounded theory.

The number of categories had to be limited to ensure the correct level of construct development so as to facilitate effective communication on the results. The cluster represents similar groupings and the important comments had to be highlighted. The identification of the clusters was done based on the guidelines as cited in the “qualitative research” by Miles and Huberman (1994).

The utilisation of this approach allowed that each cluster represented similar groupings of the most common ideas and concepts as gathered from the comments of the majority of the respondents.

After the final data analysis, the data had to be linked to the theoretical elements to ensure proper understanding of the S&OP process and to view where improvements could be made.

CHAPTER 4: CASE STUDY SELECTION

THE IMPLEMENTATION OF THE S&OP PROCESS WITHIN THE CASE COMPANY

4.1 Introduction

The objective of this study was to expand further on the results of the study by incorporating a case study on SAB. The chapter examines the influence that S&OP strategies have in managing stock levels and business performance at SAB. The case study examines the performance of SAB over the 2007 period. The case is presented as follows: Section One reviews the background of SAB as well as demonstrating the competition within the South African Liquor Industry. Section Two represents an evaluation of the performance of SAB leading into 2007. Section Three evaluates the implementation of the S&OP process.

4.2 Market Conditions

4.2.1 Overview of the South African Liquor Industry

The South African liquor industry is defined as including all aspects of the production, marketing and distribution of wine, spirits and beer.

The current South African liquor industry has largely evolved from the domestic environment which has facilitated changes and in more recent times, the influence of the global markets facilitated after democracy, which has allowed new opportunities.

Table 4.1 Overview of the Broad Liquor Market Share (in percentage according to liquor category, 1997 to 2007) (adapted from SAWIS 2008)

YEAR	Alcoholic Fruit Beverages (FAB's)	Beer*	Traditional African Beer*	Natural Wine	Brandy	Other Spirits	Whisky	Fortified wine	Sparkling Wine	TOTAL %
1997	2.3	41.4	24.2	13.9	7.7	4.6	3.1	2.4	0.3	100.0
1998	2.5	43.2	23.7	13.6	6.6	4.9	3.0	2.2	0.3	100.0
1999	2.7	44.3	23.3	13.7	6.0	4.9	2.7	2.0	0.4	100.0
2000	3.2	42.8	24.3	13.9	5.7	5.1	2.8	1.9	0.3	100.0
2001	3.3	42.6	24.1	14.0	6.0	4.9	2.8	2.0	0.3	100.0
2002	3.2	43.1	23.9	14.0	6.1	4.7	2.6	2.1	0.3	100.0
2003	3.2	44.6	23.7	12.3	6.3	4.7	2.6	2.3	0.3	100.0
2004	3.4	43.3	24.7	12.3	6.5	4.4	2.7	2.4	0.3	100.0
2005	3.7	43.0	25.4	11.6	6.6	4.1	2.9	2.4	0.3	100.0
2006	4.3	42.7	25.4	11.3	6.7	3.9	3.2	2.2	0.3	100.0
2007	4.9	43.1	24.4	11.5	6.4	3.8	3.4	2.2	0.3	100.0

The structure of the South African liquor industry encompassing beer, spirits and spirit-based drinks, and wine, has developed from the strong regulatory regime of the 1970s and 1980s. During this time it was noticed that the market power rested with only a few conglomerates (especially in the beer market segment).

The past regulations and political influences led to the development of a sector that is found to be highly concentrated today with only a few companies controlling the majority of the South African liquor market. During 1979 a market sharing arrangement resulted from the restructuring of parts of the South African liquor industry, securing SAB the beer monopoly and the Rembrandt Group's dominant

position within the spirits market. This restructuring also ensured that Rembrandt would stay out of the beer market while SAB could focus on controlling the beer market and not venture into other liquor markets (Naumann 2005).

The current global economical environment market has in the recent past seen international consolidation within certain markets and has led to the creation of even greater market dominance, such as seen the international beer segment. While domestically, single companies often control virtually their entire market segment, such as SAB in the beer segment.

A number of challenges face the South African liquor industry today and these include issues such as global competitiveness and the current economic financial turmoil. Due to the global economic uncertainty inter-market competition has seen the liquor industry facing increased competition from other sectors for a share of the consumers' share of disposable income, as demonstrated by the market segmentation in Figure 5.1 according to Ambe (2002).

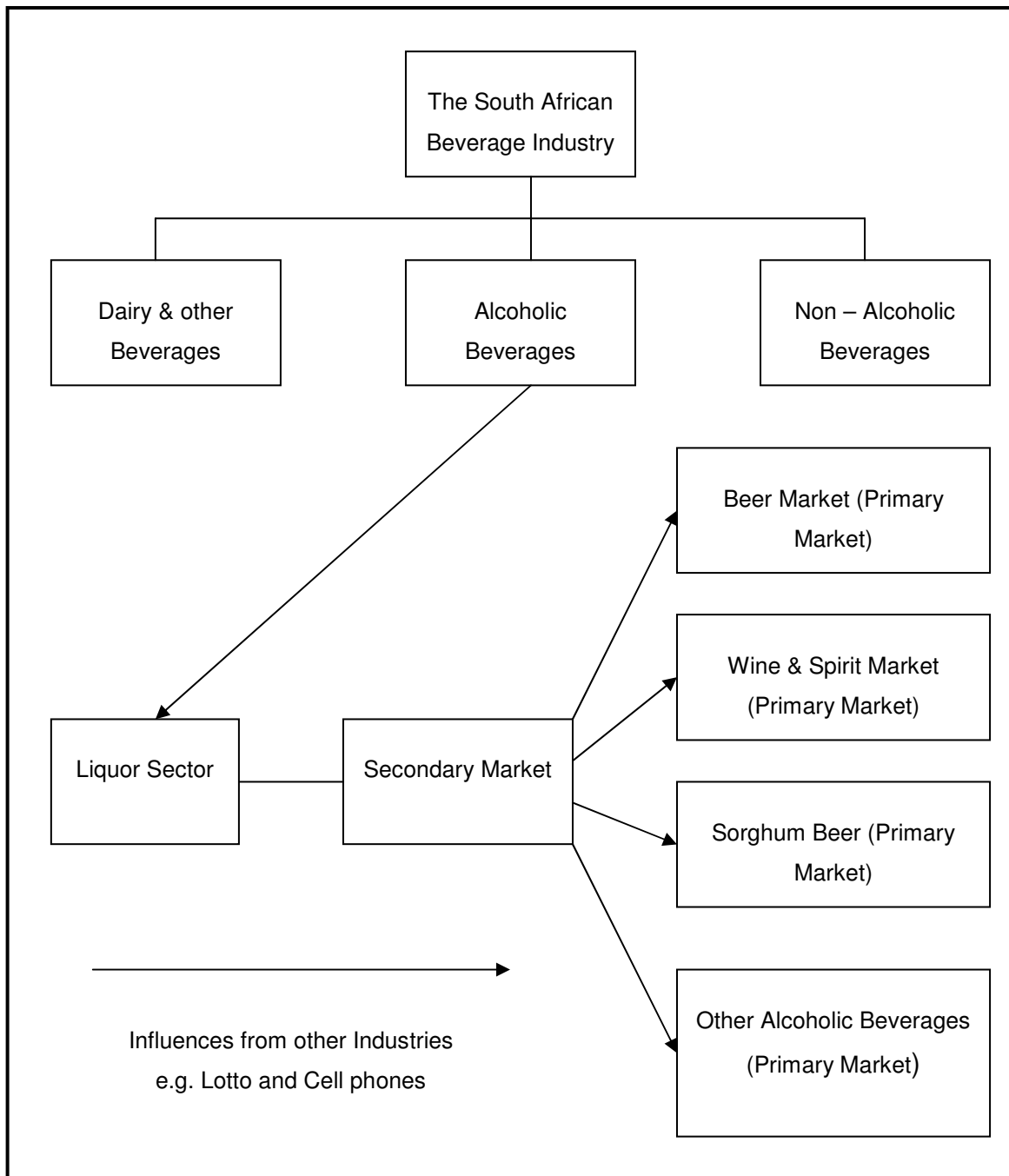


Figure 4.1: The South African Liquor Industry (Ambe 2002)

4.2.2 Overview of the South African Beer Market

The South African beer industry may be seen as a classic case where market dominance is displayed by a single operator. With the exception of the premium beer market, where rival Namibian Breweries and Heineken (both distributed through the Brandhouse venture) competes, SAB virtually owns the market with an estimated 93% of the local beer market share.

