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Supply Chain Analysis at Swedish Match, South Africa

- Complemented with an ISO 9000 evaluation

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Preface

This thesis was performed as the concluding part of my Master of Science degree in Mechanical Engineering at the Faculty of Engineering, Lunds University. The study has been conducted during fall 2006 and spring 2007 at Swedish Match, South Africa. I have through the project attained valuable experience and useful insights in supply chain in an international and developing company. Knowledge about people from different cultures and backgrounds have also been acquired which will be of high value in my future career.

I want to thank everyone at Swedish Match, South Africa for their contributions during this master thesis project. I especially want to show appreciation towards Chad Limbert and Anders Holmberg for their interest and support during the numerous discussions we have had.

I also want to acknowledge my supervisor Bertil Nilsson for his guidance and recommendations during the research which ensured that the quality and progress was in accordance to expectations.

Lund, 28 May 2007

A handwritten signature in black ink, appearing to read 'Hans Nilsson', with a long horizontal stroke extending to the right.

Hans Nilsson

Abstract

Swedish Match is a global Group of companies with a broad assortment of market-leading brands in smokeless tobacco products, cigars, pipe tobacco and lights products. The South African organization comprises of three individual companies that were acquired between 1999 and 2001. This thesis was focused on two of these three companies, Leonard Dingler and Best Blend with pipe tobacco as the most important product. Leonard Dingler is contributing with more than half of the total annual sales in South Africa. Leonard Dingler contains the main manufacturing unit and head offices at the premises.

The purpose of this thesis was to create an overall measurement of Leonard Dingler's and Best Blend's Supply chain performance. Purchasing, production, distribution, and integration between each department were evaluated to create an overview of the organizational performance. It became evident during the progress of the study that some functions were intangible and an overall performance wasn't measurable. The study was therefore complemented with an ISO-9000 approach and how such an approach would impact involved processes, functions, and departments. This thesis also contained two sub-objectives that needed to be accomplished: Problematic areas were to be found and future organizational recommendations were to be suggested.

The study was performed and results were based on interviews with involved personnel and various affiliates, observations of day-to-day activities, and data collection. These empirical findings were analyzed through usage and comparison with the theoretical framework that was obtained from literature, articles, electronic sources, etc.

Focus of the study was put on four areas of the supply chain: Purchasing, production, distribution, and integration between these departments. It became evident that several of the processes within these departments totally lacked a structured approach. Documentation, work procedures, and policies were non-existing within purchasing which impacted outcomes accordingly. Production was managed through a structured methodology and the results and improvements within this department were more than satisfying. Distribution was outsourced to a third-party logistical company which provided the core company with monthly reports. Integration was a process that wasn't emphasized and focus should be put on this area to enhance interaction between involved personnel.

The outcomes of the study were almost in line with the set objectives. An overall picture was created, problematic areas were found, and recommendations were proposed. But an overall performance analysis wasn't accomplishable since several processes within the supply chain didn't provide measurable or accurate data.

Future recommendations were discussed with top management in order to design achievable suggestions that can be used for future improvements. These proposals can and should be used as guidelines to continuously improve the organizations activities and processes. These recommendations can hopefully enhance the overall performance of the organization.

Sammanfattning

Swedish Match är en global koncern med ett brett sortiment av marknadsledande varumärken inom rökfri tobak, cigarrer, piptobak och tändprodukter. Den sydafrikanska enheten består utav tre företag som förvärvades mellan åren 1999 till 2001. Fokus för detta examensarbete var på två av dessa företag, Leonard Dingler och Best Blend som båda har piptobak som viktigaste produkter. Leonard Dingler är det företaget som representerar mer än hälften av den totala årliga försäljningen. På Leonard Dingers område är den huvudsakliga tillverkningen och huvudkontoret stationerat.

Målet med examensarbetet var att skapa och översiktligt kartlägga Leonard Dingers och Best Blends försörjningskedjor. Inköpsavdelningen, produktionen, distributionen och hur dessa avdelningar interagerar utvärderas så att företagens översiktliga prestationsförmåga kunde mätas. Under studiens gång blev det uppenbart att vissa aktiviteter inte vara möjliga att mäta och utvärdera. Syftet utökades då till en granskning hur en ISO-9000 modell skulle kunna påverka involverade processer, funktioner och avdelningar. Examensarbetet hade dessutom delmål som skulle uppnås: Problematiska områden skulle hittas och framtida organisatoriska förbättringar skulle föreslås.

Studien utfördes och resultat erhöles genom att intervjuer genomfördes med personal och olika partners, observationer från dagliga händelser och genom datainsamling. Dessa empiriska data låg till grund för analysen som utfördes. Analysen utformades från den teoretiska referensramen som skapades utifrån litteratur, artiklar, elektroniska resurser, osv.

Examensarbeten inriktades på fyra områden inom försörjningskedjan: Inköp, produktion, distribution och interaktionen mellan dessa fyra avdelningar. Det blev uppenbart att flera processer på dessa avdelningar helt saknade ett strukturerat tillvägagångssätt. Dokumentation, arbetsbeskrivningar och handlingssätt avsaknades helt och hållet på inköpsavdelningen med resultat som följde därefter. Tillverkningen var däremot styrd genom ett strukturerat tillvägagångssätt och utfallet och förbättringar uppnådde mer än acceptabla resultat. Distributionen var utkontrakterad till ett logistikföretag som genererade en månatlig rapport till Swedish Match. Integrationen mellan avdelningarna var en aktivitet som inte prioriterades och koncentration på denna process borde införas så att interaktionen mellan berörd personal kan förbättras.

Erhållna resultat från studien var i linje med uppsatta mål: En översiktlig bild av försörjningskedjan genererades, problematiska områden upptäcktes och rekommendationer föreslogs. Dock kunde inte försörjningskedjans översiktliga kapacitet och prestation mätas eftersom flera processer inte genererade mätbara och korrekta data.

Framtida rekommendationer diskuterades i samspråk med företagsledningen för att utforma uppnåeliga förslag som kan förverkligas i framtiden. Dessa uppmaningar kan användas som riktlinjer för vidareutveckling av organisationens aktiviteter och processer. Förhoppningsvis kan dessa rekommendationer medföra att företagets resultat kan förbättras.

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Chapter 1 - Introduction

In this chapter the background of the thesis as well as problem formulation, purpose, and limitations are introduced. Through the introductory chapter the reader will be given an understanding of the circumstances surrounding the company and disposition and target group are presented.

1.1 Background

In order to continue being competitive in the declining South African tobacco market Swedish Match, South Africa (SMSA) needs to develop a deeper knowledge how the involved parties, functions, and departments are interacting and how they affect one another. These improvements have to be accomplished to ensure economic margins, product availability and visibility of existing and new products but also to ensure internal and external process efficiencies. The aim with this research is to provide a comprehension about the current supply chain so that marketing, sales, production, and logistics departments can collaborate and avoid problematic matters such as reliability on suppliers, disturbances in manufacturing, difficulties developing products that are suitable for the market, establishing a satisfying communication between the different departments etc.

The low-price segment of the South African tobacco market where Swedish Match is present has been declining since 1999 and there are several factors that have contributed to a decreasing market. South Africa is going through a cultural change where more people are getting more educated and literate, buying power of the low income segment is increasing and a lot of the customers are swapping to cigarettes, low-price fake products are becoming more and more common, and also the companies main products snuff and pipe tobacco are seen by the young generation as products that are old fashioned and less trendy then smoking a cigarette.

A supply chain encompasses the entire chain from choosing suppliers to ensuring that manufacturing is performed according to plan and deliveries are distributed as per agreement with customer expectations. Faulty supply chains can incur enormous losses, through excess working capital, high costs, and missed sales. In contrast, supply chain leaders outperform competitors by more than 50 percent on key metrics such as inventory turnover.¹ Bearing this in mind an understanding how important an efficient supply chain is to companies becomes evident. In order to reach a high availability, a well functioning supply chain is essential. An efficient supply chain can only be attained through integrating the involved departments and ensuring that they work in accordance to each other. Each organizational function also needs to measure and evaluate its performance so that problematic areas can be resolved and improved.

¹ www.bain.com, (2006-10-15)

1.2 Problem Formulation

As Swedish Match, South Africa is present in a declining market the importance of having a more efficient and optimal supply chain to keep the current product margins becomes even more crucial. Processes included in the production and distribution need to be working in accordance with each other in order to achieve satisfying inventory levels, high levels of customer service, and a cost efficient supply chain. Also marketing and sales departments need to be working together with other departments to ensure a high availability and efficiency. The current organizational structure is functional and integration between the departments is limited. Through the analysis of the current supply chain internal processes will be measured and put into a broader perspective to provide the management with a description of the existing situation.

1.3 Purpose, Goal, and Objective

The purpose of the project is to research, analyze, and present how the products are supplied, produced and distributed. Integration between departments will also be a key issue throughout the study. In order to ensure a satisfying availability and quality an increased understanding of the supply chain needs to be retrieved and highlighted. A high level of availability and efficiency is vital for the company's future, and these two factors will be of high importance throughout the project.

The goal with the project is to provide Swedish Match, South Africa with clarification and understanding how their supply chain is interacting, where problematic matters need to be accentuated, and suggestions of improvements of the current supply chain.

There are also sub-objectives with the study that should be accomplished:

- ✓ The overall performance of the supply chain and its different functions should be measured and evaluated
- ✓ Find problematic areas within the supply chain that needs to be improved to facilitate and improve the present supply chain.
- ✓ Suggest improvements that could be performed in order to enhance the performance of the current supply chain.

As the project progressed it became more evident that a need for a structured and standardized management style was needed at some positions. Several functions and people purely lacked a structured way of carrying out daily tasks as well as resolving long-term issues and applying strategic decisions. Problems were solved based on short-term solutions and the follow-up processes were sometimes insufficient or non-existing.

Because purpose and goal changed over the duration of the project additional theoretical framework had to be added. Originally the projects objective was to analyse the current situation, measure and evaluate the performance of the existing supply chain and the processes involved. But since a lot of the processes were impossible to measure and inaccurate data would have been retrieved an additional part and objective were added to the thesis.

- ✓ An ISO 9000 evaluation were added during the progress of the study as several processes within the supply chain were intangible.

The results of this thesis will as the concluding part is compared with the original objectives to evaluate whether or not the performed research achieved the set targets and objectives of the research.

1.4 Delimitations

Focus for this project will be delimited to the South African market even though the company is doing exports to several international markets. The South African market is the companies' main market and contributes with most of the sales revenue.

Swedish Match has a broad variety of products in the South African market but focus for this thesis will be on the three major products, Boxer and Best Blend pipe tobacco, and the TAXI snuff. Since these products are contributing with 91 % of the budgeted revenue the availability of these products are of greatest importance.

1.5 Disposition

The author chooses to use the traditional disposition of the master thesis since this approach ensures that research is being performed in accordance with business research methodology. In figure 1 the sequence of the report as well as the content of the different chapters are described. The chapters are linked together so that information provided at an earlier stage of the report will not be repeated.

Introduction	Chapter 1: Explains the background, purpose, and content of the project and also defines delimitations and target group for the the thesis.
Company Description	Chapter 2: This chapter provides an introduction to the company, its history, products and current situation.
Methodology	Chapter 3: In this chapter the methods and approach used for collecting data, analysis, and theory are described.
Theoretical Framework	Chapter 4: Presented in this chapter are the theories and framework for the project which will be the guideline for the performed analysis.
Empirical Research	Chapter 5: The chapter consists of empirical findings and explanation of current situation throughout the organization.
Current On-Going Projects	Chapter 6: Description of on-going projects and the intended objective of the improvements.
Analysis	Chapter 7: In the analysis chapter the collected empirical data and on-going projects are interpreted, analysed, and evaluated.
Meeting with Top Management	Chapter 8: Recommendations from meeting with top management are presented in Chapter 8.
Results & Conclusion	Chapter 9: This chapter contains the results, future recommendations, and suggestions of further research areas.

Figure 1. Disposition of Master Thesis

1.6 Target Group

The main target group for this report will be the personnel at Swedish Match since the report is going to be of concern to the people working within the researched areas. The report will also be of value to professors, students and people with an interest in the South African market and how Swedish Match applies new technology and methodology in a developing environment.

The report has been structured based on the readers' expected knowledge of supply chain terminology.

Chapter 2 - Methodology

This chapter provides the reader with an understanding of how the research has been carried out. Also the chosen methods of empirical studies, data collection, and analysis are described in order to give the reader a possibility to evaluate the credibility of the conducted research.

In order to achieve satisfying, reliable, and useful results a structured approach and methodology has to be set before research is begun. The outcomes of the study are more than likely to be useless or inadequate without a sufficient approach and planned methodology. The chosen method has to be in accordance with the situation and environment. The author initiated the research by reviewing the possible methodologies. The methods were examined in order to find an appropriate method that would fit this study. A valid method was chosen and techniques for qualitative and quantitative data collection were decided on.

Objectivity, validity, and reliability were factors that were reviewed before initiation of the research in order to accomplish results that are accurate and explain the situation in accordance with reality.

2.1 Choosing Research Methods

The overall goal in selecting a business research method is to get the most useful information to key decision makers in the most cost-efficient and realistic fashion². It is therefore of uppermost importance to choose an adequate research method so that generated results are appropriate, correct, and useful.

There are several methodologies that can be used when conducting business research. The most vital aspect is to find a method suitable for the purpose of the actual study. In order to find an appropriate research method the available options were examined and an appropriate method for the actual study was chosen. Depending on the choice of method the results and credibility can differ so the chosen method has to be in accordance with the purpose of the study, if not the research can generate unsatisfying and inadequate results.

2.1.1 Deductive versus inductive business research method

The first distinctive difference in business research is the approach and view of the study. Depending on the situation and circumstances of the study a different approach is chosen to suit the study. There are two different research views: deductive and inductive research methodologies. These methods have different approaches to research and the course of action differs and produces diverse outcomes.

Deductive methodology is the most common method and the approach is in simple terms a study where the researcher originates from a hypothesis based on a theoretical statement or assumption, i.e. substantiating a theory. The purpose of the study is to test a hypothesis and find out if the hypothesis can be confirmed or rejected. The hypothesis will never be totally confirmed since more questions can be asked but a theory can be either further dismissed or

² www.managementhelp.org (2007-02-28)

confirmed.³ The deductive methodology is a process that is on-going and new researchers can continue where previous researchers completed their study.

Inductive research on the other hand theory is the outcome of research. Inductive studies are achieved through iterative strategies, which involves a weaving back and fourth between data and theory⁴. The inductive methodology is used to describe a phenomenon or situation and create explanations of circumstances based on theory and empirical findings.

In this thesis the study was performed as a case study which is performed with the inductive study approach and the methodology shown in figure 2. The primary objective of the study was set which was the base for theory and the following data collection and analyses. The study was a weaving back and forth between findings, analysis, and results.

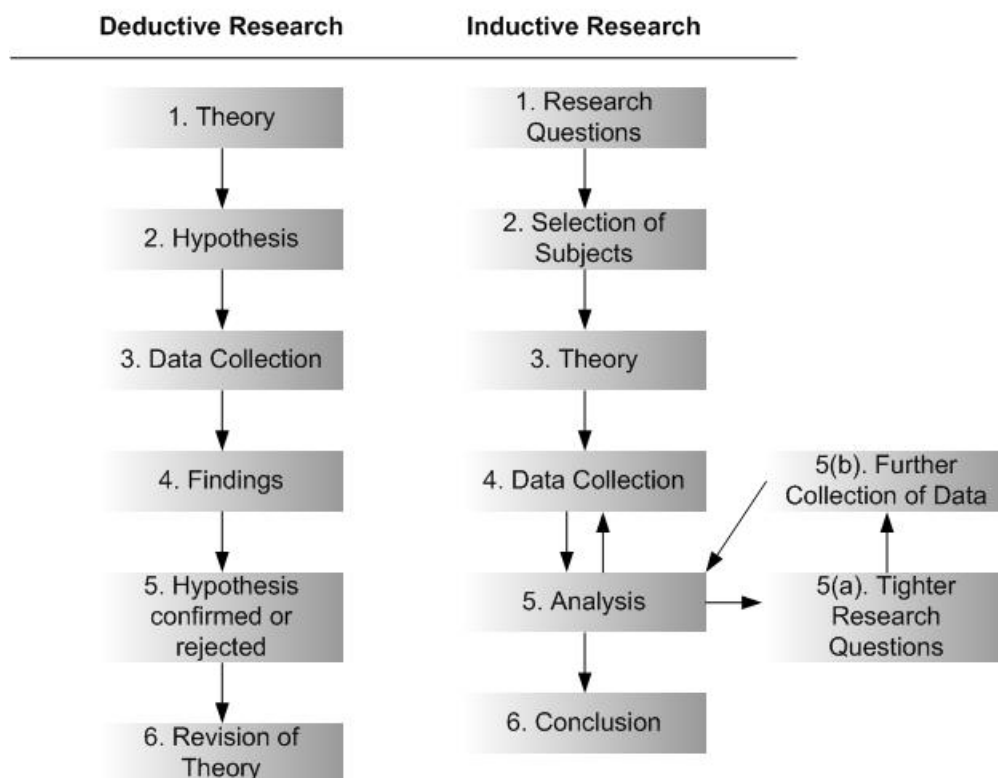


Figure 2. Deductive and Inductive research process⁵

There are according to Bryman & Bell⁶ five different types of research designs that can be used when business research is being performed. Depending on the situation and circumstances of the study the results are highly dependent on what approach the author chooses to use. The five different approaches that were considered were: experimental design; cross-sectional or social survey design; longitudinal design; case study design; and comparative design. Each method has a different approach depending if the study's approach is quantitative or qualitative. These research methods were evaluated in order to find a suitable research strategy that would generate sufficient, reliable, and useful results.

³ Holme & Solvang, (1996), *Forskningsmetodik*, Studentlitteratur

⁴ Bryman & Bell, (2003) *Business Research Methods*, Oxford University Press

⁵ Ibid

⁶ Ibid

Table 1. Summary of Research Design and Research Strategy, Bryman & Bell⁷

Research Design	Research strategy	
	Quantitative	Qualitative
Experimental	Using quantitative comparison between control and experimental groups with regard to the dependent variable, i.e. impact of leadership characteristics.	Not been used as qualitative study
Cross-sectional	Social survey research or structured observation on a sample at a single point in time, i.e. testing of economic value adding of implementation of TQM methodology.	Qualitative interviews or focus groups at a single point in time, i.e. finding trends and tendencies amongst groups of people from different positions or backgrounds.
Longitudinal	Social survey research on a sample from more than one occasion, i.e. performing surveys to create an extensive and authoritative body of factual information regarding the studied area	Ethnographic research over a long period, qualitative interviewing on more than one occasion, i.e. for instance a study where change or progress want to be researched
Case Study	Social survey research on a single case with view to revealing important features about its nature, i.e. study of a corporation. Usually a combination between qualitative and quantitative methodology.	Intensive study by ethnography or qualitative interviewing of a single case, which may be an organization.
Comparative	Social research survey in which there is a direct comparison between two or more cases, i.e. Hofstede's study where cultural differences are compared based on quantitative measurements.	Ethnographic or qualitative interview research on two or more cases, i.e. study and comparison between successful and unsuccessful companies.

The study was chosen to be performed in accordance to the case study. The case study has an approach that fitted the projects objectives which will provide results that most likely will be valid and appropriate. A case study is carried out at a location where emphasis tends to be on intensive examination of an organization or workplace⁸.

The research was concentrated on this separate study of the supply chain of Swedish Match, South Africa. The study will therefore most likely not be applicable to any other companies and this study is defined it as an individual case. But the situation could be representative for a company going through a transition in a development country. Separate parts of the study could be applicable in companies facing similar situations or issues.

⁷ Bryman & Bell, (2003) *Business Research Methods*, Oxford University Press

⁸ Ibid

2.1.2 Quantitative versus qualitative research strategy

According to Bryman & Bell many writers like to distinguish between quantitative and qualitative research when finding an appropriate research method⁹. The chosen method depends on the situation, environment, and circumstances that will be studied. Most studies are established on a mix of both methods since real world situations need to be explained from both quantitative and qualitative principles.

Quantitative research methodology is focusing on developing and employing mathematical methods, theories, and hypothesis. It is a structured approach where statistical methods and control from the author ensures that the analysis is performed according to quantifiable principles. The core processes when conducting a quantitative study is the focus on measurements and applying these results to empirical observations and furthermore creating relationships between measurements and observations.

Qualitative methodology puts concentration on generating theories that emerge from the findings. The method collects data and the researcher tries to create an understanding of a certain situation. This can be accomplished through collection of information from different sources which will ensure valid and reliable results. An example of a qualitative study is for example; how someone unemployed interprets and perceives their social situation¹⁰. It is difficult to quantify an individual's interpretation which enables the usage of a qualitative model.

The study was originally supposed to be performed as an equal mix of quantitative and qualitative research but as results was obtained it was obvious that the study had to be more focused on qualitative results and interpretations of the current situation. The overall of the supply chain performance was supposed to be quantified and obtained results analysed and evaluated.

