

**AN EVALUATION OF THE RELATIONSHIP BETWEEN SUPPLY CHAIN
MANAGEMENT AND COMPETITIVE ADVANTAGE:
A CASE STUDY OF ABERDARE CABLES (PTY) LTD, (A DIVISION OF
POWERTECH GROUP), SOUTH AFRICA**

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ABSTRACT

Effective supply chain management (SCM) has become a fundamental substratum for strategy formulation, as competition is no longer between organizations, but between their supply chains. Organizational success is now dependant on how well the organization collaborates externally, in order to achieve breakthrough results and sustain a unique advantage over its rivals. This research conceptualizes and develops three dimensions of SCM business processes (supplier relationship management (SRM), demand management (DM), and manufacturing flow management (MFM)) and tests the relationships between these processes and competitive advantage.

Key Words: Supply Chain Management; Relationship; Competitive Advantage; Marketplace; Product Customization; Organizational Performance; Shareholders; Performance

Introduction

Effective Supply Chain Management makes suppliers “partners” in the firm’s strategy to satisfy an ever-changing marketplace (Heizer and Render, 2011). As firms strive to increase their competitiveness via product customisation, high quality, cost reductions, and speed to market, added emphasis is placed on the supply chain. With this approach to organisational success and competitiveness, Supply Chain Management (SCM) may present a key opportunity for organisations to enhance performance and establish competitive advantage.

Lambert (2010:05) outlines eight business processes, key in the integration and management of the SCM, which are Customer Relationship Management (CRM); Customer Service Management (SCM); Demand Management (DM); Order Fulfilment (OF); Manufacturing Flow Management (MFM);

Supplier Relationship Management (SRM); Product Development and Commercialization (PDC); and Returns Management (RM). This research seeks to establish and evaluate the relationship between the implementation of three of these business processes (which are SRM, DM and MFM) and competitive advantage.

Objectives of the Study

The ultimate objectives of this research are to establish the following:

- To determine whether strategic implementation of the SRM business processes will influence organisational performance
- To explore whether DM has an impact on organisational competitive advantage
- To measure the extent to which MFM can influence competitive advantage of the organisation
- To make recommendations regarding strategies to establish competitive advantage, through the implementation of SCM business processes.

Statistical analysis will be used to measure the strength of the relationship between the variables (SRM and CA; DM and CA; MFM and CA), and will show whether or not there is correlation and at what level. This research will attempt to expose to the focal company the importance of implementing the SCM business processes in the organisation, in order to establish competitive advantage.

LITERATURE REVIEW

Introduction

The purpose of this section is to briefly introduce and provide a recent history of SCM; SRM; DM; MFM and competitive advantage as it relates to literature that has significantly contributed to the field of SCM. A review of the literature will provide the foundation for the research model developed and hypothesis evaluation in this dissertation.

Supply Chain Management (SCM)

Supply Chain Management refers to the activities that manage the flow of information, money, and materials across the extended enterprise, from supplier through the functional silos of the firm to customer (Slone, Dittmann and Mentzer, 2010:05).

The council of Supply Chain Management Professionals (CSCMP) defines the supply chain as encompassing the planning and management of all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. According to Slone et al. (2010) there is a very strong link between supply chain excellence and shareholder value. Economic profit model (EPM) is used by Slone et al. (2010) how supply chain management contributes to value creation. Economic profit is simply profit less the cost of capital needed to generate that profit (Slone et al. 2010). It is used to show that the company is delivering returns above the cost of the capital invested and is driven by effective management of the Supply Chain.