The companies' global annual revenue (as at 31 March 2008) was valued at US\$ 23,828 million, to which the South African beer operations contributed almost US\$ 4,446 million. This excludes income from SAB's equity holdings in the soft drinks industry, Appletiser South Africa and the Distell Group.

Within this, SAB is not seen as a true monopoly in that it does not charge monopolistic prices nor are other operators prevented from entering into the market. They have grown from being a national company with interests in liquor, retail and manufacturing, to the world's second largest brewing company, with interests across the globe (Naumann 2005).

4.3 Case Selection

SAB has been selected as a case study based on the following reasons:

- SAB is a major global leader within the local and international beer brewing industry.
- It has a typical supply chain for this industry in which it is actively competing.
- SAB adopted the methodology for the implementation of Sales and Operations Planning to assist in exercising greater control over complexities within the supply chain and to ensure that the supply chain is strategically aligned to the business plan.
- The S&OP process has been implemented at SAB and the case study will view the reasons for implementation as well as problems faced during the implementation.

4.3.1 *Company Background*

The South African Breweries Limited (SAB) was founded in 1895. It was the first company to list on the Johannesburg Stock Exchange (JSE) in 1897. Due to international pressures on exchange control brought about by sanctions SAB was precluded from being involved in the international beer market. Subsequent to the London Stock Exchange listing, the Miller Brewing Company was purchased in the USA in 2002 and the company became known as SABMiller plc.

SABMiller is currently listed on both the London and Johannesburg Stock Exchanges, making this a truly global company.

SABMiller plc is one of the world's largest brewers with brewing interests or distribution agreements in over sixty countries across six continents. The group's brands include premium international beers as well as an exceptional range of market leading local brands. Outside of the USA, SABMiller is also the largest bottlers of Coca-Cola products in the world (SABMiller 2009).

4.4 Organisational Supply Chain Performance

A review of SAB's supply chain performance was conducted for the period 2005 to 2007 leading to the implementation of the S&OP process. The study evaluated the annual reports of the company as well as other operational KPI's and selected the following indicators to draw on the trends of the performance of the supply chain: Out of Stock (OOS), Manufacturing Issues and Supply Chain Optimisation Issues (People, process, technology, strategy and performance).

4.4.1 The Supply Chain Performance at pre-implementation

SAB had been facing challenges with increased supply constraints since 2005. These constraints were driven by challenges from the underlying inefficiencies that masked the potential supply challenges due to unclear future commodity strategies.

Supply issues contributed greatly to the dropped production against the daily adjustments in 2007.

Figure 5.3 depicts the Out of Stock (OOS) for the period 2004 to 2007. An analysis of the OOS reveals that OOS rose to 16% for high volume SKU's, and 20% overall. The reason for these incremental changes, which contributed to the situation and SAB not being able to meet the needs of the market and influencing the performance of the supply chain, was that in 2007 the manufacturing costs had escalated, largely due to increased exchange rates creating margin losses.

Further reasons that contributed to the situation were the increase of manufacturing unreliability due to supply issues driven by lack of available materials, and returnable glass accounting for production loss, a phenomenon that was seen across the international beer and beverage market at the time. Sub-optimal planning occurred and was driven by the increased supply chain demand complexity augmenting the strain on the available resources, resulting in further unplanned reduction in the daily available inventory and adding to the increasing OOS situation.

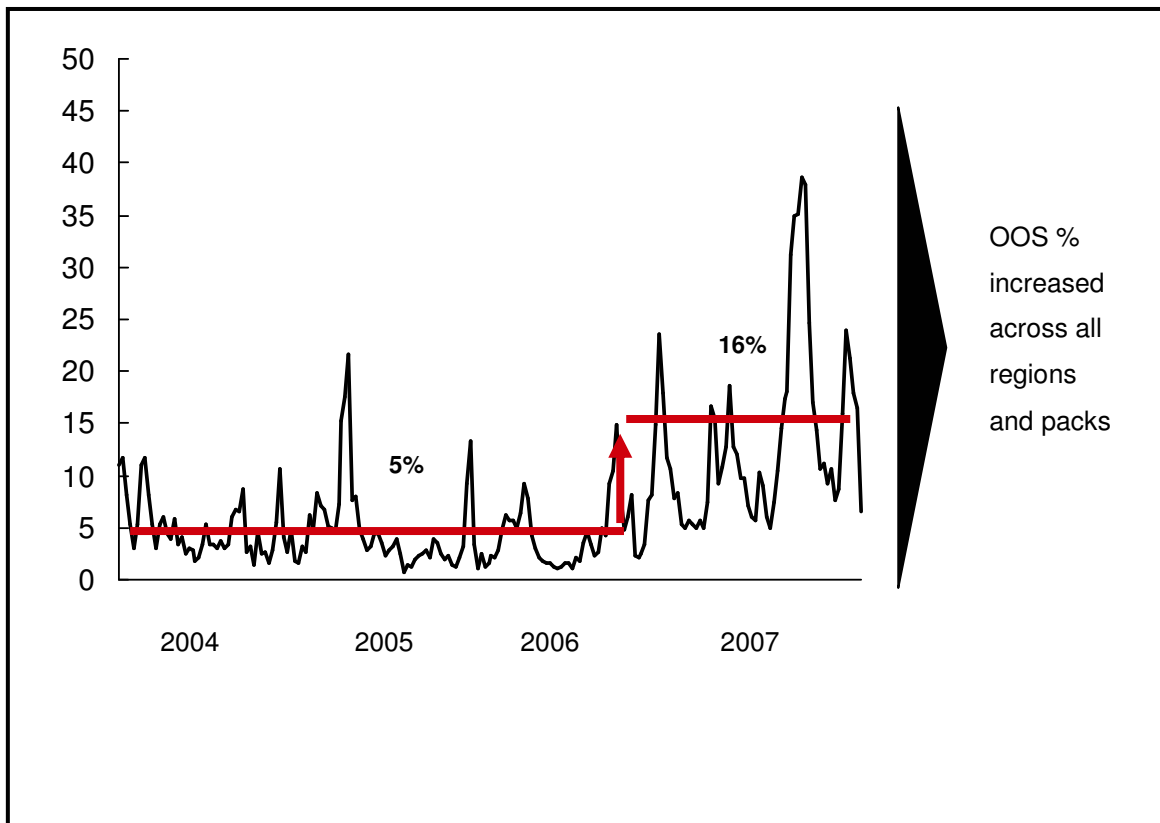


Figure 4.2: The Performance Review for High Volume SKU's in 2005 – 2007 (McKinsey & Company 2008)

4.4.2 Influences affecting the Supply Chain Optimisation in 2007

A number of factors within the supply chain contributed to the performance of the results of 2007. Some of the factors are documented below, each having a very unique influence on the supply and demand performance:

- Supplier capacity constraints were created by a consistent shortage of raw material and Carbon Dioxide (CO₂) during 2007. ESKOM also required all large industry suppliers to reduce electricity consumption by 10 – 15% usage through to 2012 with frequent electricity supply interruptions.

