RECOMMENDATIONS FOR IMPROVEMENT OF SUPPLY CHAIN MANAGEMENT AT ERA BEIER

By

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DECLARATION AND CONFIDENTIALITY CLAUSE

I declare to the best of knowledge, the following declaration and statements to be true and correct:

- This work has not previously been accepted in substance for any other degree and is not being concurrently submitted in candidature for any degree.
- This dissertation is being submitted in partial fulfilment of the requirements for the degree of Master in Business Administration.
- This dissertation is the result of my own independent work/investigation, except where otherwise stated.
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- The subjects, in this study who took the time to assist me in the form of answers to relevant questions.

DEDICATION

To my family for their encouragement, patience,

advice and support.

ABSTRACT

The study examines the supply chain management, within the business unit of Era Beier (Pty) Ltd. This business is situated in Pinetown South Africa. The concept of supply chain management is examined in terms of quality of material supplied, supplier evaluation, logistics, inventory and purchasing. These facets identified by the concept of supply chain management are prerequisites to achieving continuous process flow, are deemed crucial for effectiveness.

Literature review was conducted on supply chain management. Supply chain management requires respective managers to address all the concerns by taking positive measures to ensure that the critical areas highlighted are addressed as a matter of high importance.

In obtaining the required information, personal interviews were conducted with the respective managers of the department. The questions addressed specific areas of the topic and designated manager's perception to the implementation of these provisions were tapped.

In the departments studied, it was found that the managers had up to two years service. Subjects tend to agree that the company is beginning to address the basic requirements of supply chain; however work is required to make the process effective. Areas that require improvement are the suppliers who need to address aspects of delivery and quality. Within Era Beier the managers need to address high levels of inventory for raw material and finished products. A communication medium that is user friendly needs to be implemented so that all members of the supply chain are integrated.

The findings suggest that the company needs to focus its attention on improving the areas addressed so as to be able to utilise its workforce to the optimum level of long-term profitability.

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CHAPTER ONE

INTRODUCTION AND OVERVIEW

1.1 INTRODUCTION

Identifying customer service requirements, determining inventory placement levels and creating effective policies and procedures for the coordination of supply chain activities achieve effective management of supply chain systems. Improving the quality of all supply chain processes results in reduced costs, improved resource utilization and improved process efficiency.

Previously Era Beier looked at solving the distribution problem through maintaining inventory at various locations throughout the chain. The cost of holding raw and finished goods inventory also meant that Era Beier could not provide a low cost product when funds are tied up in inventory.

This study examines the current shortcomings of supply chain management at Era Beier. This study is an exploratory qualitative study based on unstructured personal interviews. In this study, census is employed as the tool for data collection. All departmental managers were interviewed personally by unstructured personal interviews. Information gathered was then compared to a model of best practice in supply chain management. Suggested improvements to a department or activity are based and compared to the model of best practice.

W Edwards Deming quotes on continuous improvement as follows:

> "Improve constantly and forever the system of production and service. Improvement is not a one-time effort. Management is obligated to continually look for ways to reduce waste and improve quality"(Deming, 1980).

Era Beier manufactures vinyl seating for the motor industry. It is a process of polymer conversion. The quality objectives set by the motor industry have to be met on a regular basis. The customer prescribes the defective criterion that is allowable for all types of defects. This can be as low as 2500 parts per million (ppm). This figure is obtained by; the total number of defects divided by the quantity supplied multiplied by a million. If the defects exceed the specification set then the customer will begin to source from alternate sources. Therefore Era Beier needs to ensure that the ppm trend is monitored on a daily basis. Because of this stringent quality standard, material that is exported overseas is inspected critically for surface defects. Some of the types of defects are difference in colour, print defects and thickness of material within a production run. The challenge for Era Beier is to produce the cheapest material with high quality standards.

This chapter gives a brief description of Era Beier and focus of the study. It sets the scene for continuous improvement at Era Beier. A motivation for undertaking this research is included. The objectives, benefits, limitations and summary of each chapter are outlined.

1.2 MOTIVATION FOR THE STUDY

To comply with stringent requirements set by the motor manufacturers it was essential that Era Beier evaluate in detail all areas of its processes i.e. the entire supply chain.

The study therefore focuses on suppliers, the purchasing function and inventory management. Recommendations need to be derived to 'enhance' the current processes so as to contribute maximally to the overall cost saving drive within Era Beier.

This study will highlight the problems that Era Beier will encounter and how it intends to solve these problems: It will: -

- Provide some resolutions to problems with respect to logistical issues.
- Identify problem areas so that a plan could be put in place to solve them.
- The study will highlight that it be necessary for a strong communication medium between supplier and customer be formed.
- It will require that part of the improvement projects will be the customer providing a rating to suppliers on a quarterly basis on their performance, so that the supplier could target improvements on these areas.
- Serve as a “pilot study” for the near future and the shortcomings and lessons learnt from this study would be used to ensure that the study conducted in one area is as valid and reliable as possible.

1.3 OBJECTIVES OF THE STUDY

The primary objectives are:

- To identify problem areas in supply chain at Era Beier in terms of management perception.
- To utilise the information gained and make recommendations so that the problem areas identified has an effective solution.

1.4 LIMITATIONS OF THE STUDY

The following limitations must be noted:

- The study does not address organisational issues such as departmental structures, personnel complements, training, and interdepartmental interfaces.
- The study does not critique current or potential procurement contracts.

- The study focussed on the major raw materials, which is poly vinyl chloride (pvc), backing cloth and pigments.

1.5 CHAPTER OUTLINE

1.5.1 CHAPTER ONE

Chapter one is a brief description of Era Beier and provides the focus of the study. A motivation for undertaking the research is included. The objectives, benefits, limitations and a summary of each chapter are outlined.

1.5.2 CHAPTER TWO AND THREE

Chapter 2 discusses supply chain theory while chapter 3 examines some variables within the procurement and supply chain functions with special attention to supplier interfaces. Strategic supplier alliances are highlighted because they are critical to a company's success in the future.

1.5.3 CHAPTER FOUR

Chapter 4 deals with the research methodology, which is an exploratory qualitative study, based on unstructured personal interviews to obtain data for presentation and analysis purposes. The research process is outlined. The problem is stated and answers derived, that is, where it will be obtained and how. This essentially, is the blue print to guide the ensuing work. An overview of the different steps is provided.

1.5.4 CHAPTER FIVE

Chapter 5 examines some of the effects on the business environment from a supply chain perspective. This chapter discusses Era Beier global positioning and then focus on 'what can go wrong' if the supply chain is not managed properly.

1.5.5 CHAPTER SIX

Chapter 6 presents the data and interpretation of results obtained from the investigations detailed in Chapter 4. The primary focus is on vendors, purchase orders and inventory. Results obtained are contrasted to world benchmarks where applicable.

1.5.6 CHAPTER SEVEN

Chapter 7 consists of conclusions and recommendations. Conclusions are drawn for vendors, purchase orders and inventory. Recommendations include a suggestion for further studies as well as a proposal for vendor appraisal.

CHAPTER TWO

SUPPLY CHAIN MANAGEMENT THEORY

2.1 INTRODUCTION

Firms can no longer effectively compete in isolation from their suppliers and customers in the supply chain. Interest in the concept of supply chain management has steadily increased since the 1980s when companies saw the benefits of collaborative relationships within and beyond their own organization. The definition, concept and the evolution of supply chain management are discussed. A number of definitions have been proposed concerning the concept of "the supply chain" and its management. The term does not replace supplier partnerships, nor is it a description of the logistics function. Industry groups are now working together to improve the integrative processes of supply chain management and accelerate the benefits available through successful implementation (Christopher and Peck, 1999).

2.2 DEFINITION OF SUPPLY CHAIN

Various definitions of a supply chain have been offered in the past several years as the concept has gained popularity. The *APICS Dictionary* describes the supply chain as:

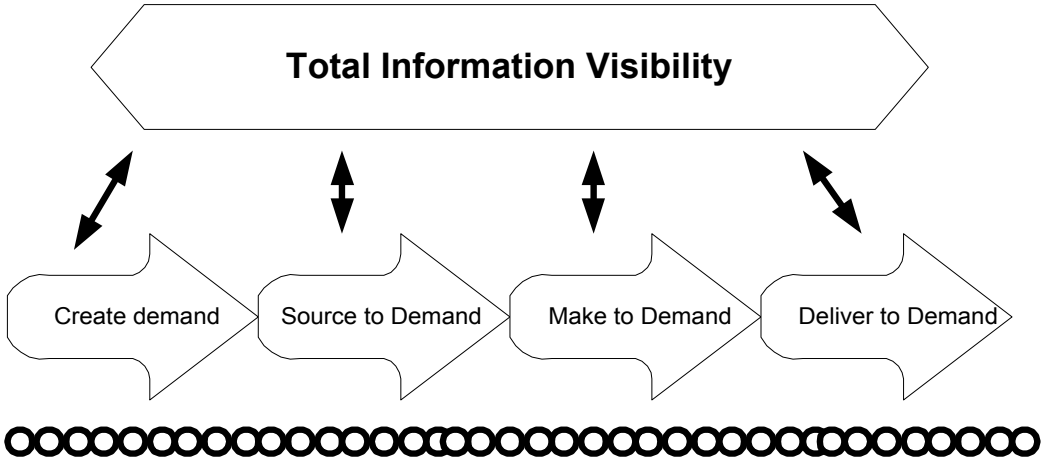
> "The processes from the initial raw materials to the ultimate consumption of the finished product linking across supplier-user companies; and the functions within and outside a company that enable the value chain to make products and provide services to the customer" (Cox *et al*., 2000).

As defined by Cooper and Ellram (1993), supply chain management is "an integrating philosophy to manage the total flow of a distribution channel from supplier to ultimate customer".

"Inter-firm relationships are not confined to materials procurement but extend into a variety of other areas including design, financial information exchange, expertise (consultancy), specialist services and distribution and marketing" (Pagh and Cooper, 1998).

A key point in supply chain management is that the entire process must be viewed as one system. Any inefficiency incurred across the supply chain, which may stem from suppliers, manufacturing plants, warehouses or customers must be assessed to determine the true capabilities of the process. Figure 2.1 describes the total integration required within the supply chain (Lummus and Vokurka, 1999).

Figure 2.1 Supply Chain Integration



(Lummus, R. & Vokurka, J. (1999)

2.2.1 INTEREST IN SUPPLY CHAINS

Managers of companies have in the last two decades witnessed a period of change in terms of advances in technology, globalisation of markets, and increase in competition. With the increasing number of world-class competitors both domestically and abroad, organizations have had to improve their internal processes rapidly to stay competitive. As manufacturing technology and capacity improved in the 1990's, managers realised that material and service inputs from suppliers had a major impact on their organisations' ability to meet customer needs. Managers also realized that producing a quality product was not enough. Getting the products to customers when, where, how, and in the quantity that they want, in a cost effective manner, constituted an entirely new type of challenge. (Handfield and Nichols, 2001).

As a result of these changes, organizations now find that it is now longer enough to manage their organizations. They must also be involved in the management of the network of all upstream firms that provide input (directly or indirectly), as well as the network of downstream firms responsible for delivery and after-market service of the product. If the principles of quality, price and delivery had to work then the network from technology transfer and communication had to be addressed with respect to suppliers and customers. From this realization emerged the concept of the " supply chain" (Handfield and Nichols, 2001).

Given the pressure that consumers and some industrial manufacturers exert on their suppliers, companies increasingly are organising their activities around processes, which are relevant for their customers. Companies are increasingly improving their processes to reduce scrap and improve their efficiencies.

In some cases the customer will spend weeks at the supplier detailing their requirements and training the supplier's inspectors for the exact inspection criteria that the material should be inspected against. Staffs are encouraged to take initiative and to collaborate with their peers to solve problems rather than to await instructions from their departmental managers. The process orientation and cross-functional teams are very powerful concepts in the area of purchasing and supply management. These concepts allow departments in organisations to align themselves to the correct process requirements ie. everyone has a common understanding with regards to projects and their requirements (Arjan, 2002).