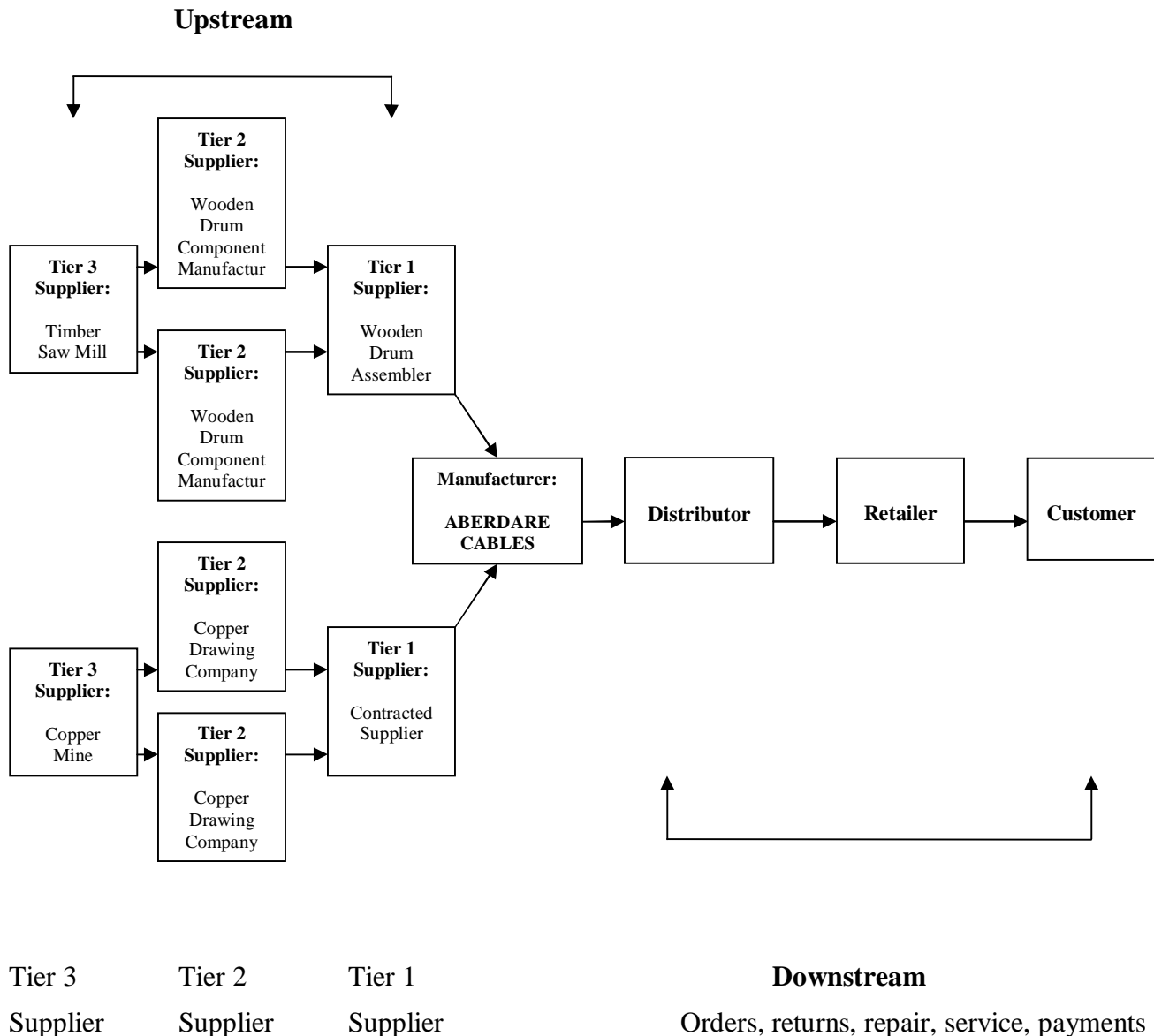
The illustration by Slone et al. (2010) shows the importance of supply chain management in the creation of shareholder value. It focuses and highlights the fact that all parts of the value generation are dependant to supply chain, from sales revenue to cost of sales; to working capital (inventory management); and to physical capital (utilisation of factories, warehouses, and space in retail shops). It

is right in the central spot of value creation, both for customers of the organisation and for shareholders and is the determinant of the organisation's competitive position in the market.