- Sub-optimal supplier performance management was not actively tracked and measured, influencing the availability of crowns and paper during this time period.
- Manufacturing requires both new and recycled empty bottles for production and an international glass shortage at the time led to a further drop in production on the daily adjustments.
- The influence of production unreliability increased across all plants and was influenced by the shortage of technical skills and lack of investment for maintenance of machinery during this period.
- The increase in production deviation from the original plan influenced the packaging material availability.
- Capacity constraints at both the production and distribution depot sites influenced the availability of product based on demand in the market.
- However, it must be mentioned that capacity constraints are not as influential during off-peak production as was seen during the peak production of 2007, due to the seasonal sales trends.
- Constraints are also influenced by potential incorrect forecasting methodology and possible outdated inventory target levels during this time.
- No clear accountability existed during this time across the relevant functional areas and this also coincided with misalignment with the customer service metrics.

4.5 The Outcomes

4.5.1 Supply chain alignment and performance improvements

Weekly S&OP operational meetings

In an effort to improve the operations as well as the business performance SAB migrated to an S&OP implementation strategy with weekly operational meetings.

These meetings allowed the management to focus on three key areas, and attendance comprised cross functional personnel from across the business:

- The view was that the meeting could be used to review the previous week's performance and allow time for problem solving.
- It also allowed the review and resolution of current exceptions that occurred based on the actual plan.
- These meetings also allowed the management to agree on and utilise a 13 week plan, which allowed specific focus on revised brewing volumes and packaging split.

Monthly S&OP meetings

Monthly S&OP meetings were later introduced that consisted of cross functional senior and executive leadership within the business with a strategic focus on two key actions:

- These meetings allowed senior management to review the previous month's performance and focus on the issues of capacity, parameters, as well as other systematic problems relating to cross functional accountability and KPI performance measurements.
- These meetings also allowed the discussion of future planning, focus on tactical issues relating to demand forecast, and segmented conversation surrounding supply and demand.

4.5.2 Addressing the potential risks after the S&OP implementation

During the design phase of the S&OP process at SAB a number of valid key issues were raised, which needed to be addressed to ensure a continuous success. The focus areas that were isolated related to problems such as the following:

- Once stability is achieved less focus would be placed on S&OP and that would drive the performance improvement.

- A lack of representation by senior management including the CEO at the S&OP meetings could potentially occur.
- Executive leadership including the CEO within the meetings could become inadequate and less accountability would be administered.
- The Supply Chain could revert back to less optimal performance if the focus on the implementation of short-term improvement actions was not followed. This is related to ensuring continuous alignment of the functional input processes to the S&OP timing at SAB.

4.5.3 Information utilised in support of the S&OP meetings

In the meetings a meeting pack with detailed information regarding the Agenda and minutes of the previous meeting, the KPI dashboard, current and projected stock levels and the demand forecast, the production plan and the inventory levels should be provided to all stakeholders. This is to ensure that continuous adequate responsibility and accountability is maintained with regard to all relevant cross functional stakeholders, to allow an effective meeting.

4.5.4 Prerequisites for the S&OP process implementation

A number of prerequisites were discussed and decided upon for the future. These included senior management and in particular the CEO taking ownership for the facilitation of the decision-making process. Sufficient inventory levels were to be managed that would allow a buffer against future supply and demand variability.

The demand and production planning had to be completed and circulated before the S&OP meetings so as to ensure that all cross functional parties were familiar with the planning cycle adjustments. This also coincided with a review of the latest updated KPI measurements before every meeting.

The renewed focus of the measurement of continuous KPI's allowed a measurement tool with stricter improvement targets and the improvement of the supply chain's performance. This allowed an additional degree of insight into unreliability as well as to ensure continuous performance improvement. Due to the variety of SKU products and different brand packs the renewed improvement targets also better suited measurement than the original flat rate target values. This allowed greater differentiation within variety of SKU products and the supply chain, due to the complexity intrinsically found within the business. Central planning became more involved, in taking ownership of the new measurement system that was introduced and this coincided with the responsibility of tracking production reliability and deviations.

4.6 Conclusion

It can be concluded that a number of factors influenced the supply chain performance of SAB in the 2007 period. However, the improvements made after 2007 took wide ranging measures that would focus on improved efficiency, product differentiation, customer satisfaction, shorter customer order backlogs and shorter lead times, more stable production rates and higher productivity and reduced obsolescence.

This was done with the aid of implementing an S&OP process that would monitor and challenge the base assumptions of processes and technologies moving forward.

SAB also integrated a technology enabler strategy that would support cross functional decision making within the S&OP process in order to secure a competitive advantage within the supply and demand of products in the local beer market. Figure 4.3 illustrates the tailored S&OP process as it was implemented at SAB. The level of success of the S&OP process is attributed to the well-designed specifications or pre-implementation objectives and should be allowed to evolve with the maturity of the process in the supply chain. Any implementation requires clear objectives that will provide a healthy foundation for the development of the subsequent activities that will flow from this after implementation.

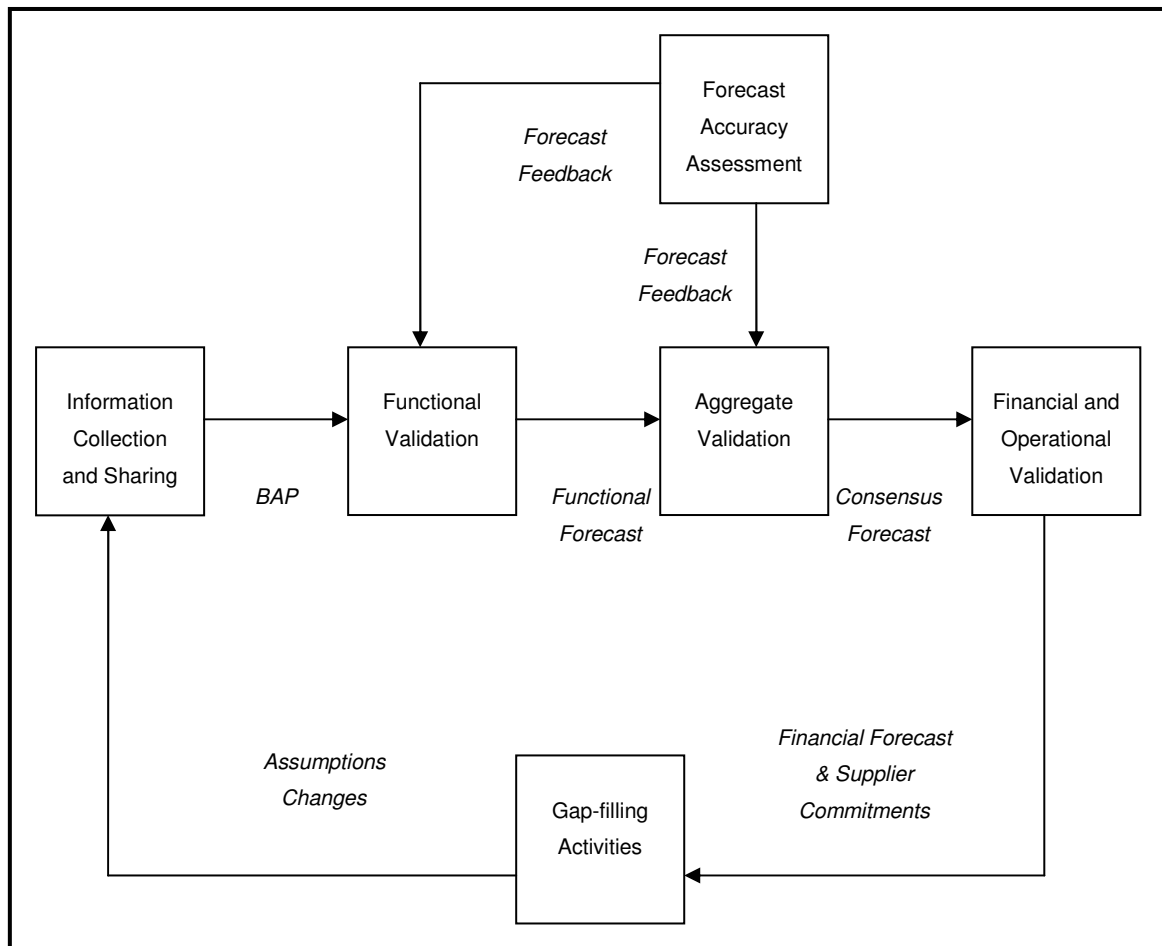


Fig 4.3: Tailored S&OP Process (Oliva and Watson 2007)

4.7 Chapter Summary

This chapter has presented a case study conducted within South African Breweries Limited (SAB) by way of interviews and observation as well as historical evaluation of the financial and operational data. The case study demonstrated that SAB has experienced increased levels of supply chain optimisation disruptions since the period 2004 leading to 2007.