Table 2. Fundamental differences between quantitative and qualitative research strategies¹¹

	Quantitative	Qualitative
The role of theory in relation to research	Deductive; Testing of Theory	Inductive; Generation of Theory

2.2 Data collection

Data collection can be performed in numerous ways but there are two distinct techniques used when performing data collection, primary and secondary. The chosen data collection method depends on the researchers' perspective, approach of study, and availability of information and data.

⁹ Bryman & Bell, (2003) *Business Research Methods*, Oxford University Press

¹⁰ Holme & Solvang, (1996), *Forskningsmetodik*, Studentlitteratur

¹¹ Bryman & Bell, (2003) *Business Research Methods*, Oxford University Press

Primary data is the type of data that is collected and generated for the specific research or study. This data is only collected and used during this research but can also be used for further research. Primary data can to a larger extent be validated by the researcher since collection methods and interpretations can be controlled.¹²

Secondary data collection consists of data that has already been collected and are available through existing systems or measurements conducted at the company. Collection of secondary data must be done with a critical view of the retrieved information since collection methods are not developed and structured by the researcher.¹³

In this thesis both primary and secondary will be chosen for the collection of data. In the early stages of the thesis significant information will be obtained as primary data through interviews, discussions, observations etc. Also secondary data will be acquired through statistics, company documents, and company intranet. The purpose of the initial data collection is to attain a good overview of the supply chain of Swedish Match South Africa. When the preliminary studies are done and areas of concerns have been located the research goes into the second phase.

Focus for the second phase will be on specific areas within the supply chain. Through the primary interviews several issues should be available to perform further research on. As the research goes in to second phase the data collection will be more specific and narrow and focus on subjects that need to be emphasised.

Provided results and recommendations are highly dependent on the collected data and the accuracy of gathered information. Data that are collected using inappropriate methods will affect the validity and reliability of performed interpretations and analysis.

2.2.1 Interviews

The interviews were performed as qualitative interviews. The main characteristic of qualitative interviews is that they tend to be far less structured than surveys or quantitative interviews¹⁴.

There are three ways of conducting qualitative interviews, unstructured, semi-structured, and structured¹⁵. The interviews were performed as semi-structured since complexity of analysing the unstructured interviews makes it extremely difficult to analyse.

A semi-structured interview approach basically means that the interviewer has a list of fairly specific questions which allows the respondent to divert from the agenda when necessary. One of the advantages of using the semi-structured interviews were that retrieved information would cover required topics but also give the interviewed a chance to acquire an insight of areas not specified in the interview guideline.

The interviews were recorded so that interview flow and progress would not be disturbed by the interviewer taking notes or asking additional questions. The author could also interpret and analyse the interview after completion. This method enabled higher quality, preciseness

¹² Bryman & Bell, (2003) *Business Research Methods*, Oxford University Press

¹³ Ibid

¹⁴ Ibid

¹⁵ Ibid

and better results from the conducted interviews. No information collected during the interviews was impossible to retrieve or misinterpret which ensured the reliability of the information acquired during the interview.

For every interview a specific question guideline was composed which would suit the interviewed. An example of the questionnaire layout and content can be reviewed in the Appendix. The level and content of the interview guideline were composed depending on the interviewed position within the organization so that necessary and accurate information were retrieved.

2.3 Observations and in-formal discussions

There are several definitions of observations and the approach and results from the observation defines which model that is being used. Unstructured and non-participating observations which were used during this study are performed without schedules or participation¹⁶. Observations and in-formal discussions was used as a complementary tool to obtain an understanding of current situations. During discussions valuable insights could be attained since people tend to talk more relaxed when not being interviewed and recorded. Observations and discussions were used to gain valuable primary knowledge which could later be used to investigate areas that had been of concern to employees. The validity of the obtained information was confirmed through either collection of data or confirmation by more than one additional qualitative source.

2.4 Objectivity, Validity, and Reliability

Regardless of method being used when performing research inaccuracies will more then likely occur since there are so many factors that impact interpretation, subjectivity, personal values etc. Objectivity, validity, and reliability are three methods of reviewing whether or not the performed research is accurate enough and the outcomes are describing the actual circumstances. These factors should be considered throughout the research so that obtained results are accurate.

2.4.1 Objectivity

Objectivity defines to what extent personal values and ideals affect the outcome and result of the research. In order to achieve a high level of objectivity opinions from as many sources as possible should be included since each source has personal interest and opinions regarding situations and conditions.

To obtain objectivity, every person throughout the supply chain was asked questions concerning the same topics to create a general opinion but since it was performed as interviews the risk of subjectivity increases.

Also the authors' opinions tend to influence the result significantly since interpretations, analyses, research, and methods of expression are performed based on the authors' experience and knowledge. It is therefore important to evaluate and question how these values may affect the results and quantify these effects.

¹⁶ Bryman & Bell, (2003) *Business Research Methods*, Oxford University Press

2.4.2 Validity

Validity describes if the performed research are based on accurate data, and if what is being measured is actually what we wish to measure. Usually validity is being discussed in terms of internal and external validity. External validity refers to the ability to generalise across persons, settings, and times. Internal validity focuses on whether or not the supposed measurement matches the actual measurement¹⁷.

During the interviews validity was increased through recording them. This allowed for a high level of accuracy when interpreting answers and questions. When critical issues were found and highlighted quantitative studies were performed. This approach increased the validity by including more factors in the research.

2.4.3 Reliability

Reliability is the consistency of results obtained in research. Whether another researcher could replicate the original research or the same researcher could replicate the original research at a different time¹⁸.

Four different threats to reliability can be found: subject error, subject bias, observer error, and observer bias¹⁹.

To ensure reliability and avoid the mentioned threats interviews, discussions, observations, and data collection were performed on more than one occasion and with more than one source if possible. The results can be regarded as reliable since several sources were used to ensure that situations, functions, and processes were described correctly.

Evaluation of Objectivity, Validity, and Reliability

The objectivity, validity, and reliability of the study will be examined and discussed in the concluding chapter. The retrieved results and usage of this information are highly depending on the extent these three factors are followed and accomplished. Without sufficient objectivity, validity, and reliability the acquired results are not applicable to the same degree.

Summary of Methodology

Business research methodology is the structure and approach that the study is based upon. A sufficient research method needs to be chosen in order to achieve results that are objective, valid, and reliable.

The supply chain analysis at Swedish Match, South Africa was performed in accordance with the case study. A case study is per definition focused on a single organization, location or individual. The study is concentrated on the study of SMSA and its functions and is therefore delimited to this organization and will most likely produce results and findings that aren't applicable on another company, location or situation.

¹⁷ Emory & Cooper, (1991), *Business Research Methods*, Irwin Inc.

¹⁸ Johnson & Duberley, (2000), *Understanding Management Research*, SAGE Publications Ltd

¹⁹ Ibid

Objectivity, validity, and reliability were ensured through application of these methodologies. Several sources for data collection were used with the aim of creating results that reflects reality in an appropriate and accurate way.

Chapter 3 - Company Description

This chapter is dedicated to give the reader a comprehension of what Swedish Match South Africa comprises of and what has defined the organizational structure and culture. Description of products and sales distribution will be presented to explain the factors involved in the current market situation.

Swedish Match is a tobacco company with departments and facilities located all over the world. It is a unique company with a broad range of market-leading brands in the product areas snuff and chewing tobacco, cigars, and pipe tobacco – niche tobacco products – as well as matches and lighters.²⁰ The company are responsible for brand leading tobacco products at various places worldwide. Manufacturing units located in 14 countries and sales offices in more than 150 countries makes Swedish Match a global enterprise.

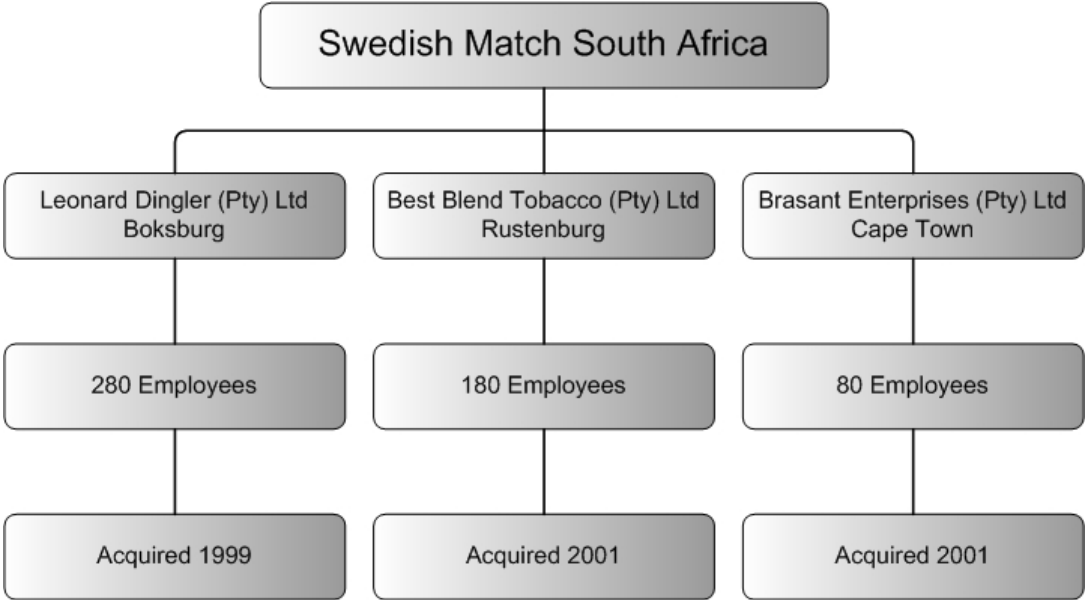


Figure 3. Organizational over view of Swedish Match, South Africa

Swedish Match South Africa comprises of three companies namely Leonard Dingler, Best Blend Tobacco, and Brasant with offices located all over the country. All three companies within the South African group are rich in history and tradition, with Leonard Dingler celebrating its centenary in 2004 and with Best Blend following its 100 year celebration in 2006 and Brasant Enterprises being present in the market since 1994.

Through an acquisition in 1999 of the family owned company Leonard Dingler Swedish Match gained access to the South African tobacco market. Leonard Dingler has the market-leading pipe tobacco brand in the nation, Boxer pipe tobacco. Through this acquisition Swedish Match also got a very strong position in the nasal snuff market with the second biggest product on the market, TAXI snuff. Throughout the report focus will be on Leonard Dingler and its facilities since core functions and the head office are located at the facility:

²⁰ Swedish Match Annual report, (2005)

marketing and sales, accounting, main production, research and development, distribution control and top management are all situated on site.

Swedish Match acquired the second largest pipe tobacco company on the market, Best Blend tobacco in 2001. Through this offensive market strategy Swedish Match today account for 98 % of the South African pipe tobacco market.

Brasant was also acquired in 2001 to supplement and diverse the company portfolio in South Africa. Brasant is the leading South African importer and distributor of tobacco and related products and focuses on the more sophisticated segment of the market. Cigars, cigarillos, and accessories are the main products and as the South African economy is growing the demand for these luxury products are increasing.



Figure 4. Overview of Offices and Facilities in South Africa

Shown in figure 4 are the location of offices and facilities that form the Swedish Match, South Africa group. Most activities concern the Johannesburg facility as head office and main production are carried out at the premises. The Best Blend products are produced at Rustenburg which is located 150 kilometres from the main office. There are several regional sales offices located all over South Africa to ensure that customers are handled by local sales people and products are stored closer to customers.

Leonard Dinger and Best Blend have a couple of main processes and three of these will be focused upon during this research. Purchasing, production and distribution are the processes that will be highlighted and studied during this study.

The purchasing process is a function that is vital in order for the organization to accomplish set targets since all involved parties are reliant on the purchasing department in order to function properly. This process is performed by a designated person responsible for all interaction with suppliers. The procurement department lacks many of the fundamental processes that should be performed which make this process the most important function to further study and improve.

Both Leonard Dingler and Best Blend tobacco are producing entities that conduct manufacturing at their individual premises. Leonard Dingler has production of pipe tobacco, snuff, tobacco leaf, and several different smaller batch products. The production has during the last eight years since the acquisition had several improvements and new implementations. Processes have been automated with systematic pouch counting, MRP system has been introduced, work procedure has been documented, etc. The main improvements have been implemented within the manufacturing process since experienced management has continuously improved processes and ensured that efficiencies have been increased.

The distribution function is like in many other companies today outsourced to a third party logistical company, Rail Total Transport (RTT). The logistical organization is one of South Africa's largest distribution companies with reliable delivery services throughout South Africa and surrounding countries. The main distribution is done to larger wholesalers which distribute the products to smaller kiosk owners that sell products to consumer.

Swedish Match, South Africa has a very unique position in the pipe tobacco market where competition is almost non-existing. But there is an important factor that needs to be accentuated concerning the product quality and design. Since most of the consumers are illiterate they interpret the products and its content through visual inspection. Any small changes to the product, packaging or print can have disastrous effects. The customer might interpret the physical alterations as a change to the product and therefore decide not to buy it. A change done to a snuff product a couple of years ago where one word on the lid was changed caused a major drop in sales and it took a significant amount of time to re-establish historical sales volumes.

There has been a distinct annual decline in market sales since the acquisition of Leonard Dingler in 1999. There are several explanations to this decline in consumer and customer behaviour:

- The younger generations perception is that pipe tobacco are products used by elderly generations
- The social lifestyle is changing and smoking cigarettes are seen as very trendy
- More cigarette companies are establishing in South Africa
- Illicit cigarettes are a very appealing purchase at lower prices
- The South African community is changing, buying power is increasing and the middle class segment is booming

Because of these market changes more pressure is put on internal and external processes to ensure that response time to inefficiencies is short. It is therefore of uppermost importance that personnel within the organization are aware of the how cross-functional activities are performed and how they affect one another.

3.1 Products

The products provided by the company are concentrated for the low income and traditional smoking customers. Most of the products have been present in the market for several decades and are deeply rooted in the South African culture.

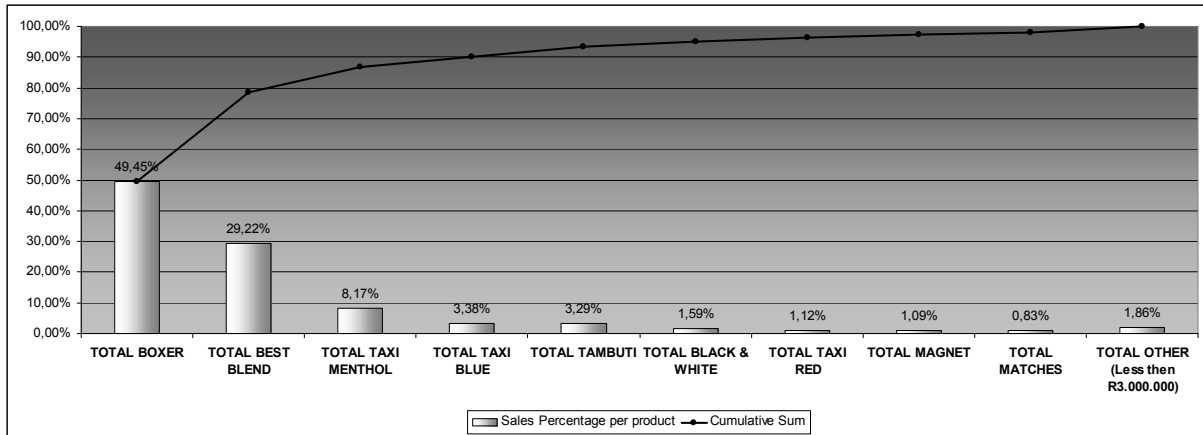


Figure 5. Sales Representation per Product Group

The project was delimited to the main three product groups: Boxer, Best Blend, and TAXI snuff. Figure shows the entire product range even though focus is put on the top three product groups. This figure is just a guideline showing the importance of ensuring availability of these product groups. The chart is based on the percentage of total sales value that each product group are responsible for. Product representation is very distinct with two major product categories contributing to the overall sales. Boxer and Best Blend contribute with almost 80 per cent of the total annual sales.

There were currently 200 Stock Keeping Units (SKUs) available during 2006 and the sales distributions amongst these SKUs are even more significant than by product group. Out of the 200 products that were available during 2006 there were 14 SKUs that represented 80 % of the annual sales. A complete list with detailed information about the available products and each representation can be viewed in the Appendix B.

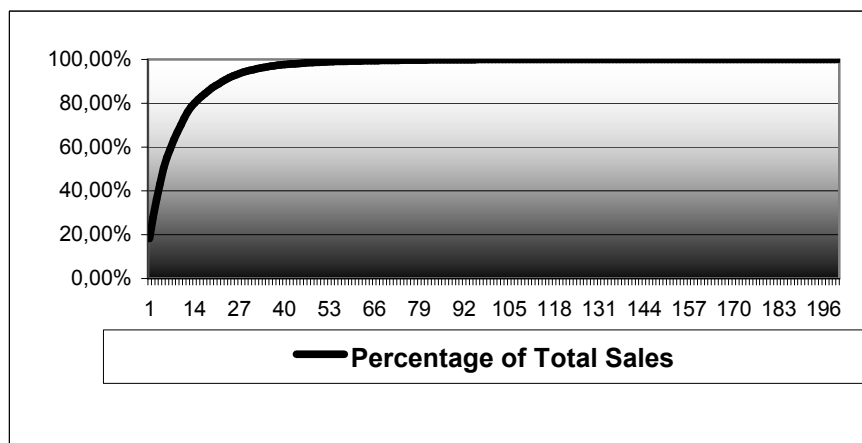


Figure 6. Cumulative Sales per SKU

Boxer Pipe Tobacco

Boxer pipe tobacco is the company's main product and is accountable for 50 % of the annual sales (Based on 2006 sales figures). As the product has a long history the brand is very deep rooted into the South African community and the average consumer is 35 years or older, low income or unemployed, and lives within the black community.

The sales trend for Boxer pipe tobacco has had a significant decline over the last 6 years with an annual decline of 7.9 %.

Best Blend Pipe Tobacco

Best Blend pipe tobacco is the second biggest brand within the organization and is accountable for approximately 30 % of the annual sales. Compared to Boxer this product is more accepted by the younger generations and regarded as slightly trendier. Best Blend pipe tobacco is being produced at an independent site located 150 kilometres from the main office.

TAXI Snuff

TAXI snuff is a moist nasal snuff that is mainly used by female consumers. TAXI snuff is divided into three different categories based on strength and flavour: menthol, blue and red. These three products are accountable for approximately 12 % of the total annual sales during 2006.

Other Products

The company has several smaller ranges of products which are focused on other customer groups and markets where more sophisticated consumers are present. There is one major product that is defined within the other products group that has a significant contribution to the overall sales. Tobacco leaf is a product that has a considerable contribution to the overall sales. But this product has in this thesis been considered as insignificant and is therefore not revised.

3.2 Annual Sales Distribution

The annual sales for the three main product categories follow a very distinct distribution curve that should make forecasting and planning fairly simplistic. As can be seen in figure 7 the three main products follow a seasonal demand with a peak in February because of annual tax increase at the end of the month. Since the government announces the tax increase of tobacco products in February month customers buy large amounts during this month.

The sales figures are used within the company to generate a forecast for the upcoming fiscal year. Budget is also set based on previous year's sales figures in combination with usage of the yearly trend that has occurred over past years.

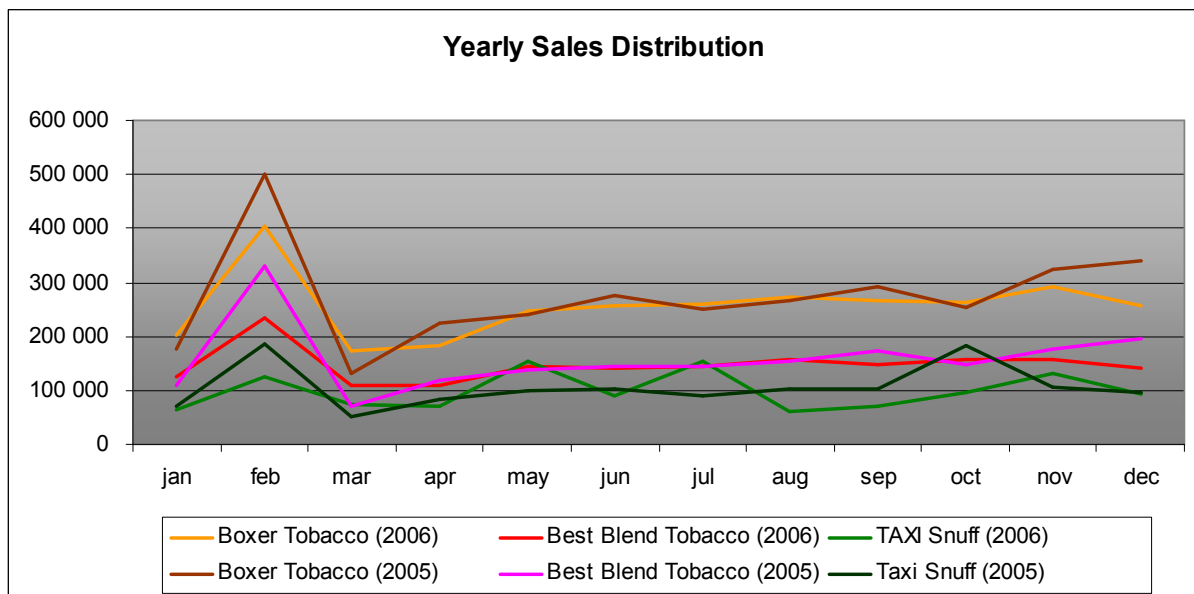


Figure 7. Sales Distribution of Boxer, Best Blend, and TAXI.