2.2.2 COLLABORATIVE SUPPLY CHAIN INITIATIVES

From developing practice, already advanced in other sectors, the message for organisations is to work together in a more integrated way to develop customer focus, add value, reduce waste and achieve mutual advantage. As industries realise that they need to be world class, there is now greater collaboration between the organisations for innovation based on aligning processes and improving relationships in order to raise the performance and competitiveness of projects. Gone are the days when industries worked in isolation to improve their efficiency. The effort today is a joint one. As a consequence of increasing competition and a growing awareness of the need to innovate, more and more companies, have in recent years, sought to change their internal as well as their external relationships by developing closer and more harmonious links with suppliers and customers, in order to increase focus both up and downstream. Companies realise that organisations working closer together in a cooperative environment must be more beneficial to both internal and external customers (Erridge, Fee and McIlroy, 2001).

2.2.3 THE ROLE OF THE SUPPLIER IN ACHIEVING GREATER CUSTOMER FOCUS

To achieve customer focus it is necessary to have a clear and global view of the whole process or value chain, and to recognize the importance of internal as well as external customers. Suppliers are well placed to provide a global view of the whole value chain because of their position between upstream and downstream processes. Both the supplier and the customer know whether the output meets the initial requirements because of the initial defined requirements. This can provide a basis for the development of trust, continuous improvement in reducing waste and adding greater value to the external customer. Customer satisfaction is increasingly being addressed as a move towards a more lasting relationship between customers and suppliers in the whole process. Supplier/ customer relationship can play a key role in determining what is important to both of them by engaging in an ongoing process of what real, sustained satisfaction means to them and how their requirements change over time. This development of relationships is difficult and expensive to develop with large number of suppliers. This is why many organizations, have begun to reduce their number of suppliers. One of the stumbling blocks is that customers often have unclear and rapidly changing requirements. The high variability of customer requirements can make it difficult to identify and satisfy their needs, or measure accurately and precisely the degree of satisfaction achieved (Erridge, Fee and McIlroy, 2001).

2.2.4 BARRIERS FOR EFFECTIVE IMPLEMENTATION OF SCM

Given the variation in customer base, SCM as a means to deliver greater customer focus will need to be applied in a number of ways to reflect the wide range of factors, including the needs of regular and irregular external customers. Main

suppliers need, for instance, to prepare themselves and their supply chains to become both lean and agile. Although SCM is encouraged upstream in the process, it has yet to be fully extended to the specialist suppliers and their contractors downstream in the process. The stumbling block for SCM implementation downstream is the main suppliers who are not yet sufficiently prepared and committed and who lack the resources and learning required to embrace this approach (Cooper and Ellram, 1999).

2.2.5 LINKING THE SUPPLY CHAIN TO THE BUSINESS STRATEGY

Despite the challenges of today's competitive environment, some organizations are thriving. These firms have embraced these changes and have integrated quick response and flexibility to their day-to-day culture. They are managing by paying attention to time. For example, the reduction of delivery times both in the market place and throughout the supply chain has earned such firms as Hewlett-Packard, Northern Telecom, Toyota and Xerox a reputation as "time based competitors". (Handfield and Nichols, 2001)

Companies are now basing their purchasing policies and strategies on the company's overall objectives and product/market strategies. A company that operates in a highly competitive end-user market (e.g. the automotive industry) will beyond doubt have a strong focus on cost reduction and innovation. Some automotive customers have embarked on reducing waste on their suppliers once the assessment of the company has been concluded. If the product costing is too high, a team of experts will be sent to the supplier and target likely areas where the cost is high. Hence, its purchasing and supply strategies should reflect those aspects, and the purchasing activities will be directed through detailed materials budgets and well prepared cost reduction projects (Arjan, 2002).

2.3 BENEFITS OF SUPPLIER INTEGRATION IN THE DEVELOPMENT PHASE

Firms have recognized that the ability to extend product development activities across organizational boundaries can provide competitive advantage for the buying firm as well as the supplier. Scholars have identified numerous benefits arising from the involvement of suppliers in the development process rather than working independently when it comes to time-to-market of new products, product quality, development cost, and product cost. Supplier integration in the development phase can also help firms share risks, conserve resources, gain new competencies, and move faster into new markets. Accordingly, firms continue to integrate suppliers earlier in their product development projects and to a greater extent.

Suppliers that selectively participate in their customers' new product development activities could also improve their performance because they better understand their customers' dependability, requirements, and propensity to develop technical innovations. The integration of suppliers in the development phase can also facilitate the creation of new products on the supplier's side. Furthermore, suppliers can benefit in situations when OEMs motivate their suppliers to participate in joint product development activities, by means of preferred treatment ie. promise of production contracts or assured future business (Wagner, 2003).

2.4 RATIONALISATION OF THE SUPPLY BASE

Supplier development because of its objective being long-term partnership approach, has led to many firms reducing the supply base because of it being a lengthy and costly exercise. This is a process sometimes referred to as rationalisation of the supply base. Efforts can be concentrated on increasing the

depth of knowledge of these preferred suppliers and on improving the quality of the supply arrangements. Another outcome of a reduced supplier base is of greater concern to suppliers. If a supplier fails to become a preferred of a major customer, then business could be lost on a long-term basis (Saunders, 1997).

Firms today increasingly evaluate a supply chain partner's willingness to develop long-term relationships. A major drawback of supply chains is that all potential supply chain members do not necessarily want to develop closer relationships. In particular, many smaller organisations were started and in some cases are still owned by entrepreneurs. As a result, there is a desire on the part of management at some companies to remain independent of larger supply chain members. A company seeking a relationship with a smaller organisation that requires the sharing of sensitive information should address management's willingness to enter onto such an agreement (Handfield and Nichols, 2001).

2.5 SPECIFICATIONS

Obtaining the right quality, that which is fit for purpose and conforms to specification is fundamentally important in purchasing. Increasingly, the dynamic purchasing function aims to achieve improvements in quality without increases in cost. The aim is still the right quality, but the goalposts that define the target for quality are moved year by year.

Quality means in this connection both specification quality and conformance quality. Specification quality is the set of features and characteristics of a product or service, which are specified by a purchaser and thus required from a supplier. Conformance quality is the extent to which the supplier complies with the specification and thus conforms to requirements.

These two aspects of quality are both important, since a good specification is no good if supply fail to comply with it, or will customers be satisfied if goods received comply in full with a specification that is not appropriate to requirements (Baily, 1994)

Purchasing often plays a big part in defining specifications in non-manufacturing organisations which do not make products and which do not have a product design function. In manufacturing organisations the purchasing function has some involvement with the product design function in defining specification, especially as regards commercial aspects, but it plays a bigger part in obtaining conformance to quality, acting jointly with quality control personnel (Baily, 1994).

2.6 INVENTORY

Inventory or stock represent a large portion of the business investment and must be well managed to maximise profits (Baily, 1994). The most common problems with inventory is that they are:

- Uncontrolled.
- Inefficient.
- Costly.
- Unreliable.

Companies usually lean towards keeping inventory levels on the high side to insure stock is available when needed. However, this is a high investment, which yields a lower return on the capital invested. Some of the advantages of inventory control are:

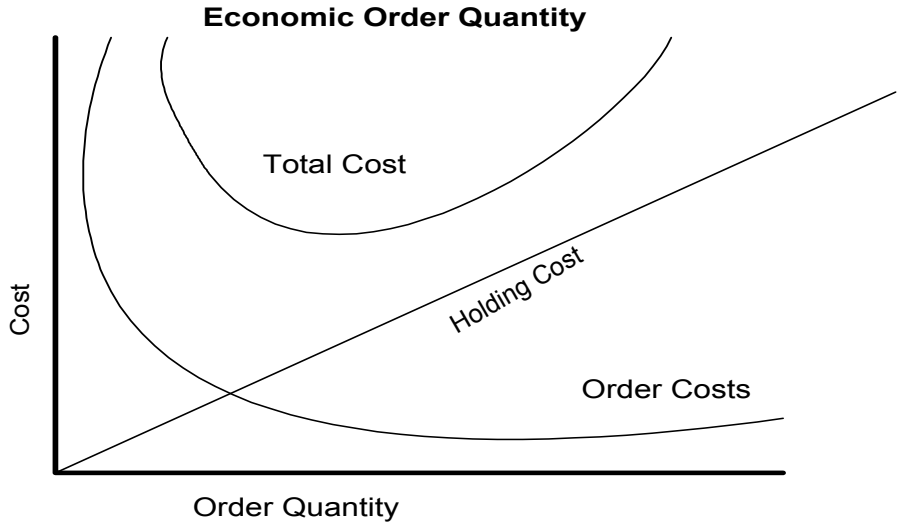
- Maintain a proper variety of required items.
- Increase inventory turnover.

- Reduce and optimise inventory and stock levels.
- Obtain low raw material prices through creative supplier networking.
- Eliminate obsolete items.
- Increase cash flow and working capital.
- Reduce storage cost.
- Reduce downtime. (Baily, 1994).

2.7 PURCHASING

It is clear that if large quantities are ordered on an infrequent basis, then the risk of being out of stock will be diminished and the cost of acquisition will also be reduced. These savings will be of set by the higher average investment in stock leading to greater stockholding costs. If a policy of ordering 'little and often' is adopted, then stockholding costs will be reduced, while ordering or acquisition costs rise. The possibility of running out of stock may also be greater. Figure 2.2 below shows a typical pattern of ordering and storage costs, and it can be seen from this diagram that the point at which the two lines intersect indicates the ordering quantity at which the sum of the cost of ordering and the cost of storage is at a minimum. In other words, the economic ordering quantity is the quantity at which ordering costs and storage coats are equal (Weele, 1994).

Figure 2.2 Economic Order Quantity



(Weele. A.J. 1994)

Era Beier's, mission is to build and sell the best products in their class, through continuous quality improvement, effective use of resources, and the full involvement and contribution of their employees, in order to increase market share, customer satisfaction, and profitability.

> "Era Beier is dedicated to the satisfaction of our customers, which is the motor industry. We prefer to maintain strong and enduring relations with good Suppliers".
>
> (Mission Statement, MD 1998)

To become a valued supplier of Era Beier suppliers must prove that they are capable of performing in the following manner:

- Prompt responses to our requests for bid.
- Competitive prices.

- Quoting delivery schedules that you can and will meet.
- Furnishing the quality that conforms to our requirements.

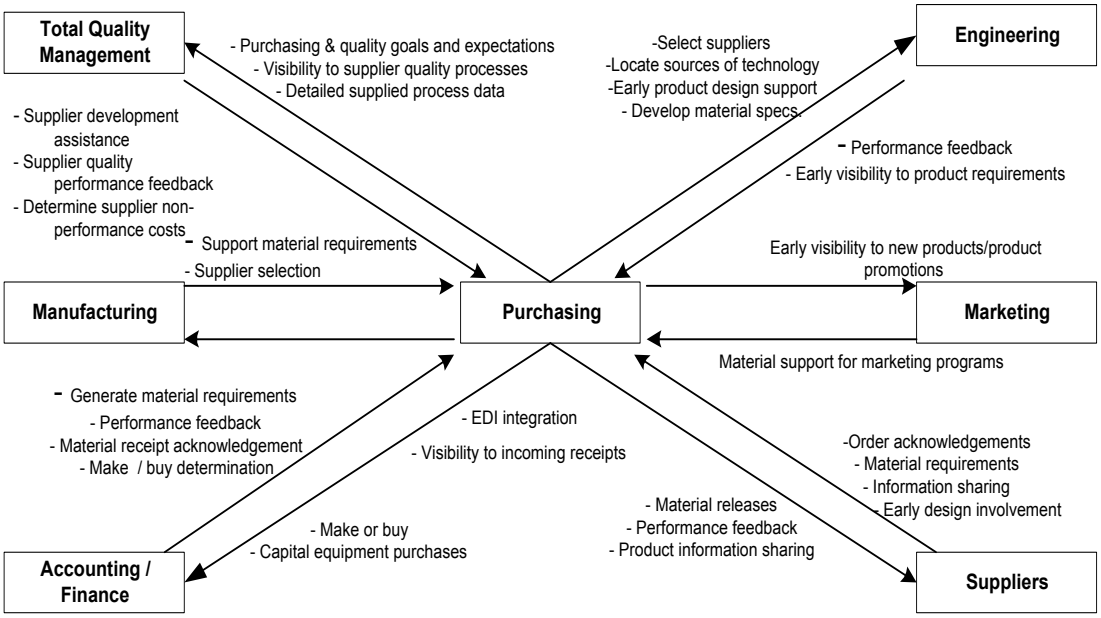
2.7.1 THE SIGNIFICANCE OF PURCHASING AND SUPPLY MANAGEMENT

It has long been recognized that organizational buyers purchase from multiple sources in order to prevent suppliers from acquiring too much power and to ensure adequate and uninterrupted sources of supply of important components or materials. When buyers purchase from two or more suppliers, they may use one supplier for the largest proportion of their needs and use additional suppliers for the balance of those needs. The suppliers now realise that "satisfying - even delighting" organizational customers is important for obtaining repeat business. In consumer markets businesses achieving high levels of customer satisfaction have high proportions of repeat customers.