SAB has responded by repositioning itself by way of implementing an improved S&OP structure as well as integrating cross functional accountability strategies. These strategies are said to have resulted in an improvement in performance as measured by way of stock outs, product differentiation and customer satisfaction. This case study therefore illustrates the need for the implementation of an adequate S&OP process with cross functional accountability that needs to be owned and driven by the executive committee.

CHAPTER 5: PRESENTATION OF RESULTS

5.1 Introduction

This chapter presents the results of the research that was conducted within SAB. The data overview given at the beginning of the chapter examines the results collected from the survey and the completion of the questionnaires.

In the following sections of this chapter the collected data with regard to the research question as well as the sub questions, are described. The results of rating statements from the questionnaire are presented in the form of descriptive statistics tables and histogram charts, while all open-ended questions are listed and compared.

This chapter does not aim to interpret or comment on the results and neither does it represent the views or opinions of the researcher.

5.2 Data overview

Many factors can affect the different activities of the S&OP process in different ways. The objective was to identify, extract and to quantify the principal aspects within the S&OP process.

A total of eleven completed questionnaires were received from the case company. The individual response rate for the questionnaire was one hundred percent.

All the questionnaires were completed in accordance with instructions and could be treated as successful responses.

5.3 Demographic profile of respondents

Detailed below in Table 5.1 and 5.2 is the list of the demographic profile of the people involved with the survey as well as their working areas, which are grouped. In total eleven surveys were done, with managers associated with supply chain management and involved in the initial S&OP process implementation and design.

Table 5.1: Demographic Distribution (Job Title)

Job Title
Supply Chain Director
General Manager - Channel Marketing
Planning Manager
Commercial Manager
Special Program Manager
Operations Logistics Manager
Operations Logistics Manager
Project Management Office Manager
Supply Chain Development Manager
Demand Planner
Demand Planning Manager

Table 5.2: Demographic Distribution (Functional Area)

Functional Area	Count
General Management	4
Logistics	2
Supply Chain	4
Commercial	1

Due to the small number of respondents being interviewed and assessed by questionnaire, the data had to be compared with existing data, case study data and the data gathered from literature as comparison.

The questionnaire focussed on highlighting the common attributes viewed by the respondents that required improvement as well as the overall reasons for the implementation of the S&OP process.

5.4 Results pertaining to Sub-Question One

Sub-question one is aimed at viewing what performance improvements were found in the supply chain and customer service since implementation. In order to determine this, the relevant information had to be collected by interviewing people in the company as well as reviewing data reports to obtain information.

5.4.1 Statement 1

Statement: One of the main objectives of the implementation of the S&OP process is to satisfy our end customers completely.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	5	4	5	5	4	5	5	5	5	5

Statement	Count	Minimum	Maximum	Median	Mode	Mean
1	11	2	5	5	5	4.55

5.4.2 Statement 9

Statement: The S&OP process provides us with the power to control the key resources in the supply chain.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	5	5	2	4	4	4	4	5	4	4

Statement	Count	Minimum	Maximum	Median	Mode	Mean
9	11	2	5	4	4	3.91

5.4.3 Statement 10

Statement: I feel that the S&OP process has enabled us to efficiently and effectively supply our end customers.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	4	4	3	4	3	4	4	4	4	4

Statement	Count	Minimum	Maximum	Median	Mode	Mean
10	11	2	4	4	4	3.64

5.4.4 Statement 12

Statement: We are now able to schedule production more accurately.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	4	2	4	4	2	2	4	4	4	4

Statement	Count	Minimum	Maximum	Median	Mode	Mean
12	11	2	4	4	4	3.27

5.4.5 Statement 13

Statement: The stock outs have greatly been reduced or eliminated since the S&OP implementation.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	4	4	4	4	3	4	4	4	3	4

Statement	Count	Minimum	Maximum	Median	Mode	Mean
13	11	2	4	4	4	3.64

5.4.6 Statement 14

Statement: The S&OP process has allowed the reduction of the total inventory level.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	4	3	3	2	3	4	2	2	2	2

Statement	Count	Minimum	Maximum	Median	Mode	Mean
14	11	2	4	2	2	2.64

5.4.7 Statement 15

Statement: Management of the supply is not as important to us. The present problems we face are rather product quality, new product development and the influence of high prices.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	3	1	1	2	1	1	1	2	1	2	1

Statement	Count	Minimum	Maximum	Median	Mode	Mean
15	11	1	3	1	1	1.45

5.4.8 Statement 17

Statement: Our service level to the end customer has largely been improved since the implementation of the S&OP process.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	4	4	4	4	3	4	4	4	3	4

Statement	Count	Minimum	Maximum	Median	Mode	Mean
17	11	2	4	4	4	3.64

5.4.9 Statement 19

Statement: Our financial situation seems healthier since the implementation.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	3	3	3	3	2	2	4	3	3	2	2

Statement	Count	Minimum	Maximum	Median	Mode	Mean
19	11	2	4	3	3	2.73

5.4.10 Summary of the Responses

Table 5.3: The Ranking of the Responses (Sub-Question One)

Statements	Minimum	Maximum	Mean	Median	Mode
1	2	5	4.55	5.00	5.00
9	2	5	3.91	4.00	4.00
10	2	4	3.64	4.00	4.00
12	2	4	3.27	4.00	4.00
13	2	4	3.64	4.00	4.00
14	2	4	2.64	2.00	2.00
15	1	3	1.45	1.00	1.00
17	2	4	3.64	4.00	4.00
18	2	4	3.09	3.00	3.00
19	2	4	2.73	3.00	3.00

5.4.11 Discussion of the Results

Statements 1, 9, 10, 12, 13, 14, 15, 17, 18, 19 in the questionnaire were aimed at asking for the respondent's comments on the performance of the supply chain and the end results relating to the implementation of the S&OP process. The objective was validating the effectiveness of the process since implementation.

5.5 Results pertaining to Sub-Question Two

Sub-question two aimed at focussing on the involvement and ownership of the S&OP process. In order to determine this, information had to be collected by way of interviews as well as through statements 2 to 5 in the questionnaire. The responses to the statements were as follows.

5.5.1 Statement 2

Statement: The S&OP process is driven by the CEO.

Descriptive statistics

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	4	1	4	1	2	4	2	4	2	1

Statement	Count	Minimum	Maximum	Median	Mode	Mean
2	11	1	4	2	2	2.45

5.5.2 Statement 3

Statement: The S&OP process is continuously measured against the Business Plan (Annual Budget, annual operating plans).