Corporate Summary

Swedish Match, South Africa comprises of three companies and focus is on the lower income segment of the market. The market share has been declining since Swedish Match acquired this three corporations and a more cost-efficient and innovative organization is therefore necessary to ensure that market shares can be kept in the future. It is therefore of high importance that a broad understanding of the organizational processes are available.

A good overview and understanding of the organization will be given after completion of this study which hopefully can provide the company valuable insights. Processes and activities within the organization will be reviewed in order to find problematic areas that can be improved to increase the overall performance.

Chapter 4 - Theoretical Framework

The chapter includes description of terminology and theoretical framework used in the report. Through the chapter a comprehension of the supply chain is given to the reader. The included elements purchasing, operations, distribution, and integration are presented and the impact from each element on the supply chain is analysed. The framework will also be the standpoint used when researching and analysing the supply chain.

For an organization to become successful an understanding of market demands and expectations has to be accompanied by achieving satisfying product quality, flexibility amongst internal and external functions, and a high degree of customer service to ensure that customers and stakeholders are pleased and expectations and requirements are met.

Customer expectations are recognized through marketing activities and the objective for the organization is then to make sure that these requirements are fulfilled. Supply chain management focuses on integrating the different functions and making sure that collaboration is running smooth and information are shared to everyone involved. Through a successful supply chain approach involved parties can focus on its core capabilities instead of wasting time dealing with issues due to insufficient communication, incapability's and lack of prioritizing amongst departments. If departments and integration between functions are performed successfully a higher level of customer service, quality, and overall company performance can be accomplished. Processes can be improved continuously through measurements which will be the foundation for managers to make accurate decisions based on factual information which will ensure successful implementations of improvements. Personnel internally are also given a higher degree of awareness which can improve internal efficiencies so that processes can run smoother and with fewer interruptions. External interaction with suppliers and customers can be improved since information flow between involved parties can be secured through policies and procedures that ensure that information are shared along the supply chain.

4.1 Supply Chain

There are two definitions regarding supply chain and supply chain management that needs to be defined in order to understand the purpose, approach, and content of implementing and researching on a supply chain concept within an organization.

The supply chain concept encompasses every effort involved in producing and delivering a final product from the suppliers' supplier to the customers' customer. There are basically four processes within the supply chain – plan, source, make, and deliver. More broadly explained as managing supply and demand, sourcing raw material and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, and distribution across all channels to finally deliver to customer.²¹

²¹ Hugo, Badenhorst-Weiss, van Biljon, (2004), *Supply Chain Management – Logistics in Perspective*, Van Schaik Publishers

Supply chain management on the other hand is the systems approach to managing the entire flow of information, materials, and services from raw materials suppliers through factories and warehouses to the end customer.²² There are in other words cross-functional activities that need to be performed properly in order to accomplish and ensure that these processes are carried out in a manner that comprehends with company strategies. Product development and project management are two examples of such activities that are cross-functional and needs to get the appropriate attention. Information exchange and flow between departments are of vital importance to accomplish successful implementation of new products and projects.

An excellent or superior supply chain can be achieved if supply chain concepts and definitions are understood, implemented, and applied by all involved functions. The benefits with a successful implementation of the supply chain concept will lead to a more flexible organization, better organizational relationships, and easier coordination of supply chain processes, reduced cycle times, decreased waste etc.

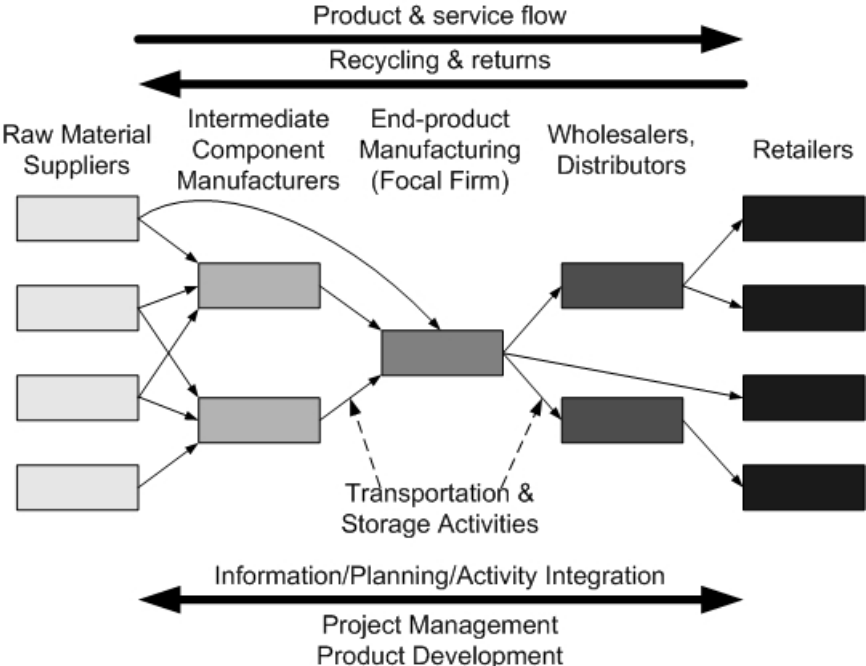


Figure 8. The generic supply chain

As can be viewed in figure 8 a generic supply chain consists of several different levels. From raw material suppliers, manufacturers, distribution functions, and all the information flow between the included functions. There are also a couple of supportive and cross-functional activities such as project management, product development, information flow, etc. that should be emphasised to increase the overall supply chain performance. In order for the company to become successful these functions need to work in accordance to each other and with integrating activities. The number of suppliers, complexity level of the product and distribution channels which are available and chosen will have a large impact on the supply chain and how difficult it will be to coordinate and integrate.

Benefits that can be achieved when a firm, its customers, and its suppliers all know each others' plans and strategies are significant. Processes will run smoother and more accurate

²² Hugo, Badenhorst-Weiss, van Biljon, (2004), *Supply Chain Management – Logistics in Perspective*, Van Schaik Publishers

information will be shared which allows all involved parties to focus on core processes. Confusion and misunderstandings within the chain can then be decreased. Decision-making along the supply chain will also be taken in consideration with internal and external collaboration partners. By knowing the effects each entity has on involved parties decisions will be taken in accordance to possible and accomplishable improvements.

As many as the advantages are with an excellent supply chain as many down faults are there with a poor performing chain. Effects that can occur may be excessive inventory, backorders and backlogs which leads to loss of sales, stand stills and unnecessary changeovers in production, write-offs of old material and finished goods, etc. Also problematic matters that could have been resolved proactively could escalate to unnecessary proportions and move focus from essential assignments.

Companies operating based on functionality will have problems implementing a supply chain strategy. Problems and issues will occur when a supply chain approach is being put into practice in a functional organization. Computer system will be implemented, routines and process and work procedures will be written and applied, and the organizational culture will have to change in order to adapt to all new processes and information sharing. Clear management visions, goals, and strategies are very important to be able to convince all involved that the change will eventually lead to a more reliable and flexible organization. Managers also need to define and quantify how each individual within the chain can benefit in their daily tasks from the implementation of the new strategies.

4.1.1 Forecasting

According to the Institute of Business Forecasting it does not matter what kind of business or function being performed there is most often a need for some kind of estimation calculation in order to build a future plan. Marketing needs to decide what markets to enter, products that needs to be discontinued or which products to promote. Salespeople use forecasts as foundation for sales plans and targets. Within the supply chain forecasts are being used to plan production, procurement, and logistics. Also finance needs forecasts in order to set budgets and targets.²³

Through forecasts an estimation of future demand can be attained and is used as the basis for planning and making business decisions²⁴. The goal of the forecasting technique is to minimize the deviation between the actual outcome and forecasted figures. The choice of forecasting method is therefore vital in order to accomplish an accurate prediction. With an improved forecast not only the focal company is benefiting internally but also trading partners in the supply chain will comprehend and collaboration will be simplified if information is shared with suppliers and customers. A more accurate forecast will lead to lower inventories, less stock-outs, smoother production plans, reduced costs, and improved customer service²⁵.

When raw material is available there are several internal operations that processes raw material and makes sure that the right amount with specific quality, cost, and service requirements are available at the right time to meet customer demands.

²³ www.ibf.com (2007-01-05)

²⁴ Wisner, Keong Leong, Tan, (2005), *Principles of Supply Chain Management*, Thomson Corporation

²⁵ Ibid

To ensure availability firms can predict demand based on historical patterns, and use forecasting techniques to set up a production plan. If this plan diverges from estimations the company will be left with excessive stock or backorders.

4.1.2 Metrics

An old saying explains the value of measurements – “You can’t improve what you can’t measure”²⁶. This saying should be regarded with scepticism but there is also some truth to its meaning. It is very difficult to find problematic areas without measuring them but measurements need to be accurate and useful if performed.

Metrics and organizational performance measurements have over recent years become more important when setting objectives, evaluating performance, and determining future courses²⁷. Metrics and measurements are and should be used in order to quantify the need for improvements, performing evaluations as well as finding areas that are of concern. The data collection process is also the fundamental information that should be used to make strategic decisions and planning for future improvements to make sure that these implementations will actually increase the performance of the corporation.

4.2 Supply Chain Approach

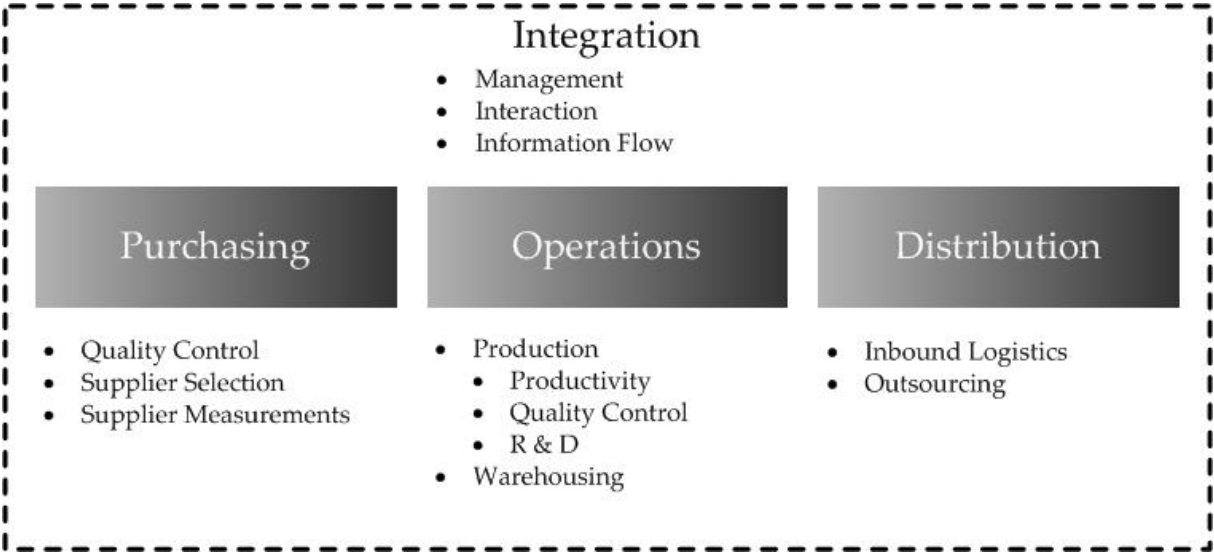


Figure 9. Supply Chain Overview

The research will be conducted with emphasise on each separate function: Purchasing, Operations, Distribution, and Integration through research of interaction between the three departments and functions. Each function will be studied individually and put into a broader supply chain context. Through this approach both the internal processes and the interaction and impact these processes has on the overall supply chain will be appraised. Each organizational function consists of several sub-processes that will be analysed individually. Showed in Table 3 is a brief overview of the researched areas within each function.

²⁶ www.taleo.com (2007-04-27)

²⁷ Gunasekarana, Patel & McGaughey, (2003), *A framework for supply chain performance measurement*, International Journal of Production Economics

Table 3. Brief Overview of researched areas within departments

Overview of Empirical Research

Purchasing

- Supplier Selection
- Supplier Evaluation
- Purchasing Measurements

Operations

- Production
- Warehousing

Distribution

- Inbound Logistics
- Outsourced Logistical Function
- Distribution Channels

Integration

- Information Flow
- Project Management and Product Development

A broad description of each department was written and certain processes or functions were examined in detail to enhance understanding of departmental processes. Some complementary areas were studied to provide a more detailed and broad understanding of the current supply chain situation.

4.3 Purchasing

The purchasing function deals broadly with those activities that have to be performed to ensure that good suppliers provide a firm with the right requirements in the right quantities at the right time and place and at the best possible price²⁸. This function is an extremely important element in the supply chain, since incoming material quality, delivery timing, and purchase price are dependent on the relationship between buyer and supplier as well as the capabilities of suppliers²⁹. Problems that occur with suppliers will eventually lead to insufficient customer relationships that will suffer by not receiving products and paying higher prices but also internal processes will be affected since they will run less smooth, profit margins decrease, and various interruptions will occur along the supply chain.

Supplier management is also a crucial issue since you want your supplier to do what you expect from them. One key activity is to evaluate and determine the capabilities of your suppliers. To achieve a high performance level new suppliers need to be evaluated before chosen but also the existing suppliers need to be evaluated periodically to ensure that a high quality and delivery reliability is in accordance with the agreed requirements. Standardised programs such as ISO 9000 is a measurement and management methodology that can be applied when planning activities to ensure that product quality and service requirements will be fulfilled³⁰. If evaluated and measured suppliers under perform the effects can be that they are substituted with new suppliers and through this process successful and trusting long-term relationships will be achieved. Through long-term relationships lower costs, better quality, and better delivery service can be reached and furthermore create strategic partnerships³¹.

²⁸ Hugo, Rooyen & Badenhorst (1997), *Purchasing and Materials Management*, Van Schaik

²⁹ Wisner, Keong Leong, Tan, (2005), *Principles of Supply Chain Management*, Thomson Corporation

³⁰ Ibid

³¹ Ibid

4.3.1 Supplier Selection

A successful and reliable customer-buyer relationship is essential if the supply chain is going to run sufficiently and supplier selection is therefore of uppermost importance. Suppliers should be compared and evaluated based on the requirements from the customer, in this case SMSA. Also future requirements and developments should be considered when choosing a supplier that can accommodate future plans and implementations.

Selecting competent suppliers is not an easy task and in order to find and ensure satisfying suppliers several factors should be taken into consideration when chosen. When choosing suppliers a number of elements besides cost and delivery performance should be considered in order to create a successful supplier relationship. Factors such as product and processes technologies, quality, reliability, capacity etc should be considered. Suppliers are then able to provide all these services and will also be able to modify products, develop new products, and increase quality performance. A supplier that can provide flexibility will more likely guarantee that future requirements will be achieved and therefore long-term relationships will be possible. Supplier selection could be performed as a team effort to ensure that a supplier with a high level of capability will be chosen. Purchasing, engineering, and finance could all be included in the decision making to make sure that the chosen supplier achieves the expectations from all involved team members.

4.3.2 Purchasing measurements

Evaluating and measuring the supplier performance is vital to ensure that suppliers are keeping promises, delivering the right quantities at the right time, ensuring quality requirements etc. If suppliers notice that performance measures are not being completed there might be a risk that they feel less pressured to improve and facilitate their current effectiveness.

Continuous evaluations of suppliers are essential to enhance or ensure that the relationships with suppliers are running in accordance to agreement. Quality, flexibility, response time, price etc. are factors that should be evaluated often and suppliers under performing should face consequences in order to improve the collaboration.

4.4 Operations

Operations groups all activities involved with predicting demand of products, producing and storing the products and the affects these processes have on the supply chain. Forecasts need to be produced to plan ahead and making sure that raw material are available and production are keeping the production rates required from sales. Production should be running smooth, accommodate for uncertainties that will occur, and flexible enough to have quick changeovers and ability to produce a broad range of products if necessary.

Warehouses and buffers are used to ensure product availability to customers. Storing raw materials and finished goods is a key function to guarantee that the supply chain is running smooth and continuously and ensuring a high level of reliability. The goal and performance measure for operational functions are to maximise **throughput** while decreasing **inventory**

and **operational costs**³². This goal can be achieved if all processes included are being monitored and continuously improved to increase all included process performance.

4.4.1 Production

A company's competitiveness relies to a large extent on the capability of the manufacturing process since the main value is created within this process. Depending on the complexity and requirements of the product the manufacturing process also becomes more difficult to plan and coordinate. Flexibility, productivity, production flow, capacity, process design, work-in-progress and quality assurance are all aspects that measure the performance and by focusing and optimising these factors an efficient production process can be accomplished.

Planning is a big part of the production process and the planning phase will be used by purchasing to order the required quantity. Both production planning and capacity planning are two important factors that need to be taken into consideration when preparing the manufacturing process. Constraints and bottlenecks need to be optimised in order to meet production requirements and ensure a satisfying production flow.

Depending on the demand and stage in the life cycle of the product the manufacturing process should be adapted and planned to be suitable for the current situation. There is no need to invest large amounts if a product is in the declining stages of the product life cycle.

4.4.2 Warehousing

No company can predict exactly what the actual demand will be and uncertain circumstances will always occur which will have an impact on the flow. For an organization to be able to handle such uncertainties and keeping a continuous production and supply function the need for keeping inventory is necessary at different stages throughout the supply chain³³. Unless the organization can produce-to-order there will be a need for warehouses and buffers to ensure availability. There are basically six different types of inventory that all need to be taken into consideration:³⁴

- Raw material inventory – Parts from suppliers that are used in production process
- Work-in-progress (WIP) – Parts that have gone into the production process
- Finished goods warehouse – Products that have gone through manufacturing processes
- Replacement parts – Parts used to maintain machinery or equipment
- Supplies inventory – Parts used to support production process but not a component
- Transportation inventory – Items that are in the process of being shipped

³² Vonderembse & White, (2004), *Core Concepts of Operations Management*, Wiley

³³ Hugo, Badenhorst-Weiss, van Biljon, (2004), *Supply Chain Management – Logistics in Perspective*, Van Schaik Publishers

³⁴ Vonderembse & White, (2004), *Core Concepts of Operations Management*, Wiley

Any company will have to optimize the inventory kept to ensure the availability, but at the same time not keep too much capital bonded, and making sure that stock is not getting old or damaged.

If inventory management is performed poorly inaccurate inventory levels will occur which will lead to incorrect production planning which can cause purchasing to order wrong quantities. Depending on if production is working toward Make-To-Order, Make-To-Stock or Assembly-To-Order the affects of inaccurate inventory levels will have a different impact on the supply chain. Storing too much inventory will also have unwanted effects such as excessive bonded capital, increase of wastage, etc. The strategy is to find a trade-off between bonded capital and the cost of running out of stock. If the cost and affects of stock-outs are extensive a safety stock should be used to make sure that components and products are available at all times.

4.4.3 Operation measurements

The amount of measurement and evaluation methods available is extensive. Productivity, quality, planning, staffing, etc. are all measurements that needs to be performed to ensure that the manufacturing process is running without interruptions. Also problematic issues will be found through a structured measurement and continuous monitoring and can then be resolved and improved at an early stage. Warehousing is also a process that needs to be periodically measured and inventory turnover, inventory accuracy, damages, safety stock etc. are all measurements that needs to be performed to evaluate the performance of the storing capabilities.

Other processes such as returned goods and internal material movements are of high importance for the overall performance of the warehousing function.

4.5 Distribution

When products are completed they are delivered to customers in a various number of transportation modes. There are usually several transportation options but in South Africa the main transportation mode are done by trucks, which limits the choices. In order to accomplish a high delivery accuracy and customer service a need for planning and cooperation is required between the firm, its customers and the distribution elements involved.

There are several advantages of outsourcing a function within the organization. Outsourcing allows the company to focus on their core competencies. Outsourcing can also to ensure that the function is being performed by a source whose capability lies within that certain function or area. Having a 3PL delivering goods and handling the distribution process allows for a more reliable transportation than performing it in-house since these companies can specialize on optimizing their specific logistic function. A 3PL company can combine shipments from many different sources and therefore keep a more frequent, reliable, and more cost-efficient way of transporting.

The outsourced process should be monitored and evaluated regularly so that requirements are fulfilled and delivery rates and accuracies are in accordance to the agreed customer expectations.

