THE IMPACT OF INBOUND LOGISTICS ACTIVITIES ON THE OPERATIONAL PERFORMANCE OF THE POSTAL SERVICES ORGANIZATION IN SOUTH AFRICA

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ABSTRACT

Introduction and Relevant Details

This research investigates the impact of inbound logistics' activities on the operational performance of the business within the branches of the South African Post Office (SAPO) in the Eastern Cape Province. The study basically hypothesises a statistically significant positive correlation between inbound logistics' activities and the operational performance of the business with regards to revenue generation and operational costs in particular. A sample of 100 branch offices was randomly selected. A 60-item questionnaire was administered by mail to the branches to collect the data during September 2005, and statistical tests for correlation were conducted on at least five dependent variables; stock procurement costs, effects on revenue, number of stock variation occurrences, order variation occurrences and the stock holding effects.

Results of Data Analysis

The results of 88 respondents (88%) showed the existence of the significant positive relationship between the inbound logistics activities and the operational performance of the business at the South African Post Office branches as proposed by the study. The Spearman Rank Correlation tests were above 0.7 for most of the tested variables, showing a strong relationship. The inbound logistics' activities were also found to be positively correlated to revenue generation as well as to the operational expenses of the business.

Conclusion and Recommendations

The findings allowed the researcher to conclude also that whatever improvements are made to the inbound logistics will also impact on the operational performance of the business, while failures in the inbound logistics will do so negatively. Business endeavours to maximise revenue and minimise costs are directly affected by the inbound logistics' activities. The branches of the SAPO seemed to be dissatisfied with most of the services rendered by the Supply Distribution Centre

(SDC) of the SAPO, and such services have negatively affected the achievement of revenue targets at the branches as well as the operational costs.

Holistic approaches to developing positive perceptions in the branches together with improving service activities at the SDC are recommended. Collaborative initiatives between branches and the SDC, reviewing the lead-times and the establishment of proper structures to handle supply chain queries, enhanced by information system technology to provide accurate and up-to-date information to branches and related parties about stock order issues are required. Areas of further research highlighted include the inbound logistics' activities of the SDC and the effectiveness of company policies as a guide to Supply Chain Management (SCM).

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The South African Post Office (SAPO) has its operations in the postal and related services industry. The SAPO's vision is, "To be the leading provider of postal and related services in Africa". The SAPO's mission statement is, "We will connect people through the distribution of information, goods and financial services, building on our strength as a provider of postal services and by embracing change, technology and innovation, thus, ensuring that we create shareholder value and deliver high levels of customer, employee and community satisfaction". (SAPO Annual Report, 2004). Supply Chain Management (SCM) as an area under study, plays a critical role in ensuring that the company works towards the achievement of the objectives of its mission and vision.

The organization also has the following as its core values: " A passion for our customers and their specific needs through excellent service; contributing positively to our communities and environment; treating each other with respect, dignity, honesty and integrity; recognition of individual contributions; and lastly embracing diversity in the way we conduct business". These values should have a great influence on the way that the supply chain activities are managed within the SAPO.

SCM plays a major role in enhancing the achievement of an organization's vision, mission and its core values. The study specifically focuses on the inbound logistics' activities in particular, and their impact on the operational performance of the organization in pursuit of achieving its mission and vision and upholding its values. Beamon and Ware (1998) argue that effective management of supply chain systems is achieved by identifying customer serving requirements, determining inventory placement levels, and creating effective policies and

procedures for the coordination of supply chain activities. While the SAPO has a SCM policy, the challenge is to ensure adherence thereto.

Beamon and Ware (1998) further argue that today's changing industry dynamics have influenced the design, operation and objectives of supply chain systems by increasing emphasis on improved customer service levels, reduced cycle time, improved quality of products and services, reduced costs, integrated information technology and process flows, planned and managed movement, and flexibility of product customisation to meet customer needs. Van Hoek (1998) states that another challenge for organizations is the dominant focus of competitive strategy, as companies are no longer units in the competitive battle, but supply chains competing with each other. SAPO is not yet in a position to take competition to its rivals because its SCM is not yet trusted internally.

Cox (1999) explains SCM thinking as a way of thinking that is devoted to discovering tools and techniques that provide for increased operational effectiveness and efficiency throughout the delivery channels that must be created internally and externally to support and supply existing corporate product and service offerings to customers.

1.2 CONTEXT OF THE RESEARCH

Stevens (1989) states that the objective of managing the supply chain is to synchronize the requirements of the customer with the flow of materials from suppliers in order to effect a balance between what are often seen as conflicting goals of high customer service, low inventory management, and low unit cost. According to Broome (2002), empirical studies show that better performing Supply Chain Management (SCM) systems are the ones based on satisfying customer needs. These arguments suggest the necessity for the SAPO to design its supply management system around the satisfaction of customer needs, but in a very cost effective way that will manifest low operational costs as far as the SCM is concerned.

The South African Post Office (SAPO) is faced with a challenge in its Supply Chain Management system of inbound logistics' activities not fully supporting the operational performance of the organization that is measured at branch level. The inbound logistics will include among others the ordering of stock for re-sale at branches and the dispatching of such stock from the supplier to the branch within reasonable time. The SAPO has a central purchasing point and the branches obtain their stock from that point, dispatching means the movement of stock from the central distribution centre to the branches. Other inbound logistics' activities will include inventory holding and inventory management as well as stock replenishing or re-ordering.

The SAPO annual report (2004) states that the organization is large and its SCM system is massive and that the problems related to it are massive as well. SCM is a very broad concept and this research at the SAPO will focus on inbound logistics. The ultimate purpose is to ascertain if the inbound logistics fully support the operational performance of the organization, where the operational performance is measured in terms of revenue generated in rand value and in percentage terms, as well as in cost containment terms, where the operational expenditure is kept within budget and fruitless expenditure eliminated.

It has become common for the retail outlets of the SA Post Office to run out of stock, and operational management would blame their inbound logistics activities for the non-availability of such items in their stores. The research is important to the SAPO because it aims to provide some solutions to the problems in the SAPO's inbound logistics, from which the organization can start to develop some learning points and areas of improvement regarding inbound logistics, so that better services can be provided by its operations.

The activities that will impact on the operations or processes within the organization are thus the inbound logistics activities. In a big organization like the SAPO, it is imperative to evaluate the current impact of the inbound logistics on its operations. The inbound logistics' activities will also be viewed as a systems thinking concept.

Holmberg (2000) describes the systems thinking concept as encompassing inter-connected components separated from their environment by a system border. He further describes it as a central concept system that embodies the idea of a set of elements connected together, which form a whole, this showing properties which are the properties of the whole, rather than properties of its component parts. The rationale for using the systems thinking concept is that it provides a method for describing, analysing and planning complex systems of different kinds.

In other words, inbound logistics being part of the supply chain system cannot be looked at in separation to the supply chain as the whole. The suggestion is that systems thinking may be suitable for the SAPO as it functions nationally as a large organization.

One of the competitive factors among successful organizations is an efficient supply chain management system. Baily (1991) states that some organizations have made supply management system one of their core competencies, especially the logistics of inputs for processing which in return may have a positive impact on the provision of services and products. These changes are helping organizations to survive and succeed in a very competitive world.

In some instances operational managers have claimed to be unable to provide goods and services or perform operationally due to delayed delivery of materials, non-availability which is linked to inadequate inventory management and poor transportation systems. Situations of this kind plague the SAPO branches from time to time. The research will also focus on understanding the types of process quality measures on inbound logistics' activities that are currently being employed at the SAPO.

The gaps associated with the various stages of the inbound logistics in the supply chain and internal customer requirements will be identified, translated into measurements, and then the aspects of quality and performance for the process may be identified. The measurement of performance will include the testing of variables such as the lead time for a branch to receive stock from the Supply Chain

Management Centre, the percentage of incorrect stock received by branches, the costs incurred as a result of stock-out situations, etc.

According to Beamon and Ware (1998), there are numerous aspects of quality that may be measured in a supply chain process. These may include:

- Reliability – concerns the time between the failed delivery of products and services eventually being rendered.

- Order accuracy – concerns the probability that the correct order is received, arrives at or departs from the warehouse on time.

- Worker standards – concerns the engineered standards for workers inside the warehouse.

- Customer satisfaction – concerns whether the internal or external customers are satisfied with the service rendered.

- Worker quality – concerns safety issues, damaged goods, etc.

- Cost – the resulting cost incurred in a supply chain system by stages or throughout the entire system.

The issues facing the company range from too much inventory held at the SAPO branches to too little inventory on hand and these scenarios have some negative cost implications to the business at branch level of the SAPO. Some branches experience frustration because of poor response time from the distributor, known as the Stamp Distribution Centre (SDC), and other branches experience receipts of insufficient stock from the SDC with no indication as to when will the back orders be delivered.

Increased demands have caused businesses to pursue improvement initiatives, such as implementation of Just-In-Time (JIT) and Quick Response (QR) inventory

management policies, business reengineering, and supply chain management as tools to enhance their competitiveness. Huston (1996). This is often difficult to achieve without partnership sourcing and logistics partnerships with other services providers. (Wang, 2002). He also mentions in his empirical study that a Supply Chain constitutes two or more parties linked by a flow of goods, information, and funds, but in his synthesizing of the Chain, he discovers that little work has been done on the relationships of Supply Chain contract models.

Customers demand products consistently delivered faster, exactly on time, and with no damage. Supply chain management system is one part of the Value Chain Management systems and the focus of the research is on inbound logistics, which is one part of a supply chain management system. This indicates that the general scope of supply chain management cuts across the physical, functional and legal boundaries of companies. (Croom & Giannakis, 2004).

According to Coyle, Bardi & Langley (2003), inbound and outbound logistics are important primary components of the value chain, that is, contributing value to the firm's customers and making the company financially viable. Satisfaction of customer need and financial viability are the two variables that may be used to measure operational performance of the organization.

Within SAPO during year 2001, numerous requests were made in management meetings, teleconferences and videoconferences by senior management for the inbound logistics in the organization to improve drastically, since operational managers blamed the failure of the divisions on them. As nothing much seems to have improved since then, the research is aimed at initiating a positive change in that regard.

Logistics' control is a crucial issue in Supply Chain Management. Janssen (2004), in empirical studies where she identified possible roles of a Supply Chain coordinator and investigated a case study, she came to the conclusion that the composition of a logistics model of a Supply Chain is not "set in stone". She says that a successful implementation requires that the organizations involved in the Supply Chain make a number of trade-offs to arrive at a logistics control model.

This is not case with some firms, however, because they are striving for competitive advantage against rivals who are also part of the chain.

It could be said that such trade-offs are sometimes ineffective, but organizations can commit, enhance and effectuate their SCM systems objectively, and that may yield positive results. The SAPO may deduce from this that better collaboration with its suppliers may be necessary to improve its inbound logistics, and that may result in better operational performance for the organization. Roy et al. (2004) argues that decision distribution along the supply chain needs coherence between partners to achieve better productivity and greater reactivity.

Croom and Giannakis (2004), in their seminal view of SCM emphasised that the performance of an organization is thus widely agreed in contemporary management and organizational literature to be influenced to a greater or lesser degree by the actions of the organizations that make up the network or supply chain in which it operates. The SAPO as an organization is faced with a situation where its supply chain is as good as its partners that make up the network.

If, for instance, the SAPO's supplier of a specific commodity cannot supply, then the SAPO will have no stock to sell, resulting in lost sales to the business, so that the business performance is negatively affected. The challenge is to turn such situations around, by ensuring for example that the policy on collaboration with suppliers is not only on paper but is also made practical.

Croom and Giannakis (2004) argue this in the form of a Supply Chain Content Matrix, in which they portray three levels of analysis as dyadic, chain and network. In terms relationships they link dyadic with outsourcing and sub-contracting, chain with logistic partnership with logistic service providers, and network as linked value system analysis and supply network partnership.

1.3 GOALS OF THE RESEARCH

The main purpose of the research is to evaluate the impact made by the inbound logistics activities on the operational performance of the South African Post Office

Limited, for the Eastern Cape Region, specifically at branch office level. The performance measurements to be tested will be the response time of the Supply Chain Management Centre (SCMC) to the orders made by the branches, that is, the time it takes the branch manager to receive stock from the SCMC from the date of order; the reliability of the SCMC as perceived by the branch managers that they always receive exactly what they ordered from the SCMC with no or little experience of non-availability of stock or back orders; the impact of costs incurred by the branches as a result of inbound logistics activities; and the impact of inbound logistics activities on the amount of revenue generated.

The study seeks to ascertain whether the inbound logistics at the SAPO currently fully support the operational performance of the organization or not, using the measures mentioned above. The research thus seeks to ascertain whether the operational performance of the organization is in any way influenced by the inbound logistics' activities. It will also attempt to ascertain whether the inbound logistics' activities have no impact at all on the way that the company is performing.

In large organizations like the SA Post Office, one often finds that non-delivery by the operational managers in the provision of goods and services for customer consumption is often blamed to the inbound logistics' activities. Hence the secondary aim of the research is to highlight in the inbound logistics the key activity areas of improvement and also suggest what should be done to improve these.

It has become common for the retail outlets of the SA Post Office to run out of stock and blame their supply chain management centre for the non-availability of such items in their branch offices. The branch managers are constantly faced with the angry customers and a lot of questions to answer. Beamon and Ware (1998) state that the goals of the supply chain process should be consistent with and supportive of organizational goals.

The researcher hopes to find the answers from employees' perceptions about speediness with regard to the response time on orders made by operations to the Supply Chain Management Centre (SCMC) in Pretoria, the accuracy of the service

(receiving just what has been ordered and receiving it on time in the right quantity and acceptable quality), and reliability (receiving what has been ordered with no back orders and according to the service level agreements concerning lead times with the SCMC).

Poirier and Quinn (2004) argue that performance measures should be aligned to the desired outcomes, and any successful initiative must have strong alignment around the goals and objectives and inherent costs of achieving the intended results. They further argue that in supply chain improvement cost reduction is still the primary driver, although revenue generation is coming on as an important factor. A more efficient supply chain is certainly said to have a positive impact on reducing out-of-stocks and the need to have safety-stock inventory.