Based upon the company's overall objectives, purchasing objectives will relate to cost reduction, reduction of the supplier base, improving product quality, lead time reduction and so on. Important decisions need to be made in terms of supplier strategies. The manufacturer must determine how many suppliers will be needed per raw material. The contingency plan is to have an alternate supplier for each raw material. This becomes necessary when for some reason be it a strike or a production delay at the primary supplier, the alternate supplier can be contacted for the requirement. Decisions have to be made as well for those raw materials whereby it is imported from overseas. In this case it might be feasible to have more than two suppliers. Some of the other decisions to be made is the relationship with suppliers which is to be based upon partnership or one based upon competitive bidding (Preis, 2003)

Purchasing maintains many linkages and communication flows with other groups. The purchasing department must maintain contact and develop positive relations with other departments and with suppliers. These linkages are important as firms try to improve competitiveness through improved cooperation of other functions and external suppliers. As such, purchasing is an intense boundary spanning activity. Figure 2.3 illustrates the two-way linkages between purchasing and other key groups along with a sample of the information exchanged between these groups (Arjan, 2002).

Figure 2.3 Interaction of Purchasing



(Hugo,van Rooyen & Badenhorst, 1997)

Purchasing primary mission historically has been a support function to other groups, particularly manufacturing. In supporting other departments, purchasing must understand their needs. Accordingly, other functions must recognize purchasing need for information and the constraints under which purchasing

operates. To facilitate information exchange, a number of critical communication linkages or interfaces exist between purchasing and other departments (Hugo, van Rooyen & Badenhorst, 1997).

2.7.2 PURCHASING'S ROLE AND RESPONSIBILITY

Purchasing department's responsibility for materials and component parts has a direct effect on the quality and cost of the end product. Two areas of concern seem to be related directly to purchasing. One is the need for a greater commitment to quality in the design and development stages and in parts and raw materials purchased. The second is supplier quality. (Heinritz, *et al,* 2000)

Thus a primary role of the purchaser is to challenge specifications that are restrictive and where there are potential alternatives. The buyer must justify to the person drawing out the specification, be it design engineering, maintenance, or a shop floor supervisor, that there are better alternatives. In the preparation of formal specifications, even though they are primarily of a technical nature, the best practice is to approach the matter as a joint project involving all areas of expertise. This is termed a multidisciplinary approach, where the input of technical, manufacturing, marketing, and purchasing personnel has a document that addresses the requirements all areas. This ensures that from the start the product manufactured for the end customer will meet the requirements (Heinritz, *et al.* 2000)

2.7.3 QUALITY MUST BE DEFINED

Quality has a special meaning in the purchasing vocabulary. It cannot be characterized simply as good or bad. Various properties in a product contribute to

what we term as the inherent quality in a material or product or service. Some of the dimensions that one must take into account when evaluating a product or service are:

- Performance.
- Features.
- Reliability.
- Conformance.
- Durability.
- Serviceability.
- Aesthetics and
- Perceived quality.

Purchasers are particularly concerned with the first six dimensions when buying.

These properties can be measured and defined. The significant ones must be defined so that the buyer knows what to ask the supplier to furnish and knows what is being received. This definition of quality, in greater or less detail, becomes the ordering description for every item – the essence of the purchase order (Heinritz, *et al.* 2000).

2.8 SUMMARY

In this chapter the interfaces between purchasing, engineering, and quality assurance have been shown. As the competitive environments of organizations become more turbulent, issues such as flexibility of specification, product and service quality become more important. In these circumstances it is crucial to do

the right things right the first time, because every error leads to time loss and extra costs (Arjan, 2002).

The literature reviewed in this chapter provides the building blocks for assessing the SCM industry from the supplier's perspective. This will be further enhanced in the chapter to follow.

CHAPTER THREE

THE EFFECTIVENESS OF SUPPLIER RELATIONSHIPS

3.1 INTRODUCTION

Once a supplier is selected a relationship develops. Such a relationship can blossom and develop into a mutually profitable one. Alternatively it can fail for various reasons to meet expectations and terminate. The decision to continue or terminate needs to be based on a fair evaluation system. In essence good purchasing requires developing good suppliers who are rewarded for their efforts while dropping those who do not improve. The process is a continuous one making supplier relations, development, and evaluation key parts of a selection process. (Baily, 1994).

3.2 SUPPLIER DEVELOPMENT

3.2.1 ESTABLISHING SUPPLIER RELATIONSHIP

Businesses can no longer afford not to partner where it makes sense, and they cannot afford to partner poorly. At best, the companies that put only minimal effort into their customer and supplier relationships will miss opportunities that their more committed competitors will seize. At worst, partnership laggards will find it harder and harder to turn in satisfactory financial performance.

The stakes are already too high for substandard partnering initiatives, and they are getting higher as cost pressures intensify and innovation cycles accelerate. We are entering an interconnected era in which the global corporation will be eclipsed by the more massive and complex "global enterprise"-an ever-changing mesh of

business entities and the relationships between them. The global enterprise will be a natural evolution from today s network of strategic linkages.

Consequently, supply chain leaders will need to take into account not only their own companies' core competencies but also those of current and potential supply chain partners. They must be able to look well beyond investments in their own facilities, infrastructure, and resources to include those of their key partners. This calls for a much broader vision of what constitutes as supply chain value. Supply chain managers must rapidly move from a transactional orientation to a strategic orientation to help develop the company's competitive value-added supplier networks (Rudzki, 2004).

3.2.2 LOYALTY TO SUPPLIERS

When purchasing moves to adopt closer relationships with suppliers, the view of the supplier-buyer interface changes. Suppliers now are viewed as assets that provide several value-added benefits such as quality, engineering support, new product ideas, and service support. This perspective considers the supplier as being not only a source for low-cost material that can be easily manipulated for price reductions, but also a way to complement and enhance the buying firm's core competencies. Dell Computer is often cited as an example of a firm that has implemented this close working arrangement with its suppliers. Suppliers are treated as extensions of Dell's operations and its purchasing personnel are extensively involved in understanding their suppliers' operations, products, and commodities. Thus, these long-term business relationships deliver added value for buyers and suppliers in industrial markets (Sharland, Eltanawy and Giunipero, 2003).

A continuing buyer – seller relationship, based on mutual confidence and satisfaction, implies a policy and responsibility of loyalty to suppliers. This is the opposite to the constant shopping around that was prevalent to the purchasing strategy of the past. It is true that some cost savings can be made by such methods, but it is usually at the sacrifice of uniformity and continuity of supply. Developing supply relationship will ultimately attain some of the objectives like cheaper prices (Bailey, 1999).

Most companies are now emphasing that the best deals in cost and of satisfaction can only be attained through a consistent policy toward supply sources and a sound-purchasing program. Like any sound business program, it is based on long-range considerations. A high rate of turnover among suppliers suggests either that the purchaser's company is basically an undesirable customer or that wrong decisions as to supply sources have been made in the first place (Cox, *et al.* 2000).

3.2.3 ASSISTING AND DEVELOPING SOURCES OF SUPPLY

So far in this chapter we have assumed that adequate sources exist to supply every need and that the purchasing manager's problem is merely one of selection from among the available suppliers. In the majority of cases, and under normal business conditions, this assumption holds true. However, the exceptions to the rule are equally important in the complete supply program and are likely to present difficulties that will put the procurement officer's resourcefulness to a severe test. The buyer's survey and search for the most satisfactory source may result in the discovery that no satisfactory or willing source can be found; yet the requirement exists, and it is the buyer's responsibility to meet it. Thus under any of these

circumstances the buyer's responsibility is not to select but to create a satisfactory source (Heinritz, *et al.* 2000).

3.2.4 DEVELOPING WORLD CLASS SUPPLIERS

Following the notion of SCM, all of the links in the supply chain, and likewise the integration of suppliers with internal business processes, must be considered in an integrative manner. Firms expand the internally focused integration of logistics by coordinating and integrating the physical flow of goods and the flow of information not only within the focal firm but also between the firm and its suppliers. Under the philosophy of "co-maker ship ... the supplier should be considered to be an extension of the customer's factory with the emphasis on continuity and a 'seamless' end-to-end pipeline". Successful firms put into practice or improve the coordination of critical links in the supply chain and implement supply chain strategies and programs with suppliers - always taking into account the limited availability of resources. Frequently mentioned prerequisites are close buyer-supplier relationships along with intensive personal as well as electronic communication.

Progressive corporations expect their purchasing departments to select and develop suppliers that provide their organizations with the best value today and tomorrow. This requires a program that involves suppliers much earlier in the process and seeks to develop longer-term relationships (Rudzki, 2004).

3.2.4.1 EARLY SUPPLIER INVOLVEMENT

The quickened pace of new product introduction means that design engineers must consider supplier technology and expertise as well as manufacturability of their

design. Resolving problems during the design phase assures smoother transition from initial design to finished product in a shorter time. It is important that suppliers have an input into the design phase so that they understand how critical it is to have conforming parts supplied (Cox, *et al.* 2000).

In the early stages of supply chain development, organizations will often eliminate those suppliers or customers that are clearly not suitable, because they do not have the capabilities to serve the organization, are too distant, are not aligned with the company, or are simply not interested in developing a relationship. After these firms are eliminated from consideration, organizations may occasionally encounter a supply chain member that is willing to go the extra mile to create a strong relationship. In such cases, firms may consider developing a special type of supply chain relationship in which confidential information is shared, assets are invested in joint projects, and significant joint improvements are pursued. The strong relationship involves technology and employee transfer or tooling investment with the supplier. These types of interorganisational relationships are sometimes called strategic alliances. Strategic alliances allow firms to improve efficiency and effectiveness by eliminating waste and duplication in the supply chain. (Handfield and Nichols, 2001).