4.5.1 Reverse Logistics

The reverse logistics methodology is focused on the product or service over its entire lifetime and taking processes such as product returns, recycling, reuse of materials, etc. into consideration³⁵. Products need to be recovered from customers and handling procedures need to be in place to ensure that customers are credited and products are being recycled or destructed. Policies and methods need to be used to ensure that governmental laws and financial regulations are followed and also to guarantee customer service and internal inventory accuracies.

4.5.2 Distribution measurements

The distribution process should be measured in order to achieve satisfying customer service, trace goods, and evaluate the overall distribution performance. The level of success regarding the logistical function will depend on the internal and external management skills and how well the communications between the two organizations are performed.

4.6 Integration

As the final and certainly the most difficult element of the supply chain the integrated function is crucial for the overall performance of the supply chain. If one activity fails or is underperforming the entire chain will be disrupted which will jeopardize the whole supply chain's effectiveness³⁶.

To deal with these issues all involved participants must realize the impact their processes have on the overall performance and also supply chain management must become a part of the strategic planning. By determining optimal purchase quantities, product availabilities, service levels, lead times, production quantities, and supporting these functions supply performance can be maximized.

Integration success can only be achieved when all involved parties understand the value of supply chain integration and the impact and contribution sharing of information and knowledge can have on the overlapping and separate functions. But in order to accomplish a successful supply chain integration continued efforts are required to change attitudes, reduce conflicts, and overcome function barriers within and between companies³⁷.

A significant part of the supply chain integration is the ability to evaluate the chain's overall performance. Performance measures must be utilized by all functions in the supply chain in order to evaluate each separate function's performance but also to know whether or not applied strategies function as expected.

Supply chain integration should also be reviewed periodically to ensure that customer expectations are known throughout the chain so that each member knows what is expected from the customer and where focus should be. Internal procedures and policies should then be applied so that everyone involved has the same focal point and direction.

³⁵ Hugo, Badenhorst-Weiss, van Biljon, (2004), *Supply Chain Management – Logistics in Perspective*, Van Schaik Publishers

³⁶ Wisner, Keong Leong, Tan, (2005), *Principles of Supply Chain Management*, Thomson Corporation

³⁷ Ibid

4.7 New Product Development and Project Management

Product development and project management are two processes within an organization where a broad understanding is needed to ensure that these processes are carried out successfully. Both processes need to be evaluated after they have been performed and pitfalls and problematic areas need to be highlighted in order to ensure a higher degree of accomplishment in future projects. Any company developing new products and carrying out projects need to evaluate whether or not focus have been structured and if the performed projects have been completed as planned. When designing and developing new products it is of high importance that all involved parties set targets and goals in accordance to each other. Without a project guideline, budget, and milestones the project is more than likely to be delayed due to insufficient use of resources and objectives and product features may be lost due to these inefficiencies. It is therefore adequate that new product development projects are well structured and keeps timelines so that everyone involved knows when to reach sub-objectives and deliver. When developing new products a functional organization structure has several disadvantages: Lack of responsibility for the whole project, response to customer is slow, complex coordination, etc³⁸. Therefore it is of high importance that someone within the organization takes responsibility for the development progress and ensures that the project is following the time plan.

Project management is the discipline of organizing and managing resources in such a way that the resources deliver all work required to complete a project within defined scope, time, and cost. Larger projects should be managed through a project group from different departments which will ensure that involved activities will be carried out and the project progress can be monitored by everyone involved.

4.8 ISO 9000 Standards & Methodology

The ISO 9000 approach is not discussed and analysed for the company to become ISO-certified. The usage of the ISO concept is instead used as guideline for how implementation of an ISO approach could enhance the current organization and improve processes within each department. The ISO 9000 approach focuses on a set of standards so that quality management can be performed which will ensure that processes and decisions are carried out in a manner that is beneficial for the company's long term strategies.

ISO 9000 is a form of applying a set of standards primarily concerned with "quality management". This basically means what the organization does to fulfil.³⁹

- the customer's quality requirements, and
- applicable regulatory requirements, while aiming to
- enhance customer satisfaction, and
- achieve continual improvement of its performance in pursuit of these objectives

³⁸ Kerzner, H., (2003) *Project Management – A Systems Approach*, Wiley & Sons

³⁹ www.iso.org, (2007-01-24)

The ISO 9000 is per definition a series of quality assurance standards to ensure that processes and services are performed in accordance to a set of principles, goals, and objectives⁴⁰. The ISO 9000 concept is a generic set of standards that could be applied to any kind of product with emphasize on meeting the customer expectations and requirements.

These objectives are achieved through usage of the three-part, never-ending cycle to every process that deals with quality of the product. The three-part cycle consists of planning, control, and documentation.⁴¹

- ✓ Plan – Activities must be planned to ensure that goals, authority, and responsibility are defined and understood
- ✓ Control – Involved activities must ensure that requirements at all levels are met, problems are anticipated, and corrective actions are planned and carried out.
- ✓ Document – Activities must be documented to ensure understanding of objectives and methods, smooth interaction with the organization, feedback during the planning cycle, and quality system performance for those who require it.

Some of the possible benefits from applying a standardised ISO management approach are:

- Improved suitability of products, processes, and services for their intended purposes
- Maintained consistently dependable processes
- Guaranteed less wasted time, materials, and efforts
- Greater employee awareness

Different countries also have different standards applied to their environment and South Africa is no exception. Within South Africa the standard is called SABS/ISO 9000 which has been applied to the South African market and the expectations from present companies.

ISO 9000 concept will during this thesis be applied to the current situation to review the impact such a standardized approach would have on the different functions.

4.8.1 The Eight Principles of ISO 9000

When applying the ISO 9000 concept there are eight quality management principles of ISO 9000 which are used as the basis for continuously improvement of processes and also to reach organizational excellence. These principles should be used by senior management as a framework to guide their organizations towards improved performance⁴². Not all of the principles will be applied in this thesis but all principles will be described in order to create an overall and broad picture of the ISO 9000 concept. Each principle will be described briefly and some methods for accomplishing a successful implementation of each principle will be

⁴⁰ Johnson, P., (1997), *ISO 9000 – Meeting the International Standards*, McGraw-Hill

⁴¹ Ibid

⁴² www.iso.org (2007-03-05)

clarified. All information is retrieved from the ISO webpage and footnotes will not be used to explain the source of facts.

A description of each principle will be given followed by a brief methodology that could be used in order to achieve and implement that principle successfully.

1. Customer Focus

Organizations need to understand their customers need and future expectations and adapt the company strategies to these requirements. Understanding the market, providing the unexpected and ensuring a flexible and fast response to market opportunities can lead to increased market share and furthermore increased revenue.

Method:

- Researching and understanding customer needs
- Ensuring that organizational objectives are in line with customer expectations
- Measuring customer satisfaction and reacting to results

2. Leadership

Managers need to establish unity concerning purpose and direction for the organization. Having a unified method of handling activities will increase visibility and understanding along the supply chain. Communication will be enhanced since personnel will interact in similar manners and understand each other better. Personnel need to understand company strategies in order for the organization to successfully accomplish set targets and goals.

Method:

- Considering the needs of all involved parties
- Setting challenging goals and targets
- Providing people with the required resources and training

3. Involvement of People

Personnel need to be involved and feel motivated since people are the essence of an organization. Employees that are involved will participate and contribute to enhance the performance of processes. Responsibility and accountability will allow personnel to be more creative and apply their knowledge and experience to their area of expertise. Other benefits may be that employees are more eager to participate in improvement of activities.

Method:

- People understanding the importance of their contribution and role in the organization
- People accepting ownership of problems and their responsibility for solving them
- People freely sharing knowledge and experience

Process Approach

The process approach is a mandatory management strategy within the ISO approach. A process is in plain English an integrated set of activities that uses resources to transform inputs into outputs⁴³. A process approach can be described by a flowchart showing sub-processes that add up to a continuous flow of materials or information that create value along the chart. Such a flow chart will describe all involved processes which can be used to find bottlenecks or processes that are not functioning in accordance to plan. Benefits from implementing a process approach can be: lower costs and shorter cycle times through effective use of resources, improved and consistent results, etc.

Method:

- Systematically defining the activities necessary to obtain desired result
- Analysing and measuring the capability of key activities
- Focusing on factor such as resources, methods, and materials that will improve key activities

4. System Approach to Management

Quality management system (QMS) is a web of connected processes and all these processes interconnected by means of many input-output relationships⁴⁴. A QMS approach focuses on identifying, understanding, and managing processes as a system so that processes are run effectively. There are several benefits if a QMS approach is performed accordingly: Integrations and alignment of processes will ensure satisfying results, ability to focus on key processes, etc.

Method:

- Understanding the interdependencies between the processes of the system
- Structured approach that integrate processes
- Understanding organizational capabilities and establishing resource constraints prior to action.

5. Continual Improvement

All organizations and departments should have the objective to continuously improve involved processes. All employees in an organization should reach a consensus of striving towards continuous improvements and implementations. The organization will benefit immensely if such a strategy is implemented and applied by employees. Company performance will be enhanced regularly and flexibility to react to opportunities are just two factors that will improve organizational capabilities.

Method:

- Employing a company-wide approach to continual improvements
- Providing people with training in methods and tools for continual improvements
- Recognizing and acknowledging improvements

⁴³ www.praxiom.com (2007-03-05)

⁴⁴ Ibid

6. Factual Approach to Decision Making

Decision from managers should be taken based on factual data or information. When decisions are made they should be taken on an analysis of this data and/or information. Some of the advantages with making decision based on proper facts are: Decrease of risk with suggested decision, increased ability to review, challenge and change opinions and decisions.

Method:

- Ensuring that collected data are accurate and reliable
- Making data accessible to those who need it
- Analysing and evaluating data using valid methods

7. Mutually Beneficial Supplier Relationships

Customers and suppliers are interdependent partners and mutual relationships are beneficial for both parties. Relationships where information is being shared will increase the visibility along the supply chain and planning for both parties will become easier to establish. Flexibility and response time, value creation, and optimization of costs and resources are some areas where a mutual relationship will enhance the performance.

Method:

- Identifying and selecting key suppliers
- Sharing information and future plans
- Inspiring, encouraging and recognizing improvements and achievements by suppliers

These eight principles provide the reader with an insight in how an ISO approach can contribute to an organizations overall performance. These principles will also be used as a guideline for analysing functions and processes within the organization. The choice of reviewing the ISO methodology was made not for future certification of the company, but to demonstrate the benefits a structured management style can provide.

Theory Application

Theories and methods that were described within the theoretical framework chapter were used as the core during the project. Empirical research was performed accordingly to the framework so that included supply chain areas would be covered. This approach ensured that an overall supply chain overview was received. Theories were put into a real world context and usages of theories were discussed in comparison with empirical findings.

Analyses of empirical findings were performed through evaluation between framework and findings. Ideal theories were compared with organizational outcomes and the affects these organizational behaviours have on the overall supply chain performance. The analysis was also used to suggest applicable recommendations and implementations for future improvements.

Chapter 5 - Empirical Research

In this chapter information from observations, discussions, and interviews are applied to each specific process within the supply chain and the affects each process has on the overall supply chain performance.

The empirical research chapter contains evaluations of methods and findings within the organization. Findings within each area of the supply chain are presented and discussed to give the reader an understanding of the current situation. Actual results or measurements are not presented amongst the empirical research. The retrieved results and measurement from data collection will be discussed in chapter 7 – Analysis and Improvements. Measurements and results are then evaluated according to theoretical framework and used as background for suggestions further improvements.

5.1 Supply Chain

When studying SMSA present supply chain it is important to understand where the organization originates from, the company culture and the present development phase the organization are going through. Competence, experience, and knowledge are also factors that are of high importance since a lower degree of competence and experience is available within certain areas. There is currently no documented supply chain approach or measurements of the overall supply chain performance. Some supply chain coordination is being performed to ensure that activities run in accordance to each other but these efforts are not applied to all involved areas.

Before Swedish Match acquired Leonard Dingler the company was run by management who considered metrics, standardised procedures, and routines as a waste of time and resources. There were currently only four computers up and running within the whole facility and production was performed without any adequate planning. Production was planned based on what was currently available in the warehouse. This approach was worked as long as the company was family owned and reporting was not needed due to organizational requirements. But when Swedish Match took over these activities had to change and be in accordance with company strategies and industrial world organizational behaviours and regulations.

The company are being present in a developing world environment, environmental factors have had a large impact on what is possible to achieve and the time frame of accomplishing it. From the time when Leonard Dingler was acquired by Swedish Match more sophisticated methodology have and are being implemented and utilized, but since the acquisitions (Leonard Dingler in 1999 and Best Blend in 2001) occurred fairly recently the intended strategies are far from fully implemented. Annually several projects are being carried out to enhance the current situation and some of the present projects that are under implementation are being presented in chapter 6. These projects will be analysed and the impact and effects these improvements will have on the performance are concluded as part of the analysis. For instance, MRP (Material Requirements Planning) has only been used since October 2006, and there have been several improvements since implementation was completed. Planning, control, and measurements have increased immensely. Implementation of MRP was the first step to replace several processes being performed manually to having an overall system configuration that automatically generates supplier orders, production schedules, etc.

The external performance was due to lack of measurements difficult or impossible to evaluate. But during the research of the company’s supply chain it became more and more evident that problems did not occur externally along the supply chain, but instead most issues could be derived to internal inefficiencies. A lot of the suppliers were long-term relationships that were built on a long history and a high degree of trust and understanding of each other. None of the interviewed suppliers regarded the involvement and relationship as displeasing.

The manufacturing process is the most controlled and structured function within the supply chain and causes limited problems and issues. Improvements that have been carried out in the manufacturing process can be derived to a high level of experience amongst top management. Continuously improvements are being implemented regularly and additional measurements are set and followed.

Most of the distribution is being performed through outsourcing the logistical function to a third party logistic company, and monthly reports are being provided to ensure that delivery requirements are fulfilled. Distributions of products are mainly carried out through wholesalers around the country.

The overall performance of the supply chain is not measurable since several of the involved processes are impossible to measure through tangible evaluations. Some processes are being measured since appropriate data are being retrieved but the activities that were intangible are discussed mainly from an ISO approach and the effects and complications can be if processes are not performed accordingly.

Organizational structure and culture

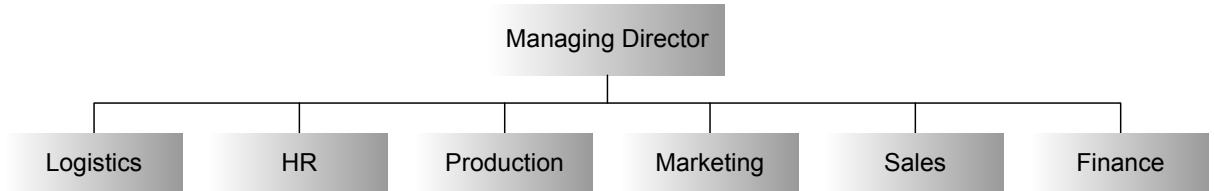


Figure 10. Organizational Chart Swedish Match, South Africa

SMSAs’ organizational chart is structured as a typical functional configuration where each function operates separately. This approach is very distinct within the organization where each department functions for themselves with occasional cross-functional meetings. When reviewing an organization with a supply chain approach it becomes evident that there are several disadvantages with choosing a functional-based organization structure: co-ordination becomes essential but difficult since each function focuses on its primary tasks, managers are not responsible beyond their areas, and growth becomes more difficult since lack of collaboration can decrease the overall performance⁴⁵. All these disadvantages are found throughout the organization and its performance suffers due to the shortage of integration between each department. Because of the boundaries and politics involved with these restrictions it leads to delays in cross-functional tasks since each department prioritizes different responsibilities. Supply chain management has a different approach to an organization and each function is regarded as a small part within a sequence. In order for

⁴⁵ Martin, J. (2005) *Organizational Behaviour and Management*, Thomson Learning

SMSA to implement such an organizational structure several cultural obstacles needs to be changed and overcome.

5.1.1 Management

There is currently no one responsible for the interaction between each department so any cross-functional communication is done when felt necessary. Also the management styles and communication manners between each department differs remarkably. Production is being managed with a structured and well planned management style whilst the purchasing and logistical function lacks most kinds of structured control or proactive leadership. The outcomes from the different leadership styles are also very different. The director of manufacturing has significant measures and information available and can make factual based decision. The logistics manager on the other hand has no such approach and information is difficult or even impossible to retrieve. Information sharing differs remarkably between departments which decreases abilities to follow-up results and continuously improve processes within each function. The ability to react to uncertainties is also really different between each department since decisions are not made based on facts or accurate information within the purchasing department.

Since communication methods are not standardized and each manager leads by personal style this sometimes causes confusion and misunderstanding between functions with large impacts on response times which will lead to insufficient outcomes. Through a company-wide management philosophy these issues could be resolved since expectations and interaction between departments could be based on standardised documentation and internal policies. Product development is a process where differences in leadership styles can cause delays and misunderstandings between managers. This will affect the time-to-market which will impact new product launches radically.

The organization has a very flat structure which puts a lot of pressure on the current top managers. Managers have to deal with strategic, tactical, and operational issues which require extensive knowledge and understanding of day-to-day issues. This organizational structure will produce less satisfying results if the responsible manager does not have the required knowledge and management technique. It is therefore of high importance that managers are aware of expectations from staff. A hands-on managerial strategy is at the same very important to ensure that jobs are performed in accordance to company strategy since employees sometimes lacks the required experience or knowledge.

5.1.2 Metrics

The level and detail of measurements throughout the organization varies significantly which makes it difficult and even impossible to obtain an overall performance level of the supply chain from the existing and tangible data. The initial purpose of the study was to measure performance indicators such as perfect order rate, fulfilment rates, on-time deliveries, etc. But because of the inconsistency and lack of sufficient data this approach had to be abandoned. Even though isolated functions such as production and distribution rates can be measured the overall performance is impossible to review since several involved sub-processes do not provide sufficient measurements and information. Measurements and metrics is the area where the organization is really suffering. In order to know what to improve and make strategic and tactical decisions on valid information there is an immense need to implement a more structured measurement approach.

Inventory accuracies were incorrect and storage levels weren't possible to measure due to inconsistencies in measured results. On-time deliveries of incoming materials were also impossible to evaluate because of insufficient measurements and unstructured methods for evaluating delivery accuracies.

Research of the organization which were supposed to be focused on evaluating and measuring the overall importance of the supply chain was supplemented by the impact a standardized management style could have on the supply chain. The impact an implementation of an ISO 9000 – quality management approach would have on the supply chain were conducted. The effects an ISO-9000 approach would have on the organizational performance was discussed and analysed.

5.1.3 Forecasting

At Swedish Match the annual forecasts are used by marketing and sales, procurement, production, logistics, and the financial department to plan and prepare for the organizations annual, monthly, and daily tactics. The forecast is the core of the entire organization and an accurate forecast is of high interest to all involved parties since a satisfying performance is highly reliant on how precise the forecast will be in accordance to actual outcome.

The forecast is prepared based on a mix between qualitative and quantitative forecasting methods. Qualitative methods emphasize on opinions and intuition where data isn't available whilst quantitative techniques are based on relevant historical data which are processed using mathematical methods to generate the forecasts. Presently the forecast is being set using sales figures from previous year which are then manually adjusted to fit to future strategies and targets. The forecast is completed based on internal discussions between management and manually adjustments are done to set budgets, targets, and goals for the actual year. Since there is no mathematical or theoretical method used to forecast future sales and demands the estimated figures are just based on a subjective opinion.

5.2 Purchasing

Purchasing plays one of the most significant roles in the supply chain as the departments have to make sure that raw material is available when needed at the right quantity, and if not available the entire chain will be affected. If upstream materials are not available the whole chain are going to suffer, production will come to standstills or unplanned changeovers, finished goods levels will decrease faster then planned due to halted production processes, and eventually sales will be lost.

It is therefore surprising to find that the purchasing department at Swedish Match, South Africa lacks most of the requirements mentioned within the purchasing paragraph in chapter 4 to achieve satisfying and reliable supplier relationships, continuous supplier improvements, and ensuring the availability of raw material. The inability to apply the standards and procedures involved in purchasing can be related to the inefficiencies and inabilities from management and staff within the department. The necessary procedures, routines, and measurements that should be in place are non-existing. Instead of preventing problems through planned procedures and working proactively to solve issues the purchasing department resolves problems reactively and with short term solutions. Managing the purchasing department accordingly leads to both internal and external problems. Internally

focus can change from making sure that planning and ordering are performed to instead putting the centre of attention to focus on putting out fires and solving problems that could be avoided if structured procedures and integration was to be used. Also problems between the departments occur caused by lack of communication and procedures not being performed because of inadequate planning. Externally communication and integration lack because of the inadequate prioritizing within the department. This insufficient communication can lead to order and delivery problems.

Most of the suppliers are fortunately long-term relationship partners which tend to work from historical figures and therefore a lot of the uncertainties and inefficiencies from Swedish Match's side are covered and resolved by the suppliers' ability to apply historical trends. During the interviews with the various suppliers most of them mentioned the inability from Swedish Match to plan, handle and resolve internal processes. Suppliers were overall satisfied with the relationship but all of them had concerns about the internal processes within Swedish Match. They regarded the situation as controllable thanks to historical statistics and the continuity of the products.