1.4 OUTLINE OF THE STUDY

- Chapter 2 - Literature review
- Chapter 3 - Transformation of inbound logistics at SAPO
- Chapter 4 - Research Methodology
- Chapter 5 - Analysis and Discussion of results
- Chapter 6 – Summary, recommendations and conclusions

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The winds of change are blowing in the fields of purchasing and supply. Continued upgrading of conformance quality standards, just-in-time approaches to material availability, long-term relationships with fewer suppliers and a win-win approach to negotiations, instead of the more traditional adversarial or win-lose approach, are just some of the changes in the way procurement is managed. These changes are helping organizations to survive and succeed in a very competitive world. Baily (1991). SAPO as an organization is trying to embrace change as enshrined in its mission statement.

According to Beamon and Ware (1998), much of the research in supply chain process quality measurement has explored the question of how to assess the performance of individual supply chain functions. It is further argued that much of the research in the measurement of supply chain processes has focused on the development and application of productivity, utilization, efficiency, and effectiveness equations.

Similarly, this study will focus on measurable variables in the inbound logistics of the SAPO and ascertain their impact on the performance of the organization. However, Beamon and Ware (1998) also state that a model that provides a procedural approach to assessing, improving, and controlling the quality of the supply chain process has not been found in relevant literature. The paragraphs that follow will discuss the definitions and explanations of supply chain management.

2.2 Definitions of Supply Chain Management

It is not possible to discuss inbound logistics without discussing supply chain management, as inbound logistics form an integral part of supply chain management. One of the competitive traits of successful organizations is an efficient supply chain management system. Some organizations have made supply management system a core competency, especially the logistics of inputs for processing, which may impact on services and products provided. According to Mentzer (2001), Supply Chain Management is the systematic, strategic coordination of the traditional business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.

Saunders (1994) questions to what extent activities can be based on actual customer demand rather than anticipated demand. Planning on the basis of the latter means having to cope with the uncertainties and consequences traditionally experienced when forecasting sales. Clearly, errors in forecasts can lead to either overstocked or shortage situations in the supply chain, both which cause extra costs.

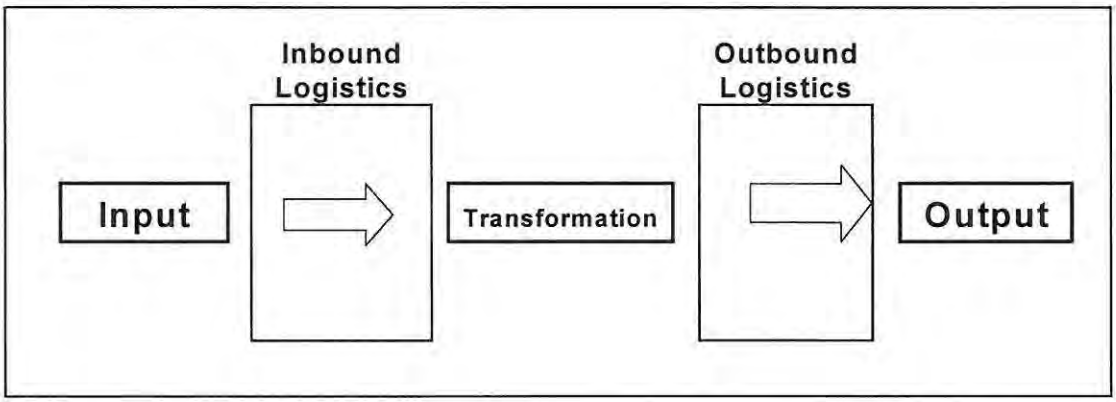
It would therefore be important to ascertain whether the branch managers at the SAPO manage their inventory based on actual customer demand or on anticipated demand as this will affect the costs involved in both situations. Weele (2002) submits that the inbound logistics activities are related to receiving, storing and disseminating inputs to the product, such as materials handling, warehousing, inventory control, vehicle scheduling and returns to suppliers.

Weele (2002) refers to operations as those activities associated with transforming inputs into the final product form, such as machining, packaging, assembly, equipment maintenance, testing, printing and facility operations. He further describes the outbound logistics as those activities associated with collecting, storing, and physically distributing the product to buyers, such as finished goods warehousing, materials handling, delivery vehicle operations, order processing and scheduling.

One notes that some authors define SCM in operational terms, involving the flow of materials and products (Tyndall et al., 1998); while others view it as a management philosophy (Ellram & Cooper, 1997); and still others view it in terms of a management process (La Londe, 1997). The systems view seems more appropriate for the SAPO as an organization, so that there is an overall view of the different parts.

Supply chain management system in the form of a transformation model may further be illustrated in figure 1.3 below as cited by (Slack et al., 2002:10).

Figure 1.3 All operations are input-transformation-output processes



Inbound logistics are said to have an impact on demand forecasting, purchasing, requirements planning, production planning and materials handling. According to Coyle, Bardi & Langley (2003), the underlying logic and rationale of the systems or total costs concept are still the basis for the logistics concept. However, the value chain concept has also been developed as a tool for competitive analysis and strategy. Inbound and outbound logistics are important primary components of the value chain; that is, contributing value to the firm's customers and making the company financially viable.

Inbound logistics are more about storage and transportation of goods and materials between sourcing and operations. Lambert, Stock & Ellram (1998) emphasise that materials management is concerned with product flows into the firm. Much like the firm's target markets, manufacturing requires satisfactory levels

of customer service, which depend on the ability of materials management effectively to coordinate a variety of functions, including traffic and transportation, warehousing and storage, and management information system control. Again, perfectionism is sought because defects waste time, money, and inventory, irritate customers and reduce margins.

The following paragraphs will introduce the importance of partnerships in a firm's inbound logistics.

2.3 The Importance of Partnerships on In-bound logistics

Svensson (2003) states that cooperation and coordination between companies' activities and resources is necessary to avoid or minimise the variability between business activities in the supply chain, such as ordering and sales, and the inventories in inbound and outbound logistics flows. Otherwise, the bullwhip effect might affect negatively the overall outcome or performance of supply chain. In his empirical findings he states that executives at Volvo emphasised that close relationships between the car manufacturer and its sub-contractors in the supply chain may diminish the exposure of vulnerability.

The crucial issue is that the breakdowns in the upstream supply chain affect the downstream activities and vice versa. It may be deduced from this that a close relationship of the SCMC with suppliers may reduce the high risk of vulnerability. Svensson (2003) further states that variability could be symptomatic of excessive inventory, poor product forecasts, insufficient or excessive capacities, poor customer service due to unavailable products or long backlogs, uncertain production planning, and high costs for corrections such as for expedited shipments and overtime.

Svensson (2003) asserts that the supply chain actors may gain benefits in terms of reductions in inventory levels and cost savings by forming partnerships with one another, and such supply chain partnerships can mitigate deficiencies associated with decentralised control and reduce the bullwhip effect. In his description of the bullwhip effect he says that a bullwhip effect between a company's inbound and

outbound logistics flows should indicate a higher level of inventories in the inbound logistics flows than in the outbound logistics flows, which is caused by insufficient market data, deficient forecasts or the other uncertainties.

The SAPO should make use of its technology in an endeavour to deal with the bullwhip effect, with the point of sale technology in place at branches assisting the company to manage its inventory in accordance with customer demand. In his empirical study on the bullwhip effect, Svensson (2003) argues that the bull whip effect in a company's inventory management of inbound and outbound logistics flows depends in part upon the gap between the degree of speculation and postponement of business activities, and he also asserts that the bullwhip effect is caused by the value adding of business activities in supply chains, indicating that a supply chain is only as strong as its weakest link.

It can be deduced from this argument that the firm should not only concentrate on internal aspects when reviewing its inbound logistics' activities but should also consider other linkages outside the firm. Beamon and Ware (1998) state that the coordination of logistics functions into integrated supply chain systems has increased the need for improved process quality, and improving the quality of all supply chain processes results in reduced costs, improved resource utilization and improved process efficiency.

Zhengping, Kumar and Lim (2002) examine the mystery of partnership in SCM, stating that a supply chain is a complex inter-firm network with multi-participants and processes, and that every participant is an autonomous or semi-autonomous participant. These organizations actually coordinate their activities to produce products or render services for the final customers. They further define coordination as the managing of interdependencies between activities, with an argument that coordination of activities and management of supply chain relationships can be a source of competitive advantage, that can bring additional value to the customer.

The coordination of the processes will address organizational coordination both internally and with partners who are customers or suppliers. In simple terms,

Zhengping, Kumar and Lim (2002) indicate that supply chain uncertainty refers to decision-making situations in the supply chain in which the decision-maker does not have definite knowledge as to what to decide as the objectives; or lacks information about or understanding of the supply chain or its environment; or lacks information-processing capacities; or is unable accurately to predict the impact of possible control actions on supply chain behaviour; or lacks effective control actions.

Handfield and Nichols (1999) argue that partnerships with key suppliers and customers may reduce uncertainty and complexity in an ever-changing global environment and minimize risk while maintaining flexibility.

Strategic alliances and partnerships are crucial to the success of a supply chain. Firms are encouraged to focus their attention on the entire supply chain and to reduce the number of suppliers with which they have to deal. Many firms have developed preferred supplier programmes, as well as selecting core transport carriers to ensure that a quality product is received where and when it is needed. (Chandra and Kumar, 2000).

Another crucial point cited is that, while every single member has perfect information about its own position in the chain, uncertainties arise due to a lack of perfect information about other members, and that underlines the importance of increased information-sharing among the members. The great argument is that, with information-sharing, the decentralised supply chain can achieve optimal performance under centralised control.

Spekman, Kamauf and Myhr (1998) state that SCM represents a paradigm shift that extends one's appreciation of the concepts of cooperation and competition, where cooperation is no longer seen as a process between one set of trading partners, but now exists along the entire supply chain. They mention, for example, that the General Motors' Saturn division no longer cooperates with a few selected parts suppliers, but finds itself partnering with many different suppliers, such as its inbound logistics carrier, its outbound carrier, and its retail dealer network, some of whom are in Japan.

Yu, Yan and Cheng (2001) argue that the increase in information-sharing among the members of the supply chain will afford the members the opportunity to reap the benefits in terms of reductions in inventory levels and cost savings from forming partnerships with one another. Lee and Billington (1993) state that inventories stored at different points of the supply chain have differing impacts on the cost and service performance of the chain. The SAPO is using a centralised SCM system and, if most of its suppliers are near to the central distribution centre or can deliver promptly to that centre, there is minimal negative impact on costs involved.

In this dynamic and rapidly changing world, another important aspect that greatly affects the inbound logistics' activities in organizations is that of globalization, and this aspect is discussed in the paragraphs that follow.

2.4 The Impact of Globalization on Inbound Logistics

The globalization of businesses has received a great deal of publicity in recent years. The pressure of global competition is frequently cited as a primary driver for greater customer demands for improved products and services. These increased demands have caused businesses to pursue improvement initiatives, such as implementation of just-in-time (JIT) and quick response (QR) inventory management policies, business reengineering, and supply chain management as tools to enhance their competitiveness (Jones & Riley, 1985).

The challenge is that firms cannot longer afford to keep a large amount of inventory because it is costly to do so, while on the other hand the demand is increasing but with fluctuations, and products must be available for customers. It is argued that, that is where techniques like JIT and QR should be utilized. The SAPO Annual Report (2004) states the company wishes to be among the top 10 postal services companies in the world. This means that the SAPO will have to effect major changes and make an effort to use world systems like QR and JIT in order to fit among the world players in terms of SCM systems.

Spekman, Kamauf and Myhr (1998) state that in any firm supply chain strategy development should be part of the business unit planning process, which includes efforts aimed at developing and maintaining global information systems, addressing strategic aspects of make or buy issues, and accessing and managing innovation with the purpose of protecting and enhancing core technologies. This is not the popular approach easily adopted by most companies as it needs a great deal of research and innovation, and not many firms are willing to embark on this process. Instead, firms may tend to concentrate on finding ways to correct the internal problems within their SCM systems. Such activities can prevent companies from taking a global view and viewing their SCM activities in a more strategic way.

Claycomb, Germain and Droge (1999) state that JIT refers to an integrated, problem-solving approach aimed at improving quality and facilitating timelines in supply, production and distribution. These are the variables to be considered by the SAPO in its endeavours to be a world player in terms SCM systems. The fundamental purpose of JIT is to eliminate all waste from the entire supply chain, and it is widely accepted that the implementation of JIT can improve a firm's performance. The SAPO at this stage is nowhere near being able to use JIT, as its SCM system is still developing, and JIT needs sophisticated systems that integrate with ease with the entire supply chain.

Claycomb, Germain and Droge (1999) also ague that in its ideal form, JIT integrates the entire supply chain's marketing, distribution, customer service, purchasing, and production functions into one controlled process. Finally, their study results showed that inventory levels of inbound materials, work-in-progress, and outbound goods were all found to be inversely related to JIT, suggesting that JIT's impact is being felt up and down the channel of distribution.

Mentzer (2001) further argues that the term supply chain management (SCM) has risen to prominence over the past 10 years. The reasons for the popularity of the concept are manifold; however, several specific drivers can be traced to trends in global sourcing, an emphasis on time and quality-based competition, and their respective contributions to greater environmental uncertainty.

- Corporations have turned increasingly to global sources for their supplies. This globalization of supply management has forced companies to look for more effective ways to coordinate the flow of materials into and out of the company.
- Companies and distribution channels compete more today on the basis of time and quality. Having a defect-free product delivered to the customer faster and more reliably than the competition is no longer seen as a competitive advantage but simply a requirement to be in the market. Customers demand products consistently delivered faster, exactly on time, and with no damage. Each of these aspects necessitates closer coordination with suppliers and distributors.
- This global orientation and increased performance-based competition, combined with rapidly-changing technology and economic conditions, all contribute to marketplace uncertainty. This uncertainty requires greater flexibility on the part of individual companies and distribution channels, which in turn demands more flexibility in channel relationships.

Farris II and Hutchison (2002) state that the opportunities for on-going supply chain management improvement are virtually endless. This actually means that companies will never do enough to improve their supply chain management because new challenges are constantly arising. Stonebraker and Afifi (2004) state that classical research suggests that greater interactive effort is required for the successful management of increasingly-differentiated supply chain environments, though classical theory only refers to internal cross-functional relationships, and not to external serially-related activities.

The classical research approach is actually supported by recent operations studies, with Germain and Droge (1998) finding that greater logistics complexity requires more coordinating mechanisms. One may conclude from the above argument that no world player can do it alone in the supply chain, but cross-functional relationships have proved to be necessary.