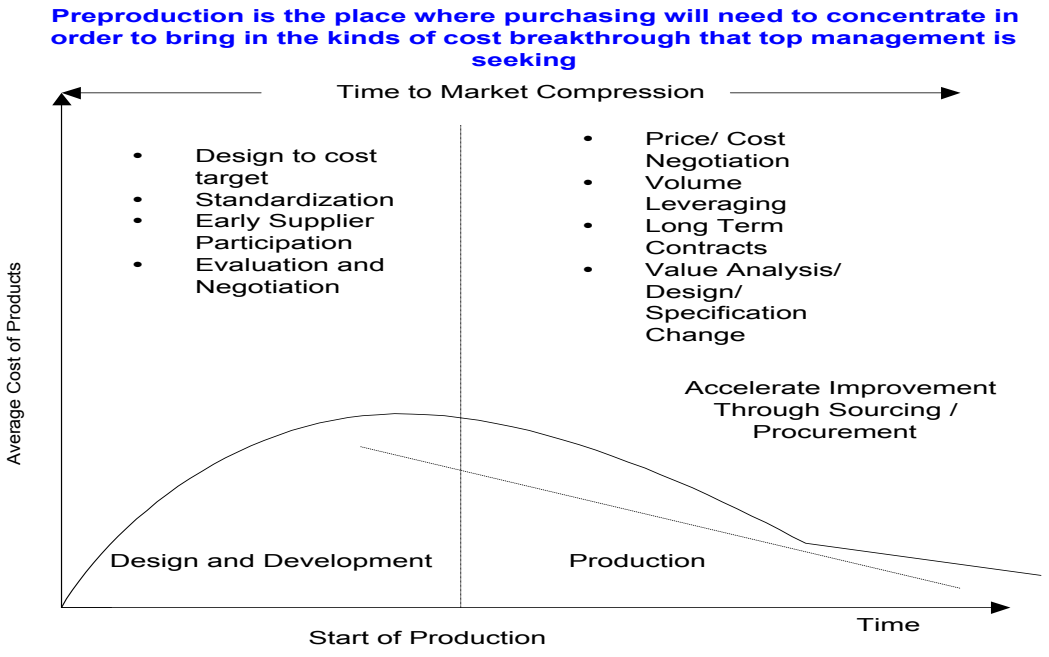
3.2.4.2 QUALITY ISSUES

Quality education starts at top management levels and is the responsibility of every person in the supplier's organization. The application of statistical quality control procedures will help increase outgoing quality-control levels. Overall monitoring each successive process and detecting problems in the process can raise quality levels. And the increase of outgoing quality levels has allowed some buying firms to skip the incoming check on their prime suppliers' material. Eliminating incoming

inspection can only be attained if the customer has developed the supplier to such an extent that both understand each other's processes. There is also mutual confidence established between both the parties.

A good example of such practice is the certified supplier program run by Motorola's Communications Sector Group as per Figure 3.1. Basically, a supplier is certified through a two-step program. The first step is an internal-quality investigation, which involves a complete evaluation of a supplier's quality program by Motorola quality engineers. The supplier's product specification is analysed for conformance. The second step involves an analysis of the supplier's facilities. Meanwhile, incoming inspection is performed for a period of time. If the incoming inspection reveals that there are no defects during this period, the supplier is certified. Certification means that shipment receives no incoming inspection. Also, certified suppliers usually receive a higher percentage of business (Weele, 1994)

Figure 3.1 Supplier Development



(Weele, 1994)

3.2.4.3 SUPPLIER PARTNERSHIPS

These partnerships require thinking of the supplier on a continuing long-term basis, not just as a transaction completed when an order is shipped. Partnerships require much closer and more open and frequent communication. The supplier's top management becomes involved in the relationship and is usually dedicated to ensuring quality via statistical quality control. Most companies have introduced an escalation programme when it comes to supplier quality. The quality of the product must improve during a specified period. If, within three consecutive batches there is no improvement, then the problem is escalated to the director of the company who must now provide a containment action to stop defective material being delivered. As with any partnership, there must be mutual benefits. The seller receives the benefits of stable relations and has less need to sell the account; the cost of doing business is less, and there is a basis for investment and improved communication with the buyer. Since selecting suppliers as partners requires much careful upfront analysis, a team approach to selection is recommended. The team needs to include the multidisciplinary functions of purchasing, engineering, quality control, and senior management (Weele, 1994).

3.2.4.4 IMPORTANCE OF A RELATIONSHIP TO A SUPPLIER

In relational exchanges, the real value of a relationship is linked not only to revenue or volume but also more importantly to the mutual acknowledgment and acceptance that the success of each firm depends in part on the other firm. A buying firm's motivation to invest in a relationship rests not only on its perceived dependence on the buyer-supplier relationship but also on the buying firm's perception of its dependence relative to the supplier's dependence on the

relationship. Buyers need to perceive not only that supplier firms can provide them with benefits but also that the organizations are pursuing mutual goals. The importance of a relationship to a supplier influences a buyer's perception of a relationship. For example, if a relationship represents only a small share of a supplier's total sales, then a supplier may not expend as much effort on relationship communication. This may prompt a buyer to look for alternative sources of supply, even to the point of dissolving a relationship when conflict arises because of a lack of relative dependence, and hence effort, on a supplier's part. On the other hand, if a relationship represents a large share of a supplier's total sales, a supplier would likely expend more effort on relationship communication. For instance, high dependence may be an incentive to resolve conflict because further cooperation may be more beneficial than relationship dissolution. This demonstration of relationship communication may influence a buyer to expend less effort searching for alternative sources of supply and perhaps more effort on building a relationship with the present supplier. Consequently, the importance of a relationship to a supplier can influence a buyer's perception of the association between buyer search effort and the relationship communication elements (Claycomb and Frankwick, 2004).

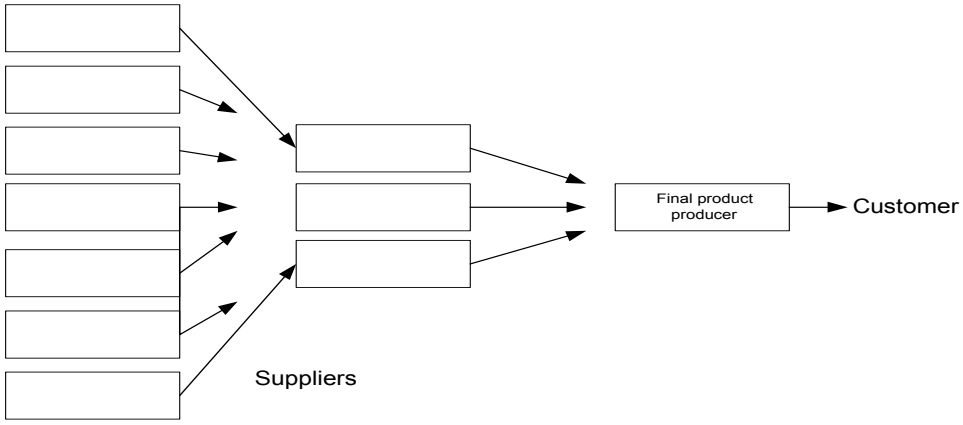
3.2.5 ACTIVITIES AND VALUE CHAINS

A firm’s success is affected by achieving competitive advantage, in the form either of cost leadership or of differentiation. Companies pursue and achieve a competitive advantage in their choice of strategy. In other words, what is the source of competitive advantage? A common form is the clear establishment in activities and value chains. A set of activities can only be possible if the group comprising the activity pull together in achieving the success or goal of that activity.

They are interrelated, and part of a firm's strategy is to organise their configuration and to consider how they should be linked together. Activities are seen as the basic units, which create value for customers (Saunders, 1997).

The value chain perspective as in Figure 3.2 recognises that it is not just the activities inside the firm that are relevant to securing a competitive advantage; it also involves external activities as well. Furthermore, the linkages and relationships between each activity, internally, and externally, are also crucial to the creation of competitive advantage. An important aspect of strategic management, then, involves the structuring of the value chain and the co-ordination if its parts (Saunders, 1997).

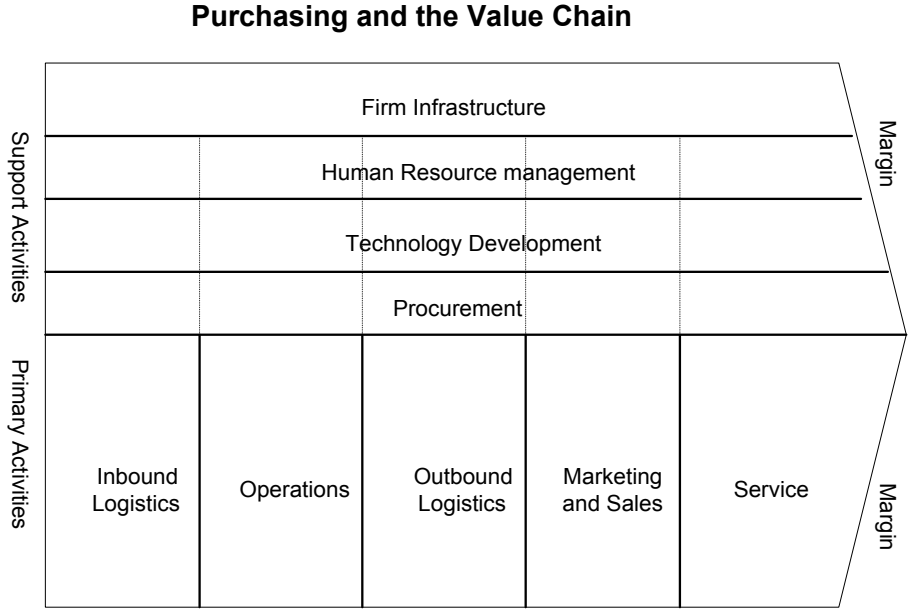
Figure 3.2 Network of Suppliers and Value Creation



(Saunders, 1997)

A further, and perhaps more controversial, aspect of Porter's analysis of the value chain is the distinction between 'primary' and 'support' activities and the allocation of particular activities to each class. 'Inbound logistics', 'operations', 'outbound logistics', marketing and sales' and 'service' are deemed to be primary activities and 'procurement', 'technology development', 'human resource management' and 'firm infrastructure' are designated as support activities (Saunders, 1997).

Figure 3.3 Purchasing and the Value Chain



(Hugo, van Rooyen & Badenhorst, 1997)

Further thought about activities in the value chain brings out the point that activities require the use of resources – human, material and capital assets very often, as well as less tangible items such as information, knowledge and routines. A definition of resources can also embrace fewer tangible assets, such as brand reputation and relationships with other organisations, such as suppliers. Resources involve costs and the structure of the value chain gives a basis on which costs can be identified. The accumulation of total costs can be monitored through each stage in the chain. Activity-based costing is a recent innovation, which is an example of how it might be done (Saunders, 1997).

3.2.6 RELATIONSHIP DEVELOPMENT

When relational aspects of a buyer-supplier relationship begin to appear, interdependence and bilateral communication develop and anticipation of conflict arises. A buyer-supplier relationship forms based on bilateral communication and

conflict resolution. Bilateral communication and conflict resolution are in operation during the exploration, expansion and commitment stages of relationship development. As the relationship develops overtime, partners accommodate each other to verify their mutual investment in the relationship rather than searching for new exchange partners. Human communication theory indicates that partners search for information because they are uncertain about elements of a relationship, and furthermore, that communication can be used to reduce this relational uncertainty. This suggests that relationship communication elements can be used to reduce uncertainty about a relationship with a supplier, and thus decrease buyer search effort. As a relationship develops, bilateral communication and conflict resolution set the stage for mutual accommodation between the partners and less search effort on the part of a buyer. By the time a relationship reaches the commitment stage, significant and consistent communication resources are exchanged. In this stage, bilateral communication and effective conflict resolution are at such high levels that buyers may continue to be aware of alternative suppliers but do not actively search for information on them (Claycomb and Frankwick, 2004).

3.2.7 IMPROVEMENT PROGRAMMES

Cooperative relationships seek to establish open lines of communication, nurture and sustain longer relationships between trading partners, and develop mechanisms to resolve conflicts such that business relationships are maintained to the mutual benefit of both buyers and suppliers. Successful partnerships exhibit effective communication that includes high levels of communication quality (e.g., accurate communication), information sharing about changing needs, and joint

planning and goal setting. The more frequent, intense and diverse these types of communication between supply chain partners, the more likely a buyer-supplier relationship is to survive (Claycomb and Frankwick, 2004).

3.2.8 EFFECTIVE COMMUNICATION

Effective conflict resolution produces feelings of procedural justice, trust and commitment. Effective communication and conflict resolution provide a supplier with a thorough understanding of a buyer's business and signal a supplier's willingness to contribute to value creation for a buyer. Buyers often base their behaviour (e.g., search effort) on the signals they receive from suppliers (e.g., relationship communication elements) and also recognize the importance of the signals they send (e.g., via the level of search effort). Active searching for alternative suppliers would signal a lack of commitment on the part of a buyer firm. This suggests an inverse relationship between relationship communication elements and buyer search effort. A buyer-supplier relationship moves through these relationship stages if the parties communicate and resolve conflict effectively. In turn, partners form expectations for promising future interactions that include a decrease in active search for alternative suppliers (Claycomb and Frankwick, 2004).