Ketsuwan (2010:09) illustrates the relationships in the supply chain and the flow of information, as depicted in her supply chain model. This also supports and shows how inter-dependable the partners or members in the supply chain are, in ensuring collective success. It shows the upstream suppliers from the third tier to the second tier and the immediate supplier and also shows the down-stream chain, from the distributors, through the retailers and the ultimate customer. This model also shows the flow of information and products between the supply chain members. The emphasis here is that the focal business or the Manufacturer has to integrate it and collaborate externally to both the up-stream and down-stream chains in order to achieve breakthrough results over its rivals.

Aberdare Cables as a major cable manufacturer globally, is involved in a series of supply chains over many different categories of raw materials and services required in their operations. One of the major raw materials that this study will use focus on in demonstrating the application of literature in the organisation is the wooden drum raw material as a category of stock. The following figure, Figure 2.1 adopted from Laudon and Laudon (2010:371), will be used to demonstrate the flow of information and products from upstream to downstream, from third tier supplier through to customer:

Figure 2.1 Aberdare Cables Supply Chain



Laudon and Laudon (2010:370), define Supply Chain Management as a network of organisations and business processes for procuring raw material, transforming these materials into intermediate and finished products, and distributing the finished products to customers. It links suppliers, manufacturing plants, distribution centres, retail outlets, and customers to supply goods and services from source through consumption.

Kotler and Keller (2009:501), say Supply Chain Management starts before physical distribution and means strategically procuring the right inputs (raw materials, components, and capital equipment); converting them efficiently into finished products; and dispatching them to the final destinations. The supply chain perspective can help a company identify superior suppliers and distributors and help them improve productivity, which ultimately brings down the company's costs.

Hugo (2011:04), claim Supply Chain Management is the coordination of production, inventory, location, and transport among the participants in the supply chain to achieve the best mix of responsiveness and efficiency for the market being served. Supply chain concept is different from traditional Logistics in that it refers to networks of companies that work together and coordinate their activities to deliver a product to market, as opposed to focusing on activities that occur within the boundaries of a single organisation.

The view of Lardon et al. (2010) is aligned with the definition by the CSCMP and also agrees with the view of other authors, such as Slone et al. (2010). The measurement of the supply chain performance therefore has to result to how the Supply Chain business processes are able to effectively deliver against capital invested in the organisation. The key measures of performance, as deduced in the definition above by Lardon et al. (2010) being:

- Effective Raw material Procurement (low cost buying and transportation of raw material)
- Efficient Transformation or Conversion of raw material into intermediary and finished goods. Proper manufacturing designs, production flows, quality controls, efficient process flows, qualified and skilled operators, and so on are some of the elements that influence efficient conversion of raw material into usable goods.
- Effective Distribution of goods. Effective, reliable, dependable and cost effective logistic systems.
- Reduced cycle times and through-put times. Time taken from when customer order was received and when the goods were delivered and received by the customer. Improved customer satisfaction and reduction of lead times
- Improved Communication or information flow between the supply chain members. Real time systems, which eliminate errors and improve synergy between supply chain members; improving customer satisfaction and results to customer retention.
- Increased Economic Profits of the organisation and increased Shareholder Value. Increase in listed stock valuation

As illustrated in Figure 2.1 above, the wooden cable drum supply chain that Aberdare is involved in has several key players, such as:

- Third tier suppliers – timber saw mills
- Second tier suppliers – wooden drum components manufacturers
- First / immediate or contracted suppliers – wooden drum assemblers
- Focal business – Aberdare Cables, the manufacturer of cable
- Warehousing and Distribution done by the Aberdare Cables and its agents
- Retailers being private retailers, such as major hardware and electrical retailers (Builders Warehouse, Alert Cables, Metric Cables, etc.)
- End-user Customer being Eskom, Municipalities, construction companies, domestic market, etc.