The paragraphs that follow will discuss the costs around inbound logistics activities in an organization.

2.5 Costs Involved in Inbound Logistics

According to Spekman, Kamauf and Myhr (1998) it is argued that managers now acknowledge that a firm's success is tied, in part, to the strength of its weakest supply chain partner. They assert that only through close collaborative linkages through the entire supply chain, can one fully achieve the benefits of cost reduction and revenue-enhancing behaviours. They further state that buyers consistently view the cost-saving aspects of SCM as more important than the revenue-enhancing benefits. The issue of collaboration with other parties in the chain is still a challenge for the SAPO, as other parties have advanced systems which may not integrate easily with the SAPO's system. The SAPO may need to consider this in order to get the benefits of efficient inbound logistics.

Gilmour (1998) describes six sections, which relate to the physical logistics activities, which generate costs during the movement of the products through the logistics channel. The sections are respectively, inbound shipment, line haul, actual delivery, stock holding, warehousing and order processing. The inbound shipment cost may be costs from ship to warehouse if the product is imported; or from the supplier's warehouse if from a local source. The local delivery costs may be costs from a firm's warehouse to other branches of a firm in a local area, while stock holding costs refer to the costs regarding the duration of the time for which stock is held in the warehouse. Warehouse costs comprise labour and supervisory wages, depreciation of warehouse equipment and the opportunity cost of the warehouse space.

Gilmour (1998) further argues that a number of changes could be made to an existing inbound logistics system without changing its basic structure. The first will be the impact of renegotiated rates on delivery costs by the suppliers, and another change will be the lowering of inventory levels. Relationship-building, collaboration and information-sharing may help the SAPO to renegotiate delivery costs or better options and alternatives with the suppliers.

Gilmour (1998) mentions in his research finding that benchmarking data indicated that a storeman could operate a productivity level of 20 orders per day, and that an automated order processor could handle 40 orders per day. These productivity changes also resulted in logistics savings without changing the structure. The crucial point as part of his research finding is that, all options generating the greatest cost savings in inbound logistics' activities involved restructuring the logistics operation into a centralized system with inbound supply as a single port.

The SAPO as an organization has embarked on that route but still needs to go further in the process. Gilmour (1998) also mentions that the firm should be satisfied that the structural change will not degrade customer service, also citing that this should work well especially if customers are not happy with the current level of service being received. The SAPO Annual Report (2004) explains that the company has done some structural changes to the SCMC in response to complaints from the branches about the activities at the SCMC.

De Koster, de Brito and van de Vendel (2002) assign manpower, space and associated costs as the internal warehousing costs which represent some of the cost drivers on the inbound logistics of a purchasing organization. The SAPO's distribution centre as a supplier of the branches countrywide is utilising a lot of warehouse space to keep inventory on hand, and one can deduce from this that a little improvement at the SCMC may result in a huge cost saving for the SAPO. Mentzer (2001) argues that a strategic, proactive approach to managing the supply chain is critical for survival beyond the year 2000 because the best supply chain will have a competitive advantage.

The real competition is not company against company, but rather supply chain against supply chain (Mentzer, 2001). Companies and distribution channels compete more today on the basis of time and quality. He argues further that one of the most important activities of materials management is working with the logistics function to manage inbound traffic and transportation. This reveals that it crucial for the SAPO operations to share information with the staff concerned with inbound logistics.

Yu, Yan and Cheng (2001) in their research finding conclude that the information-sharing-based partnership can improve the overall performance of a decentralised supply chain, and they also refer to that as the "Pareto improvement". Their observation shows that the manufacturer's inventory decreases with an increasing level of information-sharing, and the reductions can be both in inventory level and expected costs.

In terms of inventory reductions and cost savings in the supply chain, the Pareto improvement implies that all members in a supply chain system are at least as well off, which some members are better off. One may deduce from the Pareto improvement argument that collaboration is not enough for companies in the supply chain, but that each company will have to be innovative in initiating changes to improve its SCM for even better results.

Inventory management is one of the major activities of inbound logistics and there may be major costs attached to it. Chandra and Kumar (2000) state that in the past, carrying inventory in stock was a normal business practice to guard against risk of unfulfilled demand, but today many firms find that holding inventory is costly and so they try to push inventory onto another part of the supply chain. It is a challenge for constituents to ascertain where inventory should be held in the supply chain.

In an endeavour to minimize inventory holding costs, the SAPO may consider pushing stock to their agents who have to pay upfront for stock delivered to them; or if they obtain stock on credit, that they at least incur the holding costs for the SAPO. Van Hoek (1998) argues that one of the most important activities of materials management is working with the logistics function to manage inbound traffic and transportation. Like their counterparts responsible for finished goods, materials managers must be aware of the available transport modes and combinations, government regulations that affect the firm's transportation carriers, private versus for-hire carrier issues, leasing, evaluation of mode/carrier performance, and the cost-service trade-offs involved in the inbound movement of product.

Van Hoek (1998) asserts further that logistics in a supply chain can evolve from a traditional cost-saving function to a value-adding function. The location of the organization among its network of suppliers plays a big role in its SCM. According to Zhengping, Kumar and Lim (2002) organization location is also an influencing factor on a supply chain. Long distances between supply chain nodes, where a supply chain node is defined as an organization entity that is located at a particular location and supplies a particular product or service, normally means long delivery lead-time, more uncertainty in information and material flows and higher distribution costs.

The positive effect of the optimum location of the organization among its network of suppliers is that communication is more likely to improve and unforeseen delay can easily be dealt with, because the firm can make arrangements to obtain critical stock from the supplier within a short space of time should the supplier experience transportation problem and both parties can meet face to face.

According to the survey conducted by Poirier and Quinn (2004), it is stated that companies overall in Europe are making progress in advancing their supply chain capabilities, but there is still a big gap between the leaders and everybody else. This at once presents a challenge and opportunity for the latter group: the challenge being to apply processes and technologies to close the gap, and the opportunity being to start realizing the real business benefits of advanced supply chain management.

The greatest advances have been in the traditional areas of purchasing, logistics, and inventory management. Poirier and Quinn (2004) state further that the retail industry has proved to be surprisingly innovative, as the industry has traditionally depended more on suppliers for making supply chain improvements. However the dramatic leap forward has been evidence that the major retail industry players are taking the lead to advance the supply chain practices of themselves and their suppliers. Another prominent argument centres around the belief that opportunities abound for process improvement before the introduction of technology solutions.

Perhaps the most important insight in the survey of Poirier and Quinn (2004) is the fact that the real business benefit of advanced supply chain management remains largely untapped. What the SAPO can learn from such results is the fact that they show that if businesses put more focus on what can be achieved in terms of cost savings, revenue increase, profit improvement, customer satisfaction ratings and more, and keep an open mind, dedicating themselves towards real advancement, they can start to see breakthrough results in all of these areas.

Another problem is that many managers may still equate SCM with cost reduction only. For instance, Spekman, Spear and Kamauff (2002) cite that US firms have faltered in international dealings by not being willing to relinquish control and failing to acknowledge the gains attributable to effective supply chain partnerships.
Chandra and Kumar (2000) reveal also that the SCM phenomenon has received the attention of researchers and practitioners in various topics, stating that in earlier years the emphasis was on materials planning, utilizing materials requirements planning (MRP) techniques, and inventory logistics management, with one warehouse multi-retailer distribution system; but that in the last few years there has been renewed interest in designing and implementing integrated systems, such as enterprise resource planning, multi-echelon inventory and synchronous-flow manufacturing. In pursuit of being a global player in SCM, the SAPO should not avoid capital expenditure to put much more integrated systems in place.

Chandra and Kumar (2000) further cite two major factors that have contributed to the shift. Firstly, there has been a realization that better planning and management of complex interrelated systems, such as materials planning, inventory management, capacity planning, logistics, and production systems will lead to overall improvement in enterprise productivity. Secondly, the advancement in information and communication technologies, complemented by sophisticated decision-support systems enabling designing, implementing and controlling strategic and tactical strategies essential to delivery of integrated systems.

Delivering the right product at the right time in the right amount are essential objectives of efficient and effective supply chain systems. Thus, measures must

be taken to ensure that all operational components of the supply chain system are operating efficiently at all times. (Beamon & Ware, 1998). Every organization needs to obtain goods and services in order to carry out its objectives and goals, and risk exits in obtaining these items.

Concerning the supply risk concept, in their research findings Zsidisin et al. (2004) state that purchasing organizations can assess supply risk with techniques that focus on addressing supplier quality issues, improving supplier processes, and reducing the likelihood of supply disruptions. These risk assessment techniques facilitate the obtaining of information by purchasing organizations to verify supplier behaviours, promoting goal congruence between buying and selling firms, and reducing outcome uncertainty associated with inbound supply.

In taking advantage of collaboration and partnering with suppliers to share information, the SAPO may be in a better position to assess a supplier as a risk to its business. The common risk that normally troubles the SAPO occurs when the supplier of prepaid postage envelopes runs out of raw material and the whole country cannot sell prepaid postage envelopes.

Zsidisin et al. (2004) further argue that it is critical to an organization's success to understand the supply risk that exists. A supplier's failure to deliver inbound purchased goods or services can have a detrimental effect for the purchasing firm and subsequently throughout the downstream supply chain. Zsidisin et al. (2004) also state that few studies exist that explore the key constructs necessary for assessing supply risk. In actual fact their research findings reveal that supply risk assessment may also occur as a secondary benefit of the implementation of proactive supply management tools, particularly those that focus on addressing supplier quality issues, improving supplier performance, and preventing supply interruptions.

In pursuit of addressing the stock shortage within the activities of inbound logistics in a supply chain process, Chandra and Kumar (2000) argue that 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. Technically, the SAPO has the ability to access such information even at branch level. Chandra and Kumar (2000) further cite that this implies that suppliers should supply products according to demand and not lot quotas.

Eventually they reveal that the ultimate goals of integration at operational level are to achieve speed-to-market, agility, and flexibility to respond more quickly to actual customer demand, while keeping cost at a minimum. In their argument Chandra and Kumar (2000) state that while in the past forecasting was done primarily utilizing historical data, firms are moving away from this method and beginning to use the point-of-sale data, which tell them exactly how much was purchased during a certain time frame. Both uncertainty and inventory levels are lowered through improved communications within and between supply chain constituents.

Suppliers' delivery times are needed and point-of-sale data are required to know which products are to be replenished quickly and information-sharing is said to be critical in resolving these issues. Concerning the stock-out issues and oversupply of stock in inbound logistics Chandra and Kumar (2000) argue that panic may cause overreaction to the current state of inventory, thus increasing the amplitude of the effect where the effect becomes cyclical, with periods of high backorders being followed by periods of high inventory. The players blame each other for the lack of success, yet it is not the performance of the individual, but the structure of the system that is to blame for failures.

That is exactly what is happening at the SAPO, with the operations' side of the business lacking communication with the side in inbound logistics to ensure that inventory movement is well managed. Chandra and Kumar (2000) further state that the effect can be minimized if retail sales information is shared throughout the supply line. This sales information in terms of the SAPO is at branch level with point of sale technology.

Routroy and Kodali (2005) argue that there are three kinds of flows in any supply chain: material flow, information flow, and cash flow. The material flows in the downward direction and cash flows in the upward direction of the supply chain, whereas information flows in both directions and inventory exists at all stages of

the supply chain. The primary purpose of these inventories is to provide a buffer against uncertainty arising from demand. In today's environment, every supply chain seeks not only to minimize the system-wide cost, but also to hold minimum inventory along the supply chain, while maximizing the service level offered to the customer.

The total system-wide cost includes supply chain inventory capital, supply chain ordering and set-up costs and supply chain inventory stock-out cost, as well as the inventory holding cost. One may conclude that the most important of the three aspects discussed above is information flow, because that should inform the materials flow and then the cash flow will eventually follow after these two.

Harrison (1995) describes the application of synchronous flow being applicable to inbound logistics as well. He argues for customer pick-up rather than vendor delivery, because of the advantages of: more timely information on problems, reduced transportation costs, reduced transaction costs, and reduced uncertainty in deliveries. He also states that the effect of inbound variability is very important, arguing that the optimum probability of a stockout is given by: Probability = f (cycle time, cost of safety stock, stockout cost).

In his detailed argument on inbound logistics costs, Harrison (1995) argues that safety stock inventory costs, and the related expected stockout costs, can only be reduced if some means to reduce the variability of vendor delivery performance and shipping time is implemented with the implementation of JIT. One may also conclude that in the absence of JIT, at least collaboration and information-sharing can to a great extent minimise stock-out costs. The SAPO may perhaps learn a few things from that.

Harrison (1995) also mentions that long-term cooperation on several levels between buyer and supplier is necessary, with the supplier applying the same JIT principles, and information flow within the system becoming increasingly important and access to online data being a must. The actual reality in this argument is that all parties involved should view cooperation and collaboration in the supply chain between the buyers and suppliers as a long-term investment.

Vonderembse et al. (1995) state in their research findings on the role of JIT that if changes in purchasing are affecting inbound logistics costs and overall profit, there has been a positive impact on performance areas such as on-time deliveries, work stoppage caused by material shortage, the cost of inbound logistics, and the competitiveness/ profitability of the organization. The inbound shipment size has shown a decline and paperwork has been reduced.

Vonderembse et al. (1995) also state that some academic researchers using theoretical arguments, and practising managers basing their arguments on judgements and experience have argued that changes in purchasing, especially shipping smaller lot sizes more frequently, would lead to an increase in inbound logistics cost. The argument is valid to a certain extent, repeatedly it will be costing time. From a different perspective, the argument is that smaller lot sizes will reduce stock holding costs in terms of less handling capacity required as well as less storage space needed for the buyer. Minimum receiving time will be required to handle smaller lot sizes and fewer resources will be needed in this regard.

Svensson (2003) states that the bullwhip effect can be mitigated by reduced lead times, revision of reordering procedures, limitations of price fluctuations, and the integration of planning and performance measurement. He further asserts that shared knowledge with suppliers and customers to better gauge demand, co-operation with supply chain partners to determine what information is causing an overreaction, and usage of internet-enabled technology and the application of the web to speed communications and improve response time can mitigate the bullwhip effect. Chen et al. (2000) state that the bullwhip effect in a supply chain suggests that the demand variability increases as one moves up a supply chain.