5.2.1 Supplier Selection

When suppliers are chosen an empirical method based on experience and intuition is being used. During the supplier selection there is not even a checklist or any form of evaluation performed to ensure that the current supplier can achieve the required. The actual evaluation process is primarily based on price and from there on followed by a visit to the supplier to get an overview of the premises being used by the supplier. The supplier then creates a trial product to ensure that product specifications are being met and the supplier has adequate capabilities. Without a proper evaluation and comparison of available suppliers might lead to an insufficient collaboration which may cause problems to arise further along the relationship. It is also difficult to perform follow-up procedures and evaluate the supplier performance if no evaluation was performed when the supplier was chosen.

Procedures for choosing suppliers should be written down and structured for usage when choosing new suppliers. ISO 9000 discusses the importance of factual based decision making which cannot be performed without sufficient information.

Successful supplier relationships are difficult to ensure without performing adequate performance evaluations and comparisons between suitable suppliers. Price, suitability, and flexibility are factors that should be taken into account when evaluating which supplier to choose for future services. Also historical records with other customers should be reviewed in order to ensure a satisfying supplier relationship.

5.2.2 Supplier Evaluations

As mentioned in the purchasing paragraph in Chapter 4 supplier evaluations are of high importance to ensure that suppliers accomplish the set requirements and demands. Suppliers need to be continuously evaluated in order to achieve an increasing performance level and ensuring that the primary requirements and expectations are met.

Currently evaluations and performance measures of the suppliers are non-existing. There are no structured methods used to check on delivery accuracy, on-time deliveries, quality control,

and making sure that suppliers provide the required service. Without proper measurements of the suppliers there is less pressure put on them and therefore required quality might decrease.

5.3 Operations

The overall operation management is a lot more structured and well managed than purchasing and logistics. This can mainly be related to clear management, strategies, and targets. But there are still processes within the operational functions that need to be improved and monitored. Warehousing is a function that needs attention since the current storing and shipping function is not working appropriately. But warehousing is one of the on-going projects that will be discussed in the re-allocation of warehousing paragraph in chapter 6.

Through structured managing over the last couple of years it is possible to follow how implementations have improved the systems. Production is the area where improvements can be proven through productivity increases and quality improvements. The implementation of MRP are still in an early stage which makes it difficult to measure what effects the installation and usage of the new system has had on the supply chain. But MRP does provide a more system based planning and measurements can be retrieved throughout the system.

5.3.1 Production

Within the supply chain there is one process that widely over performs compared to the other areas. Production is because of clear and structured management the process that is best measured, controlled, and planned. Manufacturing is the function where extensive measurements are being performed. Quality, productivity, staffing, absenteeism, R & D, etc. are all areas that are closely measured in order to find areas of improvements but also to ensure that targets are met and performance levels are in accordance to the expected. An ISO 9000 methodology has been used to ensure satisfying documentation so that processes can be evaluated and reviewed. The production function is the only process that has been planned with such a structured technique. The introduction of ISO policies can be related to one simple fact; the Director of Manufacturing has got knowledge that makes the implementation of such process possible. This is a methodology that should be applied by the rest of the organization to accomplish a more satisfying and controlled administration but inexperienced personnel make it difficult to implement.

Manufacturing are planned and produces in accordance to a fixed number of stock-days that are available in finished goods warehouses, amount of stock stored by distribution centres nationwide and how much stock sales representatives currently have in possession. Depending on the period of the year this fixed amount is changed based on demand forecasts and present production capacity.

MRP System

As an MRP system has not been up and running for more than four months all benefits has not become evident to everyone involved yet. But from a supply chain approach the implementation of MRP has made it a lot easier for everyone involved to monitor and plan for future activities. Planning that used to be done manually is now performed by the system and then controlled by a production controller.

R & D and Quality Control

Research and development and quality control is being performed by one designated person focusing on ensuring that these two processes are aligning with requirements. Research and new product development is being performed together with the Director of Manufacturing since he has extensive knowledge and experience from development of tobacco products.

Quality is assured through recording of thousands tobacco samples throughout the production process. Quality processes are set from governmental and internal company requirements. Through continuous improvement of these processes quality factors such as weight, moisture, tobacco content, etc. can be monitored and tracked. Tests are taken on a daily basis and processed and recorded. The response for solving problematic issues can therefore be resolved quickly if for instance weight levels are outside of the expected range.

Quality control was performed at different stages throughout the supply chain. Tests of tobacco moisture, weight and texture were performed since the tobacco is very dependent on an accurate moisture level is kept throughout the storing and production phase.

5.3.2 Warehousing

Warehouses are an essential component of a supply chain and their major roles include: buffering material to accommodate variability, consolidation of products for delivery to customers, and value-adding processes such as labelling or product customization⁴⁶.

The warehouse function of SMSA is and has been a problem because of insufficient storage space and unstructured management. The finished goods warehouses have provided inaccurate storage figures which have made planning and measurements more difficult. These inaccuracies have also lead to problems with auditing and legal matters.

These issues will be solved through the new warehouse manager and re-allocating of storage facilities. The warehouse manager has capabilities of controlling and organizing the current operations which have enabled him to resolve some of the current problems within the warehouses.

Incoming raw materials has also had insufficient space and necessary work procedures hasn't been in place to handle incoming goods and perform sufficient quality controls.

Quality Control of incoming goods

Quality control of incoming goods is a critical process since what enters the factory needs to be in accordance to what is going to be manufactured. There are currently inspections performed when non-tobacco material arrives but it is not standardized and well structured. Materials are mostly inspected visually and no records of the quality are being kept to be able to follow up and trace frequency of certain quality issues. If problematic factors occur there is no structured strategy for preventing this to happen in the future. The lack of procedures has lead to write-offs and insufficient materials have sometimes gone into production.

⁴⁶ Jinxiang Gu, Marc Goetschalckx, (2006), *Research on warehouse operation: A comprehensive review*, European Journal of Operation Research

Raw materials that are found to be inaccurate when checked upon arrival are sent back immediately. Recording of these returns are very brief and sometimes non-existing which makes it difficult to follow-up what was sent back and reason for returning the goods.

Raw material inventory

There are mainly two types of raw material inventory, raw tobacco and non-tobacco material (NTM). These items are being kept at different places depending on factors that can affect products before they are being used for final processing.

Raw tobacco is being kept in several warehouses since these goods are bulky. The purchased quantities are also large since raw tobacco is bought based on seasonal availability. Storage has to be coordinated due to these factors and inventory levels are set in accordance to market availability and production levels. Raw tobacco has a high value and the accuracy level of tobacco is therefore of uppermost importance. A lot of focus has been put on ensuring the accuracy of raw tobacco storage. Reports are produced on a daily basis ensuring the status, inventory levels, and accuracies in the tobacco facilities. The accuracy levels of raw tobacco are in accordance with expectations. There was during forty days only a variance of one kilogram. This represents such a small variance and shows the ability of this warehousing unit to process and store materials without having insufficient variances.

Incoming goods storage has been a problem since sufficient space to keep safety stock hasn't been available. But due to restructuring of the warehousing function which is being discussed in chapter 6 these issues is on the verge to being resolved.

A critical factor in the non-tobacco raw material accessibility is that there is no safety stock being held. Purchasing management has taken the decision to instead work on a stock-on-demand philosophy where suppliers instead carry safety stock and ensuring that products will be available when needed. This methodology would function accordingly if the relationship between supplier and customer was running smooth and proactive management was used to plan when to order and what to order. But due to the inefficiencies within the purchasing department the situation is not working properly. Production sometimes runs out of raw materials due to the availability. This causes unnecessary changeovers and additional planning has to be performed. But working without a safety-stock strategy can be disastrous since the security against uncertainties is a lot more unreliable. Problems occur when an order needs to be rushed and sufficient raw material isn't available.

Work-In-Progress (WIP)

WIP is a process that is being monitored extensively and measurements are being performed throughout the production process to obtain information what sub-processes that is accountable for the most waste and where the main value is created. A flow chart is being used to find where the largest buffers can be found. Several decreases in buffer sizes have been able due to the localisation of the main intermediaries. Work-in-progress is not responsible for a large amount since products are fairly simplistic and production flow is rapid so that value is not bonded within extensive buffers and WIP. Progress during the production phase is being monitored through a flow chart with measurement points throughout the process and there is no need for further enhancement of this measurement since necessary information can be retrieved from the current system.

Finished goods warehouse

There are currently several warehouses located around the country that contains finished goods. These inventory hubs are used to accommodate and distribute stock within the local area so that deliveries can be made on a more frequent basis. The largest finished goods warehouses are located on the location where manufacturing is being performed. The Johannesburg facility has the largest warehousing unit since most of the productions are being performed there.

The finished goods warehouse at the Johannesburg factory is being a part of the restructuring and reallocation of the storage premises and it has therefore been difficult to analyze whether or not the main storage facility is effective. The accuracy rates of the warehousing have been inaccurate since there has not been a sufficient warehousing system and procedures in place. Especially insufficient routines and procedures have been used that have interfered with stock taking and recording of storage levels.

The warehouse accuracy and visibility rates have since the beginning of these studies was initiated progressed from being totally inaccurate at first to current tolerant accuracy levels. This improvement has been possible through implementation of new warehousing procedures and re-allocation of current storage facilities within the premises.

The finished goods levels are being kept in accordance to a monthly set rate. During each month there is a lower limit for the number of stock days that should be available. Depending on the demand during the year this level fluctuates accordingly. In table 4 the annual stock-level distribution for 2006 is shown.

Table 4. Annual Stock-Level Distribution

	January	February	March	April	May	June	July	August	September	October	November	December
Stock Level (Days)	43	43	43	10	10	20	28	35	40	45	45	45

The stock-levels are calculated from year-to-date actual sales and thereafter compared with the available amount of stock. This stock-keeping method provides satisfying storage levels since each product level are calculated on the actual sales.

Replacement parts

The current situation regarding replacement parts used when maintaining the machinery is being performed in a way that is more than satisfying. Components ranging from small parts such as bearings to parts with a long lead-time, considerable value, and of high importance are being kept to ensure that they will be available when needed. Stock-outs do happen but it is not very frequent and it is usually possible to source the component from a local manufacturer and problem can be resolved within a short time frame. The storing procedure used for replacement parts are manual and no systematically approach is used to ensure availability. Parts are ordered and replenished when a certain level of items is being reached. The availability of replacement parts are not a factor that jeopardizes handling of breakdowns and current manufacturing processes can run smoothly and be maintained when needed without shortage of spare machinery parts.

Reverse Logistics

Returned goods have for a longer time been a neglected aspect of the supply chain and the effects of this are shocking. There are currently goods to an extensive value that needs to be processed and destroyed. The returned goods process has for several years been a process that have not been given the attention it should have had which has lead to lacking procedures and routines. Personnel has not had clear directions from management on how to handle and what to do with returns which has lead to an insufficient reverse logistics process.

Adequate documentation of the amounts or content of the returned goods weren't available and an analysis of the actual value was therefore not possible to perform.

5.4 Distribution

Product distribution is being performed through several distribution channels where wholesalers and distributors are the main hub to reach the consumer. The main source that sells directly to customers is the variety of wholesalers located all over the country. Approximately 600 wholesalers nationwide are responsible for most of customer sales. Owners of small shops or kiosks buy their products through the wholesalers and provide the consumer with the products.

SMSA delivers products nationwide to several main hubs and straight to customers. Statistics received from RTT are based on the delivery accuracy to these different destinations. The main delivery destinations are divided into the following six areas.

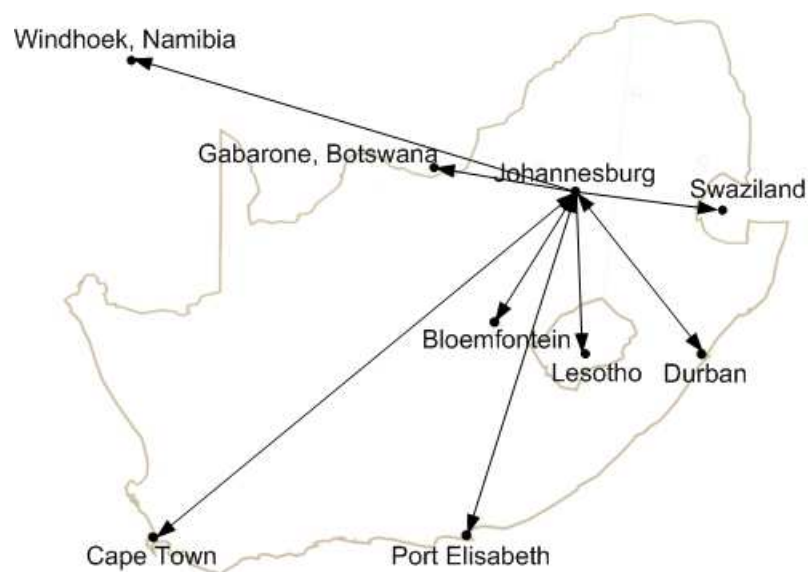


Figure 11. Delivery destinations from to customers nationwide.

The Bloemfontein and Durban hubs have warehouses which allow them to accommodate larger quantities which release some pressure from the Johannesburg facility. Through these distribution centres response times are decreased and uncertainties can be accommodated on a regional basis.

RTT sends a summary of August – December month's deliveries and the amount of non-conformant deliveries. The report provides figures based on delivery accuracy per region and

per product group. This report will be summarised and presented in the analysis to verify whether agreed delivery rates are being kept.

Inbound Logistics

All inbound logistics is being carried out by the various suppliers themselves. Products are being shipped to the factory and invoices are checked and some quality checks are being performed. There is no documentation or records on whether or not the delivery is on time or late which makes it impossible to measure delivery accuracy. This inability to measure supplier delivery accuracy puts less pressure on the suppliers and they can deliver as they like. Without measurement of on-time deliveries reliability decreases immensely and raw material assurance may affect the overall chain. Returned goods are being documented through a very brief return note. These return notes are not being archived or processed for future prevention and analysis. When reviewing the available return notes it was remarkable to find how unstructured and brief they were. Documenting was very inconsistent which complicates the follow-up process of the existing data. The records lack reasons for return and sometimes quantity which makes tracking and evaluating an impossible task.

Outsourced Logistics RTT

RTT has over the last 20 years since it was established become the largest privately-owned company involved in the transportation sector in South Africa.⁴⁷ The distribution function of SMSA has been outsourced to RTT during the last 13 years and a lot of improvements have been seen since then. According to the logistics manager delivery rates close to 92 % was happening only a couple of years ago. The current relationship with RTT is almost working in accordance to requirements. Delivery accuracies are nearly reached, sufficient reporting is being performed, and communication is being performed through RTT personnel on-site. The relationship with the third-party logistical company is currently working accordingly and in order to maintain the current cooperation performance there should be continuous measurements and discussions to ensure the same delivery reliability in the future.

Distribution Channels

Distributed products are mainly passing through two intermediaries to reach end-customers. Wholesalers are the primary source where products are being delivered and sold to. Distribution to customers through wholesalers was estimated through discussions with the National Sales Manager, Chad Limbert to be responsible for 95 % of the total sales. End customers purchase the products mainly from small kiosks, tuck shops or taverns. A tuck shop is basically a small store located within townships where products such as bread, drinks, and other forms of basic supplies are available.

Availability of products to end-customers is therefore a matter of availability at the wholesalers since direct deliveries to retailers are limited.

⁴⁷ www.rtt.co.za, (2006-12-10)

5.5 Integration

Integration is probably the area where most companies struggle to achieve desired goals and Swedish Match, South Africa is no exception. There is no structured function that ensures that all processes within the supply chain are running in accordance to one another. Supply chain management is an approach that does not exist and therefore problems that could have been solved instead tend to grow in proportion. Such issues can be: information are not being shared, decisions are made based on inadequate facts, an unwillingness of helping each other exists, and as in any company internal politics is present which affects internal processes etc.

A top management meeting is being held on a monthly basis which allows each department's managing representative to discuss internal and external problems as well as future strategies. Currently supply chain integration activities consist of a monthly meeting where current purchasing, production, warehousing, and forecast situations are being discussed. People from the various departments attend and get to have a saying during the meeting to bring up problematic matters. There is currently no specified agenda ensuring that all current problems and areas are covered during the meetings. People also tend to have a lack of interest in interacting and discussing issues that has occurred within the organization.

There are also spontaneous or crisis meetings held between departments when needed. Instead of working proactively the integration is set up as a reactive process. Meetings are held when problematic issues occur and when the problem is resolved there is no follow-up process ensuring that it will not happen again.

New staff employment and training of current personnel

The importance of having experienced and knowledgeable staff is of uppermost significance in order to continuing to improve the organization. Without such employees the current implementations won't be possible since personnel will not perform and improve the company in the anticipated direction.

Hiring of new personnel has since the acquisitions been extensive throughout the organization. New positions are being created, current staff is being repositioned, inexperienced staff needs sufficient training etc. All these changes and implementations have a huge impact on the supply chain and the overall performance. Pressure is put on managers to instruct the new staff properly but also HR plays an important role in the hiring process and making sure that experienced and suitable people are being hired. With several new projects in the implementation phase the pressure on managers are increasing and therefore reliant and capable staff is a necessity in order to accomplish satisfying results in the future.

It has currently been a couple of new personnel being hired that has proven that they are not experienced enough or just pretending that they have capabilities and skills which they don't. These situations or personnel will most likely be hired without sufficient experience during the hiring process or methodical procedures to follow when evaluating a new employee.

5.6 Product Development and Project Management

The tobacco industry has a very limited possibility of producing new products and finding new markets. Product development is because of the present market limited to certain

possibilities. There are still a couple of new products introduced to the market each year. Introduction of new flavours amongst the current products have been the trend during the last couple of years. It is of high importance that developments of these products are conducted in a planned and structured manner so that development times are in accordance to company strategies. Integration between departments is essential to have a short development time. Development will be delayed if integration procedures and scheduled project plans are insufficiently written and prepared.

The current product development process is an activity that is not functioning as it should and was anticipated. Development is not planned and structured in a manner that ensures that development of new products will be finished according to plan. No one is responsible for the overall development plan which delays sub-processes to being performed when needed.

During the time that this report was conducted there was a product that had been in the pipeline since mid-August and it was still not fully developed and ready to be launched after six months. This was the case even though the actual recipe for the product was written and approved by the head office in Stockholm. The processes that were not finished yet were mainly design of packaging materials. The current situation for new product development has arisen due to unstructured planning, incorrect prioritizing and lack of overall responsibility. Since no one is being held responsible for the project status the development is not being performed as to what was originally intended. The lack of commitment among the involved to finalize and deliver a product is somewhat problematic since customer surveys and marketing activities will be performed without delivering the product within a near future. Even though new product development

But project management is being performed differently between different departments. Larger projects with a need for a project manager will be planned and implemented by a person responsible for the entire project. This approach should be implemented during smaller projects as well so that resources are utilized efficiently and projects are being carried out within time, cost, and ensuring that all features are accomplished.

Summary of Empirical Research

The empirical findings show that several areas within the supply chain lack structured procedures and routines which leads to insufficient handling of processes. Processes within most areas need to be reviewed in order to map what activities that are insufficient.

The level of measurement and evaluation throughout the supply chain is lacking enormously within certain areas. Especially purchasing is a function that needs to be reviewed in order to accomplish more satisfying results. A flow chart of involved processes could be performed to evaluate what is being performed properly and what processes that needs to be enhanced.

Quantitative results and outcomes from empirical findings are presented in the analysis chapter. These results are furthermore analysed in comparison with theories. It was impossible to perform an overall supply chain performance evaluation since data collection and recording wasn't performed uniformly amongst each department. But processes that were tangible were evaluated from these data whilst purchasing for instance were evaluated based a qualitative analysis. Purchasing was evaluated from an ISO perspective and the affects current procedures have and what affects an ISO methodology would have on the performance.

Chapter 6 - Current On-Going Projects

This chapter describes the current projects that are in progress. What impact these improvements will have and how the current supply chain will be enhanced through the implementation.

There were several on-going projects carried out within the organization. All of these projects will require separate attention but also follow-up processes need to be in place to make sure that implementation will be successful. More coordination and collaboration will be required to be able to handle the increased amount of raw material, additional production, and extra distribution, etc.

The main finished goods warehouse located at the Leonard Dingler factory is being reallocated and restructured, a production line is being moved from England, standardised procedures are being implemented, etc.