Information flowing through all these members of the supply chain is important in improving customer experience and service, and increasing returns for key partners in the chain. Effective

implementation of the SCM business processes therefore is proving to have a central and strategic part to play in the overall success of the organisation, and not just Aberdare Cables only.

Demand Management (DM)

According to Blackwell and Blackwell, demand management may be thought of as “focused efforts to estimate and manage customers’ demand, with the intention of using this information to shape operating decisions” (Langley, Coyle, Gibson, Novack and Bardi, (2009:232). In this regard demand management plays a very crucial of facilitating between customer demands and operating decisions. It enables the firm to align its operations or to unify its channel members with the common goal of satisfying customer demands and solving customer problems.

DM plays a major role in the SCM, as it establishes a link between customer demands and the supply capabilities of the members in the supply chain. Supply (of resources / commodities / stock / services, etc.) of each member in the supply chain is driven by customer demand, and DM establishes that demand and filters it in the forecasting metrics, which carefully considers each member of the supply chain and their part in the fulfilment of that customer demand. Information flow

Langley et al. (2009:232) say the essence of demand management is to further the ability of firms throughout the supply chain, particularly manufacturing through the customer, to collaborate on activities related to the flows of products, services, information, and capital, through the following number of ways:

- Gathering and analysing knowledge about consumers, their problems, and their unmet needs
- Identifying partners to perform the functions needed in the demand chain
- Moving the function that need to be done to the channel member that can perform them most effectively and efficiently
- Sharing with other supply chain members knowledge about consumers and customers, available technology, and logistics challenges and opportunities
- Developing products and services that solve customers’ problems
- Developing and executing the best logistics, transportation, and distribution methods to deliver products and services to customers in the desired format

Demand management plays a major role in the internal processes and planning in the firm, which includes facilitating capacity planning, production planning, promotion planning, and purchasing, among others.

Vollmann, Berry, Whybark and Jacobs, (2005:18), defines Demand Management as a gateway model in manufacturing planning and control (MPC), providing the link to the marketplace, sister plants, warehouses, and other important customers. Demand management helps with gathering information from and about the market doing things like forecasting customer demand, entering orders, and determining specific product requirements, and also facilitates with the communication with customers by promising delivery dates, confirming order status, and changes.

Adendorff and De Wit (1999:93), say Demand Management involves recognising and managing all sources of demand for products with the objective of keeping the master scheduler posted. It encompasses the activities of forecasting, recording orders, making the delivery promise, determining the needs of the business’s subsidiaries or other plants and the need for service or replacement parts.

Melnyk and Denzler (1996:446), define Demand Management as a business process that seeks to coordinate and influence all sources of demand for the firm's products to help operations managers target their system's resources efficiently to promote implementation of the firm's competitive strategy.

All the above authors seem to highlight the fact that demand management makes a fundamental contribution to the planning of channel members of the supply chain, from customer to capacity planning, to production planning, right to deliveries or distribution to the end user customer. The view of Melnyk and Denzler (1996) which recognises that demand management is there to help operations managers (among others) target their systems' resources efficiently in order to implement and achieve the firm's competitive strategy takes pre-eminence. This definition establishes a connection between DM and competitive advantage, and rightly denotes that effective implementation of DM is capable of achieving competitive position for the firm, through operational efficiency.

At Aberdare Cables demand management is done by the sales and marketing team, who obtains orders and contracts for the business and filter that through the internal channels to planning department, procurement department, production department and to the distribution warehouse. Every department in the organisation then feed the customer demand or requirements into their individual planning, which are later consolidated into the master plan.

Manufacturing Flow Management (MFM)

According to Chase and Aquilano (1989), Manufacturing Flow Management is an integrated function that involves not just plant management but also support groups such as Sales and Marketing, Customer Relationship Management, Procurement, Supplier Management and so on. The role of which is to help in the frequently complicated task of manufacturing.