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	5	2	4	3	4	3	3	1	3	3

Statement	Count	Minimum	Maximum	Median	Mode	Mean
3	11	1	5	3	3	3.00

5.5.3 Statement 4

Statement: Executive S&OP is utilised to assist with the risk anticipation and recovery regarding large changes in demand and supply.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	3	5	5	4	4	3	3	4	5	4	4

Statement	Count	Minimum	Maximum	Median	Mode	Mean
4	11	3	5	4	4	4.00

5.5.4 Statement 5

Statement: S&OP is seen as a monthly process involving senior management including the CEO.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	4	2	3	3	2	4	3	5	2	3

Statement	Count	Minimum	Maximum	Median	Mode	Mean
5	11	2	5	3	2	3.00

5.5.5 Summary of the Responses

Table 5.4: The Ranking of the Responses (Sub-Question Two)

Statements	Minimum	Maximum	Mean	Median	Mode
2	1	4	2.45	2.00	2.00
3	1	5	3.00	3.00	3.00
4	3	5	4.00	4.00	4.00
5	2	5	3.00	3.00	2.00

5.5.6 Discussion of the Results

Statements 2, 3, 4, 5 in the questionnaire were aimed at asking for the respondent's comments relating to the leadership process and functional dominance of the S&OP process. The objective was validating the ownership and the drivers within the process.

5.6 Results pertaining to Sub-Question Three

5.6.1 Statement 6

Statement: I think that the management team understands the market demand and the customer's needs better since the implementation of the process.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	1	2	3	5	2	4	4	4	4	2	2

Statement	Count	Minimum	Maximum	Median	Mode	Mean
6	11	1	5	3	2	3.00

5.6.2 Statement 7

Statement: Correct KPI's are continuously monitored and discussed at every meeting, to ensure that everyone is aware of the gaps that are required to be closed.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	3	4	5	3	3	4	2	3	4	2	3

Statement	Count	Minimum	Maximum	Median	Mode	Mean
7	11	2	5	3	3	3.27

5.6.3 Statement 8

Statement: I think that one of the signs of successful management of the S&OP process is that all the departments are more aware of cross functional developments within the organisation.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	3	4	5	4	4	4	4	5	4	5	4

Statement	Count	Minimum	Maximum	Median	Mode	Mean
8	11	3	5	4	4	4.18

5.6.4 Statement 11

Statement: We are now able to make an order on precise demand forecasting.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	2	1	4	3	2	2	2	1	4	3

Statement	Count	Minimum	Maximum	Median	Mode	Mean
11	11	1	4	2	2	2.36

5.6.5 Statement 16

Statement: The S&OP process implemented assists us with the control of inventory, greater internal accountability and functional alignment.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	2	4	3	4	3	4	4	4	4	4	3

Statement	Count	Minimum	Maximum	Median	Mode	Mean
16	11	2	4	4	4	3.55

5.6.6 Statement 20

Statement: I have attended some form of training to educate me on the S&OP process. I think that it was important and useful.

Respondent	1	2	3	4	5	6	7	8	9	10	11
Score	3	1	4	3	1	1	2	4	1	1	1

Statement	Count	Minimum	Maximum	Median	Mode	Mean
20	11	1	4	1	1	2.00

5.6.7 Summary of the Responses

Table 5.5: The Ranking of the Responses (Sub-Question Three)

Statements	Minimum	Maximum	Mean	Median	Mode
6	1	5	3.09	4.00	4.00
7	2	5	3.27	3.00	3.00
8	3	5	4.18	4.00	4.00
11	1	4	2.36	2.00	2.00
16	2	4	3.55	4.00	4.00
20	1	4	2.00	1.00	1.00

5.6.8 Discussion of the Results

Statements 6, 7, 8, 11, 16, 20 in the questionnaire were aimed at asking the respondents to comment on cross functional alignment.

5.7 Summary of the Results

This chapter was aimed at providing an overview of the responses from the questionnaires returned as well as collective information from the interviews, management reports and the case study. It illustrates how the data was processed and analysed. Descriptive statistics of the responses are portrayed for each question. The following chapter will interpret the responses to the questions as described in this chapter to assess the propositions as put forward in the research. This will argue the answers to the sub-questions as well as the main research question.

CHAPTER 6: DISCUSSION OF THE RESULTS

6.1 Introduction

This chapter is designed to further examine the S&OP aspects that have become apparent from the research derived in the previous chapter, and also reviews the levels of success and maturity of the process. This chapter will aim at developing a relationship between the surveyed results and the literature. The theoretical view on S&OP implementation will be compared with this case aspect.

6.2 Demographic Profile of the Respondents

The profiles of the respondents that were surveyed are differentiated by working organisation, with the focus on senior management involved in the implementation of the S&OP process.

6.2.1 Organisation

The collective data gathered represents a picture of SAB. The data covers all the necessary aspects of the business process for SAB and revolve around the critical path of the supply chain.

A selection of senior management was taken with a view of gathering a group of people that would best be able to provide feedback regarding the research topic. This assisted in creating improved reliability due to their knowledge of the research topic, as well as their working involvement in the implementation of the S&OP process.

6.2.2 Demographic Profile

In total eleven managers with senior management positions were involved in this survey. They were all associated with involvement during the implementation and role out of the S&OP process. Their working areas are also very significant in connection with supply chain management. From their collected opinions and attitudes to the interviews and the questions it becomes easier to reflect the real situation relating to the case company, with a view to resolving the objectives stated within this research report.

6.3 Analysis and Discussion

Data gathered from the research suggest that demand and supply planning as well as business planning are three key aspects that have been identified as problematic areas that lead to the implementation of the S&OP process.

From the subsequent interviews conducted, a series of aspects were found that formed the basis of the implementation process. (This coincided with the literature review.)

6.4 Discussions of the Results of Sub-Question One

6.4.1 Sub-Question One

What performance improvements are found in the supply chain and customer service after the implementation of the S&OP process?

6.4.2 The Method of Investigation

The literature research has shown that the S&OP process can create a significant improvement in the supply chain management when implemented correctly. An effective S&OP process is seen as important to the tactical as well as the strategic planning aspects of any organisation and as Wallace (2005) had shown, can create significant benefits from the process, such as the following:

- Improved customer service levels
- Reduced lead times
- Reduced Inventory levels
- Allows for cross functional integration
- Reduced supply chain costs

Reasons for the Inception of the S&OP process

The Aberdeen Group (2008) and Sharp (2006), assert that the reason for inception is often as a result of one compelling event that drives the decision to adopt the S&OP process. These events often include acquisitions by other companies, poor financial performances or an inherent inability to contract future work. These persuasive events often make it easier to generate executive management buy-in together with the fact that it would allow greater process transparency (Sharp 2006).

One of the reasons that SAB had implemented the S&OP process was to improve the alignment and the performance of the supply chain as described in chapter four. To test whether the implementation was successful the research had to investigate whether they had made progress with regard to experiencing any benefits as mentioned above. If this was indeed the case then the process was functioning positively.

Secondly, it was required to investigate whether the S&OP process could be applicable to other South African organisations, when facing similar situations regarding organisational alignment and improving the performance of the supply chain by implementing an S&OP process. It is difficult to investigate this in a large population and SAB was used as a case study to see how implementation impacts in the real world.

6.4.3 Discussion of the Results

Respondents were asked to comment on the achievements that SAB had obtained relating to improvement in performance of the supply chain and customer service after implementation. The objective was to justify the effectiveness and purpose of the implementation.