Satisfying the end customer can only take place when the entire supply channel from materials supplier to retailer are linked closely together in the pursuit of innovative ways to improve service value, reduce channel costs, and create whole new regions of competitive space. In today's global economy, it has become simply impossible to service the final customer successfully each and every time if

the links in the supply channel that precede it are not also driven by the same focus on quality and value-added activities. (Roethlein and Ackerson, 2004).

Yu, Yan and Cheng (2001) state that uncertainties in the supply chain system are caused by delayed deliveries, machine breakdowns, order fluctuations, etc., which necessitate increased inventories. These uncertainties will propagate through the supply chain in the form of amplification of ordering variability, which leads to excess safety stock, increased logistics costs and inefficient use of resources.

In order to reduce the supplier effect to the firm's inbound logistics' activities, Roethlein and Ackerson (2004) cite a leadership role taken by Intel with its suppliers to put together a supplier quality improvement programme focused on the following six standards:

1. Regular communication with suppliers.
2. Continual and frequent forecasting of product requirements for suppliers.
3. A commitment to place all orders within agreed-on lead times.
4. Timely database reports on quality statistics.
5. Timely materials return to suppliers for failure analysis.
6. A process to implement and monitor corrective actions.

The results of their study of a quality communication within a connected manufacturing supply chain revealed that in a 'distributor-manufacturer' scenario the following situations prevail:

(1) Information from the end-customer is not communicated to the manufacturer and, therefore, customer concerns are not addressed.
(2) Communication between the manufacturer and the branches of the distributor exists only through branch personnel and the customer service and technical support groups at the manufacturer.

(3) Communication between the distributor and the manufacturer is extremely one-sided, with the manufacturer having the stronger influence.
(4) Quality communication is essentially non-existent at this level in the supply chain.

However, the argument is that it appears as though the main reason for the success of the supply chain, despite the several weak connections or relationships, is the strength or dominance of the manufacturer. The success of the dominant manufacturer may be short-lived because the retailers or distributors will soon find alternative suppliers.

Svensson (2003) states that when supply chain system disturbances occur, such as transport delays, machine breakdowns and shortage of raw materials, one of the most common and fundamental corrective actions performed is that the affected actors in the supply chain inform others immediately. He argues that companies have to consider the impact that their current policy of inventory management might have on quantitative and qualitative disturbances in inbound and outbound logistics flows carefully.

Svensson (2003) also states that as a result of increased supply chain disturbances, the financial benefits that may be achieved through being lean in the inventory management areas of one's business, might negatively affect the financial costs incurred, and therefore, it becomes a crucial task for a company to find the balance between inventory disturbances in inbound and outbound logistics flows. He states that this approach generates the best managerial outcome in a competitive business setting.

The section that follows discusses the systems used in measuring the performance of inbound logistics.

2.6 Systems Used in Measuring Performance of Inbound Logistics

Van Hoek (1998) argues that a critical challenge for organizations may thus be to develop and implement new measurement systems that can direct management attention and effort to the areas needing improvement in the modern supply chain-operating format. He suggests that the purpose of measurement and control in the supply chain is to provide management with a set of actions that can be taken in improving performance and planning competitiveness-enhancing efforts. In that respect he cites some fundamental aspects to the development of a new measurement approach, such as the extension of the supply chain definition to provide a context for measurement, the development of new measures and the development of new benchmarks based on these measures.

Van Hoek (1998) eventually asserts that creating benchmarks based on new measurement systems may contribute to directing management effort in optimising the supply chain, and developing the tools that can help support the implementation of the new measurement approach may be a crucial final step leading to the actual application of new measurement approaches. The tools cannot be limited to the measurement system itself, they also need to include strategic trade-off and planning frameworks in order to assure executive buy-in and commitment and initiate actual improvement processes in the supply chain.

Lee and Billington (1993) argue that supply chains may differ in the network structure, product structure, transportation times, and the degree of uncertainty that they face. They therefore state that two weeks' supply of inventory may be too high for one supply chain, while six weeks' supply may be just be right for another. Thus, they assert that to assess a supply chain properly in terms of inventory investment, one needs to determine the optimal level of inventory needed to support a specific service target, given the nature of the supply chain, and then compare it with the current level in that chain.

However, Lee and Billington (1993) argue further that this assessment can only be possible with a model that can relate inventory investments throughout a supply chain to its customer service performance, given the unique characteristics and

environment of the supply chain. Baiman, Fischer and Rajan (2001) state that in any supply chain system the first best outcome is attained if both internal and external failures are contractible.

Kaplan and Cooper (1997) point out the need for performance measurement to start to drive performance improvement and move away from the passive administrative tradition, but using information in a feed-forward approach as opposed to a feed-back approach, which can help in directing supply chain management practitioners' attention towards areas for strategic improvement. They assert further that if successful, the result may be that managers could see the areas where supply chain performance could be improved, so that they could focus attention on these, leading to dramatically high new standards for performance, unmeasurable at present.

Holmberg (2000) states that understanding of the interdependencies and the complex causal relationships in a supply chain is therefore crucial to the successful management of the supply chain activities. He also cites that it is important to realize that what you do not understand, you cannot manage. He exposes the concept of systems thinking in an attempt to deal with the complex problems found in logistics systems today. When it comes to measuring systems, he states that it is unfortunate that the lack of systems thinking also influences how firms approach the important area of the design of performance measurement systems.

Holmberg (2000) reiterates that the lack of systems thinking becomes especially disturbing when measurement systems are applied to supply chains. One problem that deserves attention is the lack of connection between strategy and measurements, since many measurement initiatives are not derived from strategy and therefore do not support the business. He argues against a biased focus on financial metrics, in that many companies still rely too heavily on financial figures as their key performance indicators, which are better at showing the result of yesterday's actions than at indicating tomorrow's performance.

Holmberg (2000) argues for developing competency, capabilities and skills in areas such as team-based problem solving and innovation as more important, yet

not easily measured in financial terms. When it comes to a performance model, he argues that the balanced scorecard, which ultimately aims at enhancing strategic feedback and learning, facilitates the process of planning, setting targets and aligning strategic initiatives.

Holmberg (2000) asserts that in order to deal with high inventory levels and out-of-stock situations, distributors started sharing information with the manufacturer, leading to improved fill rates, assets turns, and cost metrics for all concerned. Stonebraker and Afifi (2004) state that integration, which includes formalization and collaboration, is proposed as a necessary mechanism to respond to greater supply chain differentiation. They assert further that an appropriate integrative mechanism includes:

- Standardization of policies, rules, and procedures;
- Compatible communications formats (manual or electronic); and
- Processes to coordinate across different organizational components.

Additionally, Stonebraker and Afifi (2004) indicate that formal hierarchies and departmentalisation and cross-functional teams, committees, and liaison individuals are used to establish and manage these integrative mechanisms. Such integrative mechanisms can be applied to activities of long, mid, and short duration.

Rudberg, Klingenberg and Kronhamn (2002) argue that the information flow in the collaborative demand planning scenario includes all the necessary information to support the tasks. For every task in the scenario, possible information that will be exchanged between the manufacturer and the distributor should be made available. The manufacturer is assumed to experience reduced uncertainty in demand forecasts due to the information exchange with the distributor. As a result of reduced uncertainty, the manufacturer will have the possibility to lower the quota

of safety stock. The improved order forecast allows the manufacturer to allocate the capacity in advance and therefore improve the utilization.

By receiving information about customer demand more rapidly, the manufacturer will be able to produce the right product to be delivered at the right time. Since the distributor gains increased confidence that the right orders will be delivered at the right time, the safety stock could be reduced, thus cutting some costs. The improved delivery accuracy enhances the possibilities for the distributor to improve the delivery processes for its own customers and thereby to provide better customer service.

In terms of the impact of uncertainty on the logistics activities, Van der Vorst and Beulens (2002) argue that uncertainty propagates throughout the network and leads to inefficient processing and non-value adding activities. They assert that this uncertainty is expressed in questions such as; what will my customers order, how many products should we have in stock, and will the supplier deliver the requested goods on time and according to the demand specifications?

Van der Vorst and Beulens (2002) state further that the more uncertainty is related to a process, the more waste there will be in the process, and the presence of uncertainty stimulates the decision-maker to create safety buffers in time, capacity or inventory to prevent a bad chain performance. Going forward, their argument is that these buffers will restrict operational performances and suspend competitive advantage.

Mason-Jones and Towill (1998) state that those companies which cope best with uncertainty, are most likely to produce internationally competitive bottom-line performances. Van der Vorst and Beulens (2002) define supply chain uncertainty as being based on five requirements for effective system management, indicating that if one or more of these requirements is not fulfilled, decision-makers in the supply chain will experience uncertainty resulting in ineffectiveness by not realizing the planned objectives:

1. The managing system should have objectives and corresponding performance indicators to guide the supply chain in the right direction.

2. To estimate future system states one has to have information on the environment and current state of the supply chain.

3. There should be sufficient information processing capacity to process information on the environment and state of the supply chain.

4. In order to steer the managed system in the right direction one should be able to estimate the impact of alternative actions. This requires a model of the system, presenting the relationships between available redesign variables and performance indicators.

5. There should be enough potential control actions. Each environment supply chain state combination requires one or more different control actions to guide the system in the direction of the objectives.

Van der Vorst and Beulens (2002) assert further that sources of uncertainty are characteristic features of the system that are responsible for causing uncertainty for a particular decision-maker. These sources of supply chain uncertainty can be categorized as:

- Inherent characteristics that cause more or less predictable fluctuations, for example, in the form of high variability in demand, supply or process, which in turn creates problems in planning, scheduling and control that jeopardize delivery performance.

- Characteristic features of the chain that result in potential disturbances of system performance, such as the chain configuration (inflexible capacities), chain control structure (wrong decision rules applied), chain information system (information delays), chain organization and governance structure (misjudgement by a decision-maker).

- Exogenous phenomena that disturb the system, such as changes in markets, products, technology, competitors and governmental regulations.

Van der Vorst and Beulens (2002) argue that the presence of uncertainties in supply chain decision making situations eventually results in the establishment of several non-value adding activities that reduce profitability. When an effective scenario is implemented in a supply chain, this should reduce uncertainties and, as a result, improve chain performance.

Yu, Yan and Cheng (2001) argue that increasing information-sharing among the members in a decentralized supply chain will lead to Pareto improvement in the performance of the entire chain, and it creates a win-win situation for the members involved. They also state that most research suggests that centralised information can improve a decentralized supply chain's performance, and that the different control policies have been studied under an environment of information cooperation.

According to Spekman, Kamauf and Myhr (1998), there are separate regression models developed to explain the extent to which different measures of performance (cost reduction and revenue enhancement which are measured by customer satisfaction), are affected by different supply chain processes and practices. They argue further that traditional performance measures would reflect cost reduction, while a more enlightened view should also deem revenue-enhancing elements as very important. They believe that the two measures represent the two extremes of supply chain management. Their ultimate point is that the more traditional views of the benefits gained from SCM focus on cost reduction, while more enlightened views see end-use customer satisfaction as the primary goal of SCM activities.

Svensson (2000) argues that the problem is not to design a supply chain theoretically, but to make it work practically. He states further that the job of a channel manager is not done when that optimal channel is designed: he now has to make that channel work, because there is no guarantee that the optimally-

designed channel will actually operate successfully. He categorizes supply chain disturbance as being of two kinds: the quantitative disturbance and the qualitative disturbance.

A quantitative disturbance he defines as emanating from sources of deviation that lead to stock-outs, a lack of availability or volumes in the inbound logistic flow of components and materials in the supply chain. A qualitative disturbance he describes as emanating from sources of deviation that lead to a lack of accuracy, reliability and precision of the components and materials in the supply chain.

The following paragraphs take the discussion further and concern the impact of technology on the performance of inbound logistics.

2.7 The Impact of Technology on the Performance of Inbound Logistics

According to Spekman, Kamauf and Myhr (1998), it is discussed that within the requirements of the new form of competition, a shift in the level of intensity among trading partners emerges. The cooperation whereby firms exchange bits of essential information and engage some suppliers or customers in longer-term contracts, has become the threshold level of interaction. The next level of intensity is coordination whereby both specified workflow and information is exchanged in a manner that permits JIT systems, Electronic Data Interchange (EDI), and other mechanisms that attempt to make seamless many of the traditional linkages between and among trading parties. They actually state that information technology is an enabler and is key to the development of an integrated supply chain.

Stonebraker and Afifi (2004) assert that structure follows technology, thus, a change in technology is, or should be followed by a change in structure. They argue further that greater use of technology would result in greater serial differentiation of a supply chain and, consequently, the need for greater integrative effort. Kotzab, Skjoldager and Vinum (2003) state that the sharing of business information seems to be an acceptable assumption in dyadic business

relationships, in which two companies agree on aligning processes and share the information necessary to conduct SCM and achieve efficiencies in the operations.

Kotzab, Skjoldager and Vinum (2003) argue further that by aligning electronic strategies with actual possibilities in the current supply chain, decision can be made based on structured analysis instead of on the flavour of today's electronic fantasy strategy and trial and error methods. In addition, they also cite that supply chain structure is strongly dependent on management's ability to create the necessary inter-organizational relations. This means that the supply chain actors must agree on which business processes to coordinate and consequently, which information categories should be shared between the actors.

Particularly, in respect of e-business, they state further that the recent developments in electronic business tend to lean towards more integrated business models such as c-business (collaborative business) and SRM (supplier relationship management), which represent state-of-the-art e-business. The practitioners often define c-business as a means to leverage new technology in order to enable a set of complex cross-enterprise business processes, allowing the entire value chain to share decision-making, workflow, capabilities, and information with others. They conclude that there is no doubt among decision-makers that c-business and SCM are foremost in the mind of executives.

Turban et al. (2004), in an effort to illustrate the capabilities of e-commerce for supply chain management systems, introduce and discuss the buyer aggregation model, whereby buyers are aggregated and then linked to a pool of suppliers that are automatically notified of the Request For Quotations (RFQ's). In this way, suppliers can then make bids. The SAPO is using a similar strategy in procuring electronic equipment such as computers, printers, scanners, copiers and fax machines, by having an on-line system where suppliers can bid. The procurement report of the SCMC of the SAPO shows that the company saved about R3 million on costs related to information technology equipment procured during the 2003 financial year.