Goldsby and Gacia-Dastugue (2003:33) define Manufacturing Flow Management as the supply chain management process that includes all activities necessary to obtain, implement, and manage manufacturing flexibility in the supply chain and plants. Manufacturing flexibility reflects the ability to make a variety of products in a timely manner at the lowest possible cost and respond to changes in demand.

Chase et al. (1989:54) view Manufacturing Flow Management as a major trend in manufacturing, which involves early and continuous involvement with new products by production, materials planning, and engineering support groups to ensure that the products are effectively managed throughout their life cycles. Its key responsibilities are Product Development, Manufacturing Engineering, Materials/Materials Engineering, Production and Marketing.

Vollmann et al. (2005:01) claim that Manufacturing Flow Management is a system concerned with planning and controlling all aspects of manufacturing, including managing materials, scheduling machines and people, and coordinating suppliers and key customers.

The view of Goldsby et al. (2003) which is encompassing all activities necessary to allowing the organisation to produce a variety of products and become more flexible in order to deliver on the customer promise and expectations takes pre-eminence. MFM relies on external connectivity to accomplish its objectives and is influenced by the up- and down-stream members or partners of the supply chain. Up-stream members influence the process through the demand for product assortment that meets customer expectations; accurate product design, as per defined product specifications required by the customer / market; production and material engineering and controls, and down-stream members being warehousing, retailers and distribution partners of the business.

Vollmann et al. (2005) also makes mention that MFM succeeds when supported by a good manufacturing strategy such as Just-In-Time (JIT), Lean Manufacturing, Batch Production, Flexible Manufacturing, Service Based Manufacturing and so on, which should be in line with the main competitive strategy of the organisation. In order for the organisation to succeed in the supply chain, it has to share a common manufacturing strategy with its supply chain partners.

At Aberdare, MFM has been made a key responsibility of the manufacturing general management, which is then supported by procurement, sales and marketing, quality control, training and development, drawing & engineering, warehouse & distribution, and general administration. This organisation is using Just-In-Time (JIT) manufacturing system and this integrated approach has allowed the organisation to achieve its manufacturing goals and fulfil customer orders on record time. JIT system leads to shorter cycle times, meaning improved responsiveness and efficiency in meeting customer demand for Aberdare Cables.

JIT encourages managers of different departments to plan and implement a smooth, integrated flow of production activities that produce components just as subsequent activities need them, from raw materials through to suppliers' and firm's own operation management processes to finished products (Melnik et al. 1996:386). Choosing and implementing a successful manufacturing strategy, plays an important role in achieving competitive advantage. That same chosen strategy has to be supported by other partners in the supply chain to be successful in the organisation.

Effective MFM business process coordinates supply chains - joint efforts across company boundaries. Its design or setup should not be a one-time effort, MFM process need to continuously adapt and respond to changes in the company environment, strategy, customer requirements and new supply chain opportunities in order to achieve a sustainable competitive position in the market.

Competitive Advantage (CA)

Competitive Advantage illustrates how a company can be more profitable by strategically analyzing the five primary processes on which its supply chain is built (Blanchard (2010:08). Blanchard uses Micheal Porter's Value Chain processes to explain how supply chain management can achieve competitive advantage.

The **Value Chain Model** highlights specific activities in the business where competitive strategies can best be applied and have a strategic impact. The value chain model views the firm as a series or chain of basic activities that add a margin of value to a firm's products or services. These activities can be categorized as either primary activities or support activities.

- **Primary Activities** are most directly related to the production and distribution of the firm's products and services, which create value for the customer. Primary activities include inbound logistics, operations, outbound logistics, sales and marketing, and service.
- **Support Activities** make the delivery of the primary activities possible and consist of organization infrastructure (administration and management), human resources (employee recruiting, hiring, and training), technology (improving products and the production process), and procurement (purchasing input).