Table 6.1: The Ranking of the Responses (Sub-Question One)

Statements	Focus Area	Minimum	Maximum	Mean	Median	Mode
1	Customer Service	2	5	4.55	5.00	5.00
9	Competitiveness of Resources	2	5	3.91	4.00	4.00
10	Service Satisfaction	2	4	3.64	4.00	4.00
12	Production Scheduling	2	4	3.27	4.00	4.00
13	Out of Stock	2	4	3.64	4.00	4.00
14	Inventory Reduction	2	4	2.64	2.00	2.00
15	Understanding of Supply Chain	1	3	1.45	1.00	1.00
17	Customer Service	2	4	3.64	4.00	4.00
18	Supply Chain Efficiency	2	4	3.09	3.00	3.00
19	Financial Performance	2	4	2.73	3.00	3.00

The Effectiveness of the S&OP process on Performance Improvement

The results from the relevant rating statements are summarised in Table 6.1. The median that was obtained showed that for six of the questions the respondents agreed that SAB had achieved improvements in the aspects of customer satisfaction and service, stock out reduction, total inventory level and production scheduling. The diversified results for the other statements illustrated that there was definite room for performance improvement in this regard.

A median of 4.00 is reflected in the descriptive statistics for statements 9, 10, 12, 13, 17. From the rankings it is clear that the respondents viewed the performance of the supply chain and the customer service as improved since the implementation of the S&OP process.

The ranges for the different scores provided by the respondents to the statements are also relatively small, indicating relative satisfaction across the respondents.

With statement 14 the median is 2.00 regarding the reduction of the inventory levels. Within the interviews this was explained by the fact that even though there is a focus on reducing the inventory levels of stock keeping within the SAB depots, this is not always possible as SAB relies on the import of many of the raw materials required for production.

If S&OP could possibly be used across industry or to have the suppliers cut their lead times for delivery by collaboration, reducing the inventory levels was going to be difficult due to the lag time required for imports.

From statements 18 and 19 the median illustrated that the cumulative response was neutral for these two statements. This could potentially be attributed to not having any financial measurement to view the success within the supply chain of the S&OP process with true metrics.

In summary, taking a look at table 6.1, the results are convincing that the performance of the supply chain and the improvement of the customer service have indeed taken place after the implementation of the S&OP process as measured by management.

6.4.4 Sub-Question One Conclusion

Based on the work done after implementation it becomes clear that the metrics utilised to measure the efficiency and balance of the supply chain only becomes evident with the maturity of the organisation. The results from questionnaire showed, that the managers agreed that since implementation, there has been a definite improvement in the efficiency of the supply chain's performance as well as with the reduction in the out-of-stock measurement.

The objective of the process implementation was to improve the customer service and the performance of the supply chain. The research results suggest that the introduction of the process has added value to the performance of the supply chain in creating on-time-in-full order fulfilment and improved customer service.

In addition, what was found from both the literature as well as the interviews conducted, is that with both newly implemented as well as mature S&OP process structures, the aim was at providing a continued focus for supply chain improvement. During the interviews the interviewees mentioned that there is currently continuous striving for improvement around realistic manufacturing operating efficiencies, with the focus on more realistic and timely forecasts with fewer supply interruptions.

6.5 Discussions of the Results of Sub-Question Two

6.5.1 Sub-Question Two

What ownership roles do senior management and the CEO have in ensuring the success of implementation?

6.5.2 The Method of Investigation

Ling (1998) and Wallace (2004) both describe in essence the importance of the commitment of senior management and in particular the CEO or MD of the organisation. They are responsible for taking ownership of the S&OP process and should drive implementation continually forward. The S&OP process generates ownership of the operational plan at Board level and allows for the discussion of top-level issues, business KPI's and long-term strategic issues.

The case organisation had implemented the S&OP process and it was important to examine the participation of senior management in the process and who had primary ownership of the process. Testing was required with respect to the leadership, ownership and participation within this implementation process.

6.5.3 The Discussion of the Results

Statements 2 to 5 were to ask for the respondents' comments on the leadership and ownership achievements relating to the S&OP process. The objective was to justify the effectiveness and the applicability of the leadership on the S&OP process.

Table 6.2: The Ranking of the Responses (Sub-Question Two)

Statements	Focus Area	Minimum	Maximum	Mean	Median	Mode
2	Ownership	1	4	2.45	2	2
3	Business Process Alignment	1	5	3	3	3
4	Risk Anticipation and Control	3	5	4	4	4
5	Process Continuity	2	5	3	3	2

6.5.4 The Leadership role and Ownership of the S&OP process

Within the interviews it was clear that the participants totally agreed with the literature in that commitment by senior management, and in particular the ownership by the CEO, have a definite impact on the implementation of a successful S&OP process.

The results of the relevant rating statements are summarised in Table 6.2.

For statement 2 the results obtained a median of 2.00 with a high range. This illustrated that there seems uncertainty in who should be driving the process and that the CEO does not seem to be the owner within the current process.

For statement 3 the median was neutral at 3.00 to indicate whether the current S&OP process is continuously measured against the Business plan, and it also had the biggest range difference within the questionnaire. These diversified results illustrated that there was still a number of problems as to what the respondents expect from the S&OP process or how the process is to link with the current business process.

Statement 5 focuses on the monthly cycle process of the S&OP process to establish whether the S&OP process is still reviewed consistently and to view the role of management within the process.

In summary the results conclude that there is a gap in the ownership and drive by senior management and the CEO, between the literature and the case organisation.

From the summary by the respondents it is clear that although they agree on the ownership of the process by the CEO, that this is not occurring at the moment. This could potentially create functional dominance where only one division drives the process without collaboration from other departments.

6.5.5 The Leadership influence on the design of the S&OP process

Specification

Derived from the interviews and literature the level of success of the S&OP process is attributed to the well-designed specifications or pre-implementation objectives. Defining clear objectives as well as delegating accountability provides a healthy foundation that will enable the development of the subsequent activities to be executed. The initial specifications had been developed in a design committee as well as with the aid of McKinsey external consultants.

Ling (1998) emphasises the importance of top management and particularly the CEO's understanding and drive behind the process, in order to inspire and to motivate the implementation and use of the S&OP process. This coincides with Wallace (2004) who stipulates that the CEO must own the process to enable proper implementation. The specifications carry the most impact within the implementation process.

Understanding

Understanding the process and what you want from the process is seen as key through the entire implementation phase of S&OP, requiring sufficient specifications for the implementation but remaining unique to the specific business. Ling (1988) describes how senior management must have an understanding of the process so that they will inspire and motivate others into helping with the design process.

This also draws on the aspect of ownership of the process by the senior management and the CEO.

6.5.6 Sub-Question Two Conclusion

Barrett (2008) declares that goal alignment starts with executive sponsorship and those leaders must get involved with the S&OP process and understand this importance. The reason for this is that the leaders have to ensure the clarity of the strategy to align the people and the decision-making process. She also explains that the S&OP process is often immature in large organisations and only used tactically. This is due to the typical requirements of greater effort, consistency and discipline to implement the S&OP process, as well as making the right tradeoffs between companies and the customers to align the profit centres and the compensation structures.

The work done on the S&OP process illustrates that the ownership and direction of the S&OP process, however, becomes very difficult when the CEO does not own and drive the process and those leaders need to be further educated on the process and its relevant importance. Within the S&OP process there should be a moment of realisation that will demonstrate to the CEO the ability to quickly view the state of the organisation and this would allow them to intervene when they need to in the case of misalignment. One of the respondents commented that “when the CEO is not sold on the process it does not become a process of reality”.

Redesigning the process and adding the financial dimension into the S&OP process could allow the CEO the ability to view the supply chain at any given moment to determine if the organisation is still coursing correctly. This will also show him the financial implications of decisions made by senior management and the relevant trade offs.

Looking at the results gathered from the interviews and the questionnaires it can be summarised that the respondents agreed that the results did not conclusively illustrate ownership of the S&OP process by the CEO in ensuring that the process is driven.

6.6 Discussions of the Results of Sub-Question Three

6.6.1 Sub-Question Three

Has management seen any improvements in the cross functional alignment and accountability after the implementation of the S&OP process in the performance of the supply chain?