3.3 BUYER – SELLER COMMUNICATION

Conflict resolution mechanisms include a spectrum of constructive and destructive methods. These methods include joint problem solving, which enhances partnership success; smoothing over or ignoring/avoiding issues, which does not eliminate the source of the problem and often results in renewed or larger-scale

conflict; and severe methods such as coercion or confrontation, which are destructive to relationships. The effective communication elements are important for resolving conflicts between partners, while severe conflict resolution techniques are harmful to relationships. Rather than being confrontational or coercive, conflict resolution between buyers and suppliers should focus on cooperation and information exchange in an attempt to discover the best solutions to problems. When attention in buyer-supplier relationships is given to the relational dimensions of communication, conflict resolution, relationship development and competitive advantage is founded on the effectiveness of the interaction process rather than on operational competencies (Claycomb and Frankwick, 2004).

3.4 CHALLENGES AFFECTING SUPPLY CHAIN LEARNING

It must be noted supply chain partners does challenge the managers' abilities to develop alliance competencies with regards to learning. One challenge is the natural tensions that all supply chain partnerships face: the dilemma of cooperation *versus* competition. Senior managers must develop a process by which they enhance their ability of the partners to learn from each. At the same time they need to protect technology that is unique to their organisation. The second challenge is to ensure that learning happens throughout the supply chain so that maximum value can be achieved. All levels of learning contribute to the process of knowledge creation and transfer (Sparling, 2002). A third challenge for the partners is to create an environment in the chain so that learning becomes more conducive. Boundaries must be created that allows information to flow into the firm. One must be careful that this same boundary does not allow the unintended flow of sensitive knowledge out. The tension resides in how to achieve a healthy balance so that the information flows can maintain equilibrium. If the resources and

information are not distributed throughout the chain an equilibrium point is very difficult to achieve (Sparling, 2002).

Companies who have achieved supply chain integration success report lower investments in inventory, a reduction in the cash flow cycle time, reduced cycle times, lower material acquisition costs, higher employee productivity, increased ability to meet customer requested dates (including short-term increases in demand), and lower logistics costs (Sparling, 2002).

3.5 CONCLUSION

Developing a truly effective enterprise wide SCM and have it linked to its measures of performance will lend credibility to an organisation. While one can promote the importance of learning to develop an integrated supply chain, it is more compelling to show the power of a learning mindset and how it can achieve both cost reductions and provide revenue-enhancing opportunities. Cost reduction is a must in any organisation if they are to survive. Customers are continually demanding price reductions and therefore it becomes necessary that one look at ones own processes to reduce cost. To engage supply chain partners in achieving a sustainable competitive advantage, almost by definition, means that there must be a focus on the end-use customer (Sparling, 2002).

It must be noted that learning does not come automatically given the tensions that exist, as partners need to address the needs of their supply chain partners with their own self-interests. Partners are often protective of their knowledge and are sceptical of how the newly acquired information will be used. Supply chain is all about a change in behaviour and attitude. Partners previously who worked in

isolation now have to share information and form alliances. Companies who develop this relationship will be successful as global partners compared to their competitors. Learning is central to gaining a sustainable advantage (Cooper and Ellram, 1999).

The findings made by the above studies together with the theoretical framework formulated in the preceding chapter provides a necessary basis to explore and assess the supplier chain management in Era Beier. The methodology used to conduct the study will be formulated around the basis and will be described in the chapter to follow.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 INTRODUCTION

This chapter outlines the objectives and methodology of the study, which includes a description of the study, and the techniques that were employed to select the subjects. Furthermore, the measuring instrument adopted together with the statistical tests employed to test the data will also be described.

According to Leedy (1993), it is important to recognize that data and methodology are inextricably interdependent. For that reason, the research methodology to be adopted must always recognize the nature of the data that must be amassed in the resolution of that problem. Therefore this chapter presents a detailed description and justification of the methodology adopted to address the above problem.

4.2 RESEARCH DESIGN

As may be seen, issues relating to decisions regarding the purpose for the study (exploratory, descriptive, hypothesis testing), where the study will be conducted (i.e. the study setting), the type of study it should be (type of investigation), the extent to which the researcher manipulates and controls the study (extent of research interference), the temporal aspects of the study (time horizon), and the level at which the data will be analysed (unit of analysis), are integral to research design (Sekaran, 2000).

According to Morse (1994), the various strategies of enquiry used by qualitative researchers will differ depending on the purpose of the study, nature of the

research questions and the skills and resources available to the researcher. This study is an exploratory qualitative study based on unstructured personal interviews.

4.2.1 POPULATION AND SAMPLE

According to Cooper and Schindler (2003), “a census is a count of all the elements in a population”. In this study the census included all the managers from the various departments at Era Beier. The total number of managers in this census was ten. The size of this population suggests a census is feasible. Managers in the study included logistics, commercial, sales, financial, product, production, research, quality, factory and assistant factory manager. They were interviewed because they are responsible for their departments and are best qualified to provide information for this study.

4.3 SAMPLING TECHNIQUE AND DESIGN

Two conditions are appropriate for a census study. A census is:

- Feasible when the population is small.
- Necessary when the elements are quite different from each other.

(Cooper and Schindler, 2003).

The size of the population of managers from Era Beier was ten. Therefore a census was feasible because the population was small and the departments differed from each other with respect to their functions. The diversity of the functions of each department made it difficult to accurately sample from this group. Any sample drawn may not be representative of the population from which it is drawn. Choosing a census in this situation was appropriate (Cooper and Schindler, 2003).

4.4 DATA COLLECTION METHOD

4.4.1 INTRODUCTION

According to Johnson and Wichern (1997) “data collected in a thoughtful and systematic manner is a valuable aid to decision making”. Johnson and Wichern(1997) further state that “data contains information, and the quality of the information is only as good as the quality of the data”.

For purposes of the study, the data collection instrument was personal interviews. The advantage of personal interviews is that the researcher can collect all the completed responses within a short period of time. Any doubts the respondents might have had regarding any questions could be cleared on the spot. The researcher can also establish a rapport with the respondent and motivate them to give unbiased answers (Sekaran, 2000).

4.4.2 DEPARTMENTAL DATA

Respondents were required to provide information via interviews pertaining to their current departmental status, the shortcomings and their suggested improvements. The data collected was used to determine the differences between what is required as compared to the current situation. The managers were briefed in a group about the interview session. The importance of stating the actual situation in their departments was also highlighted to the managers, as this was critical to improvements suggested.

This briefing session with the managers highlighted to them to be honest as this was important to the study, thus providing information that was free from bias. Bias refers to errors or inaccuracies in the data collected. Bias could be introduced by the interviewer, the interviewee, or the situation (Sekaran, 2000). The briefing

session with the managers conveyed to them that the study needed to be transparent and honest. The managers with the best interest for their departments admitted the strengths and weakness. The interview was conducted in an informal unstructured manner. The interactive approach was intended to highlight shortcomings in their departments, and improvements suggested at this interview were used in this study. Departmental managers were given a copy of this study. This will ensure that interviewer bias is eliminated.

4.4.3 INTERVIEWERS GUIDE

The data collection method used was unstructured personal interviews. Each interview session required different questions with different managers but some of the questions used were standard (see appendix 1). This is preferred over structured interviews. The interview session was conducted informally so as to put the respondent at ease. Relating to questions in the interview, mangers related the current situation to the problems and their suggested solutions. As the respondents are mainly managers, the questions related to their departmental problems and their proposed solution. The reliability of the answers cannot be retested; therefore, the answers given by the respondents were accepted as the situation that is prevalent in that department.

4.4.4 RECORDUNG OF DATA

All data relating to the interview session was recorded on paper and filed. This raw data is available if required.

4.4.5 ANALYSIS OF DATA

According to Zikmund (2000), “the goal of most research is to provide information. Information refers to a body of facts that are in a format suitable for decision making, whereas data are simply recorded measure of certain phenomena.”

The raw data collected in the field was transformed into information that was used to answer the research question. If the research problem was to be solved, the data gathered must be examined as they relate to the objectives of the study. Validity and reliability will lend credence to the study. Reliability of a measure indicates the stability and consistency with which the instrument measures the concept. Validity ensures the ability of a scale to measure the intended concept (Sekaran, 2000). Several types of validity tests are used to test the goodness of measures.

Validity

- Face validity is considered by some as a basic and a very minimum index of content validity. Face validity indicates that the items that are supposed to measure a concept do so on the face of it look like they measure the concept (Sekaran, 2000). The managers hold a high profile position. Their credibility would have been questioned if they answered incorrectly. Therefore, one regarded the answers from the managers as the truth.
- The respondents felt comfortable, as the research was conducted in their own offices. They were at ease when they answered the questions at their own pace. They were not under any duress to answer questions. This implied that the study contained acceptable external validity (Sekaran, 2000).

Reliability

- Analysis bias – The interview consisted of open-ended questions, pertaining to operational functions. To a large extent the respondent's answers indicated what was wrong in their departments. The interview was conducted in confidence with the manager. As a relationship of trust was established, biased answers were minimized. This proved to be reliable method as the interview was able to achieve 100% response rate. Respondents were however, encouraged to be totally truthful when answering questions, thus ensuring reliability (Cooper and Schindler, 2003).

4.5 CONCLUSION

As this was an industrial research project, the census was limited to only managers. In qualitative studies, invariably only small census of individuals or groups are chosen in view of the in -depth nature of the study. For this reason, qualitative studies use small census. The managers expressed a positive attitude towards in-depth interviews. They did not feel that the interview session infringed on their time. Their attitude expressed a willingness to make improvements to their departments (Sekaran, 2000).

The next chapter provides a presentation of the analysis of the research results.

CHAPTER FIVE

THE CURRENT SUPPLY CHAIN AT ERA BEIER

5.1 INTRODUCTION

This chapter discusses Era Beier's global positioning and then focuses on 'what can go wrong' if the supply chain is not managed properly. This chapter considers the current situation at Era Beier based on the outcome of the interviews with the managers of the company and raises the question of Supply Chain Management. Supplier relationships are highlighted as being critical to a company's success.

Era Beier's Quality Team and buying staff are committed to achieving these objectives through the application of tactical and strategic skills. Through negotiations, performance measurements, and strategic alliance building, suppliers are required to perform to standards of price, delivery, and quality. Era Beier strives to have 100% conforming product that is delivered on time and at a competitive price from all their suppliers.

The aim is to develop new sources that will become proven, capable, long-term suppliers and at the same time maintain strong and enduring relationship. Suppliers need to address the following issues to become a valued supplier of Era Beier because they are the basis with which all suppliers are rated.

- Prompt responses to requests.
- Competitive prices.
- Quoting delivery schedules that can be met.
- Furnishing the quality that conforms to requirements.

5.2 SUPPLY CHAIN AT ERA BEIER

During the past few years, supply chain excellence, optimisation, and integration have become the focus and goal of many organizations worldwide. This study integrates the basic tenets of supply chain generic structures with common attributes of functional strategies, such as reduction in inventory, lead-time, and safety stock. The fundamental change proposed in this framework can be used in the application for problem solving in respect to supply chain management.
Era Beier is a progressive firm that is focusing on revenue growth instead of merely striving to meet annual cost reduction targets. Era Beier needs to enhance customer satisfaction and enable profitable growth by strengthening management of the supply chain.

5.3 A HISTORICAL PERSPECTIVE ON THE SUPPLY CHAIN AT ERA BEIER

Supply chain management at Era Beier is characterised by control based on networking and integration of processes across functional departments in the organisation. The entire philosophy of supply chain management is its view of the final customer. The advent of supply chain interfaces in the operational process opposes the traditional approach of control based on ownership and vertical integration. During the period from 1980 to 1990, Era Beier had vertical organization structures and optimisation of activities was focused on functions. Relationships with vendors were win-lose interactions, and many times adversarial. Manufacturing systems were focused on materials requirements planning (MRP).
In order to understand the significance of changes taking place at Era Beier with respect to supply chain initiatives, one must review historical aspects of production and operations management activities.