Svensson (2003) views e-business as one of the business philosophies aimed at reducing the variability in supply chains, as in the end it improves profitability, reduces costs and increases the overall performance of the supply chain beyond judicial boundaries as a whole. When it comes to collaborative supply chain planning using electronic marketplaces, Rudberg, Klingenberg and Kronhamn (2002) cite that the driving forces are cost reduction and standardization.

Yu, Yan and Cheng (2001) argue that implementation of electronic data integration can incorporate information flow between a supplier and a retailer, which will benefit a two-echelon supply chain model.

2.8 Summary

The chapter has focused on the definitions of inbound logistics as well as the specific activities involved. These definitions and explanations provide some brief guidelines to the research and study on inbound logistics. One of the key issues shown in the literature review is that Supply Chain Management is regarded as one of the areas of competency by firms, through which competitive advantage could be obtained against rivals. Another important aspect revealed is the fact that the SCM system is a crucial part of the Value Chain system.

Citation of the importance of partnerships and collaboration between parties to inbound logistics emerged as an interesting factor in the study of inbound logistics. It appears that the same principle used in getting to know customers better is said to be necessary also when dealing with suppliers and other members of supply chain inbound logistics. The costs involved in inbound logistics have been alluded to as well as the impact of technology on inbound logistics.

The measuring systems on the performance of inbound logistics have been discussed, including among others cost, speed, quality and reliability as far as inbound logistics in SCM are concerned, and this has shed some light on the study in terms of the measurement criteria being used to measure inbound logistics activities, and helped to indicate whether firms were using alternative measures. The impact of globalisation on inbound logistics was also discussed in terms of the

global systems being used in the management and improvement of inbound logistics activities among firms.

CHAPTER 3

TRANSFORMATION OF INBOUND LOGISTICS AT THE SAPO

3.1 Historical Perspective

The SAPO was previously known as the Department of Post and Telecommunications, which was run and operated like any government department. There was no profit motive and the government was fully subsidizing its operational costs year after year. Most of the products offered by the company to the general public and the business community were manufactured or printed by the company and there were limited plans about outsourcing some of the operational printing activities. As a parastatal it had no profitability motive, cost effectiveness or enhanced efficiency, and inbound logistics were also not given the high priority as demonstrated by other large organizations today.

The procurement system was highly centralized, with no input from the branches as to what improvement could be made to the system. Every product on sale by the Post Office branches originated from the central point known as the Stamp Distribution Centre (SDC) in Pretoria. All orders were made manually by mail, because the use of technology was very minimal or limited to telephone, fax or telegram. Post Office trucks sent these products from the SDC to the various branches, with heavier parcels being sent by rail. Local trucks would have had to fetch such parcels from the railway stations to deliver to the relevant Post Office branches.

The Postmaster at a Post Office branch would check the received consignment, compare it with the office copy of what had been ordered from the SDC, and any discrepancies would have had to be dealt with in writing, using the prescribed forms for such purposes, forwarding these to the SDC because a telephonic enquiry would not be enough. The organization was printing about 95% of all its printed products through the SDC, and these would have included forms to be used internally and externally (stationery), and face value items such as the postal orders, prepaid envelopes, postcards and aerograms.

This meant limited network with other suppliers at the time. The inventory carried at Post Office branches was 99% the Post Office's own products and the company enjoyed the monopoly for quite some time in the communication and distribution industry. The storage capacity at branches was designed for general parcel storage and for Post Office products, with no intention of future holding of third party products on a large scale, which would be for sale at Post Office branches. The set and standard times for the arrival of mail at the branch always afforded the branch manager the opportunity to plan in advance each day's operational activities.

3.2 Changes made at the SAPO

The SAPO Annual Report (2004) cited many changes that had taken place at the SAPO during the previous five years with the intention of transforming the organizational culture, which is responsible for much of the way the organization conducts its business activities. Among others, some of the changes which had an impact on inbound logistics, included the installation in 2001 of information systems for use in procuring products and services. This innovation introduced e-mail communication and the Internet in terms of the World Wide Web, and provided an intranet, for electronic communication within the company. The branches of the SAPO can now make use of e-mail to orders products from the Supply Chain Management Centre (SCMC), previously known as the SDC.

In the Eastern Cape Region, about 95% of the SAPO branches have computers to access the network and perform inventory management duties in terms of ordering stock, recording received stock, checking the replenishing levels and checking news updates from the SCMC. Internal communication in terms of news bulletins reveals that there has been some major restructuring at the SDC resulting in name change to the new name Supply Chain Management Centre.

The reasons for the changes were to ensure that the supply chain at the SAPO is managed in a very profitable and efficient way to support operations in their endeavours to provide satisfactory service to the customers of the SAPO. In the restructuring of the SCMC section, positions were created and recruitment, selection and appointments of qualified and experienced staff were made. The

existing staff members of the SAPO at the SCMC were sent for training and then coached by experienced staff members as per new appointments. This ensured proper and correct staffing at the SCMC with a competent workforce to support the SAPO branches by delivering the right quantities of the right quality and price and at the right time at all times.

In all the provinces staff members are appointed to link provincial needs to the SCMC in Pretoria. These staff members ensure the adherence of the provincial branches to the procurement policy of the SAPO. The reason for the introduction of technology was to effect the flow of information between the parties of the supply chain at the SAPO. Time may mean the loss of money to the SAPO, if wasted. A need arose to communicate faster than through the use of mail in order to replenish stock or cancel a duplicated order.

The technology installed is meant to manage the inventory at the SCMC as well as to enable the SCMC to monitor stock held by every branch around the country to generate automatic orders when re-order levels are triggered by such a system. The system also assists the branch manager to manage the inventory better at the branch electronically, as well as to place orders electronically to replenish the stock in good time. The safety of stock-in-transit was improved because in 1994, the SAPO started using containers when transporting stock, parcels and other mail items by trucks.

Turning the company around from a loss-making to a profit-making business entity during the 2004 financial year required the implementation of increased revenue streams and cost reduction mechanisms. In terms of growing revenue, the company has extensively increased the product range available at the point of sale in all of its branches. More third party products are sold at branch offices than Post Office products. These include the sale of cellular phones, airtime and starter packs for the major service providers (MTN, Vodacom & Cell-C), Telkom phone cards, the handling of camera spools for processing on behalf of a Kodak franchise, lotto tickets and the payment of winnings, the registration and renewal of motor vehicle licences, payment of telephone accounts as well as accounts for water and lights, etc.

In respect of transportation, the reports from the contracts division of the SAPO reveal that the company is making use of long distance carriers with containers for network use around the country, but is using hired trucks with its own drivers for local transportation within the provinces, as well as for the purpose of moving stock from branch to branch.

3.3 Measurement of Inbound Logistics

In terms of income generation by the branches, Business Balanced Scorecard (BBS) has been developed for each branch and this measures the monthly performance of the branch in terms of achievement. The support given by inbound logistics to the branch should have an impact on the BBS results of the branch. If inbound logistics fail the operations of the branch in its endeavours to maximise revenue and minimize costs, the BBS results should also show the impact in that regard.

In other words the overall BBS of the business unit will show if the inbound logistics have supported the business well. However, the researcher's concern about the usage of the BBS as a management tool at the SAPO is the fact that, the BBS implementation and management for the branch managers occurs more on paper that in practice, because not all the branch managers are well trained in the implementation, usage and management of the BBS tool, and senior management is not speeding-up the process to improve the situation: all of which renders this management tool less effective.

Concern about the BBS implementation and management also arose in one senior management meeting of the SAPO during 2005. Secondly, there are other issues that affect the BBS results other than the inbound logistics activities, such as staff absenteeism due to trauma cases as result of robberies, or burglaries which result in the theft of stock items. While replacement stock has to be ordered, there is a loss of sales at the affected branch.

It has therefore become necessary to conduct a study on the impact of inbound logistics' activities specifically on the operational performance of the branches. There are a number of variables which seem crucial for the SAPO in measuring

the performance of inbound logistics, ranging from the costs of stock-out situations over a specific period, the percentage of late deliveries, the proportion of back orders, the percentage of incorrect stock received, and the percentage of revenue forfeited because of stock-out situations, etc.

These issues deal with financial efficiency and viability. The intention of inbound logistics is to satisfy customer needs by rendering a service or producing a product, thereby making money in the process. However, if the inbound logistics at the SAPO are carried out at excessive cost then the financial viability of the operations will be compromised. The company may find itself with expensive operations, the cost of which may be transferred to customers, with the result that customers may switch to other providers of such products and services if they become unhappy.

In respect of the transport, there are delivery standards in place: for instance, from the SCMC the inventory is put into a sealed container addressed to a specific branch, the delivery time by road is calculated to be two days within the same province of the SCMC and four days to other provinces. This means that inventory should take a maximum of four days from the SCMC to the branch in another province. The company is using its own fleet to transport containers with inventory to branches. This standard applies also from branch to branch between provinces. However, delays seemed not to lie with transport but between the order date and the dispatch date at the SCMC.

The overnight courier service is not used to transport inventory because it is very expensive, being used only in emergency cases. In terms of consumable inventory ordered from local suppliers in the region, transport has not been a problem, being of an acceptable standard, with 99% of local suppliers delivering on the day agreed upon with the branch, if consumable stock is available at the supplier. The stock bought by the branches locally refers to non-saleable items such as stock meant for office use, for instance, printing paper and printer toner catridges.

In terms of the SAPO's inventory management policy, branches are required to hold up to six weeks' worth of inventory at all times. This requirement serves as a benchmark for the re-order level. Above that point electronic records will indicate inventory holding in excess. If a branch is able to sell more stock or in line with the forecasted customer demand and still maintain the six weeks' stock-holding, then the inbound logistics are said to be functioning well; while, if under normal circumstances, a branch is out-of-stock, that is taken as a reflection that the inbound logistics activities are not functioning well.

3.4 Contextual Problems Being Faced at the SAPO

It has been discovered during the year 2003, from the minutes of meetings of senior management of the SAPO, that there are problems with the lead times as honoured by the SCMC. The time that it takes for a branch manager to receive stock ordered from the SCMC is not always acceptable. The other concern which was cited is that when the consignment is received by the branch from the SCMC there is no indication as to when undelivered items will be available and whether a back order is recorded or whether the branch has to issue a fresh order for all undelivered items to be supplied when available later.

This is said to have caused confusion among the branch managers at the SAPO, the situation has resulted in order duplication by the branches due to order backlogs at the SCMC. The situation emanates as explained above from the orders not delivered in full which are the duplicated. This has resulted in over-stock situations at the affected branches. In some of the minutes it has been revealed that the lead-time between the branches of the SAPO and the SCMC has resulted in an out-of-stock situation in most offices in the Eastern Cape Region. This generalization pertains to a specific product type, for example, the standard size postage-paid envelopes.

The minutes also revealed that when a query has been raised with the SCMC about the delay, the reason given was that the supplier to the SCMC is about ran out of raw material to make the specific products for the SAPO. The other concern, which could be serious, is the theft of stock in transit from the SCMC to

the provincial hubs and from the provincial hubs to the branches within the province.

The inventory stolen in transit which never reaches the branch, necessitates that the branch be notified of such an incident, with the branch manager having to embark on the lengthy process of reporting the non-receipt of the consignment or re-ordering. The branch is required to record the stolen inventory as a loss in its books and then to lodge an insurance claim, before the lost stock can be written off. Thereafter, a new order will have to be submitted for the stock. This undoubtedly negatively affects branch in terms of another waiting period to obtain inventory for business operations. However, the stolen stock do not negatively impact on the BBS of the branch manager.

The other prevailing concern is that of newly appointed branch managers have fewer skills and a limited understanding of the company's supply chain. Minutes of meetings on these issues show the origins of this problem may range from poor or inadequate training of branch managers in respect of inventory management and the entire supply chain system of the SAPO; negligence on the part of branch managers; as well as operational pressures leading to poor decision-making by the branch managers.

Disappointing to the provincial management of the SAPO in the Eastern Cape Region is the backlog situation at the SCMC, which tends to occur at certain periods during the year. This leads to out-of-stock situations at the branches and the branch managers have to face the dissatisfaction of customers. Some minutes of senior management meetings in the province about the SCMC failures reveal that some branches have lost customers to competitors when the branches had no stock in respect of telephone cards and cellular phone starter packs and airtime vouchers.

In respect of stock items that the branches can procure locally, that is, within the province, there have been some instances where the suppliers would run out of stock and such delays are said to have caused difficulties to the operations of the SAPO branches. The financial reports of the SAPO show that most branches in

the Eastern Cape region are operating at a loss, and an out-of-stock situation will further aggravate the condition. In addition, there are still a few branches that do not have the technology to record and manage inventory, using a manual system of inventory management. The alternative is to use a nearby branch that has an electronic system.

It also appears that the cost margins of items procured locally are much higher than those for items procured via the SCMC. There are also perceptions among senior management that when a branch manager is on leave, and an official of a lower rank is relieving, there is a lack of consistency in the way that inventory is managed in the branch. The business analysis division for the Retail Business unit, in one of its recent reports has revealed that the nature of some of the customer complaints were linked to out-of-stock situation at branches, where the customers have to be sent away because of non-availability of the required products, or services could not be rendered because certain forms not available to complete the particular transaction with the customer.

3.5 Summary

The inbound logistics at the SAPO have evolved or transformed over the years. These have evolved from manual activities to more automated enhancements in the supply chain management system. The company has invested in technology, as branches can now replenish stock electronically. The organization still maintains a centralized system, from which all branches have to obtain their inventory through the SCMC, the challenge being that if something goes wrong there, then the branches in the whole operation are negatively affected and therefore service delivery and ultimately, operational performance.

There are measurements of performance at branch level such as the BBS documents which address both financial and operational issues, although in some areas implementation and monitoring needs some serious attention in order to get effective results. Some of the challenges emerging include late deliveries from the SCMC, resulting in stock-out situations. The company seemed to be dealing with

the problem with a haphazard approach, and yet these unanswered challenges are having a detrimental effect on the performance of the business.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

When one conducts research to investigate a research hypothesis or a research question, one collects data from the objects of the enquiry in order to solve the problem concerned (Welman and Kruger, 2001). This research has been conducted within the positivist paradigm. The positivist paradigm lends itself to quantitative research. By making use of quantitative research, the researcher has been assisted in understanding complex issues in the study and the relationships between the variables understudy. The evaluation method of study was followed.