A firm's value chain is linked to the value chains of its suppliers, distributors, and customers and this makes the supply chain more effective and results to a superior competitive position. Competitive advantage is the ultimate result of Porter's value chain, according to Narayanan (2001:11).

According to Narayanan (2001:14) competitive advantage is the ability of the firm to outperform rivals on profitability. Competitive Advantage depends on how a firm is able to create for its customers value that exceeds the firm's cost of creating a product.

It occurs when an organization acquires or develops an attribute or combination of attributes that allows it to outperform its competitors. These attributes can include access to natural resources, such as high grade ores or inexpensive power, or access to highly trained and skilled personnel human resources. New technologies such as robotics and information technology can provide competitive advantage, whether as a part of the product itself, as an advantage to the making of the product, or as a competitive aid in the business process (for example, better identification and understanding of customers).

Aberdare Cables uses a combination of generic competitive strategies, as outlined by Thompson, Peteraf, Gamble, Strickland, (2012:184), which is a combination of a low-cost provider strategy and a broad differentiation strategy. Aberdare Cables has huge production output, which requires them to buy large amounts of raw material and other production items. This becomes leverage for their bargaining with suppliers over prices of raw material and results to low input costs.

They also have special skills of engineering and drawing personnel, from their subsidiaries over-seas which design their packaging such that more product content can be loaded on it on at lower cost, when compared to competition. This differentiation strategy, increases product outlook and desirability, while lowering costs and has resulted in an increase in market share.

Rwigema and Venter (2005:177) say that the decision to choose a strategy depends on the resources required, opportunities, and competencies at each stage of the of the supply chain (for example, be involved in raw material extraction, marketing or distribution of finished or semi-complete products). The strategy for the organisation in the upstream may be different from that of the one in the downstream of the supply chain. It is therefore empirical to clearly define your products, services and value propositions in the value chain, so that it will inform the strategic implementation and ensure the strategy chosen properly integrates with the strategies of other supporting partners in the value chain.

Competitive advantage is important to long-term value creation (Narayanan, 2001:14). With the emerging importance of SCM and growing competitiveness between supply chains, it is in an organisation's best interest to seek out ways to capture a competitive advantage. It is also of paramount importance for an organisation to continue involving itself on benchmarking practices, by importing the "best in the world" practices in a specific value chain activity and institutionalising these practices in the normal operating procedures.

The view of Narayanan (2001) which sees competitive advantage as the ability of the firm to outperform rivals on profitability, takes pre-eminence. From the perspective of Narayanan (2001), value is what the customer is willing to pay and superior value stems from offering lower prices than competitors or from providing unique benefits.

Aberdare Cables thrives on their two-edged strategy of low cost and differentiation, which enables them to supply same products as competition to the market at a cheaper price. In order to sustain their competitive strategy, they employ JIT manufacturing strategy, which is supported by other key raw material suppliers in their supply chain. Stock is received just when needed for the next process, from

the supplier who ensures close communication with Aberdare Cables and places orders with his suppliers for delivery just in time, and the chain goes on and on.

This tells us that in order for the organisation to achieve competitive position, the three SCM business processes have to be in place and operating effectively. SRM dealing with the smooth coordination of goods and services from the suppliers; DM focusing on managing demand through the supply chain, to inform the focal manufacturer and ensure output mirrors customer demand; and MFM ensures that the manufacturing strategy and processes of the focal business are not just aligned to the organisation's competitive strategy, but also to the manufacturing strategies of the other supply chain partners.

Therefore competitive advantage becomes a result of the effective implementation of the SCM business processes, which have proven to be the most relevant vehicle to achieving increased customer value and sustainable competitive position.

RESEARCH METHODOLOGY

The aim of this study was to analyze and evaluate the level and strength of the relationships between the strategic implementation of the SCM key business processes and established competitive advantage, as outlined by Lambert (2010:05), highlighting the eight business processes, key in the integration and management of the SCM. The assumption was made that implementation of SCM business processes in an organisation will have a bearing on its competitive position in the industry.