6.1 Project – Re-allocating Finished Goods Warehouse

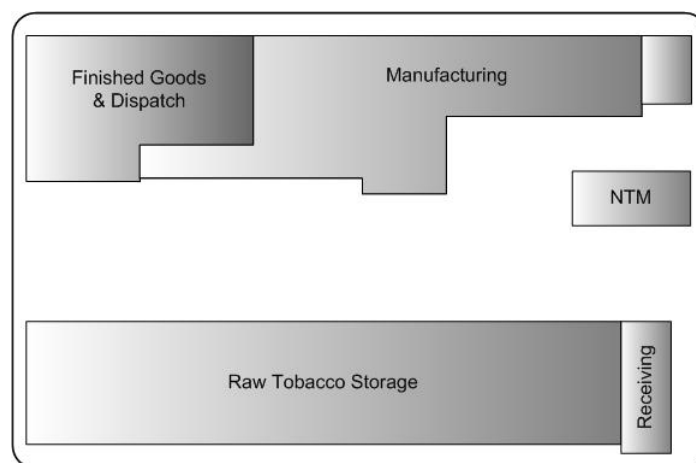


Figure 12. Overview of previous factory layout at Leonard Dingler premises

The current on-going project that probably will have the largest impact on the physical supply chain is the restructuring and move of the current warehouses. Reallocating the finished goods warehouse is only one step in reorganizing the current factory layout. Through this movement the shipping department, inbound logistics, and raw material storage will also be reallocated to accomplish a better and eased flow of raw materials and finished goods.

This re-allocation will also impact the current procedures for inbound logistics. A lot of the current issues in the goods receiving are supposed to be resolved through allocating space to ensure that sufficient quality checks will be performed, sufficient raw material levels can be kept, and raw material visibility and availability will be increased.

The warehouse is currently encountering storage, organizing, and measurement problems and there is an immense need to sort out the causes and prevent them from happening in the future. With the current warehouse and procedures it is impossible to keep an accurate stock-level, handle returned goods, perform sufficient and accurate stock-takes etc. As discussed in

previous chapters there are a lot of issues that needs to be solved and a lot of challenges will arise in order to achieve the objective.

There are several objectives related to moving the current finished goods warehouse:

- Achieve a higher level of inventory accuracy and improve inventory control
- Simplifying and ensuring efficient and accurate measurements methods
- Creating space for keeping sufficient raw material on-site
- Ability to divide products that have been taxed from those that have not been excised
- Having routines and procedures in place to handle and sort out returned goods

The success of this project depends on the ability of the organization to apply the new procedures that will be implemented as the warehouses are being reallocated within the premises.

This project will have a huge impact on the current accuracy rates and work procedures of handling stored goods. The project will enhance the accuracy levels enormously and work procedures will ensure that current mistakes will be avoided in the future. Increasing the accuracy levels will enhance the overall ability to plan and ensure availability of products. The affects will be that customer service will be improved, increased ability to plan further down the supply chain, decreasing inaccurate storage levels due to manual work insufficiencies, better flow of products, etc. The project implementation will ensure that processes involved with handling goods will be improved and historical storage insufficiencies can be avoided.

6.2 Wilson Snuff Project

The Wilson project is a major project where production currently carried out in Liverpool is supposed to be moved to the South African facilities. The movement of the manufacturing unit is going to be performed through disassembling of the current production facility. It will be shipped and the rebuilt at the Leonard Dingler facilities. The goal is to be able to manufacture the products at the current quality and delivering them to Europe without customers noticing a difference. Through the installation of this project the current personnel will be responsible for more products to be manufactured and additional pressure will be put on everyone involved. More procedures and checks need to be in place to ensure quality of the new products. The customers in Europe have a different interpretation and expectation on the quality which will put more pressure on the current personnel to ensure that these expectations are met.

Most of the raw material will be delivered from current suppliers in Europe since the batch sizes are fairly small and finding new suppliers and implementing production units would be to expensive. This will put even more pressure on the purchasing department to make sure that orders are planned and ensured to be delivered on-time. Orders have to be planned to ensure that deliveries are received when needed since lead times are a lot longer.

The objectives with the project are to:

- Move production facility from Liverpool, England to Johannesburg, South Africa
- Achieve the same production quality as currently provided and consumers are not supposed to be able to tell a difference between the present product and the products delivered in the future
- Ensure availability of products to customers in Europe through sufficient management

The project was started in February, 2006 and production is planned to be up and running by July, 2007. The current safety stock that has been built up during the last months of the current production is supposed to last until everything is set and done in the new facilities. Machinery and production need to be installed and up and running in order to have everything running and producing before the safety stock runs low.

Taking on further production at the premises in Johannesburg will put more pressure on all of the current departments. More work procedures need to be implemented in order to secure that production will run smooth without interruptions. Everyone involved needs to understand the impact they have on these new production unit and plans for uncertainties needs to be in place.

6.3 Implementation of standardized and documented procedures

Since there is a lack of standardization in working procedures, processes and documentation there is currently an on-going project that will try to capture and standardize activities within the operational activities: incoming goods, production, and warehouse management. Through applied standardized policies and working procedures an activity can be written and performed as planned and new personnel and staff can also adapt to their new working environment faster. Documentation and usage of standardized working procedures will also decrease the pressure and focus for management to deal with tactical and operational activities.

The work procedures will be written in accordance to the requirement of ISO 9000 which ensures that each responsible employee examines the procedures and confirms that they are written in correctness with what is included in each certain process. The ISO methodology of writing and confirming the correctness of documents has been applied in order to ensure a standardized strategy along the operational processes. Through the implementation of these procedures confusion can be avoided and employees can easily confirm whether or not their work instructions are being performed in accordance to the required.

The project objectives are to:

- Ensure that processes are run in accordance to plan
- Job tasks are performed as intended
- Increasing the visibility of job specifications
- Decreasing pressure on managers

The implementation of standardized work procedures will enhance the understanding of the involved processes amongst personnel. Employees will be able to be trained quicker and concerns about certain activities can be reviewed within the job specifications. Managers will also have to deal with less tactical issues since issues can be resolved through the work procedure guide. A structured work guide will also be a security against uncertainties. Personnel that quit their jobs will not take the knowledge with them. Personnel can easier be replaced without losing valuable knowledge.

Summary of On-going Projects

The projects that are being carried out will have a huge impact on the current supply chain. More pressure will be put on everyone involved which increases the need for sufficient planning and methodologies. It is therefore very important that employees understand the impact each process have on the overall performance. This can only be ensured if managers are clear with their objectives and goals with each of these implementations.

Re-structuring the warehouse function will enhance and ease the ability to apply structured policies so that processes are carried out in accordance with the intended strategies. Product flow can be enhanced, quality control will be performed properly, storing of finished goods will be more accurate, returned products can be dealt with immediately, etc.

Moving the production facility from Liverpool will also add several processes that have to be functioning properly in order to ensure that raw material is available when needed, manufacturing can produce products at the same quality, and products being distributed on-time to customers.

Implementation of standardized working procedures will improve the process quality since job activities will be performed in accordance with management strategies.

Chapter 7 - Analysis & Improvements

In this chapter theory and empirical research are being compared and the empirical findings are analysed from a theoretical and ideal standpoint. The analysis is furthermore used as a foundation for recommendations and results.

An analysis of the empirical findings was performed in order to evaluate each area within the supply chain functions and organizational behaviours. Data are presented and analysed for those processes that were tangible. Processes that were intangible are instead evaluated based on a qualitative analysis.

The analysis and found information are then used as the core to present recommendations for future implementations. These recommendations were then used during a presentation to the top management of SMSA. The ability to actually apply the suggestions was discussed in order to find recommendations that were applicable.

7.1 Supply Chain

The supply chain concept is currently not an approach that is part of the company strategy and strategies. Without integration methodology and an organization structured with functional departments most problems that occur within the current supply chain can be related to lack of procedures or routines, inadequate planning, incapable management, inexperienced staff, and insufficient communication and integration between each function within the organization. It is therefore a need for implementation of standardised information flow and integration processes.

To ensure the performance of the organization ISO policies and standards should be revised and implemented where it is needed. By applying such standards appropriate measurements and work procedures would be applied. The eight principles of quality management mentioned in the theoretical framework could be guidance what could be accomplished by applying a structured methodology.

A flow chart of all involved processes from purchasing to distribution could be created in order to find areas where improvements should be implemented. Each process should also contain work specifications and policies. A process approach will enhance systematic thinking and key activities can be found and improved. Activities within each process can also be reviewed in order to get a detailed description of the supply chain. Mapping of all processes and creation of sufficient documentation will also ensure that jobs are being performed in accordance to company strategies.

7.1.1 Management

All managers have their own different management style and methods to use to accomplish their own and the companies' targets and there needs to be differences between managing individuals in order to achieve a successful business. But there is a remarkable difference in the efficiency and flexibility between each manager. There is one managing style that widely over performs the others; The Director of Manufacturing, Anders Holmberg, has through a structured and methodical approach achieved departmental results that are not only

performing well, but information is also easily accessible and processes are well planned. Anders Holmberg is using an ISO approach and methodology to ensure that processes and activities within the operational function are performing well. He has developed a policy where information used on a daily basis is supposed to be retrievable within a short amount of time so that communication flow can be enhanced. Problems can also be resolved quickly and decisions can be made on factual information. This kind of management approach should be applied throughout the company so that a lot of the current problems would be resolved. The overall supply chain performance would be tangible and areas of concern could be discovered at an earlier stage and therefore sorted out and prevented in the future. It is therefore important to implement a similar approach within the other departments and processes. A structured approach would not only be beneficial for the overall tangibility but also personnel would be able to make decisions based on accurate figures and information.

One of the principles in the ISO approach is leadership and ensuring that managers provide employees with clear objectives and targets. Knowing the expectations from managers is very important in order to know what should be performed and prioritized. Strategies needs to be explained in a manner that is understandable for everyone involved. Considering needs of everyone involved is also very important since data and information need to be available and accurate if employees are supposed to perform accordingly. Challenging activities is also important since employees need to be motivated and get self-developing job duties.

A problem that is present within the organization is the lack of competence and experience. Some employees' simply lack the ability to handle challenging tasks and the given responsibility will instead decrease the performance of the process. It is therefore of uppermost importance that managers still micromanage when needed.

7.1.2 Metrics

The original purpose of the study was to evaluate the overall performance of the supply chain based on actual performance data. As some of the involved processes were impossible to measure because of inaccurate data only specific areas could be measured and therefore a quantitative overall performance level was impossible to retrieve. The overall evaluation will therefore be performed with a qualitative approach which provides a more general result.

This inconsistency of evaluations throughout the chain is somewhat alarming. Since there are a lot of activities not being measured a lot of problems and areas that could be improved are disguised by the big picture. The performance was therefore made on a function based level where each function was evaluated separately. There are still a lot to ask for when it comes to standardised methods used when evaluating the company performance.

Measurements and evaluations of activities and processes are according to the eight principles of quality management extremely important to make factual decision-making. Accurate data will generate well-grounded decisions which will enhance ability to improve key activities. Awareness amongst employees will also increase since valid and necessary information are available when needed.

7.1.3 Forecasting

Since the forecast is of essential use for planning, budgets, and targets the actual forecast was analysed based on accuracy rate. Products were divided based on the segmentation used and

from there on reviewed on a monthly, quarterly, and annual basis. The method used was a basic forecast error calculation: Forecast error, $e_t = A_t - F_t$, where

$e_t =$ forecast error for Period t

$A_t =$ actual demand for Period t

$F_t =$ forecast for Period t

Through this method a forecast error summary was produced on a monthly, quarterly, and annual basis since these are the time frames used for different planning phases within the organization. Monthly forecasts are done to plan production and annual estimations are done to plan the fiscal year strategically.

For 2006 a forecast error measurement on the current forecast was calculated and presented in table 5 below.

Table 5. Forecast Error based on weight for each product group

	Montly Difference	Quarterly Difference	Annual Difference	Yearly Weight (kg)
Leonard Dingler Total (Weight)	30894	22091	11 328	3 155 136
Leonard Dingler Total (Percentage)	12,26%	2,79%	0,36%	
Best Blend Total (Weight)	22703	8560	-4 959	1 808 471
Best Blend Total (Percentage)	16,59%	1,94%	1,26%	
Grand Total Tobacco (Weight)	53534	23781	6 369	4 963 607
Grand Total Tobacco (Percentage)	13,77%	1,86%	1,08%	
Grand Total Snuff (Weight)	40341	34062	87 336	1 209 163
Grand Total Snuff (Percentage)	36,51%	10,37%	3,11%	
Grand Total Leaf (Weight)	10187	14863	13 370	441 454
Grand Total Leaf (Percentage)	27,53%	12,90%	2,24%	
Total Matches (Quantity)	19844	39920	-63 265	387 409
Total Matches (Percentage)	79,53%	50,62%	6,12%	

The outcomes from the forecasting error analysis show several interesting and useful results. If the analysis is to be viewed from an annual point of view results show that the forecast is more then satisfying with an extremely accurate average forecast error. But when the estimates are broken down into monthly or quarterly figures the results tell a different story. As shown in the table all product groups exceed 10 % inaccuracy on a monthly basis which is a very unsatisfying result which will have a big impact on purchasing and production planning. Focus should be to decrease these inaccuracies and finding what the underlying reasons behind the results are. If it is the forecast method producing inaccurate figures emphasize should be on finding a more satisfying forecasting method. Since there are historical data available and the monthly and quarterly forecasts aren't accurate enough the current forecast could be complemented with a mathematical generated forecast that could be compared with the quantitative model and a forecast taking more factors into consideration could be created.

Sales Trends and Distribution

Most of the products have been present in the South African market for a considerable amount of time. So the products and especially the cash cow products such as Boxer and Best Blend are products that have reached the mature or even the declining stage of the product life cycle and are at a stage where the trends are extremely distinct and easy to predict. The sales statistics from 2005 and 2006 regarding these products can be viewed in figure 13 and figure 14. This distinct sales distribution should allow for a very accurate forecast to be made. The

forecast could probably be enhanced by using a mathematical model to complement the current forecast techniques.

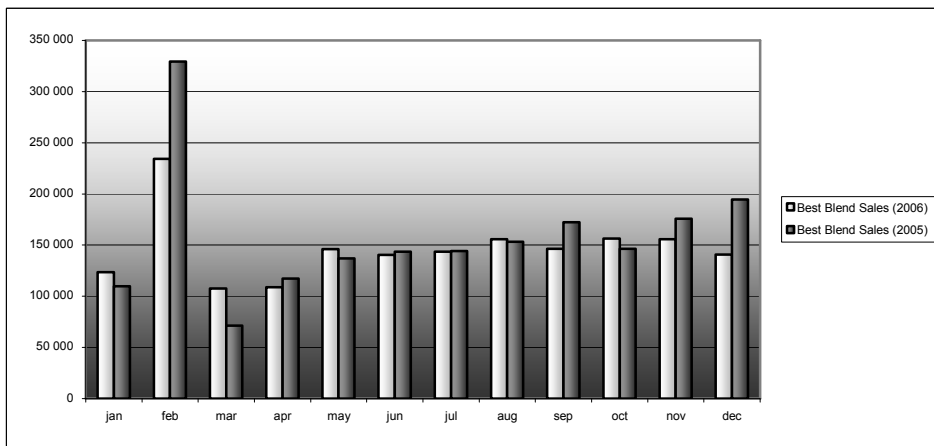
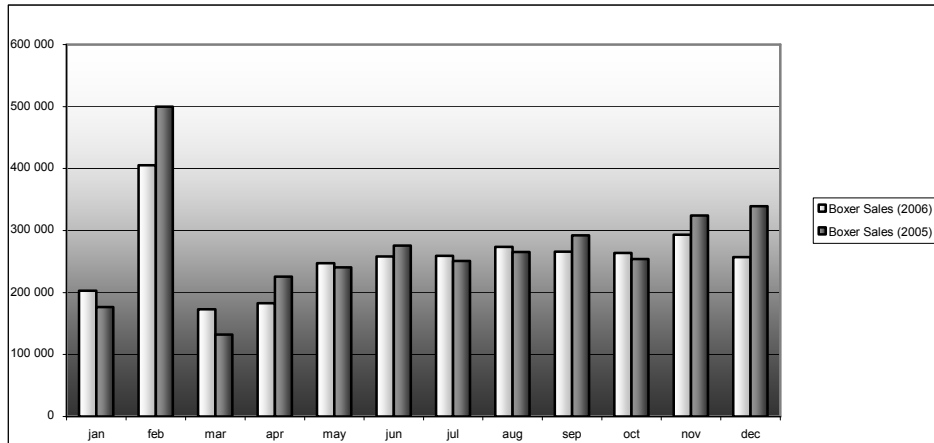


Figure 13 & Figure 14. Annual Sales Distribution of Boxer and Best Blend

7.2 Purchasing

With a total number of 61 suppliers and only two people involved in the purchasing function a better performance would be expected. But the combination of inexperienced personnel and insufficient leadership this function is the department within the supply chain that lacks a lot of the desired methodologies.

Purchasing is the department where a need for structured documentations, guidelines and clear management is of uppermost importance. Implementation of such a structure would enhance performance measurements and personnel along the supply chain would have an increased visibility of the purchasing function. As new products are being developed and production units are reallocated to the facilities more pressure will be put on the purchasing department to ensure that quality requirements are met and quantities are available when needed. The purchasing department needs to work in accordance with sales and production to make sure that required raw materials will be obtainable. As the current ordering function is being performed without appropriate facts and structure current problems could be resolved through better documentation and work procedures.

7.2.1 Supplier Selection

When choosing new suppliers a strategic approach should be used which focuses on taking a wide scope of information into account such as industry specific and supplier specific conditions as well as the situation of the purchasing firm⁴⁸. The current procedures used when evaluating suppliers are far too unstructured and suppliers should be chosen after thorough and extensive evaluations have been performed. The supplier selection phase should be standardized and certain supplier features should be measured and evaluated when chosen. Through usage of checklists or evaluation processes suppliers can be re-evaluated as the relationship progresses. Without a proper evaluation and comparison of the suppliers no follow-up procedures can be performed. Historical data and evaluations should be used to appraise new suppliers but also to review the progress of the current supplier-customer relationships.

7.2.2 Supplier Evaluations

Since performance evaluations of suppliers are non-existing this allows suppliers to operate with less pressure and it is therefore no surprise that all of the interviewed suppliers consider the relationship as very well functioning. If sufficient measures would be performed suppliers could be pressurized to delivering products at the right quantity and quality, and at the right amount. In order to achieve improved supplier relationships continuous evaluations needs to be implemented. Suppliers will then feel that SMSA monitors their activities which will increase the expectations from the buyer.

⁴⁸ Hugo, Badenhorst-Weiss, van Biljon, (2004), *Supply Chain Management – Logistics in Perspective*, Van Schaik Publishers

7.3 Operations

Through the manager of operational functions an ISO approach has been used and implemented and the results are satisfying. The processes within the operational functions have a high degree of visibility which provides sufficient information so that problematic areas can be resolved quickly. Also improvements can be tracked and evaluated whether or not it has led to an overall enhancement. Such strategies and measurements are not available within other processes within the organization and such an approach should be implemented throughout the organization. But there are still areas within the operational functions that need to be resolved. Storing and handling of returned goods are processes that are still a concern but through the implementation of the new warehouse layout and introduction of new working procedures those issues can be resolved.

7.3.1 Production

Manufacturing and the activities within the function is by far the most controlled, structured and measured within the organization. Through efficient and structured managing and planning the involved processes are being evaluated and measured on a regular basis.

Any process within the manufacturing chain that is not operating in accordance to requirements will quickly be resolved. Measurements are extensive and occurring insufficiencies can quickly be resolved. The proactive leadership of the operational function has implemented reporting systems that ensures that any such inaccuracies are quickly highlighted.

Substantial documentation ensures that production is being evaluated to find areas where progress has been recorded. Follow-up processes are performed in order to evaluate the effects an implementation has had on the performance. Measurements are being tracked and recorded so that daily, monthly, and annual improvements can be monitored and presented.

Productivity

Productivity is a measurement that is fairly simple to perform but provides a significant measurement of production performance. Productivity is in simple terms output generated from used capital and labour.

Table 6. Productivity increase for the period 2002 – 2006

Department	Actual Production Rate					Difference 05 / 06 [kg / hr]	Difference 05 / 06 %	Difference 02 / 06 [kg / hr]	Difference 02 / 06 %
	2002 [kg / hr]	2003 [kg / hr]	2004 [kg / hr]	2005 [kg / hr]	2006 [kg / hr]				
100 Gram Boxer	13,8	16,7	18,4	18,75	20,26	1,51	8%	6,46	47%
25 Gram Boxer	17,5	19,5	18,8	19,94	21,33	1,39	7%	3,83	22%
Tambuti	4,4	5,6	4,9	4,93	5,27	0,34	7%	0,87	20%
Snuff	14,1	15,3	16,9	18,18	19	0,82	5%	4,9	35%

The total productivity measured as kilograms per hour has since 2002 increased by 32 %. And the number of employees working in manufacturing has during the same period decreased by 34 %. The productivity increase of Boxer 100 gram has been possible through installation of two automatic packaging lines which allows one operator to handle three machines instead of one. The overall performance measurements of productivity are very extensive and each

machine in the production can be tracked and evaluated against historical production figures. The productivity has also been increased due to better planning and specifications of job duties which have increased process quality.

Productivity needs to be put into a quality context in order to analyse whether output have been increased with quality decrease as a result. These productivity increases have been planned and implemented within budget and without affects on quality.