6.6.2 The Method of Investigation

The focus on cross functional alignment has the ability to achieve a significant improvement in the effectiveness of the supply chain when executed correctly.

Cross functional alignment allows for more accurate and validated forecasts and coordinated functional plans that reflect the interests of the multiple stakeholders within the organisation and enables continuous improvement of the S&OP process (Watson and Oliva 2007).

6.6.3 Discussion of the Results

Cross Functional Accountability and Alignment

Oliva and Watson (2007) suggest that the effort required in achieving classic integration increases with the level of differentiation in the organisational environment, with differentiation being defined as “differences in the cognitive and emotional orientation of the managers in their respective functional departments” (Lawrence and Lorsch 1986). This illustrates that the goals, incentives and the perspective on time and relationship vary and may create conflicts in their organisational goals.

The reason for the cross functional alignment is that this integration allows the S&OP process to be transparent and participatory. It allows the participants to influence the outcomes and gives the motivation to provide the relevant information regarding the resolution to meet the needs of the relevant stakeholders (Oliva and Watson 2007).

Table 6.3: The Ranking of the Responses (Sub-Question Three)

Statements	Focus Area	Minimum	Maximum	Mean	Median	Mode
6	Understanding of Market	1	5	3.09	4.00	4.00
7	Understanding of KPI tracking	2	5	3.27	3.00	3.00
8	Cross Functional Alignment	3	5	4.18	4.00	4.00
11	Demand Forecasting	1	4	2.36	2.00	2.00
16	Cross Functional Integration	2	4	3.55	4.00	4.00
20	S&OP Education	1	4	2.00	1.00	1.00

This section is focussed on the alignment and accountability cross functionally. The results of this survey are as follows:

The scores for statements 6, 8, 16 showed that the respondents agreed that:

1. The management of SAB understood the market demand and the customer's needs across the organisation;
2. Departments seem more aligned and are more aware of the developments within the organisation; and
3. The S&OP system has aided in controlling the inventory levels at recommended levels and creating greater accountability within the different departments.

There were however some exceptions in statements 7, 11, and 20.

With the median at 2.00 for statement 16 this illustrates that there are still problems in creating accurate forecasting and the concern is that this should be seen as the foundation of the S&OP process. Measurements should clearly be defined and aligned as this provides the direction of the business. This relates to statement 7 with a median of 3.00 showing that the respondents are not all sure if the correct KPI's are measured or improved upon. This could allow weakness of measurements that would promote scepticism and not encourage improvements. If the KPI's are not agreed upon and aligned with the supply chain it could impact the accuracy and accountability provided within the forecasting.

In summary, the objective was to determine if there was an improvement in the cross functional alignment and accountability and the results have shown that implementation management has seen improvements in certain functional areas.

The S&OP Cycle Meeting Implementation

Wallace (2005) has shown that often during the evolution of the S&OP process both the pre-meetings and the Executive S&OP meetings were reported as areas of concern. This is often caused by poor levels of attendance and lack of discipline at all levels.

However, what was found from the interviews are that regular S&OP cycle meetings are still held, with a focus on the pre-meetings as well as the executive meetings to review and discuss the performance of the supply chain. It can be observed from the interviews that this is seen as more valuable moving into the peak season.

6.6.4 Sub-question Three Conclusion

In most organisations, supply chain planning is seen as a cross-functional effort, with functional areas such as sales and marketing, finances and operations traditionally specialising in portions of the planning activities and often resulting in conflicts over the differences in expectations, priorities and preferences (Oliva and Watson 2007).

From the above discussions it can be concluded that the cross functional alignment is recognised by senior management as being very important in ensuring that the S&OP process is successful.

The views expressed in the questionnaires and the interviews demonstrate that there is improvement in the cross functional alignment and that the accountability has improved.

From the above discussions it can also be observed that the effectiveness of the demand planning forecasts and the compliance monitoring of the core KPI's are the two areas that require improvement. This is required as it impacts the optimal inventory level which influences the working capital and there should be greater accountability for the forecasting accuracy which impacts the performance of the supply chain.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

The final chapter is a summary of the key findings of the research and will demonstrate how the objective of the research has been concluded.

Limited data was collected from the survey of the case company. The results are in various instances conclusive and in addition diverse.

7.2 Conclusion of the Research

Through the investigation of the main research question within the case company, it was concluded that one of the most significant reasons for the implementation of the S&OP process was the focus on improving the performance of the supply. This was also partly due to the increase in supply chain complexity and the focus on strategic alignment after 2007. This aligns with the literature in that challenging situations often create a renewed focus in aligning organisations, in delivering quality customer service, through cost effective supply chain management.

A further conclusion from the research was that certain aspects investigated are often utilised intentionally or unintentionally and had impacted on the performance improvement of the supply chain. Derived from sub question one and three, the implementation of the S&OP process has allowed the improvement in certain functional areas and in different aspects, such as creating on-time-in-full order fulfilment and customer satisfaction, in the performance of the supply chain.

However, the leadership aspect and ownership of the S&OP process that drives the S&OP process was still incomplete and not in accordance with the principles as provided in the literature. This could partially explain why there are still inefficiencies in the total supply chain performance and the cross functional accountability and alignment of the process. However, if the S&OP process is measured using financial integration as well as alignment of key KPI measures that would measure the health of the process, and the cost savings aspect, on the performance of the supply chain, it should encourage the leadership buy-in.

Wallace (2005) explains that financial integration is at the heart of summarising the focus of the S&OP process and if executed successfully should ensure that there is buy-in from the CEO to drive ownership of the process. The financial integration path is illustrated in Figure 7.1.

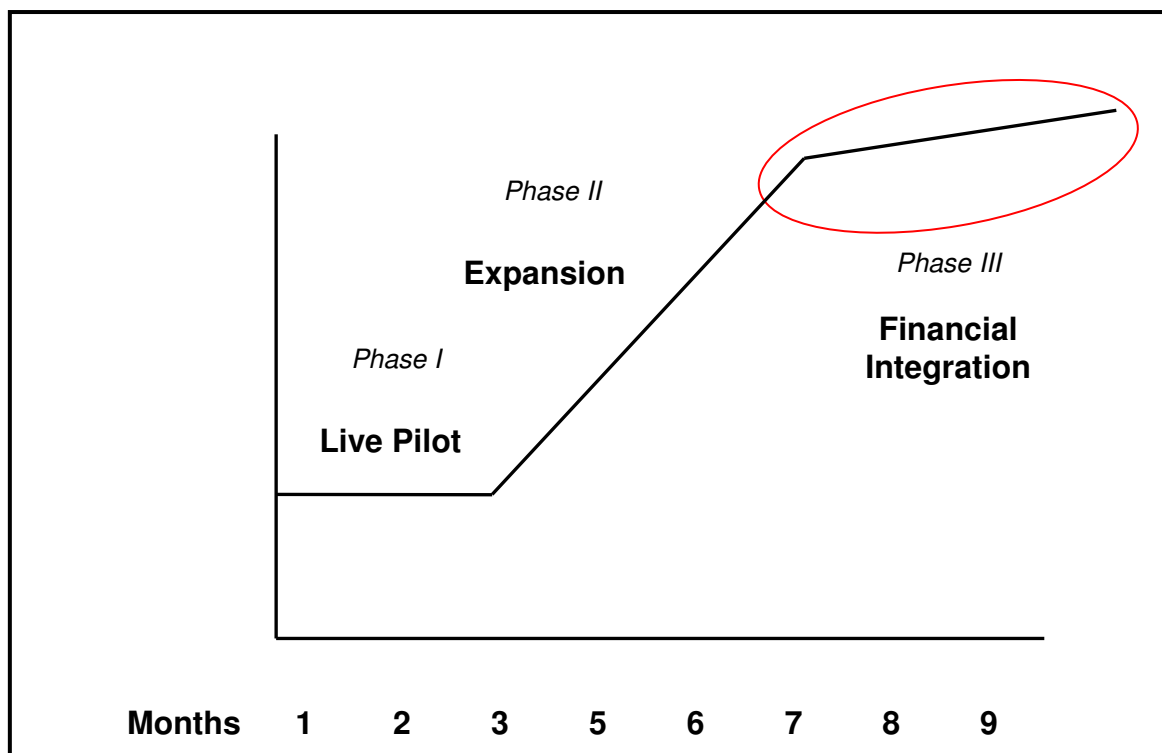


Figure 7.1: The Financial Integration Path (Wallace and Stahl 2005)