The researcher has obtained and evaluated data relating to the perceptions and experiences of employees working in the supply chain system of the SA Post Office about late deliveries, out-of-stock situations, wrong stock deliveries, the percentage of back orders, etc. This investigation has concentrated particularly on the branch managers as their operations and performance are greatly affected by the inbound logistics' activities. A study and analysis of the procurement policy pertaining to the SCM of the organization, especially the inbound logistics' activities, was undertaken. These areas constituted the scope of the study for the purpose of collecting data.

4.2 Goals of the Research and Hypotheses

The purpose of this study was to investigate the relationship between the inbound logistics activities and the operational performance of the business (if any), in the Postal Services organization in South Africa, specifically focusing on its retail branches in the Eastern Cape Region. The study has focused on the aspects of inbound logistics activities that have the most impact on operational performance and then investigated the impact of such inbound logistics activities' aspects on the different types of operational performances, be they cost saving and reduction or increased revenue generation through the actions of satisfying customer needs.

The following six research hypotheses were formulated in terms of two sets, one set being that of the null hypotheses (Ho_1 – Ho_3) and the second set being the alternative hypotheses (Ha_1 – Ha_3) based on the research objectives that,

- Ho_1: There is no statistical significant relationship between the inbound logistics activities and the operational performance of the business.

- Ha_1: There is a statistical significant relationship between the inbound logistics activities and the operational performance of the business.

- Ho_2: Inbound logistics activities and revenue generation are not correlated.

- Ha_2: Inbound logistics activities and revenue generation are correlated.

- Ho_3: Inbound logistics activities and operational costs are not correlated.

- Ha_3: Inbound logistics activities and operational costs are correlated.

4.3 Research Process

The research was said not to be a linear process, but a structured research plan considered essential to form an integral part of the research proposal (Remenyi et al., 2002). The research process apparently consisted of eight specific phases that are as follows:

- Literature review
- Formalizing a research question
- Establishing the methodology
- Collecting evidence
- Analysing the evidence
- Developing conclusions
- Understanding the limitations of the research
- Producing management guidelines or recommendations.

4.4 Population and Sampling Procedure

The Eastern Cape Region in terms of the SAPO's Retail Business Unit is actually divided into four areas with 169 branch post offices; Port Elizabeth (45), East London (44), Mthatha (39) and Cape Midlands (41), and a sample of 100 respondents has been selected to represent the four areas fairly. This information was obtained from internal documents of the SAPO containing the hierarchical structure of its Retail Business unit. The sample was randomly selected using the simple random selection technique, which represented a form of probability sampling, where every branch in the population stood an equal and fair chance of being selected (Sekaran, 2000). The sample consisted of 25 branch managers per area using the Excel random generator. Apparently the sample frame comprised an approximately equal number of branch managers from the four areas.

4.5 Research Questionnaire Design

Questionnaires were utilized as the means and method of data collection. The questionnaire sections for the branch managers were divided into biographical data, and elicited inbound logistics' activities information at branch manager level, which also revealed the operational performance of the branches in terms of revenue generated and as well as increases or decreases in operational costs. The questionnaire predominantly consisted of a predetermined set of closed-ended questions, which were on a seven-point Likert scale, which has constantly been focused on measuring the required facets, while the last section of the questionnaire consisted of seven open-ended questions.

The questionnaire was not too lengthy, but was simple to complete using short questions. Reliability of a measure was established by testing for consistency among other things, where consistency indicated how well the items measuring a concept hung together as a set (Sekaran, 2000). In respect of factorial validity, this measurement was not necessary for the type of data collected, so that factor analysis was unnecessary.

4.6 Administration of the Questionnaires

The questionnaires were sent by mail to the respondents and they were requested to complete and return them by mail within five working days of receipt (self-completion method). There were 100 questionnaires to be administered through the mail to and from the respondents. Postage was not a problem as mailing was at no cost to the respondents because they were within the postal business. The return address was directly that of the researcher. Since the study was in the form of a mail survey, there was an introductory cover letter to address the envisaged concerns of the respondents, and to contribute significantly to increasing the response rate, since mail surveys are known for their low response rate (Jankowicz, 1991).

4.7 Data Analysis

The collected data in the questionnaires was captured using Microsoft Excel, and was exported to Statistica 7.0 (2004), where various statistical analyses were performed on the collected data. The analysis made use of both descriptive and inferential statistics. The test for reliability (Cronbach alpha) was conducted on the data as well as the correlation analysis in order to explore the relationship between inbound logistics activities and operational performance, as well as the relationship between inbound logistics activities facets and the different types of operational performance.

The collected data was coded so that it could be ready for analysis. (Welman and Kruger, 2001).

4.8 Limitation of the Investigation

The SAPO is a national company with branches in all the provinces of South Africa. However, the study was limited to the Eastern Cape Province which has its own unique socio-economic and logistical challenges. Of 169 branch managers in the province, only 100 constituted the sample and about 88 of these responded to the study. Although the branch managers were not required to write their names

or the names their stores to allow for anonymity, there were some concerns from the researcher that not all of them would respond or express their opinions freely and honestly in some operationally-measured critical issues.

The concern might have existed that if the branch managers could be identified by their senior management on such critical issues some may have been the subject of disciplinary actions or corrective measures directed to undertake where it was found for example, their being responsible for a situation of an under-stocked or over-stocked branch during the time of the research. The sample could have been larger than the 100 selected but due to the historically low response to mail surveys, the researcher decided to use 100.

4.9 Conclusion

The research has been conducted within the positivist paradigm which lends itself to a quantitative approach, with the evaluation method of study being followed. The purpose of the study is said to be the investigation of the relationship between the inbound logistics activities and the operational performance of the business, in the Postal Services organization in South Africa, specifically focusing on its retail branches in the Eastern Cape Region. Six hypotheses were generated for testing.

The research process was outlined and out of a population of 169 branch offices, a sample of 100 was randomly selected. Questionnaires were utilized as the means and method to collect data. . The questionnaire was designed to consist predominantly of a predetermined set of closed-ended questions, which were on a seven-point Likert scale, while the last section of the questionnaire consisted of seven open-ended questions as.

The questionnaires were sent by mail to the respondents and they were requested to complete and return them by mail within five working days of receipt, which was considered by the researcher to be a reasonable period of time for an organization such as the SAPO where postage and related costs would not be a problem. Microsoft Excel was utilized to capture and code the data collected and Statistica 7.0 (2004) was the software utilized to perform various statistical analyses. The

historical low response of mail surveys was cited as the reason for not expanding the sample beyond 100. One other concern of the researcher was that of branch managers not responding freely in respect of critical operational issues, due to their possible fear of senior management learning about critical conditions in some stores that might be followed up for disciplinary or corrective purposes.

This exploratory study has affirmed its support of the literature that underpinned the profitable value chain, and in particular, linking the inbound logistics activities to the operational performance of the business. It therefore follows that the result eventually obtained shed light on the tenability of the hypotheses or answered the questions, and eventually revealed a conclusion as to whether the hypotheses were substantiated or not.

CHAPTER 5

ANALYSIS AND DISCUSSION OF RESULTS

5.1 Introduction

Of 100 questionnaires administered 88 were received back from the respondents, which represents an 88% response rate, being highly acceptable for a mail survey. The data has been analysed by making use of both the descriptive and inferential statistics. The descriptive statistics depicted frequencies from the data collected as well as the illustration of the measures of central tendency and dispersion such as the mean, median, mode, range, variance and the standard deviation. The substantial part of inferential statistics utilised is the Spearman Rank Correlation Coefficient.

Sekaran (2000) states that there are basically three objectives in data analysis, namely, getting a feel for the data, testing the goodness of data, and testing the hypotheses developed for the research. The feel for the data basically gives preliminary ideas of how good the scales are in terms of reliability and validity, how well the coding and entering of data have been, and so on.

5.1.1 The Feel for the Data

In the collected data the feel has proved to be good, because on the seven-point scale the questionnaire with proper coding has shown no point beyond seven, hence no rectification of such errors was necessary.

5.1.2 Testing the Goodness of Data

This was accomplished by testing the reliability measure. Sekaran (2000) argues that consistency indicates how well the items measuring a concept hang together as a set, and Cronbach's alpha is a reliability coefficient that indicates how well the items in a set are positively correlated to one another. He further states that Cronbach's alpha is computed in terms of the average inter-correlations among the

items measuring the concept. The closer Cronbach's alpha is to 1, the higher the internal consistency reliability. The inter-item consistency reliability or the Cronbach's alpha reliability coefficients of the five dependent variables as well as the three independent variables were obtained. They were all above 0.7 and the closer the reliability coefficient is to 1.0 the better, as table 1 below illustrates:

Table 1: Reliability Statistics

Different Variables	**Cronbach's alpha**
Effects on revenue	0.744
Stock requisition method and costs	0.744
Order variation occurrences	0.741
Stock Holding effects	0.702
Number of stock variation occurrences	0.720
Annual budget effects	0.742
Resources utilized	0.741

5.2 Analysis

5.2.1 Descriptive Statistics

The frequency distributions were obtained for all personal data or classification of variables. The frequencies for the number of branches of the South African Post Office in the Eastern Cape Region for this sample are shown in table 2. About 48.86% of the branches are located along the coast, 12.5% near the coast and 38.64% are inland. From the frequencies obtained it was found that males manage 60.23% of the branches while females manage 39.77%. About 91% of branch managers have more than 10 years' of service and 75% of all the branch managers are in the age group of 36 to 50 years.

Another interesting part of the research revealed that 84% of the branch managers have never worked for any company other than the SAPO. In terms of educational qualifications, 83% have matric as a maximum qualification, 3% have qualifications below matric, and the remaining 14% have either college or Technikon education,

with no indication as to whether this was completed or not. About 31% of the branch managers indicated that they have good computer skills while 55% indicated that their computer skills are average.

Table 2: Personal data analysis

Data	Frequency	Percentage (%)
Location of branch: coastal	43	48.86
Location of branch: near coastal	11	12.5
Location of branch: inland	34	38.64
Branches managed by females	35	39.77
Branches managed by males	53	60.23
Branch managers with > 10yrs service	80	90.91
Branch managers from 6 to 10 yrs service	8	9.09
Branch managers from 3 to 5 yrs service	0	0
Age group: 20 to 35 yrs	9	10.23
Age group: 36 to 50 yrs	66	75.00
Age group: 51 to 65 yrs	13	14.77
Branch managers with SAPO only working experience	74	84.09
Branch managers with matric as maximum qualification	73	82.95
Branch managers with good computer skills	27	30.68
Branch managers with average computer skills	48	54.55

5.2.1.1 Central Tendencies

About 58% of branch managers expressed an opinion that a reasonable turnaround time for stock ordered is between 5 to 15 working days, while 34% expressed an opinion that this is 15 to 20 working days. An overwhelming 99% of branch managers indicated that they request stock electronically and only one branch indicated that requisition was done by post, presumably since branch may not have an electronic system.

In respect of the retail value of stock-out situations, about 98% of branches indicated that the average retail value of stock not sold due to stock-outs for the

past eight months was between R0 and R100 000, and that this amount represents less than 10% of total revenue for the past eight months per branch. This means that the negative impact was moderately noticeable in rand value. In terms of lost customers and change in customer perceptions about the branches the branch managers could not quantify these but the opinions were that the impact could be substantially negative.

An almost similar finding occurred in respect of stock lost in transit where 99% of branches indicated an experience of stock lost in transit of between R 0 and R 100 000 in value, which represents less than 10% of stock ordered by each branch in eight months.

Concerning the late deliveries of stock ordered by the branches from the SDC the reaction was quite mixed, as 14% stated that the average of late deliveries was between 5 to 10 working days, 22% stated that the average was at 10 to 15 working days, 28% stated that the average was 15 to 20 working days, 24.4% stated that the average was 20 to 25 working days and 11.6% stated that the average was more than 25 working days. This shows that different branches had different experiences with the SDC with regards to stock deliveries.

Regarding the finding on perceptions of proper training provided for stock management at the branches, about 81.4% agreed with the view that proper training for stock management was provided, 5.8% remained neutral in expressing an opinion and 13% expressed a contrary view that no training was provided for stock management.

5.2.1.2 Stock Variation Occurrences

Findings on back order occurrences showed that 97% of the branches stated that the rand value of such occurrences experienced was between R 0 and R 100 000 with only 3% of such instances being above R 100 000. In terms of receiving incorrect stock, 97% indicated that the rand value of such situations was between R 0 and R 100 000 for the past eight months. Ordering frequency findings between branch and the SDC showed that 41% ordered stock from the SDC less

than 5 times during the past eight months, 22% between 6 and 10 times and 37% more than 10 times.

In analyzing the number of times each branch received back orders from the SDC, 67% indicated that such instances were less than 5 times in eight months, while 23% indicated an occurrence of between 6 to 10 times and 9% have indicated occurrences of more than 10 times. Findings on incorrect stock received occurrences showed that 96.5% of branches experienced such instances less than 5 times during the past eight months, while 1% experienced such instances between 6 to 10 times and another 1% experienced such instances more than 10 times.

Another crucial situation for analysis was that of stock-out occurrences at branches over the past eight months. 73% experienced such instances less than 5 times in eight months, 20% experienced these between 6 to 10 times and 7% experienced these more than 10 times, which should be very discouraging to the branch managers. According to the findings on this issue, the non-availability of some stock items ranged from one week to five weeks.

5.2.1.3 Findings on logistics and quality issues of the impact of inbound logistics activities

About 59.3% of respondents indicated that they disagree with the view that stock ordered from the SDC is delivered within a reasonable time period to the branch, 9.3% remained neutral on the view and 31.5% agreed with the view. This 31.5% seems to change the picture of earlier findings. However, the reality is that smaller branches may experience fewer delays in the processing of their orders by the SDC due to the small volume of their orders, while bigger branches may prefer to order more frequently in smaller orders, than by a few large orders which may take the SDC longer to process and dispatch.

The less the activity related to the SDC the fewer the disappointments, so that those branches with more ordering activities with the SDC stand a good chance of experiencing below average service. The storage capacity at branches is not the

same, only 89% of branches indicating that they had enough capacity for the required six weeks' amount of stock, 1% being neutral on the issue and 10% indicating that the capacity was insufficient.