Similar kind of methodologies concerning generated output should be implemented to enhance and measure productivity within other areas of the supply chain.

R & D

All the existing recipes were during the year re-written to an ISO-9000 format. This approach shows the ability from management to standardise processes and ensuring sufficient documentation. Such implementations should be considered along the entire organization to ensure availability of information. Having recipes in standard formats will also ensure that future products can be written in the same format which increases visibility and understanding of recipes. It is also useful for legal purposes since a detailed product description enhances ability to address future alterations to products.

The person responsible for R & D and quality control has over the last year gone through additional training to get useful experience so that future quality issues can be prevented and sorted out more efficiently.

Quality

Quality is an aspect that is considered extensively and closely monitored during the year. During 2006 there was more than 100000 quality checks performed on Boxer products alone. Due to unsatisfactory weight levels during early 2006 when South African Revenue Service (SARS) performed a weight check the production came to a stand still during 5 days. But since the manufacturing process is strictly controlled the problem was able to be resolved within a short time frame. This proofs that the flexibility of the manufacturing process is very high and if uncertainties happen they can be resolved quickly.

Process quality within production is ensured through methodical planning and monitoring. Processes are measured and performances are checked to ensure that activities are carried out according to plan.

7.3.2 Warehousing

Some of the warehouses are currently and have been a problematic issue within the organization but through the reallocation of finished goods warehouses and raw material storages a better flow will be possible but also required routines can be put into place. As a new warehouse manager has been hired a lot of the current issues has been resolved and will be sorted out. Several of the storage problems that were occurring were sorted out or structured within the first month of his employment. The outcomes and results an experienced, knowledgeable and motivated person can accomplish are immense.

Processes within the warehousing function were intangible due to insufficient and inaccurate data. Processes have instead been analysed based on on-going implementations and the effects these improvements will have on process performance.

Quality Control of incoming goods

Through the implementation of standardized work procedures and re-allocating of raw material storage should solve most of the problematic issues within the quality control of incoming goods. Policies will make sure that products are being checked when received and quality of incoming goods will be assured through extensive measurements and controls. This will hopefully ensure that everything that enters the facility will be in accordance to quality requirements.

Structured procedures for recording of received and returned goods need to be put in place since products aren't recorded properly when received and returned. All return notes between 2005 and 2007 were reviewed and the inconsistencies amongst these recordings are remarkable. Reasons for returns are often left out and quantities are also missing on a large amount of the notes. This process needs to be revised in order to improve and pinpoint problematic quality issues of incoming goods.

Raw Material Inventory

Restructuring of the current facilities is going to provide the storage of raw material with additional space which hopefully will allow the purchasing department to order and keep sufficient material. A properly structured receiving dock will also allow for goods to be kept until checked and controlled within designated boundaries. There are currently no safety stock kept and this option should be reviewed in order to ensure that sufficient raw material is available when needed.

Raw tobacco are being stored and controlled in a structured and reliable manner. Inventory levels and accuracy amongst materials are very consistent. Production planning is therefore a lot easier since reliable figures can be retrieved.

Non-tobacco materials on the other hand were kept based at insufficient space. This made it difficult to keep adequate materials which would ensure that production could be carried out according to plan. There were also communication problems between purchasing and production which lead to confusion between the departments. Information sharing in forms of material requirements were not given or used to ensure that raw materials would be available when needed. It is therefore important that integration between these departments is analyzed in order to ensure that needed information is shared so that raw material will be available when required.

Finished Goods

The finished goods storing has been a problematic issue due to insufficient measurement methods and lack of storage space. The used warehouse system and auditing system have also been structured in a way that accurate stock-takes have been impossible to perform. It has due to insufficient storage space been very difficult to structure the warehouses so that products are easy to access and monitor. This has lead to inaccurate storage levels, damaged goods, problems with returned goods, difficult picking procedures, etc.

Inventory levels were supposed to be evaluated to create statistics regarding inventory turnover, variances, damaged goods, etc. But this was impossible to measure since generated figures didn't comprehend with actual warehouse levels. The studies of finished goods were therefore based on the affects current improvement implementation will have on the finished goods warehouse function.

The accuracy levels and product flow will be increased thanks to the implementation of new procedures and re-allocation of the storage unit. This will increase the ability to plan further ahead and ensuring that customers receive products as per agreement. Controls of finished goods were increased a lot during this study. Additional space was available thanks to restructuring of warehouses and usage of available space at the premises. These re-allocations enabled implementation of structured picking-, stock-taking, and delivery procedures. Even warehouse personnel reacted positively to the changes and implementations since they could see how they benefited from a more structured way of working.

Reverse Logistics

The methods for handling returned goods were non-existing and returned products hadn't been handled at all during a two-year period. It was therefore products to an extensive value that had been accumulated. It is therefore of uppermost importance that structured procedures for dealing with returned products are put into place. Products should be revised when returned whether or not they should be put back into the warehouse or be destroyed. Policies and work procedures should be written and documented in order to ensure that returned goods will be handled according to organizational and governmental requirements.

7.4 Distribution

The actual distribution that is being performed by RTT is being measured on a daily basis where orders are being tracked. Orders can be traced to current location and the actual status and amount can be retrieved. The daily information is then compiled by RTT into a monthly report where individual areas delivery rates as well as nationwide performance are being presented.

Based on the monthly report received from RTT a performance measurement was done based on the delivery accuracies during the period June to December of 2006. The results are presented based on month and by delivery region. RTT promises a delivery rate of 98 % which is set as the target in the results.

Table 7. Delivery accuracy by region and month

Swedish Match South Africa Total									
June - December Statistics	Lines	Late	% Con	% Non-Con	Month	Lines	Late	% Con	% Non-Con
Johannesburg Region	9500	232	97,56%	2,44%	June	3021	62	97,95%	2,05%
Cape Town Region	2839	53	98,13%	1,87%	July	2875	36	98,75%	1,25%
Durban Region	2687	114	95,76%	4,24%	August	2905	62	97,87%	2,13%
Port Elisabeth Region	2740	47	98,28%	1,72%	September	2691	43	98,40%	1,60%
Overborder Region	227	0	100,00%	0,00%	October	2516	80	96,82%	3,18%
Bloemfontein Region	1901	53	97,21%	2,79%	November	3262	121	96,29%	3,71%
Grand Total	19894	499	97,49%	2,51%	December	2624	95	96,38%	3,62%
					Grand Total	19894	499	97,49%	2,51%

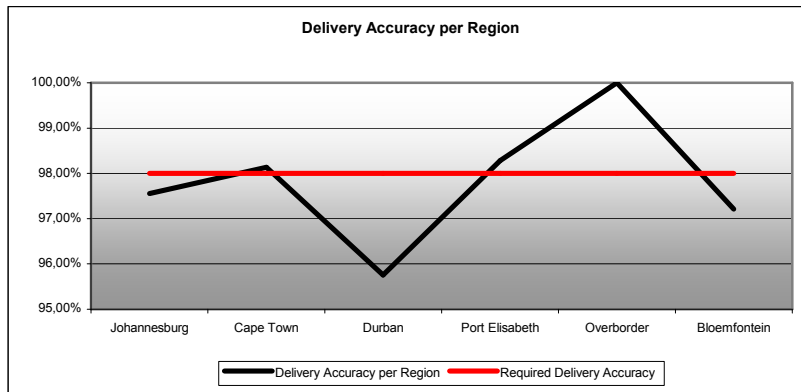


Figure 15. Delivery Accuracy by Region

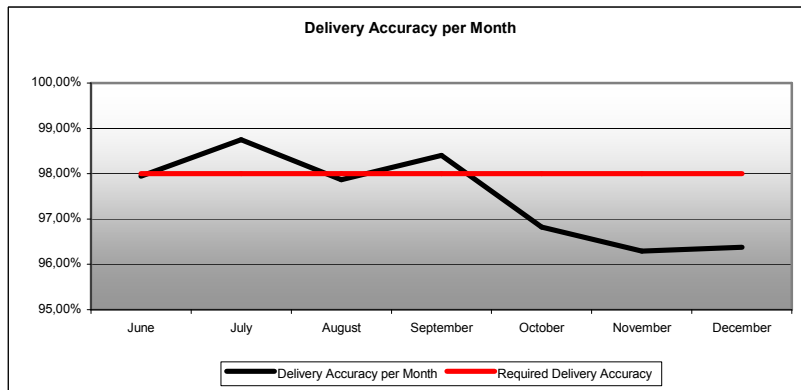


Figure 16. Delivery Accuracy by Month.

To analyse the results of the overall performance of RTT the monthly delivery reports was combined into a summary showing delivery accuracies per region and month during the last 6 months. The performance over this period is not in accordance to the expected delivery requirements of 98 % delivery accuracy. Results are being provided based per line but this says nothing about the quantity and size of the order. Without knowing these facts it is difficult to evaluate the impact these delays have on customer service. But it is an indication that the outsourced distribution function is not performing as per agreement. The 0.5 % of deliveries that are non-conformant will if converted aggregate to almost 100 order lines that has been affected due to problems delivering orders.

There are currently no consequences if RTT under perform, instead managers are invited from RTT to discuss the reasons for the insufficient fulfilment rates. There should be effects if delivery rates aren't reached so that agreed requirements are ensured by the logistical company.

7.5 Integration

Integration is the most difficult dimension of the supply chain to manage and to achieve sufficient interaction between departments a reporting system needs to be in place. Without using a policy for communication between departments essential information can be lost or misunderstood.

Most departments within the organization work more or less separately and there are not any standardized procedures when communication is supposed to be used to ensure cross-functional interaction between the processes.

The problem with the current integration structure is that when assignments and responsibility move between departments the obligation is lost. Because the follow-up process is not standardized or well structured the time from request until delivery can be delayed.

Integration procedures need to be implemented which will allow the different functions to receive information on scheduled dates or times. Meetings should be held to make sure that those problems within and between departments are solved and also confirm that everyone is on the same page. New product development should be performed with each department being present to make sure that all required factors are taken into consideration and also make sure that the information reaches everyone involved.

Information flow internally and externally is an activity that is not carried out through a structured communication. Sometimes information is withheld and only reaches the involved personnel thanks to informal discussions.

Supply chain integration could be enhanced through hiring of someone responsible for cross-functional activities. A supply chain manager would handle and follow-up progress of improvements or implementations of new projects as well as handling day-to-day activities that needs to be ensured. Communication could also be enhanced through usage of a supply chain manager since people could accept that questions are asked and personnel duties and progresses are examined.

7.6 Current On-Going Projects

The company is currently going through a big transition phase which will have a huge impact on everyone involved but there are also obstacles that need to be solved. For every new product and change more pressure is put on everyone included and more tasks needs to be carried out. A big challenge will be to manage all the current processes but also to make sure that the new and current staff will be suitable to perform what is being expected. Procurement is the one process that needs focus to ensure that availability of the current and future product will meet requirements.

Re-allocating and introducing standard procedures within the warehouse function will ensure a higher degree of manageability and control. Processes will be carried out in accordance with company policies and further improvements have to be signed by more than one source which will establish a more reliable implementation and improvement policy. Through the implementation of the new procedures warehousing activities will achieve a higher level of traceability, accuracy, and less stock will get old and damaged which has been the case previously.

The re-allocation project has come quite far in the implementation phase and the current positive outcomes can be related to a structured management but also to a new hired warehouse manager. The value of experienced and knowledgeable personnel becomes evident when reviewing the progress of the project. The current warehouse manager has within two

months accomplished most of the implementations and improvements that was planned for the project.

Summary of Analysis

Supply chain is a dimension of the organization that is not emphasised and this impacts the ability to interact and ensure that processes and functions are being performed in accordance with one another.

Purchasing is the area where further research and implementation of structured managing and job specifications should be implemented. Supplier should be chosen on factual information and relationships should be continuously evaluated in order to ensure that agreements and requirements are fulfilled.

Production is the function that does not need very much attention since most processes are monitored and measured. Focus for the producing function should be on continuing to improve existing processes. Production planning should be used to ensure that raw materials are available and marketing have the required products when needed.

Warehousing is a function that contains several processes that needs to be charted and improved. Raw material need to be ensured through availability at the premises, finished goods should be kept at sufficient levels, returned goods need to be handled properly, etc.

Integration is a function that should be emphasised since more coordination between departments is necessary to ensure that raw material is available when needed, production are running in accordance to plan, and products are available when needed. Cross-functional processes can only be successful if integration amongst everyone involved is running in accordance to the expected.

The overall performance of the supply chain of SMSA is under performing due to the fact that several processes are unstructured. This thesis should be the foundation for further research within the areas that are under performing.

Chapter 8 - Meeting with Top Management at SMSA

The concluding part of this thesis will be emphasised on the suggestions that were discussed during a presentation to top management of SMSA. These suggestions were considered in order to create recommendations that are applicable and achievable.

Recommendations for future improvements were discussed during a presentation with the top management at Swedish Match. The purpose with the meeting was to present findings from the study but also to ensure that recommendations were applicable. It was also an opportunity to have all managers assembled in one place in order to discuss finding, problematic areas, and suggestions.

A list of several suggestions for future improvements was presented and discussed between the author and responsible managers. Through this discussion a consensus regarding current situations and future implementations that should be implemented was reached. These improvements will hopefully increase the overall performance of the supply chain by localizing problematic areas and ensuring that these functions and processes are reviewed.

8.1 Further Research and Implementations

There are several studies that would be of interest and immense benefit for the company. Anything from market studies and comprehension of market strategies to cost- and management-efficiency would be of value for future improvements. Described below are suggestions of further studies that could be performed and reasons for conducting them and what impact each study or implementation would have on the current organization. The recommendations are presented without any focus on importance.

- **Internal measurement evaluation** – This thesis and the results should be used as an indication of what evaluations that needs to be performed and implemented to enhance the overall control and performance. The need of internal measurements is excessive and an evaluation of the different departments' measurements, follow-up processes, and procedures could be appraised to make sure that these performance indicators will be obtained. To find hidden organizational constraints an overall measurement is of high importance and could be carried out. A detailed description of each department's measures would provide an overall picture of what should be implemented in order to increase visibility along the supply chain. Process mapping of each department could be performed in order to achieve higher visibility of activities. Key activities could be found and improved if necessary.
- **Management and staff performance evaluation** – There is currently a performance evaluation program implemented which provides managers with information regarding staff performance and improvements. These performance evaluations are according to top managers not performed as frequently as it should. A structured guideline when each manager should perform evaluations should be created to assure that the overall staff performance is checked on a regular basis. In order to achieve a higher level of performance within the organization an evaluation of each individual should be conducted regularly.

- **Project management** – The current project formats could be revised to ensure that projects are carried out within focus on scope, time, and cost. Planning and implementation of projects should also be reviewed in order to find activities that need further attention. Already performed projects should be revised in order to evaluate whether or not they were successful. This kind of research could be performed to achieve a higher level of successful projects as well as improving the current project approach.
- **Product development** – Product development is a problem within the organization and could be examined to find a better development structure. A more structured approach during the product development phase could decrease the time to market and customer demands could be met quicker.

A group or person responsible for the entire development project could improve the responsiveness and time of development. Also responsibility for the product would be put on one person instead of having several individuals responsible for the development which instead leads to confusion and misunderstandings amongst everyone involved. With one individual responsible for the project all inquiries and deadlines are controlled by the project leader and involved activities would be followed up.

- **SKU rationalization** – A thorough examination of the current products could be performed in order to find those products that under perform and have a low profitability. 14 out of the 200 available SKUs were during 2006 responsible for 80 % of the total sales, and more then 100 SKUs contributed with a very low total sales value. A review of the current SKUs and their actual contribution should be a project to consider. With fewer products more focus could be put on the most important products and ensure the availability of these. A decrease of the current products could lead to increased control of current processes within the purchasing, production, and warehousing departments. Especially the purchasing department could benefit from fewer products since such products would not be responsible for write-offs.
- **Implementation of ISO-9000 methodology & standardization** – The implementation of ISO-methodology recommendation is not suggested so that the organization can accomplish ISO certification. The ISO approach should be considered as a guideline to a structured methodology of documenting working procedures, statistical analyses, follow-up processes, quality management's principles , etc. The ISO standards have been implemented within some of the operational processes but the standardization should be taken one step further so that all departments applied the same techniques and methodologies. A company wide documentation strategy would ensure that sufficient documentation could be understood of employees throughout the organization. The implementation of ISO approach could be performed through either external consultation or in combination with internal training and development of staff which will then implement their new found knowledge.

The eight principles of ISO methodology that were briefly described in this thesis should be reviewed. Implementation of a structured approach should be considered to

enhance process and functional performance. Each principle should be revised by managers in order to find areas where insufficient structures are found.

A lot of unsatisfactory results within the organization originate from personnel not knowing what the expectations are and what they need to perform. This derives from to the ineffective management and unexplained expectations. Clear objectives and targets need to be set up to ensure that all involved knows what is expected from them and how to deliver results. Also processes within the supply chain should be standardised to ensure that jobs are being performed in accordance to company and process strategies. With policies and work procedures explained each entity has a clear understanding of what is expected.

- **Additional forecast method** – As the current forecast is being performed solely on intuitive factors it could be necessary to complement the forecast with some kind of mathematical model. Theoretical models could be revised and implemented to complement the current forecasting methods.
- **Hiring of supply chain manager or integration coordinator** – As integration and information flow within the company is a low prioritized activity a solution to solving the integration problems would be to implement an integration department or hiring a supply chain manager. One or more persons responsible for the overall approach could enhance the integration between each department without the so often included politics. But if an integration function would be implemented an overall agreement must be reached amongst every department that information and involvement would be shared. The benefits with having such a person would be that responsibility for cross-functional activities would be put on the supply chain manager. With someone taking responsibility for such tasks increasing pressure, control, and collaboration could be implemented so that each department contribute and react faster to requests between departments. A lot of the current issues that occur could be resolved through putting someone responsible for interaction between departments.

Summary of meeting with Top Management

These recommendations were suggested during the meeting with top management in order to ensure that suggestions were applicable. Reactions were overall positive to the suggestions and further research and implementations will be performed to increase the organizational performance. These suggestions should be used in the future to enhance the company functions that needs further focus. These recommendations can hopefully help SMSA to enhance the company performance. It is now up to employees and managers at Swedish Match to implement and improve processes and ensure that customers are kept satisfied.

Chapter 9 - Results & Conclusion

The final chapter is a summary of the results retrieved through the conducted research. Objective accomplishments are analysed and the objectivity, validity, and reliability of the study is evaluated. The conclusion sums up the project briefly and presents the key findings.

9.1 Results

The overall consensus of Swedish Match, South Africa in terms of supply chain management is that it is a dimension of the organization that is not prioritized and considered. But in order to achieve at least a low degree of supply chain process thinking every function needs to first sort out the internal variations and lack of structure. Many of the current inefficiencies would be resolved through clear and structured leadership, controlled documentation, standardised work procedures, and carefully planned measurements which allows for organizational evaluations. Focus for the organization should be to standardise processes within the company and ensuring that each activity is coordinated with one another.

Table 8. Summary of Function Parameters Evaluation

Grading Non-Existing - Excellent	Function			
	Purchasing	Operations	Distribution	Integration
Measurements	Non-Existing	Good	Average	Non-Existing
Work Procedures	Poor	Good	Not Available	Non-Existing
Reporting	Poor	Good	Good	Poor
Management	Poor	Excellent	Average	Non-Existing

A summary of the overall supply chain performance was created to show a brief explanation of areas of concern and what areas to focus on. The performance throughout the organization is very diverse and certain functions are under performing immensely. Purchasing is the department amongst the existing functions within the organization where the centre of attention should be put to enhance its processes. Integration is an aspect that has not been considered and should be reviewed and applied as a development and improvement phase for further organizational enhancements.

Purchasing: Purchasing is the supply chain function which currently underperforms extensively due to an unstructured methodology and unclear management. Measurements are non-existing and should be put into place in order to find areas of concern and evaluate current suppliers. Work procedures are more or less non-existing as well and an ISO methodology could be used to standardize and map processes. Reporting is conducted when necessary and should be complemented with a report to other managers so that improvements and activities are being clarified regularly. Management of the purchasing is an area that should be revised as well. The experience of the manager is high but a more structured approach should be used so that process performance could be enhanced.

Operations: Processes within the operational function are overall performed well. Measurements are extensive and accurate except for the inventory which is in a developing

stage. Work procedures are currently being written in order to achieve a more standardized policy within the operational department. Reporting is performed well since information is accessible and available when needed. The manager of the operational function has a very structured and methodical approach which increases motivation among employees. Improvements are being carried out and implemented continuously which increases the performance of the operational function.

Distribution: The outbound distribution function is outsourced to a third-party logistic company which decreases the impact from Swedish Match. The inbound logistical function on the other hand has more to ask for. Measurements of involved factors should be performed in order to evaluate the suppliers. Work procedures are non-existing which should indicate a need for implementing structured policies for dealing with inbound and outbound logistical issues. Reporting is well-performed from the 3PL company and should be reviewed on a monthly basis to ensure that delivery requirements are met. Management of the distribution function is performed in satisfying manners but could be improved in terms of inbound logistical matters.