There was realization by Era Beier of the benefit of integration of functions such as product design, engineering and manufacturing. Era Beier then embarked on a programme of a quality management system to integrate the various departments, and at the same time address the issues of supplier and customer concerns.
Era Beier like corporations all over the world have been experiencing increasing national and international competition. This has forced management at Era Beier to form strategic alliances among organizations that it is conducting business with. Organization structures are starting to align with processes. Manufacturing systems has been enhanced with information technology tools such as planning, distribution requirements planning, electronic commerce, research and development and engineering. There has been a growing appreciation in Era Beier of total cost focus for a product from its source to consumption, as opposed to extracting lowest price from immediate vendors.

There has also been an increased reliance on purchased materials and outside processing with a simultaneous reduction in the number of suppliers and greater sharing of information between vendors and customers. A noticeable shift has taken place in the market place from mass production to customized products. Initially Era Beier processed it's own pigments from powder that was purchased. This led to numerous problems with undissolved particles the primary contributor during processing. This resulted in large quantities of internal rejects. However the pigments supplies have reduced the problem by supplying ready to use pigments. This has resulted in the emphasis on greater organizational and process flexibility and co-ordination of processes at Era Beier and the pigment supplier. Era Beier is

now beginning to support systems to attain organizational and process flexibility, as well as to respond to competitive pressure to introduce new products more quickly, cheaply and of improved quality. The underlying philosophy of managing supply chains has evolved to respond to these changing business trends.

The next section provides practical examples of supply chain management philosophies.

5.4 ERA BEIER'S SUPPLY CHAIN MANAGEMENT PHILOSOPHY

To balance customers' demands with the need for profitable growth, Era Beier must move aggressively to improve supply chain management. Their channel integration efforts must be focused on the following main issues:

- Organizational relationships.
- Supply chain coordination.
- Improved communication.
- Outsourcing non –core competencies.
- Build to order Manufacturing Strategy.
- Inventory and cost management.

We describe each of these issues next.

5.4.1 ORGANIZATIONAL RELATIONSHIPS

Era Beier has realised that strategic alliances and partnerships are crucial to the success of a supply chain. Managers are encouraged to focus their attention on the entire supply chain. The current strategy is to reduce the number of suppliers if

there are too many and to seek alternate suppliers were there is only a single source. The success behind supply chain is to develop a relationship with the suppliers and if there is too many the exercise can be lengthy. Era Beier has developed preferred supplier programs as well as core transport carriers to ensure that a quality product is received where and when it is needed. In trying to reduce the number of suppliers Era Beier is well aware of monopolistic competition. The suppliers should never be given the opportunity to dictate supply strategy and thus overlook the underlying principles of customer – supplier partnership.

5.4.2 SUPPLY CHAIN COORDINATION

An important aspect in the supply chain is successful co-ordination at every process or activity. The managers at these activities need to understand support the process before and after their activity. The most important single factor in creating supply chain value is the ability to predict or forecast demand. The goal for total coordination is to be demand driven and not lot size driven. This implies that suppliers should supply products according to demand and not lot quotas.
In the past, forecasting at Era Beier was done primarily utilizing historical data. Now the sales manager is beginning to use point of sale data, which indicates exactly how much was purchased during a certain time frame. This information then becomes part of the data necessary to forecast more accurately in the coming years.

5.4.3 IMPROVED COMMUNICATIONS

At Era Beier a development meeting is held weekly so that all managers know the status of projects and the introduction of new projects. A successful customer vendor relationship is built by exchanging information pertaining to product

development for new products, product improvements, costs, demand schedules, and materials and supplies needed to meet production schedules. The weekly development meeting that is held is an important communication tool in relating the current requirements for raw material.

It is crucial to relay information about end-use consumers to manufacturers back through the chain. This results in better product information about customer's requirements, which will lead to process improvements.

5.4.4 OUTSOURCING NON-CORE COMPETENCIES

Era Beier has agencies in major cities in South Africa. The company has realised that outsourcing the sales aspect will continue to be important for having a cost-effective business. It is now important that the logistics manager and production manager place responsibility for logistics or production functions in the supply chain in their hands, as they are most capable of performing these successfully. They are able to track all deliveries and are in the best position to answer queries from customers when the delivery schedule is not met. In this way contingencies are put in place to eliminate or minimise future logistical issues.

5.4.5 BUILD TO ORDER MANUFACTURING STRATEGY

The economics of build-to-order (BTO) manufacturing strategy is necessary for Era Beier to minimise inventory levels. A BTO manufacturing strategy and aggressive profit and loss management will enable Era Beier to minimize its working capital requirements, increase cash flow, and realize a negative five days cash-to-cash conversion cycle.

Critical to an organisation like Era Beier is quick line changeovers. Originally the change over time from one product to another was approximately one hour. The

hour that was used for changeover proved costly as similar industries utilised 15 minutes. With engineering involvement this changeover was reduced to fifteen minutes. A major improvement was planning similar products to be run on the same shift.

The major area that needs attention is the finished goods inventory level. The product is of a complex nature with many difficult processes. Therefore to enable continuous supply to the customer, Era Beier's finished goods inventory is approximately 12 million. This is due to current strategy, which is to make stock for all varieties so that there is, no stock run out. Every month the sales manager is forced to reduce the price below cost of material, which has been in stock for over a year. From a customer perspective this addresses just in time. From a business approach this inventory level is too high because cash is being tied up. However plans are in place to reduce the stock value by making stock only for the large customers who have seven days inventory turnaround.

5.4.6 INVENTORY MANAGEMENT

In the past, carrying inventory in stock was a normal business practice to guard against risk of unfulfilled demand. As is the case Era Beier finds that holding inventory is costly and the plan is to push inventory either down or upstream in the supply chain. It is a challenge for departments to ascertain where inventory should be held in the supply chain. Customers are demanding that Era Beier deliver inventory to supplier warehouses more frequently and in smaller lots.

Currently Era Beier purchases polymer and coating paper from overseas based supplier. There is a need to carry large inventory so that there is no raw material run out because of the overseas delivery. A proposal would be to have a supplier warehouse close to Era Beier so that quantities required for production can be

ordered from this intermediate facility when required rather than ordering from one batch to the next from the overseas supplier. However the supplier thus far has strongly refused to address this requirement because of cost implications. Collectively there are a number of users who are in the same predicament as Era Beier. As a cohesive body in South Africa pressure can be justifiably exerted on the supplier who must realise that in the best interest of all concerned this facility should be addressed.

5.4.7 COST CONTROL

Supply chain management must be able to quantify a bottom line impact. There is a tendency to accept short-term profits as opposed to long-term investments for sustained profits and growth.

The operation function at Era Beier requires improved product forecasts and longer lead times. The effort is to pin customers on a three-month forecast, which is ample time to stock up on raw material, which must be imported from overseas. On the other hand, the sales and marketing function desires more inventories to alleviate the potential for stock-out. These demands lead to enhanced production capacity, thus creating excess inventory and consequently higher production costs. Both functions blame this phenomenon on the current process of vinyl production. If the runs are short it creates work in progress at times to the value of R4 million in sales, which is unacceptable. Every stage of the vinyl process requires attention to detail and the colour matching process is time consuming leading to work in progress with high value. These activities pull efforts away from doing the basics well, which include sharing information among functions and concentrating on demand management.

5.5 STRATEGIES FOR SOLVING SUPPLY CHAIN PROBLEMS

There are two types of flows in an organisation - material, and information. The planning together with the sales department plans the production relying on the data from sales and purchasing. The lead-time for each product is then calculated based on the capacity for the week. This lead-time may or may not be correct depending on the problems encountered in production. If there are problems the result is that capacity begins to increase in work in progress and final products resulting in larger inventories. The deadline to the customer may have been missed which forces the customer to take their business elsewhere if this problem is repetitive. Sales have to reduce its pricing strategy to relieve this overload. This scenario can have a negative effect on the company. This pricing strategy will work if there is a demand for the material but when there is a decline for demand this can be disastrous for the company. The company will have to sell the material at nearly 30% of the selling price just to reduce the inventory levels.

5.6 IMPLEMENTING EFFECTIVE SUPPLY CHAIN STRATEGIES

The primary purpose in establishing supply chains is to minimize the flow of raw materials and finished products at every point in the pipeline in order to enhance productivity and cost savings. At Era Beier the following critical elements need to be managed.

5.6.1 MANAGE INVENTORY INVESTMENT IN THE CHAIN

Currently Era Beier has a raw material inventory of ten million rand, which is carried for a period of four months. Executive management has realised that this level is too high. The problem facing Era Beier is that most of the supplies come from overseas and it is necessary to hold this high level of inventory as a buffer. Four

consignments are always held from overseas suppliers so that there is no stock out. Similar operations in South Africa only hold two month's supply. Therefore the plan is to now hold two months supply. However Era Beiers competitors also use the same suppliers for polymers and coating papers. The drive from Era Beier and its competitors should be for the overseas suppliers to hold a common distribution centre in South Africa. The manufacturing sites can then draw from this common distribution centre. A common distribution centre would allow a just - in-time programme to be introduced. This is still to be agreed among the manufacturing sites and then a strong proposal made to overseas suppliers.

5.6.2 ESTABLISH SUPPLIER RELATIONSHIPS

It is important to establish strategic partnerships with suppliers for a successful supply chain. The general trend is for organisations to limit the number of suppliers they do business with by implementing vendor review programs. At Era Beier this strategy of reducing the number of suppliers does not apply. On the contrary the company needs to increase the supply base, as there are too few suppliers who tend to dominate the relationship. The ability to have a closer customer/supplier relationship is very important because these suppliers are easier to work with if the relationship develops and both understand the requirements.

They may establish a comparable culture and also implement compatible forecasting and information technology systems. With the advent of electronic data interphase (EDI) suppliers will ensure that JIT delivery can be achieved.

5.6.3 INCREASE CUSTOMER RESPONSIVENESS

To remain competitive, Era Beier has to focus on improved supply chain efforts to enhance customer service through increased frequency of reliable product

deliveries. Increasing demands on customer service levels is driving partnerships between customers and suppliers. The ability to serve customers with higher levels of quality service, including speedier delivery of products, is vital to partnering efforts. Having a successful relationship with a supplier results in trust and the ability to be customer driven, customer intimate and customer focused. It is an area that requires immense amount of work to solve the current situation of late deliveries. Customers are frustrated with continually late deliveries.

5.6.4 BUILD A COMPETITIVE ADVANTAGE FOR THE CHANNEL

Supply chain management, is seen by some as a competitive advantage for firms that employ the resources to implement the process.

The objective of Era Beier is to push costs back to their supplier. This means suppliers holding inventory or material used on the basis of consignment stock. Consignment stock refers to material delivered to the customer and only paid for if used.

5.6.5 SUPPLY CHAIN MANAGEMENT SOLUTIONS

A major challenge that Era Beier has to face when it introduces the integrated supply chain information systems is how to process and utilize the information available to users within the chain. The system that is currently compatible with users of the supply chain is the electronic data interphase (EDI). These systems use real-time information to create different simulated scenarios. Users within the supply chain are able to log in to the database and all the relevant information is linked to these scenarios, including current demand volumes, probabilities of major customer preferences, existing inventory levels, supply chain performance

measures, existing capacity at different levels in the supply chain, and corresponding predicted lead times.

At Era Beier the EDI system is non-existent and all orders are placed via e-mail or fax. A system that is compatible to all our suppliers will take some research and compromise so that all systems are linked in the supply chain.