About 80% of the branch managers are of the opinion that the SAPO has speedy mechanisms to enable orders to reach the SDC in less than a week. Regarding the stock-out situations, 83% of the branch managers stated that such situations are not as a result of poor planning by the branches. In actual fact an over-whelming 88.5% hold the opinion that more than 50% of the stock-out occurrences at branches is as a result of late deliveries from the SDC.

There was no evidence presented to support the view of the branch managers, that their stock planning was accurate. When focusing on stock planning activities, 93% of branch managers indicated that they based stock planning on a specific period by taking into account what the customers demanded at that point in time.

Regarding stock quality issues and packaging, 91% of branches indicated that stock received from the SDC is always of good quality, while only four branches expressed a contrary view in this regard. It is possible that there might have been one or two isolated incidents which influenced this view, or the way the incidents were handled might have had an influence as well.

In terms of the SDC's accuracy in delivering according to the order placed, 75.5% of the branch managers indicated that the SDC is reliable, 5.8% were neutral about the issue, while 18.7% were of the opinion that the SDC is not reliable. A further analysis of back order occurrences showed that 83% of branch managers expressed a view that the value of back orders experienced for the past eight months was less than 10% of total orders made for the same period. This may also be supported by the low rand value of back orders, as indicated earlier.

The results also indicated that 98% of the branch managers understood the computerized system used in stock management at branch level. Concerning training with regard to stock management, 81.5% agreed that they had been provided with training, while 13% disagreed with that view. With regard to sharing

information 65% disagreed with the view that information is shared with local suppliers excluding the SDC, while 30% agreed with that view. This shows the existence of a mixed message to branch managers about the sharing of information with suppliers other than the SDC, and the same situation prevail in terms of the formation of partnerships with suppliers other than the SDC.

5.2.1.4 Findings on revenue and expenditure issues concerning inbound logistics activities

Analysis of revenue effects showed that 48 of the 88 branches or 55% of the branches perceive their failure to meet revenue targets to be a result of stock-out frequencies during the past 8 months. It should be understood that as the branches differ in location, some branches may depend on the performance of specific products to meet the periodic targets of their revenue and the situation may be such that even if the specific products fail by a small margin, the branch's target is negatively affected. There earlier findings showed that the rand value of stock-out situations was below 10% of total sales for the eight months but even a percentage below ten is still a shortfall as far as the branch's performance is concerned.

About 10.5 % were neutral, while 34% disagreed with the view that failure to meet revenue target was due to stock-out occurrences. The remaining 34% might have realised the fact that it is not only inbound logistics activities that impact negatively on the operational performance of the business but other issues as well. About 87% of the branches indicated that they had experienced stock lost in transit not more than once. This may be supported by the low rand value of stock lost in transit as indicated earlier.

Regarding duplicate orders, 74.4% of branches disagreed with the view that duplicate orders from the SDC for the past 8 months had resulted in over-stock situations, while 20% agreed with the view and about 5% were neutral. Concerning the return of duplicate stock to the SDC, only 2.4% admitted to have sent stock back to the SDC, and 93% indicated that they do not send duplicate stock back to the SDC. That finding suggests that the branches are retaining the

duplicate stock or using it in some other way or it is not sufficiently substantial to warrant return to the SDC, especially if it is believed that it would take longer to receive such items again when ordered, since a similar situation had arisen with incorrect stock received.

About 90% of the branches indicated that incorrect stock received was less than 10% of all orders received for the past 8 months and only 7% indicated to the contrary. Another crucial part of the study was the analysis of costs associated with the late delivery of stock orders, where 78% of branches indicated costs are substantial, while some costs cannot be quantified such as the lost of customers lost to competitors or the cost of a branch being labelled with a bad image due to poor service. These costs were in addition to revenue lost in terms of failure to achieve revenue targets due to non-availability of saleable stock. About 22% of branches indicated that such costs were not substantial but to be nevertheless noticeable.

This analysis may seem in contradiction to the analysis in terms of the rand value of stock-out situations that were deemed substantial. However, the response here was sorted in terms of an open-ended question where the branch managers expressed their views in words. They are of the view that the loss of a customer due to non-availability of stock items is substantial, while taking into consideration future revenue losses due to the customer going to competitors: such losses cannot be quantified. However, some projections may perhaps help to quantify such losses but not with accuracy.

Most branch managers were of the opinion that the losses on future revenue should be included and not only those for the eight months under review. When it comes to order follow-up costs by telephone, 92% of branch managers agreed incurring such costs for the past 8 months, while only 6% did not bother to telephone and follow-up on orders not received in time.

In respect of the effect on revenue, 77% of branches indicated that their revenue had been negatively affected by the late deliveries of stock from the SDC, while 23% indicated that the revenue had been less affected by the late deliveries. The

analogy to substantiate any purported contradiction to prior findings is similar to that made on findings on stock-out situations earlier.

About 75% of the branch managers are of the view that there are no costs associated with returning duplicated or incorrect stock to the SDC. Another important finding was that about 65% of the branch managers are of the opinion that there are no costs associated with ordering of stock from the SDC, while 35% believed that such costs are substantial and cannot be easily quantified in rand value as these might include time and other various resources utilised in the process. By using projections the costs can be quantified. Perhaps then, a branch might bear future costs in mind instead of thinking solely about the eight months period applicable.

5.2.2 Inferential Statistics

5.2.2.1 Reliability of Measures: Cronbach's Alpha

The inter-item consistency reliability or the Cronbach's alpha reliability coefficients of the five dependent variables as well as the three independent variables were obtained. They were all above 0.7 and the closer the reliability coefficient is to 1.0 the better. A sample of the result was obtained for Cronbach's alpha test for the dependent variables such as stock procurement costs, effects on revenue, number of stock variation occurrences, order variation occurrences and stock holding effects. A sample for the independent variables included the annual budget for income and expenditure for the branches, the stock requisition method and its logistics and thirdly the resources utilized at branches.

The result indicates that the Cronbach's alpha for the four-item Number of Stock Variation Occurrences, two-item Order Variation Occurrences and the seven-item Stock Holding Effects, two-items Stock Requisition Method and its logistics, two-item Annual Budget Effects and one-item Resources Utilized at Branches, was at a measure above 0.7 for all of them. The other set of results indicates that the Cronbach's alpha for the five-item Effects on Revenue and the Stock Procurement Costs was at a measure of 0.744 for both variables. Reliabilities less than 0.600

are considered to be poor. Thus, the internal consistency reliability of the measures used in this study can be considered to be good.

5.2.2.2 Spearman Rank Correlation

The Spearman Rank Correlation Coefficient has been established on non-parametric tests on the dependent and independent variables. This has been found to be suitable because the variables have been categorised both in an ordinal scale and the interval scale, hence the Pearson Correlation was not necessary for the type of data collected. A sample of the result from the computer output pertaining to specific variables to prove the generated hypotheses was obtained.

5.2.3 Hypotheses Testing

Six hypotheses were generated for this study as stated earlier. The hypothesised statements are stated in the null and alternative forms.

- Ho_1: There is no statistical significant relationship between the inbound logistics activities and the operational performance of the business.

- Ha_1: There is a statistical significant relationship between the inbound logistics activities and the operational performance of the business.

The computer result on the Stock Requisition Method and its logistics variable has shown the following illustration on various items correlated in this independent variable:

- On the item of late delivery of stock versus revenue losses in eight months period, the correlation coefficient was at 0.572.

- On the item of under-stock occurrences at branches versus the failed revenue targets, the correlation coefficient was at 0.404 also showing a positive correlation.

- The item of annual revenue budget versus the annual expenditure budget also had a positive correlation, with the correlation coefficient at 0.761.

- The stock-holding activity item in terms of the six weeks' policy versus the eight months' period, had shown a correlation coefficient of 0.780.

- In terms of the information-sharing item versus the formation of partnerships, the result was a correlation coefficient of 0.677.

We therefore reject the Ho_1 at the 1% level of significance, and conclude that there is a statistically significant relationship between the inbound logistics activities and the operational performance of the business.

- Ho_2: Inbound logistics activities and revenue generation are not positively correlated.

- Ha_2: Inbound logistics activities and revenue generation are positively correlated.

The computer result on the Effects on Revenue variable has shown the following illustration on various items correlated:

- In terms of annual revenue budget at the branch versus the number of back-order occurrences in eight months, the correlation coefficient was at 0.629.

- In terms of orders made from the SDC in eight months versus the annual revenue budget at the branch, the correlation coefficient was at 0.629, also showing a positive correlation.

- The item of stock held in the branch for the eight months period versus the actual stock ordered in the same period also had a positive correlation, with the correlation coefficient at 0.746.

At 1% level of significance, we therefore reject the Ho_2 and conclude that there is a positive relationship between inbound logistics activities and revenue generation.

- Ho_3: Inbound logistics and operational costs are not positively correlated.

- Ha_3: Inbound logistics and operational costs are positively correlated.

The computer result on Stock Procurement Costs variable has shown the following illustration on various items correlated:

- In terms of the item of the costs of sending back incorrect stock versus the costs of sending back duplicated stock, the correlation coefficient was at 0.964.

- In terms of the item of costs of ordering stock from the SDC versus the costs of sending back incorrect stock, the correlation coefficient was at 0.525, also showing a positive correlation.

- The item of returning duplicated stock versus the costs of ordering stock also had a positive correlation, with the correlation coefficient at 0.545.

At 1% level of significance, we therefore reject the Ho_3 and conclude that there is a positive relationship between inbound logistics activities and operational costs.

5.3 Summary of Results

100 questionnaires were administered, of which 88 were received back, resulting in a response rate of 88%, which was considered acceptable. The computer result appeared in the form of descriptive and inferential statistics. The descriptive statistics have been shown in Table 2 on the analysis of personal data, illustrating

the measures of central tendency or the frequency distribution. The dispersion among the branch managers in terms of age, educational qualifications, years of service in the company, male and female managers, etc was also illustrated.

The behaviour of the branch managers on inbound logistics activities at branch level had been greatly influenced by the way the branch managers perceived the service provided by the SDC to the branches. For example, the late receipt of stock may suggest that the branch needs to order more than required in anticipation of another late delivery when the stock is required most. The mixed responses indicated the different experiences the branches had with the SDC.

The inferential statistics obtained the inter-item consistency reliability or the Cronbach's alpha reliability coefficients of the five dependent variables as well as the three independent variables. They were all above 0.7 and the closer the reliability coefficient is to 1.0 the better. If for instance the Cronbach's alpha reliability coefficients are 0.4, they would still show a positive relationship but that would not be termed as significant. The Spearman Rank Correlation Coefficient was utilized as shown in table 1. In all the six hypotheses generated, it has been proven that positive correlation exits, and therefore, all the null hypotheses were rejected and the alternative substantiated. In some instances the correlation coefficient was below 0.6 but still showed a positive correlation.

CHAPTER 6

DISCUSSION OF FINDINGS, MANAGERIAL IMPLICATIONS, RECOMMENDATIONS FOR FURTHER RESRARCH AND CONCLUSION

6.1 Substantiation of Hypotheses

6.1.1 First and Second Hypotheses (Ho_1 and Ha_1)

The rejection of the null hypothesis (Ho_1) as the first hypothesis generated meant the substantiation of the second hypothesis (Ha_1), which is the alternative hypothesis. It has been statistically proven that there is a significant relationship between the inbound logistics activities and the operational performance of the business within the South African Post Office. This correlation or relationship means that the inbound logistics at the SAPO can have a negative or a positive impact on the operational performance of the business.

This has been substantiated by the findings on the three dependent variables of Order Variation Occurrences, Stock Holding Effects and the Number of Variation Occurrences, where 73.3% of branches indicated that they had experienced stock-out situations up to five times in eight months, 19.8% indicated an occurrence of between six to ten times and 7% indicated the situation experienced more than ten times. Concerning the analysis of back orders received in eight months, 67.4% of the branches confirmed that they had received back orders from the SDC up to 5 times, 23.3% indicated receipt between 6 and 10 times and 9.3% received back orders more than 10 times.

The variation occurrences in orders placed and the delivery delays have also led to disruption of operational plans at branch level: for example, promotional initiatives would have to be stopped and delayed if the affected products are not available at the planned time. The other reality is that difficult customers may require an explanation for the non-availability of some stock items; pointing out the problem as lying with the SDC will not be acceptable to these customers.

The results concerning the analysis of late deliveries of stock have revealed that about 11.6% of the branches had experienced late delivery of more than 25 working days for the past 8 months, 24.4% indicated late delivery of 20 to 25 working days, 27.9% experienced late delivery of up to 15 to 20 working days, 22% cited late deliveries of 10 to 15 working days, while 14% indicated late deliveries of 5 to 10 working days.

There seemed to be mixed opinions among the branches about a reasonable turnaround time for the stock to be received from the SDC from the day after an order has been placed electronically. About 19.8% of the branches indicated the turnaround time to be 5 to 10 working days, 38.4% indicated that this is 10 to 15 working days, 33.7% experienced this to be 15 to 20 working days, for 4.7% the lead-time was 20 to 25 working days, while only 3.5% indicated a lead-time of more than 25 days. Perhaps the last few branches might have accepted the late deliveries of over 25 working days as the norm, because it has been a regular occurrence for them to receive stock ordered 25 working days later.

6.1.2 Third and Fourth Hypotheses (Ho_2 and Ha_2)

Results on revenue effects where 77% of branches indicated that revenue generated for past eight months had been negatively affected by non-availability of stock due to late deliveries from the SDC, has also led to the substantiation of the fourth hypothesis (Ha_2) that inbound logistics activities and revenue generation are positively correlated. In another analysis result, about 88.4% of the branch managers indicated that more than 50% of the stock-out situations at the branches is as a result of late delivery of orders from the SDC, and in some branches this has led to poor performance in terms of revenue generation. Therefore, the third hypothesis (Ho_2), being the null hypothesis, was rejected.

6.1.3 Fifth and Sixth Hypotheses (Ho_3 and Ha_3)

It is clear from the results that about 59.3% of the branch managers, which is a substantial number, is of the opinion that stock ordered from SDC is not always delivered on time to the branches. This has led to an increase in operational costs

at the branches, such as the costs of telephoning to follow-up with stock orders not received by the expected time, where 92% of branches confirmed that telephone calls have been made to the SDC to follow-up on stock ordered. Such instances are confirmed by the substantiation of the sixth hypothesis (Ha_3), that inbound logistics activities and operational costs are positively correlated. Therefore, the fifth hypothesis (Ho_3), being the null hypothesis, was rejected.