To refer to an old saying “A chain is only as strong as its weakest link”. This approach has to be obtained throughout the organization to ensure that each link within the supply chain is working towards the same goals and targets. The supply chain of Swedish Match, South Africa is currently in such a situation. The level of estimations and inefficiencies within the purchasing department are immense and improvements and implementations need to be put in place in order to avoid conflicts and problems in the future. The weakest links within each department should be reviewed and focus should be put on increasing and improving the performance of these processes.

9.2 Project Objective Accomplishments

The project results and accomplishments are evaluated through determining whether or not project objectives were achieved. The following objectives were initially stated and are followed by a separate evaluation of each objective:

- ✓ **Create overview of supply chain activities** – The primary objective of the project was to create an overview of the supply chain. The overview was intended to provide information about what functions and processes that were performed by who and how these performed. From the chosen and applied supply chain strategy an understanding of the chains weaknesses and strengths was retrieved. These results should be used by the management in order to achieve a more efficient, flexible, and reliable supply chain. Further research should be performed on each function in order to thoroughly quantify what is necessary and achievable.
- ✓ **Find Problematic Areas** – Areas of concern within the company was retrievable and highlighted, and impact of these unsatisfactory processes were analysed. The areas where problematic issues were found should be examined further to determine the impact these inefficiencies has on the organization as a whole.
- ✓ **Improvement Suggestions** – Suggestions for further research and improvements have been proposed based on the findings of problematic areas. The suggestions are established on subjective knowledge from the author and should be seen as a guideline what could be

implemented. These recommendations were discussed with top management in order to find suggestions that were applicable.

- ✘ **Evaluate and measure overall performance** – A quantifiable overall performance measure was impossible due to data insufficiencies within certain functions. Measurements that evaluate the overall performance such as “perfect order” weren’t possible to retrieve. Separate departments could be measured but not the complete supply chain performance. The overall performance of the supply chain was impossible to quantify which put focus on a mixture between quantifiable results and the affects functional inefficiencies has on the overall performance.

Out of the original four main objectives three were accomplished which should provide SMSA with useful information for future strategic decisions and improvements. The reason for the dissatisfying results of the fourth objective is due to internal inefficiencies that need to be resolved. Suggestions were discussed with top management and have been examined further so that problematic areas can be resolved in a manner that is applicable and possible to perform. The goal with the suggestions is to enhance the overall performance by ensuring visibility and availability along the different stages of the supply chain.

There are also other factors that are of high importance when carrying out business research. The level of objectivity, validity, and reliability that was achieved during the study is of significant importance since the results are not reliable if these factors are considered throughout the research. In order to determine whether or not the obtained results reflects reality the objectivity, validity, and reliability was reviewed.

- **Objectivity** – The objectivity of the study was assured through usage of several sources in order to create an impartial picture of each activity. Interviews were performed with more than one person within each area and the reliability of the answers was confirmed or denied with the additional source.

The author’s objectivity was kept through usage of business strategies and methods when performing the study. Interviews were performed in a semi-structured manner which limited the influences from the author. Data collection was also performed in accordance with a structured approach.

- **Validity** – Validity during interviews was ensured through recording of the discussions which were later interpreted and written into the original interview template. The interview guidelines and additional questions that were asked during the interviews provided the interviewee with sufficient and detailed information. This approach ensured that interpretation was based on the actual answers and additional questions. Data collections were validated through discussions concerning the retrieved data and ensuring that recording processes were performed through usage of an adequate methodology.
- **Reliability** – The reliability of the achieved results were ensured through collection of information and data from several sources at different times. The results could vary if the study was performed by a different researcher at another period since subjective knowledge, experience, and approach may affect the outcomes from interviews. But the study was performed in such since that these factors were limited by ensuring that independent information was collected at different times.

9.3 Conclusion

This project has given both the company and the author valuable insights in the company's supply chain. Future improvements and implementations can be performed based on the evaluation of involved processes and functions. Areas of concerns were found which should be the primary areas to investigate in order to enhance the overall organizational performance.

Leonard Dingler is a company that was run by management without structure and methodology. Improvements were seen as something costly that wouldn't bring additional revenue or add value to the overall performance of the company. This was a mentality that was spread throughout the organization and these cultural behaviours can still be found within certain areas.

Swedish Match is a global company trying to acquire and re-structure organizations that produces sufficient results and satisfies stakeholders. Company strategies are to become successful amongst niche tobacco products and the goal is to continuously improve and enhance the company performance. These strategies have enabled huge changes since Swedish Match acquired these South African organizations. Production improvements have been implemented, new work procedures have been implemented, managers uses an open door policy, information is being shared along the hierarchy, etc. The implementations have lead to a lot of improvements along the supply chain but there are still several processes that need to be performed accordingly in order to reach a higher level of organizational excellence.

There are many areas within the supply chain that are lacking immensely and focus needs to be put on these processes in order to ensure the future organizational performance.

Purchasing is the current function that is in need of evaluations of the current processes. Mapping the involved processes, measurements, and procedures is an activity that should be performed in order to establish a better functioning department.

The author has through this study attained knowledge concerning supply chains in a company in a development country. Implementations of theories and knowledge have given the author insights in a real world situation where the need for improvements is large. An understanding of the importance a structured management style can improve collaboration within the organization has also been acquired.

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The reference chapter contains a summary of all used literature, articles, and sources that has been used during the thesis.

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Appendix A – Interview Template

The described appendixes contain description of used questionnaires and a detailed list of the SKU Representation.



Master Thesis Project performed at Swedish Match, South Africa Interview with Logistics Manager, Graham Burgess

Name: Graham Burgess
Job Title: Logistics Manager
Date: 28/11/2006

Interviewer: Hans Nilsson
Location: Boksburg

This interview is part of the thesis performed at Swedish Match, South Africa during fall 2006 and spring 2007. The methodology chosen is a qualitative analysis of the supply chain of the organization. As qualitative interviews are less structured they tend to emphasis on the generality of the interview. This is done to give the interviewed more freedom and a chance to reflect on his point of view but also to give the interviewer an opportunity to depart from the schedule and ask new questions. To capture the content of the interview a Dictaphone will be used to record what is said.

General Questions

- Would you like to give me an overall description of the supply chain from your point of view? What parts of the supply chain are you responsible for?
- Are there any areas within the chain that are concerning you? If there are, which ones and why? Bottlenecks, where in the supply chain is the main value created and how are these factors monitored and measured?

Business Mission

- What are the future strategies for the company in terms improvements that will be performed? How are these strategies applied to the supply chain? What can the effects be if they are implemented?
- What improvements are planned of the current supply chain? If there are any, what benefits will these improvements bring?

Suppliers

- Who are the suppliers and how are they chosen? How often raw materials ordered and what are the general lead times? Do the lead times cause any troubles?
- Is the purchasing department working in accordance with production? How are these two segments of the supply chain interacting?
- Are there any concerns that need to be highlighted when working with the suppliers?
- The suppliers, how are they measured and what are the expectations on them? What expectations do the suppliers have on Swedish Match?

Distribution

- How is the logistics department interacting with production and marketing?
- How long have Swedish Match been outsourcing the transportation and distribution relationship?
- How has the outsourcing affected the distribution and logistics?
- Is the collaboration with RTT working in accordance to plans?
- Are there any problematic matters that need to be sorted out?
- What should be improved in the relationship with RTT to achieve an even higher degree of fulfilment?
- How is the performance of RTT being measured?
- What are the expectations on RTT and are they fulfilling the requirements?
- How often do goods get lost? How are the goods being tracked? What percentage of customer satisfaction are your goals, and what is the fulfilment rate?
- How does the company handle returned goods?
- Are there sufficient routines when sending and receiving goods?
- Is the packaging optimal in terms of ease of handling, size of packages, damaged goods etc?

Appendix B - SKU Contribution to Total Sales: Product 1-100

	Product	Product Percentage	Cumulative Percentage
1	Boxer 25g-10kg	18,29%	18,29%
2	Boxer 12.5g-4kg Balerbag	9,55%	27,84%
3	BB 25g-10kg	8,23%	36,07%
4	BB 12.5g-4kg Balerbag	7,23%	43,30%
5	Boxer 100g-12kg	7,11%	50,40%
6	Boxer 12.5g-10kg	4,77%	55,17%
7	BB 100g-10kg	4,17%	59,34%
8	BB 12.5g-10kg	3,98%	63,32%
9	Taxi Menthol 15g-5.4kg	3,50%	66,82%
10	Tambuti dozens	3,21%	70,03%
11	Boxer 50g-5kg	3,11%	73,14%
12	Boxer 100g-3kg	2,98%	76,12%
13	BBr 25g-4kg	2,27%	78,39%
14	Taxi Menthol 250g-6kg	1,74%	80,13%
15	Taxi blue regular 15g-5.4kg	1,56%	81,70%
16	BB 50g-4kg	1,33%	83,02%
17	Taxi Menthol 1kg-6kg	1,32%	84,34%
18	Boxer 5g-2kg Pillowslip	1,31%	85,65%
19	BB 100g-4kg	1,29%	86,94%
20	Taxi Menthol 500g-6kg	1,04%	87,98%
21	Magnet medicated 25g-3.6kg	0,97%	88,95%
22	Boxer 25g-4kg	0,93%	89,87%
23	Boxer 12.5g-2kg	0,88%	90,76%
24	Taxi blue regular 250g-6kg	0,86%	91,62%
25	Taxi red extra strong 25g-9kg	0,79%	92,41%
26	BB 5g-2kg P/Slip	0,64%	93,05%
27	3 Star	0,56%	93,61%
28	Taxi blue regular 1kg-6kg	0,49%	94,09%
29	Skaaplek 1kg	0,45%	94,54%
30	Taxi blue regular 500g-6kg	0,43%	94,97%
31	Taxi Menthol 25g-9kg	0,41%	95,38%
32	B & W 25g-4kg	0,35%	95,73%
33	B & W 50g-4kg	0,33%	96,06%
34	Boxer 50g-4kg	0,32%	96,39%
35	B & W 100g cloth-3kg	0,27%	96,66%
36	B & W 100g cloth-12kg	0,23%	96,89%
37	Taxi red extra strong 15g-5.4kg	0,22%	97,12%
38	B & W 100g paper-3kg	0,20%	97,32%
39	Taxi Menthol 2kg-6kg	0,16%	97,47%
40	Family Favourite	0,14%	97,62%
41	Wilson's topmill medicated 25g-4kg	0,14%	97,75%
42	B & W 12.5g-4kg	0,14%	97,89%
43	Tau Motosoko 50g	0,14%	98,03%
44	Horseshoe 100g cloth-4kg	0,12%	98,15%
45	Magnet medicated 10g	0,12%	98,27%
46	Horseshoe 100g cloth-10kg	0,11%	98,38%
47	Rizia King Size Red 50's	0,11%	98,49%
48	A1 Special 25g-4kg	0,09%	98,58%
49	3 Star (Size 8)	0,08%	98,66%
50	Boxer 5g Canister x 250g	0,08%	98,74%
51	Tambuti 1kg	0,07%	98,81%
52	Springbok medium 100g cloth-4kg	0,07%	98,88%
53	Taxi red extra strong 250g-6kg	0,07%	98,95%
54	Skaaplek	0,06%	99,01%
55	Boxer	0,05%	99,06%
56	Boxer 12.5g Canister x 500g	0,05%	99,11%
57	Tau Motosoko 250g bag	0,04%	99,15%
58	Taxi blue regular 2kg-6kg	0,04%	99,19%
59	Boxer 12.5g-4kg Balerbag Zambia	0,04%	99,23%
60	BB 12.5g-4kg Balerbag Zambia	0,04%	99,27%
61	RYO Boxer cherry 40g-2.4kg Malaysia	0,03%	99,30%
62	RYO Boxer vanilla 40g-2.4kg Malaysia	0,03%	99,33%
63	Tau Motosoko 250g box	0,03%	99,37%
64	RYO mild 50g-3kg	0,03%	99,40%
65	RYO vanilla 50g-3kg	0,03%	99,43%
66	BB 12.5g CANISTERx500g	0,03%	99,45%
67	Boxer 50gx2 Combo Pack	0,03%	99,48%
68	Boxer 25g Canister x 500g	0,03%	99,51%
69	Medium shag 50g-3kg	0,03%	99,53%
70	BB 25g - 10Kg Trials	0,02%	99,55%
71	Light shag 50g-3kg	0,02%	99,58%
72	RYO cherry 50g-3kg	0,02%	99,60%
73	1904 cherry 50g-3kg	0,02%	99,62%
74	Taxi red extra strong 1kg-6kg	0,02%	99,65%
75	1904 original 50g-3kg	0,02%	99,67%
76	BB 25g CANISTERx500g	0,02%	99,69%
77	Taxi red extra strong 500g-6kg	0,02%	99,71%
78	Boxer 50g Canister x 500g	0,02%	99,73%
79	B & W 12.5g-Canister 500g	0,02%	99,75%
80	Magnet Spearmint 10g Export France	0,02%	99,76%
81	Magnet medicated 10g Export France	0,02%	99,78%
82	1904 vanilla 50g-3kg	0,02%	99,80%
83	1904 vanilla 50g-3kg Hong Kong	0,02%	99,81%
84	BB 50g x 2 Combo Pack	0,01%	99,83%
85	B & W 50g-Canister 500g	0,01%	99,84%
86	Boxer 40g-4.8kg	0,01%	99,85%
87	Magnet Breeze 10g Switzerland	0,01%	99,86%
88	BB 5g CANISTERx250g	0,01%	99,87%
89	B & W 5g-2kg Refill	0,01%	99,88%
90	1904 original 50g-3kg Hong Kong	0,01%	99,89%
91	Tau Motosoko 1kg	0,01%	99,90%
92	B&W Cigars Canister 1X50	0,01%	99,90%
93	Wilson's topmill medicated 25g-4kg	0,01%	99,91%
94	BB 50g CANISTERx500g	0,01%	99,92%
95	Boxer Cigars Canister 1X50	0,01%	99,93%
96	BB Cigars Canister 1X50	0,01%	99,93%
97	A1 Special 12.5g-2kg	0,01%	99,94%
98	1904 cherry 50g-3kg Hong Kong	0,00%	99,94%
99	B & W 50g-Combo pack	0,00%	99,95%
100	Tambuti 100kg bulk	0,00%	99,95%

SKU Contribution to Total Sales: Product 101 - 200

	Product	Product Percentage	Cumulative Percentage
101	B & W 5g-Canister 250g	0.00%	99.95%
102	BB 40g-4.8kg	0.00%	99.96%
103	Hair Food 10x3x250ml	0.00%	99.96%
104	Deodorant 10x6x75g	0.00%	99.96%
105	B & W 25g-Canister 500g	0.00%	99.97%
106	Pet Cocoa 10x3x250ml	0.00%	99.97%
107	Pet Musk 10x3x250ml	0.00%	99.97%
108	1904 vanilla 50g-3kg Netherlands	0.00%	99.98%
109	1904 original 50g-3kg Netherlands	0.00%	99.98%
110	Lighters	0.00%	99.98%
111	Boxer Mild Gold 12.5g	0.00%	99.98%
112	Robot 5g	0.00%	99.98%
113	1904 cherry 50g-3kg Netherlands	0.00%	99.99%
114	Taxi blue regular 12g	0.00%	99.99%
115	3 Star "22B"	0.00%	99.99%
116	B & W 40g Pouch-4.8kg	0.00%	99.99%
117	Taxi Menthol 12g	0.00%	99.99%
118	1904 original loose-2kg	0.00%	99.99%
119	Boxer loose-5kg	0.00%	99.99%
120	Rizla Paper Blue Ungurmed 50's	0.00%	99.99%
121	Club King Size Paper 50's	0.00%	99.99%
122	Boxer Mild Gold 25g	0.00%	100.00%
123	BB Menthol 12.5g-2kg	0.00%	100.00%
124	Robot 5g Combo Pack x 20	0.00%	100.00%
125	1904 cherry loose-2kg	0.00%	100.00%
126	Pet Regular 10x3x250ml	0.00%	100.00%
127	1904 vanilla loose-2kg	0.00%	100.00%
128	Dinglers RYO Loose Cherry-2kg	0.00%	100.00%
129	Rizla Std Size Red 100's	0.00%	100.00%
130	Blister Wind&Waterproof	0.00%	100.00%
131	Dinglers RYO Loose Vanilla-2kg	0.00%	100.00%
132	Taxi Menthol 12g Export Germany	0.00%	100.00%
133	Magnet medicated 10g Export Germany	0.00%	100.00%
134	Robot 5g Canister x 250g	0.00%	100.00%
135	1904 Original 20g - Tins Czech	0.00%	100.00%
136	1904 Cherry 20g - Tins Czech	0.00%	100.00%
137	1904 Vanilla 20g - Tins Czech	0.00%	100.00%
138	1904 Whiskey 20g - Tins Czech	0.00%	100.00%
139	Taxi Menthol Tob 5g 2 Kg JAR	0.00%	100.00%
140	Taxi Gold 12g-10x12x30	0.00%	100.00%
141	No.6 medium loose-2kg	0.00%	100.00%
142	Taxi blue regular 12g Export Germany	0.00%	100.00%
143	RYO cherry 50g-3kg Costa Rica	0.00%	100.00%
144	RYO vanilla 50g-3kg Costa Rica	0.00%	100.00%
145	No.6 mild loose-2kg	0.00%	100.00%
146	BB 25g-8kg	0.00%	100.00%
147	Taxi cherry tobacco 5g-2kg	0.00%	100.00%
148	Cigarette Tubes 3x100	0.00%	100.00%
149	Boxer loose-2kg	0.00%	100.00%
150	Wilson's topmill medicated 25g-4kg	0.00%	100.00%
151	Magnet medicated 25g-3.6kg Export Ger	0.00%	100.00%
152	Taxi frutti tobacco 5g-2kg	0.00%	100.00%
153	Taxi Wiskey Tob 5g 2 Kg JAR	0.00%	100.00%
154	1904 cherry 50g-3kg Costa Rica	0.00%	100.00%
155	1904 vanilla 50g-3kg Costa Rica	0.00%	100.00%
156	Protea Pipes 12's	0.00%	100.00%
157	Taxi Gold 250g	0.00%	100.00%
158	Tube Machine 1's	0.00%	100.00%
159	Moulding Creme 10x3x250ml	0.00%	100.00%
160	Wilson's menthol snuff 10g	0.00%	100.00%
161	Boxer 200g tins-3kg	0.00%	100.00%
162	1904 original 50g-3kg Costa Rica	0.00%	100.00%
163	RYO Mild 50G-3KG Costa Rica	0.00%	100.00%
164	Robot 20g	0.00%	100.00%
165	Rhino 5g	0.00%	100.00%
166	Rhino 20g	0.00%	100.00%
167	Dinglers RYO Loose Mild-2kg	0.00%	100.00%
168	Boxer 50gx2 Combo Pack Zambia	0.00%	100.00%
169	BB 12.5g-4kg	0.00%	100.00%
170	BB Menthol 25g-2kg	0.00%	100.00%
171	BB Special Blend 25g 2KG	0.00%	100.00%
172	BB 200g Centenary Tins	0.00%	100.00%
173	BB 50g x 2 Combo Pack Zambia	0.00%	100.00%
174	Springbok mild 100g cloth-4kg	0.00%	100.00%
175	Taxi red regular 12g	0.00%	100.00%
176	Matches Wind&Waterproof "5H"	0.00%	100.00%
177	3 Star "32H"	0.00%	100.00%
178	Rizla King Size Silver 50's	0.00%	100.00%
179	Corn Cob Pipe Small 12's	0.00%	100.00%
180	Corn Cob Pipe Large 12's	0.00%	100.00%
181	Club Std Size Paper 50's	0.00%	100.00%
182	KING SIZE MACHINE 10's	0.00%	100.00%
183	Pet Musk 30x10x15g	0.00%	100.00%
184	Pet Cocoa 30x10x15g	0.00%	100.00%
185	Pet Regular 30x10x15g	0.00%	100.00%
186	Hair Food 30x10x15g	0.00%	100.00%
187	Chest Rub 30x10x15g	0.00%	100.00%
188	Moulding Creme 30x10x15g	0.00%	100.00%
189	RYO original 50g-3kg	0.00%	100.00%
190	No.6 mild tins-200g	0.00%	100.00%
191	1904 tins-200g	0.00%	100.00%
192	BB 25g-4kg	0.00%	100.00%
193	Medium shag 100g-3kg	0.00%	100.00%
194	Magnet medicated 15g-2.16kg	0.00%	100.00%
195	Boxer 5g	0.00%	100.00%
196	BB 50g-4kg	0.00%	100.00%
197	A1 Special 12.5g X 5kg	0.00%	100.00%
198	Light shag 100g-3kg	0.00%	100.00%
199	3 Star "HH100"	0.00%	100.00%
200	RYO vanilla 50g-3kg Hong Kong	-0.01%	100.00%