Target Population

- Population size of six (6) different managers representing different selected departments, which include General Management, Procurement, Sales and Marketing, Production, Stores and Logistics, together with their employees (about 569 of in total) formed part of the population and only 62 were part of the survey.
- One-on-one interviews were held with the senior managers and random selection of general staff was also done for employees that were interviewed
- The rest of the population were handed the questionnaires to answer and give comment where necessary.

The following tables and pie charts will show Company Profiles – from total number of employees of the organisation in different departments; staff level classification from management to lower level employees; and job positions held by different the aggregate employees in the organisation.

Table 3.1: Company Profile – Full Time Employees

DEPARTMENT	STAFF COMPLEMENT	%	SAMPLE SIZE	% TO POPULATION
Sales & Marketing	16	2.8	5	0.9
Procurement	8	1.4	3	0.5
Planning	4	0.7	2	0.4
Stores	6	1.0	2	0.4
Admin Support	31	5.5	12	2.1

Production	436	76.6	30	5.3
Logistics	68	12	8	1.4
TOTAL	569	100	62	11%

Figure 3.1: Company Profile: Full Time Employees

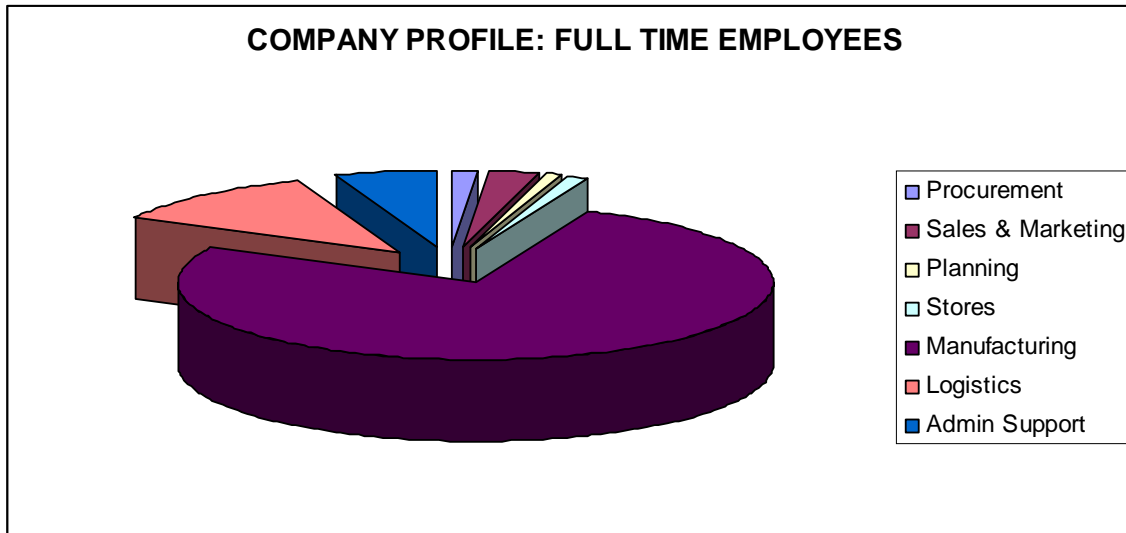


Table 3.2: Company Profile – Staff Level Classification

DEPARTMENT	STAFF COMPLEMENT	%	SAMPLE SIZE	% TO POPULATION
Management (Support)	65	11.4	24	4.22
Manufacturing & Logistics	504	88.6	38	6.68
TOTAL	569	100	62	11%