6.2 Managerial Implications

6.2.1 Standard Delivery Time

The organization should note in particular the fact that 77% of the branch managers in the Eastern Cape are of the opinion that stock ordered from the SDC is not delivered on time. Insofar as company policy requires each branch to hold 6 weeks' stock at all times, it is not acceptable to the branches for the SDC to take 6 weeks to deliver stock to the branches. The SDC should take a holistic approach and review all its services rendered to the branches, thereafter focusing on those alleged to be poor by the branches, for example the delayed deliveries of ordered stock to the branches. The reasons for the delays should be established by the SDC and corrective actions should be taken. The company should then set a reasonable and realistic standard lead-time or turnaround time for branches to expect delivery after the date of order placement.

The delivery standards mentioned in the research preamble refer to the time period between the dispatch date and the date of arrival at the branch. The process is lengthened by the period between the order date and the dispatch date, and this is where the SDC needs to improve its services. Since on average, 64% of the branches indicated 15 working days as an acceptable turnaround time, it is recommended that the SDC should improve its operations particularly between order date and dispatch date, which will result in an even better lead time than the 15 working days as perceived by the branches.

Thus, the perception of the 15 working days had time being that of the branches, the SDC with a holistic approach may be able to improve on that figure for a lead-

time having understood the reasons for the delivery delays. The SDC will have to review its processes and the time taken to complete each order, and establish areas of improvement to minimise unreasonable delays.

This recommendation is based on the assumption that the 64%, which represents the majority of the branches recommending the 15 working days' lead-time took into consideration various operational requirements. The 15 working days' lead-time might therefore have been assumed to work well with their operational plans or the branches have adjusted their operations to such a period eventually. The 15 working days seems to be based on what is currently happening at branch operational level. This however cannot just be accepted as the standard delivery time to be set as it is the view of the branches alone and not that of the SDC. The 15 working days period perceived by the branches still seems too long, but if that is the average of the shortest times that the SDC could deliver, it is more likely that the branches would settle for this as an acceptable lead time.

Another crucial point is that the set standard time must be communicated to all affected parties within the organization. The fact is that if no standard time is set between the SDC and the branches, as far as the branches are concerned, if there is any, and it is not made known to the branches, the status quo will remain with a limited possibility of improvement but with a far greater possibility of further deterioration. The reality is that, the perceptions of the branch managers will not change much towards the positive until they are notified of what is being done about the situation and can empirically see something being done.

The SAPO can actually leverage on the fact that it has a vast distribution network throughout the country with trucks on the road every day. It should not be difficult for stock ordered to reach the branches in good time once dispatched.

6.2.2 Stock Order Query Structure

The way in which the branches have undertaken stock order follow-ups has shown that the stock order query procedure with the SDC is not well structured and customer friendly. The situation is such that should a branch telephone the SDC

directly to query a delayed order, it may be confirmed that the order was received by the SDC but no accurate information can be given to the branch as to which items in the order are causing the delay, when they will be available and the possible dispatch date.

The research finding has indicated that some branches did telephone in desperation to ascertain the reasons for delayed orders, while others indicated that they did not even trouble to telephone the SDC, anticipating poor response. In terms of the SAPO as a business entity, the SDC is a crucial link in the inbound logistics activities of the organization, because the inbound logistics' activities at branch level are directly influenced by the inbound logistics' activities at the SDC, since the SAPO has a centralized type of procurement system.

The recommendation is that since, the SDC has this crucial responsibility, a well-structured and customer-friendly order query structure should be implemented. As much as the SAPO has a customer care toll free number for external customers, the branch managers are important internal customers responsible for the revenue generation process of the organization upon which the operational and economic success of the organization lies.

It is specifically recommended that the company should have a toll free number for stock orders and related queries, with skilled staff in supply management who have the necessary systems and technology to satisfy internal customer needs, thereby indirectly satisfying the needs of external customers. The advantages are that the implementation of the above initiatives may result in improved stock management at branch level as well as timeous and cost effective ways of querying stock orders.

The disadvantages are the additional costs, which could be incurred by implementing the suggested initiatives in terms of staffing and infrastructure. This structure will communicate with internal customers not only by telephone but also by post and e-mail. Through this system the branch managers will be able to have access to up-to-date information about their back orders, when stock will be available, current stock delivery status as well as prices and other associated

costs. The current e-procurement system should be enhanced to provide up-to-date information to the branches.

There is currently no better way for branch managers to ascertain the status of their back orders other than by telephoning the SDC, with, in most cases, no appropriate answer being given. Another suggestion is to enhance positivism on the habitual behaviour of branch managers as far as inbound logistics' activities are concerned, because what seems to have happened in some instances is that branch managers have been discouraged from ordering some items due to the lengthy lead time involved. In the meantime, the peak season of such sales would have passed.

In some instances branch managers would order more stock than the required amount to avoid stock-out situations in the near future due to the lengthy lead-time from the SDC. The recommended structure will also enhance the reduction of operational costs, for instance, in reducing the number of national calls to the SDC to follow-up on non-delivery of ordered stock items to branches. In doing so, this will also change the negative perceptions the branch managers have of the SDC and their changed perceptions will again have a positive influence on their habitual behaviour.

6.2.3 Partnerships and Information Sharing

The results of the analysis have shown that the SAPO is poor in respect of formation of partnerships with its local suppliers in the Eastern Cape Region as well the sharing of information with suppliers. The situation in respect of the SDC and its suppliers is unknown. This is a possible area of research on its own, which could uncover some of the reasons behind the late deliveries of stock to the branches. There might be problems with the SDC suppliers or with their suppliers in return, hence the formation of partnership and information-sharing at that level is also very important.

The recommendation is that the organization should form guidelines for the SDC if they do not exist, as to how to go about forming partnerships with suppliers and

what information should be shared with them. Concerning late deliveries from the SDC, the possibility exists that the SDC might be disadvantaged by some of its major suppliers, some whom might be using the JIT system while the SAPO currently does not. It has been alluded to in the literature review that for the JIT system to work well, it should be adopted by all members involved in the supply chain.

By forming partnerships and sharing information with members in the supply chain, the SAPO may be in a better position to take initiatives to improve its systems to synchronise with the systems of its suppliers. This may reduce problems experienced by the SDC and its suppliers and in return reduce the problems that exist between the SDC and the SAPO branches. If all these interventions had already been implemented at the SDC, the lead-time would have improved a great deal, especially the time taken between the date of order by a branch and the date of dispatch by the SDC of such an order to the branch.

The SAPO should consider collaborative programs, especially in respect of the SDC, with key and strategic suppliers. Internally, the SAPO should consider collaborative programmes between the SDC and the branches further to enhance the understanding of the branches as to how the SDC operates. An intervention of this kind would possibly improve some of the negative perceptions of the branch managers about the SDC. The results of this study have found that such collaboration is lacking, based on the perceptions provided by the branches about the services of the SDC.

These suggested interventions (internally and externally) could assist the SAPO to make a full assessment of its supply chain security and sustainability, and make it possible to also develop contingency plans for addressing potential supply chain disruptions that may occur, since the branches at the SAPO have a very limited capacity (if any) to deal with such disruptions. The responsibility rests with the SDC.

6.2.4 Inbound Logistics Training Issues

As indicated earlier in the findings, 13% of the branch managers are of the opinion that no proper training regarding stock management has been provided. This number might seem to be low but the effects thereof might be significant to the bottom line of the business. Substantial amounts of capital are tied up in stock-holding and other inbound logistics' activities, and such activities may not be cost effective if they are not handled with proper stock management skill. It is therefore recommended that management should implement a continuous training process to address the skills needed to manage stock and related activities by the branch managers.

6.3 Recommendations for Further Research

As much as the study on inbound logistics' activities within the South African Post Office was at branch level, the SDC remains the crux of the inbound logistics of the SAPO. It is recommended that further research be conducted regarding the impact of inbound logistics on the operational performance of the SDC. Such an investigation should reveal the challenges that face the SDC operationally. Such a perspective, together with the perceptions of the branch managers should provide a more complete picture in the analysis of the inbound logistics of the SAPO. Also as much as the branches have their own loose ends to tighten up as far as inbound logistics activities are concerned, their habitual behaviour in respect of such activities is greatly influenced by the services rendered by the SDC.

Such a study should also cover the impact that external suppliers have on the SDC. This should further explain the reasons for the problems as experienced by the branch managers concerning the services of the SDC. A second recommended area of study might be that of the policies within the SAPO that regulate the Supply Chain Management system and the relationships among the parties involved, such as the resolution of conflicts, among others. For example, if there is any Service Level Agreement (SLA) which should be in place among the parties in the supply chain system internally and externally, this should clearly explained to all members.

A third crucial area of suggested research is with regard to the impact of e-procurement on the performance of inbound logistics activities, for example, its impact on transaction processing costs. The fact is that the SAPO has spent substantial funds to implement the e-procurement system at the branches, but this is only linked with the SDC as the sole supplier. The information provided by the system to the branches in terms of feedback seems to be very limited as far as the perceptions of the branch managers are concerned. Nevertheless, the system as perceived by the branches works well as far as ordering is concerned, but it remains a fact that no other feedback came be obtained from it.

As far as the samples used in this study are concerned, replication of the study in other provinces such as the Western Cape, KwaZulu Natal and Gauteng would be highly desirable, especially in the province where the SDC is located. It is considered that the notable omission in the present study was the investigation on the inbound logistics activities at the SDC as the centre of major procurement and distribution activities at the SAPO. The impact of external suppliers to the SDC needs to be explored. The omissions would reciprocally represent the areas of further research.

The second omission of the study is the exploration of the extent to which the SAPO policies govern the relations between the SAPO branches and the SDC: this would be in terms of actions (including disciplinary procedures) to be taken against the SDC when company failure occurs due to its poor performance or cooperation and delivery to branches. In simple terms this would mean the recourse that the branches have in respect of non-performance by the SDC. The poor performance of the SDC seems to be a common view as far as the perceptions of the majority of the branch managers are concerned. On the other hand, if a study were to be conducted on the SDC, then company policies would also have to be considered, not only in terms of the SDC and the branches, but also in terms of the external suppliers as well.

6.4 Conclusion

In conclusion, it therefore seems that the common view that companies who wish to achieve above average returns do not compete corporately company to company but by way of supply chain to supply chain, is empirically supportable. Each of the three alternative hypotheses tested was substantiated. From the results of the Spearman Rank Correlation Coefficients, it has become clear that the statistical significance of the relationship between inbound logistics activities and the operational performance of the business exists.

It has also been supported by the results that inbound logistics activities and revenue generation are positively correlated. In addition, the positive correlation between the inbound logistics and the operational costs of the business has been proven to be in existence. Therefore it could be concluded that, whatever improvement is done in respect of inbound logistics will help to enhance business performance in terms of increased revenue generated in a very cost effective way.

The last area recommended for further study is the impact of information technology on inbound logistics' activities, e-procurement in particular, as the SAPO has invested huge amount of funds in its implementation at branches linked to the SDC. The most important and crucial aspect here is that the system should be enhanced to provide accurate and up-to-date information on daily basis to the branches about the status of their orders at the SDC, and this will in one way or another assist the branch managers in planning their daily operational activities.

The managerial implications are that management should consider as a serious directive all the negative perceptions of the branch managers and take corrective actions to enhance the services rendered by the SDC towards the branches. The reality is that all the areas of non-performance by the SDC impact negatively on the operational performance of the branches, which results in negative perceptions of the services rendered by the SDC, as far as the branch managers are concerned. However, the perceptions represent one of the processes, that is, branch management. A more holistic approach would be necessary when addressing the problem in order to provide an appropriate solution for the SAPO.

In a way the branch managers have alleged that services rendered by the SDC are impacting on the overall performance of their business operations, that is, the achievement of business gaols and objectives. As the SAPO uses a centralised system for procurement and distribution of goods and services, operationally speaking, the effectiveness of inbound logistics activities at branch level hinges on the service of the SDC.

Four areas of focus for improvement have been recommended to the Senior Management of the SAPO in the following manner:

- The setting of a reasonable standard delivery time between the SDC and the branches. This delivery standard should spell out the efficiency in terms of speed and time of processing orders, especially on the part of the SDC. This information should be communicated well to all parties involved.

- The establishment of a proper and well-structured stock query and related services structure. This structure should have systems to provide accurate and up-to-date information to the branches about all orders placed with the SDC and also be able to provide other order-related information.

- The establishment of partnerships and other collaborative programs with key and strategic trading partners especially the SDC, in order to minimize the negative impact of supply chain disturbances. More enhanced collaborative initiatives between the SDC and the branches are highly recommended.

- Initiation of a project to deal with training, with special focus on inbound logistics' activities to enhance the relevant skills required, such as stock planning, stock replenishing methods and order follow-up methods.

Throughout the literature on Supply Chain Management, there is a prevailing assumption that a well structured and managed Supply Chain System becomes

one of the key competency areas of the business, and the inbound logistics activities are part of such a system. When such activities are flawed it has been proven that they tend to have a negative impact on the business operations, such as increased operational costs, disruption of operational plans and a negative impact on endeavours to maximize revenue generation.

It is possible, however, that some of these flaws may in fact be "healthy" for the organization in that they may bring a "wake-up call" and encourage the organization to innovate and implement the best practices when it comes to its Supply Chain Management. On the other hand, when the inbound logistics activities are good and well-supportive of the business operations, instead of breeding complacency, revelation of flaws may allow the company to aim for higher standards and pursue improvement initiatives.

It would be useful if future studies could examine the extent to which the changes in inbound logistics do or do not have adverse consequences on other aspects of organizational effectiveness such as the outbound logistics which are directly linked to the satisfaction of the needs of external customers. The fact that "one thing leads to another" is also substantiated in business terms when one sectional operation affects the operations of another section in the same business and so on.

This study on inbound logistics has focused on branch level managers and has ignored the senior managerial level of the SAPO in the Eastern Cape Province, due to the assumption that few problems exist with them regarding inbound logistics. To some extent it may be deemed necessary to obtain the perceptions of senior management in the region of the impact of inbound logistics' activities on the operational performance of the SAPO as a business. However, the results of the study have answered the research enquiry as to whether inbound logistics have the influence on other operational performances in the of the South African Post Office.

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