5.7 SUSTAINING SUPPLY CHAIN MANAGEMENT

Era Beier needs to sustain its market strength for long term growth. To be competitive in the vinyl production industry it needs to compete with excessive imports which is being landed at a competitive price and in some products cheaper than Era Beiers' manufacturing costs. To sustain the market strength and long term growth Era Beier needs a price leadership role or a differentiation strategy. Price leadership can only be attained if the entire supply chain realises that every activity needs to go on a cost cutting measure. This means eliminating wastage and improvement to processes. To sustain long-term growth, however, combinations of both strategies are typically needed to operate effectively within constraints imposed by the environment.

5.7.1 GOALS

Supply chain goals are mutually agreed upon between departments and within firms so that they may support each other. Aspects of delivery and quality of raw material are two areas, which Era Beier has made progress in addressing these issues with its suppliers. Some suppliers had a problem with on time delivery and others had rejections after a quantity had been processed on the line due to poor quality. These factors impacted on the delivery times to the end customer.

In attainment of these goals the supply chain members will negotiate and compromise each other to arrive at acceptable goals.

Members synergies their activities and resources toward accomplishing common goals for the supply chain as a group that aim to benefit all, and not just a few among the group.

5.7.2 OBJECTIVES

Supply chain objectives directly support its stated goals for each member in the chain. For example, a common manufacturing supply chain goal can be to enhance revenue through eliminating or alleviating bottleneck operations in the system. Supply chain objectives that directly support this goal can be identified as:

- Increase throughput.
- Reduce cycle time.
- Reduce inventory at different stages (raw materials - work-in-process - finished goods).

As can be seen, these objectives are complementary to each other.

5.7.3 BENCHMARK PRINCIPLES

The reject rate at Era Beier is unacceptably high. The primary reason for the high levels of wastage is due to factors such as operator awareness and capability of machine. The average reject rate at Era Beier has been between 10-15% for many years. This potential waste needs to be minimised to 6%, which is the benchmark for industries of this nature.

In general, the principles described below support goals and objectives for the manufacturing supply chain. Overall, by applying these principles, waste management models that reduce variability in the supply chain due to product

and/or process specifications, out-of-control processes, inefficient logistics, and inefficiencies that are inherently present in any system, can be developed.

5.7.3.1 REDUCING LEAD TIME AND VARIABILITY IN THE PRODUCTIVE SYSTEM

One of the primary challenges that management at Era Beier need to manage is lean management in the supply chain. They must to reduce variability of these cycle time elements. For example:

- Set-up time, which is one hour, can be reduced to fifteen minutes by re-engineering.
- Process time variations can be reduced and/or eliminated by standardizing methods and procedures.
- Queue time for work in progress can be eliminated by coordinating like products that need similar processing for example the products that need similar print on the surface can be scheduled in one batch so that print rollers do have to be changed from one to the next. This will increase efficiency.
- Idle time between productions could be used for factory maintenance, as the vinyl production is a 24-hour operation.

5.7.3.2 REDUCING INVENTORY AT DIFFERENT STAGES IN THE SUPPLY CHAIN

Inventory management is the key to a well-balanced supply chain at Era Beier. The balancing act must be the understood by every member of the supply chain internally and externally. This is primarily because the material flow in a supply chain takes on many forms through its life cycle and thus assumes various

inventory classifications. This phenomenon is described with an example of vinyl manufacture. The product sold to the end customer at retail has a material flow from polymer, which is in the powdered state, paste, pigmented paste, coated product, and finally a finished inspected defect free product. Internally every stage of this product manufacturing cycle is a raw material for the next stage. Every department is either a customer or a supplier to the next department. Management of inventories at various stages will have to be proposed as part of an overall philosophy that integrates inventory policies with appropriate procurement policies and scheduling. Therefore it is important that departments internally must manage their inventory as well so that obsolescence is eliminated. It must be understood that the process of vinyl production is an expensive science. For example other industries may use water, which is a cheap commodity in its formulation as a medium and as a means of cheapening its product. Means of cheapening the vinyl production must be addressed in areas of run time or set up time.

5.7.3.3 REDUCING BOTTLENECK OPERATIONS IN THE SUPPLY CHAIN

Era Beier is guilty in that bottlenecks is not managed so that inventory management for work in progress is as high as R12 million. One way of reducing this work in progress is by creating buffers due to time, inventory and lead-time. The technique here is to allow the bottleneck activity to be synchronized with the succeeding non-bottleneck activity. This technique will work at Era Beier as vinyl production has some stages, which results in bottlenecks. The printing process, which takes more time, is followed by the quick lacquering process, which will alleviate the bottleneck situation.

5.8 IMPLEMENTATION

At Era Beier, common objectives between members are to manage lead-time and inventory at various stages in the supply chain. Similarly, lead-time and inventory must be managed with the external member. Coordination of activities of various entities in the supply chain is achieved through information sharing with feed-forward and feedback mechanism, in a closed loop system form. For example, lead-time is negotiated and committed via plans at various stages, are shared through information loops. Owing to the complex process of vinyl manufacture, cooperation among functions is important to incorporate every aspect of the product manufacture, from raw material source to the consumer.

5.9 CONCLUSIONS

The long-term success of Era Beier depends on the success of its suppliers and level of satisfaction of its customers. That is, the entire supply chain must be successful. Poorly performing supply chains are easy to recognize and generally schedule product, using forecasting in batch modes. These supply chains that push the product through to the customer, have low overall reliability and maintain high inventory levels to achieve customer delivery date. Overtime, expediting, premium freight and inventory obsolescence drive up product costs. Era Beier needs to minimise non-value-added work and also reducing inventory levels across the supply chain. The firm needs to eliminate costs rather than reallocate them. An example of this effort is outsourcing of the sales function. Sales agents are employed at various centres that work on a commission basis. They lack the commitment that is required. The company and the customer suffer. Era Beier needs suppliers and customers that are willing to go into a partnering relationship.

In order to manage these supply chain arrangements for realizing overall improvement in enterprise productivity, it is necessary to improve the planning and management of complex interrelated systems such as materials planning, inventory management, capacity planning, logistics, and production systems.

In the chapter to follow, the data collected by means of the methodology described will be presented and analysed.

CHAPTER SIX

PRESENTATION OF FINDINGS

6.1 INTRODUCTION

In this chapter the results obtained will be discussed and placed in context. The conclusions verify the current situation from the interviews with the managers at Era Beier. The findings from the interview sessions indicate the concern highlighted by senior management. This information should serve as a basis for future decision making with regard to the overall supply chain strategy (Arjan, 2002).

6.2 COLLABORATION IN THE SUPPLY CHAIN

Strategic SCM demands collaboration among all participants in the value chain. Of all the managers interviewed there was common agreement that the departments within Era Beier, the suppliers and the customers need to be more interactive to solve the more routine problems that is affecting the process. Once a communication network has been formed the larger problems could then be attempted for resolution (Arjan, 2002).

One of the concerns stated by the purchasing manager is the lack of a secure relationship between Era Beier and the suppliers. Although there are few suppliers, the trust has to be established so that the requirements from both parties can be addressed in a win-win situation. As noted in Section 2.2.2 successful partnerships, of course, are likely to occur when both sides commit ‘heart and mind’ as well as formal announcement, to make them work (Saunders, 1997). Currently complaints lodged for quality issues to the suppliers requires in depth

investigations by suppliers who do not believe that it is their fault. Conflict situations arise and the suppliers often suggest a threat on termination for future deliveries. As highlighted in Section 2.2.6 ‘supplier relationship can blossom and develop into a mutually profitable one. Alternatively it can fail for various reasons to meet expectations and terminate’ (Baily, 1994).

In most cases the poor quality delivered is substantiated by samples from Era Beier to the supplier. However, quality problem is often blamed on the processing aspect of Era Beier. Suppliers do not believe that the material they supply has any defects.

Through cooperation and coordination both supplier and customer can obtain advantages in efficiencies. The supplier would benefit if it acknowledges the defects as their problem and begin to make improvements in their processing. The quality complaints would then begin to diminish and the customer base for the supplier would inadvertently increase. For the customer, Era Beier this will lead to a decrease in internal scrap rate and increase in profits.

6.3 ISSUES AT RESEARCH AND DEVELOPMENT

As evident in Section 5.4.3, Era Beier needs to collaborate more with the suppliers so that raw material demands or requirements could be specific to the application. As per the interview with the Research and Development Manager one area that needs investigation is the supplying of ready to use pigment tint. Era Beier is currently tinting the required colours. Small quantities of pigments have to be weighed as per formula to give a specific colour. The supplier could supply these ready-made pigments. This would enable the operators to readily weigh the pigment for the calculated amount of paste. The benefits would be the time that is saved to colour match the required colour. Here we have the tinted pigment in a

ready to use state. Another benefit is the amount of pigment used for the colour. The operators at Era Beier tend to use more of the individual pigments to colour match the required shade. The responsibility for pigments would now be transferred to the supplier.

6.4 STRATEGIC SUPPLY CHAIN STOCKING POLICIES

The application of strategic stock has long been used to buffer against uncertainties. The purchasing manager stated that he uses raw material stock to buffer against supply uncertainty and the sales manager makes use of finished goods stock to buffer against demand uncertainty (Arjan, 2002).

A concern raised by the sales manager is that finished goods inventory needs to be controlled so that the turnaround time for stock is seven days. Currently it is three months. Material should only be manufactured for definite sales. Valuable cash is being tied up.

The raw material inventory also needs to be reduced to a minimum. Era Beier inventory level is R10 million a month. The purchasing manager view is that the overseas suppliers need to have an intermediate warehouse so that weekly production requirements can be drawn from this warehouse. Overseas suppliers need to understand the principles of SCM and be part of the collaborative supply situation.

Proper material requirements planning can keep cash in the firm and still fulfil all production demands. It is the single most powerful tool in guiding inventory planning, purchase management and production control. MRP once implemented is effective and adds dramatically to profits (Weele, 1994).

Therefore it is essential that the sales department does give sufficient lead time to the customers so that at Era Beier internally can be effective in their production planning strategy. The purchasing manager, sales manager and factory manager admitted to the weakness of the current production planning system and every effort is being made to improve it.

6.5 SUPPLY CHAIN COST

The supply chain at Era Beier suffers from distorted demand as it passes upstream causing excess stock holding, obsolescence and production costs. These demands cannot be sustained as it contributes to excessive production costs. The factory manager remarked that the managing director is constantly reminding him that his work in progress needs to be kept to a minimum. At times the work in progress is calculated at R12 million which is approximately two months work. This cost needs to be under R2 million, which is relative to seven days work. The Managing Director has proven to the staff by means of a formula that when the work in progress is under R2 million the company becomes a profit making organisation. Therefore excess work in progress would be profitable if it were converted into finished goods within seven days and dispatched to the customer. The planning function needs to be addressed so that product is manufactured for order only. This is supported by the comment from the logistics manager who stated that Era Beier tends to manufacture stock to replenish depleted levels hoping that customers would draw from this finished stock level. Because the relationship between the customer and supplier has not been fully established there is no customer loyalty. Customers tend to source material based on price. As a result, Era Beier's finished stock levels tend to exceed the seven days turnaround times as anticipated. The

sales manager stated that he responds to this situation by selling material at a discounted price, which directly affects the profitability of the business.

To be globally competitive production time needs to be reduced. Product needs to be processed at all areas at a much faster machine time. The current speed of 8m/min needs to be doubled. Production re-runs need to be eliminated if the process parameters have been correctly stipulated. As explained in Section 5.4.8 Era Beier must deliver the same product more efficiently. The greater the machine speed, the lower will be the manufacturing cost of the product. Era Beier will then be able to compete with the export market. In some product ranges material imported inclusive of landing is still lower than Era Beier's. Also explained in Section 4.6 is the product differentiation. Era Beier needs to cheapen its product so as to be competitive. However the product must still maintain its physical characteristics.

6.6 DELIVERY SCHEDULE

A common problem from the customers against Era Beier is the delivery schedule that is not met. Deliveries are inadvertently late. The sales manager has shown that he has now drawn up a delivery schedule to track all deliveries to customers. The reason could be ascertained if the delivery is late and immediately the customer will be notified of the expected late delivery. A reason for the late delivery will also be communicated to the customer. This will go a long way in trying to establish the confidence between the customers and Era Beier.