Studies conducted by Hochman (2007) suggest that disciplined financial translation begins with gross revenue projections and progresses based on the true cost analysis to allocations of variable costs: cost of goods sold and fixed costs. Depending on the nature of the structure within the organisation, either a strategic planning group or the financial division will oversee cost allocation. What the research also demonstrated was that a periodic audit of the S&OP process itself had to be done to ensure that the process is justified if compared to ad hoc alternatives.

The compiled research within the S&OP process suggests that mature implementation of the process often leads to an improvement in customer service, lowering sourcing costs, reducing inventory cost, lowering warehousing and distribution costs, as well as improving product availability or reducing the out of stock risk within the organisations (Sharp 2006 and Aberdeen Group 2008).

7.3 Recommendations

The S&OP process is supported as an advisable model for the improvement of the performance of the supply chain and the customer service, by the case study.

The literature has shown that there are significant benefits to be had from the S&OP process and as a fully integrated planning process it would control the principal business drivers. This focus aids in supporting customer service and holding minimum inventory levels, whilst supporting the emphasis on stock and cost to forecast.

However in the business world, the implementation of these models such as the S&OP process often becomes very difficult in larger organisations. The strict following of a theoretical model is often not possible and requires more compromise and greater flexibility to implement.

When implementing the S&OP process the correct planning measures should be carefully defined so as to ensure the following of the correct business direction. The reason is that any weakness in the planning measures could encourage scepticism of the process and could lead to the process not being implemented nor achieving maturity.

7.4 Recommendations for Further Research

The research is aimed at looking at the positive aspects of the implementation of an S&OP process. The objective was not to gather data from a variety of organisations and the sample data is hence very small.

Future research in this field could focus on the following:

1. This study could be broadened to include a larger research population.
2. Further research could be conducted into the actual implementation to maturity of the S&OP process and cross industry to see the influence of the process not only on the one organisation but also the influence across other businesses with which they interact.

3. A further focus is required on the behaviours that are preventing organisations from implementing the S&OP process, rather than waiting for performance misalignments that will force the process into action.
4. It would be worthwhile to investigate what could be done to assist with the implementation of financial and accounting principles associated with closing existing gaps identified within the S&OP process and measuring the performance improvements, as the process is operationally focussed in nature.
5. Future work could also be done to assist with the implementation of financial and accounting principles associated with closing existing gaps identified within the S&OP process and measuring the performance improvements.

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APPENDIX A

QUESTIONNAIRE FOR RESEARCH OF THE SALES AND OPERATIONS PLANNING PROCESS

Dear Respondent

I am Fanie Fourie, a bona fide student from the School of Management, University of the Witwatersrand. I request your participation in answering the following questionnaire.

Listed below are a number of statements representing some commonly held opinions concerning the S&OP process. The responses to be given in this checklist are relating to the evaluation and management of the S&OP process within your specific organisation. You will probably agree with some of the statements and disagree with others. Please read each statement and indicate the extent to which you agree or disagree by placing an (X) within the appropriate column under the following headings:

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

Item	Statement	1	2	3	4	5
1	One of the main objectives of the implementation of the S&OP process is to satisfy the needs of our end customers.					
2	S&OP process is driven by the CEO.					
3	The S&OP process is continuously measured against the Business Plan (annual budget, annual operating plans).					
4	Executive S&OP is utilised to assist with the risk anticipation and recovery regarding large changes in demand and supply.					
5	S&OP is seen as a monthly process involving senior management including the CEO.					
6	I think that the management team understands the market demand and the customer's needs better since the implementation of the S&OP process.					
7	Correct KPI's are continuously monitored and discussed at every meeting, to ensure that everyone is aware of the gaps that are required to be closed.					
8	I think that one of the signs of successful management of the S&OP process is that all departments are more aware of cross functional developments within the organisation.					

9	The S&OP process provides us with the power to control the key resources in our supply chain.					
10	I feel that the S&OP process has enabled us to efficiently and effectively supply our end customers.					
11	We are now able to make an order on precise demand forecasting.					
12	We are now able to schedule production more accurately.					
13	The stock outs have greatly been reduced or eliminated since the S&OP implementation.					
14	The S&OP process has allowed the reduction of the total inventory level.					
15	Management of the supply is not as important to us. The present problems we face are rather product quality, new product development and the influence of high prices.					
16	The S&OP process implemented assists us with the control of inventory, greater internal accountability and functional alignment.					

17	Our service level to the end customer has largely been improved since the implementation of the S&OP process.					
18	The S&OP process largely improved the efficiency of the distribution channel.					
19	Our financial situation seems healthier since the implementation.					
20	I have attended some form of training to educate me on the S&OP process. I think that it was important and useful.					

THANK YOU FOR YOUR SUPPORT

APPENDIX B

INTERVIEW GUIDE

1. What are the key business challenges that forced your organisation to implement the S&OP process?
2. What are the key actions that you are taking in response to these challenges?
3. What are the key business metrics that you have implemented to determine if the S&OP process is still healthy?
4. How did you get buy-in from senior management and the CEO and what role do they play within the process?
5. Who were the participants in the implementation of the S&OP process and who is the primary owner of the process?
6. What key benefits have you identified from our S&OP process?
7. What are the requirements of S&OP in aligning strategy with operational planning?
8. How do you measure cross functional alignment and accountability?

APPENDIX C

SOUTH AFRICAN BREWERIES LIMITED ASSESSMENT OF PERFORMANCE FROM 2004 TO 2008

The information included in the five-year summary ended 31 March 2004 is as published under UK GAAP and has not been restated to IFRS

South Africa: Financial Summary	IFRS 2008 US\$ m	IFRS 2007 US\$ m	IFRS 2006 US\$ m	IFRS 2005 US\$ m	UK GAAP 2004 US\$ m
Revenue	4,446	4,274	424	3,995	3,135
Operating Profit	962	1,043	1,011	906	672
EBITA	1,026	1,102	1,062	956	708
EBITA margin %	23.1	25.8			
Sales Volumes (hl 000)					
Lager	26,526	26,543			
Soft drinks	16,657	15,986			

SABMILLER plc ASSESSMENT OF PERFORMANCE FROM 2004 TO 2008

The information included in the five-year summary ended 31 March 2004 is as published under UK GAAP and has not been restated to IFRS

Financial Summary	IFRS 2008 US\$ m	IFRS 2007 US\$ m	IFRS 2006 US\$ m	IFRS 2005 US\$ m	UK GAAP 2004 US\$ m
Revenue	23,828	20,645	17,081	14,543	12,645
Operating Profit	3,448	3,027	2,575	2,547	1,383
Taxation	(976)	(921)	(779)	(823)	(534)
Net Profit	2,023	1,649	1,440	1,521	645
Minority Interests	(265)	(234)	(234)	(208)	(167)
EBITA	4,141	3,591	2,941	2,389	1,893
EBITA margin %	17.4	17.4	17.2	16.4	12.2
EBITDA	4,518	4,031	3,348	2,736	2,185