In some cases recurring late delivery has forced the customer to seek alternate sources of supply. Some of the reasons given by the Sales Manager are the delays in production. The period for the work in progress needs to be reduced. If an order

has to be re-run because of the defects in the initial run the entire plan has to be rescheduled. Machine breakdowns are also a reason for late deliveries.

Any inefficiency incurred across the supply chain, which may stem from suppliers manufacturing plants, warehouses or customers must be assessed to determine the true capabilities of the process (Handfield and Nichols, 2001). Era Beier cannot solve the distribution problem by holding inventory at warehouses, as this can be risky and unprofitable.

Of paramount importance is the supply of raw material. The levels currently are deemed to be in excess of R12 million. This inventory requirement is adequate for a month. Era Beier needs supplies on a weekly basis to reduce inventory levels. The purchasing manager stated that the economic ordering quantity be determined before orders are placed ie, the quantity at which ordering costs and storage costs are equal.

6.7 INFORMATION TECHNOLOGY

Currently information from the suppliers and customers to Era Beier is communicated by verbally or by fax. As stated in Section 5.6.5, a common electronic data-interchange linking all the suppliers and customers is required. The Commercial Manager stated that his vision for an effective SCM is that the parties concerned can tap into this database for deliveries of raw materials for the suppliers and the customers can transmit or make request for requirements for the finished product. However this common database is a long way from being realised. The Commercial Manager's view is that there are still agreements to be established between the parties concerned. Contracts are to be drawn up between the suppliers and the customers. The relationship has to be established and a

common EDI for all parties concerned to be agreed upon. This facility is a long-term objective for Era Beier. However, importantly it will influence the supply chain.

6.8 QUALITY IMPROVEMENTS

Era Beier is targeting the automotive industry. Its strategy is to be involved with the major role players like BMW, Daimler Chrysler, Toyota, Volkswagen, Ford and Volvo, which it currently supplies. To supply these Original Equipment Manufacturers (OEM's) and to establish a successful relationship the quality of the manufactured product has to meet the stringent quality requirements of the motor trade. The Quality Manager needs to improve the quality of its products. The internal reject rate at manufacture is in the range of 12 – 15 %. A rejection rate of 6% and below is the objective. The percentage of 6% has been costed into the product. Therefore anything above 6% will directly affect the profitability of the company. Rejects not detected at Era Beier lands up at the customer. This external reject rate can be of a high value if the customer's incoming inspection also does not detect the fault. The high value is due to the customer further processing the material. This fault is only detected at the customer's final inspection. Instead of Era Beier only paying for the piece of vinyl they are now obliged to pay for the entire seat cover. Therefore rejects at the customer needs to be minimised so that the capacity at the OEM's can still be attained in a production shift. At that same time there is a need to address the introduction of new products for the automotive industry more quickly. The approval process for new developments in some cases does not meet the deadline and as a result the customers are sourcing alternate means.

6.9 ORGANISATIONAL STRUCTURE

A major part of the value chain is the operational aspect at Era Beier. Operations include the process of manufacturing, packaging and the sub-functions that convert input to output and the customer's requirement. Given the complexity and labour intensity of the vinyl manufacturing process, the support function, human resource and training, play an important role in the supply chain. A high degree of skill is needed for optimum efficiency. The assistant factory manager was concerned that the empowerment provision was perceived to be weak while insufficient progress is being made in special training and development initiatives. There also appears to be perception that there is insufficient progress in terms of career management, enhancement initiatives and individual development by the organisation.

6.10 OUTSOURCING

Colour matching customer specific requirements is an exacting science and requires high levels of skill and knowledge. Era Beier's major problem is colour not conforming to those specified by the customer. Huge customer claims is based on material that is supplied off shade.

The focus on integrating suppliers can lead to sustainable competitive advantage. The research and development manager was adamant at the interview that the pigment issue could be resolved if the suppliers get involved in the problem so that colour shades could be supplied by the suppliers themselves. They supply the individual pigments for production. The conversion of the finished product, ie pigment shades could be their responsibility (Erridge, Fee and McIlroy, 2001).

6.11 MARKETING AND SALES

From an advertising perspective Era Beier has not been successful in differentiating itself from its primary competitors through innovative and original advertising campaigns. In an industry where there is always the threat of overseas competitors who are beginning to eat into the local vinyl market, Era Beier has been dormant in shaping its reputational effects through advertising. The sales managers conclusion is that Era Beier requires promoting its brand awareness in its efforts towards globalisation.

6.12 CONCLUSION

Interview results obtained from the departmental managers indicate that Era Beier needs to address areas of inventory level, the supply situation to its customers and the quality of its finished product. These factors and the other components, which contribute to an effective supply chain, will be discussed in the next chapter.

The examination of the results of the study on the implementation of the above concerns together with the relevant literature has been analysed. The results indicate that Era Beier is not making adequate positive inroads into implementing these requirements.

Chapter Seven will highlight the conclusions of the study and recommendations will be proposed.

CHAPTER SEVEN

RECOMMENDATIONS AND CONCLUSION

7.1 INTRODUCTION

The research was undertaken at Era Beier situated in Pinetown, South Africa. The purpose of the research was to investigate the organization's effectiveness of the supply chain management situation. The supply chain management study highlighted areas with respect to both customers and suppliers. The deficiencies were highlighted at Era Beier, so that some improvements could be implemented. These provisions have been identified as success factors in achieving success in the workplace.

Era Beier realises the need to address the weakness in the supply chain. How far the organization has come and what needs to be done has been the issue of the study.

7.2 CONCLUSION

The results of the empirical study are summarised below: -

- There is not enough collaboration with the suppliers to establish a level of trust so that problems and delivery schedules can be amicably resolved when it does arise.
- The empowerment provision is perceived to be weak. Insufficient progress is also perceived in special training and development initiatives as well as individual career management enhancement initiatives.
- If Era Beier is to retain its customer base its strategy of outbound logistics needs to be coordinated with the retailers.

- Colour matching has proven to be a difficult area to master. Insufficient progress is also perceived in special training and development initiatives to have highly skilled personnel.
- Purchasing department needs to reduce the inventory level to JIT system. Part of the problem is due to overseas supplies.
- Production management needs to reduce cost in areas of product change over. Currently delay is one hour and improvement is required in this area. Work in progress needs to be reduced from its levels of R12 million to R3 million. Production time needs to be reduced. Machine speed needs to be increased from 8 meters a minute to double this speed.
- As yet there is no advertising company that has been contracted to market Era Beier and its products. The company is beginning to lose market share through local and overseas market. A volatile market such as the vinyl or textile needs an aggressive advertising campaign.
- Control measures need to be implemented to monitor the product at all stages of production so that corrective action can be implemented if non-conforming product is being produced.
- An effective electronic data interchange system needs to be linked to suppliers as well as customers to enhance the communication needs.

7.3 RECOMMENDATIONS

On the basis of the above the following recommendations are made: -

- Era Beier needs to investigate ways of improving and establishing relationship along the entire value chain. There are competitive advantages

through enhanced relations with fewer suppliers, resulting in lengthy relationships, which are more likely to include assets dedicated to the partnership. Sharing greater information and assets enable such programmes as just-in-time manufacturing, which will increase the efficiency for Era Beier and accrue benefits to all parties through cooperation and coordination.

- The organisation must focus on empowering designated groups. As such special training and development initiatives should be investigated which focus on providing respondents with the tools for effective decision making. Era Beier should pursue empowerment by encouraging employees to develop their own abilities through company sponsored training and development and to accept as mush responsibility within their capability.

- A highly important element of this strategy is EDI, an electronic data-interchange system that directly connects customers to the overall Era Beier distribution system. Point-of -sale information from Era Beier major accounts provides the ability to generate instantaneous data relevant to reorders, invoices and shipments. This distribution system, while costly, would enable major customers of its products, to avoid having to place orders and coordinate logistical arrangements. It would also help sales to maintain the appropriate product inventory at any given time.

- The method of colour matching problematic colours can be entrusted with the pigment suppliers. This is their area of expertise and needs to be entrusted to them. Era Beier needs to specialise and focus on its core competencies is enhanced by outsourcing those activities which can be better performed by outside firms based on their area of expertise.

Employees from Era Beier can be seconded to pigment suppliers to learn the science of colour matching.

- Low inventory levels can contribute vastly to a firm's efficiency and cost. Inbound logistics revolve around supplier relationship. Greater collaboration needs to be established with suppliers to support a JIT system of manufacturing. With overseas suppliers a local warehouse could be established as an intermediate supply.

- Effort is required to reduce work in progress before normal production resumes. If work in progress goes over a pre-determined value, all production needs to stop. The situation needs to be analysed for the reason for the build up and corrective action implemented. Trials need to be conducted for increase in machine speed so as to reduce production time. If the physical properties do not change then the new machine speed to be specified in the specification.

- The marketing and sales segment of the value chain involves such activities as promotion and advertising, sales representation, relationships, technical support as well as pricing strategies. This link is an important aspect of reputation building by serving as the direct interface between the consumer and the product. Advertising encourages people to make purchases. A web site for Era Beier needs to be established with relevant technical support and applications for the various products it offers. Sales representatives have to be familiar with the product that they sell. The product however has to be backed up by one of high quality.

- ‘First off’ is important to ensure the process capability of the production lines. The ‘first off’ is the first sample from the production line that is inspected against the specification. If it conforms then only is the production line allowed to continue. If the product does not conform, then adjustments are made to the process or the machine and another sample is tested. At key points in the production process, quality inspectors need to monitor every metre of the process. Extra personnel need not be employed. The current line operators could be multiskilled so that they become aware of the requirements of the product. They will be performing dual functions. Important tests can be performed on the line instead of this sample being tested in the laboratory. The instant feedback to the line can save hundreds of metres of defective product being produced. Therefore the relevant equipment needs to be purchased and line personnel trained for effective utilisation and feedback.

7.4 RECOMMENDATION FOR FURTHER RESEARCH

The outcome of the study was limited to the comments or suggestions as perceived by the departmental managers. By limiting the study to managers leaves avenues open for further research. It is therefore recommended that in order for Era Beier to get more absolute view of the improvements for the implementation of its supply chain management policy further research should be conducted.

For motivational reasons it is also recommended that the organisation conduct further research to assess the extent middle management perceive as recommendations for improvement to the supply chain. Another possible avenue for future research could be to examine demographic impacts on the findings. In particular, the demographic characteristics of firm size and asset versus non-asset

based operations were mentioned previously as areas of potential research opportunity.

7.5 CLOSING SUMMARY

Given the current situation at Era Beier with the shortcomings highlighted, strategic planning should be at the forefront. Goals, objectives and visionary concepts must be the foundation of all activity. The preceding section has provided some examples of how Era Beier systematically addresses the development of programmes and to improve the reputation of the organisation.

Although threats and opportunities are likely to exist along the value chain's primary links, Era Beier needs to put strategic plans in place. Managers need to prioritise the threats and opportunities along each of the value chain's elements. An optimal reputation planning team should be drawn from diverse organisational functions for the purpose of generating and collecting data on the issues affecting the organisation for each of the value chain elements.

Corporate strategy, creative leadership, synergy, enhanced communication and a strategic marketing orientation will guarantee the integrity and future involvement of Era Beier in the automotive industry.

APPENDIX 1

INTERVIEW GUIDE

a) Which areas need urgent attention?

b) What is wrong with the department?

c) How long has this been the situation in your department?

d) What improvements do you suggest the company should make in your department?

e) Do you think we as managers communicate between us, to our suppliers and to our customers?

f) How do the suppliers rate us?

g) How do the customers rate us?

h) What has been a significant supply management success at Era Beier?

i) What are the factors required for success in recruiting talent?

j) How did your organization make the transformation to this best practice?

k) What obstacles might be encountered when developing this strength?

l) How can supply managers overcome these obstacles?

m) What's really driving the need for a new approach to dealing between customers and suppliers?

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