Figure 3.2: Company Profile: Staff Level Classification

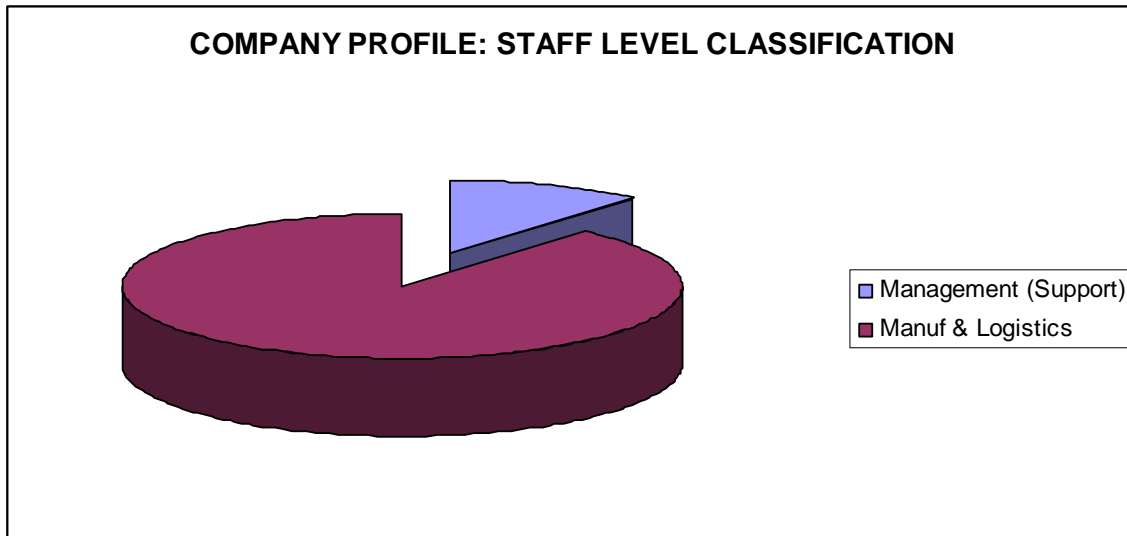
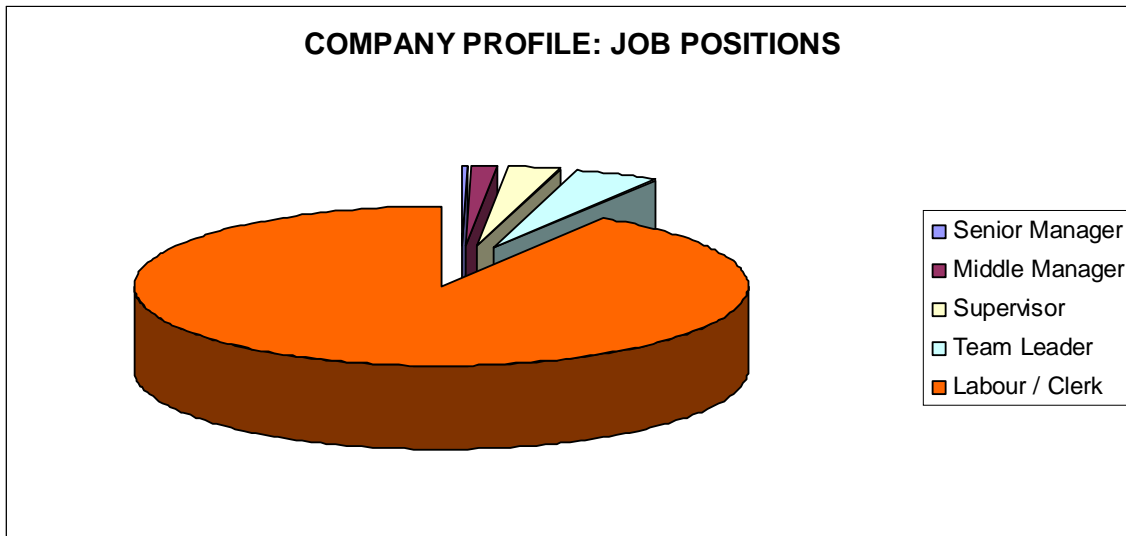


Table 3.3: Company Profile – Job Positions

DEPARTMENT	STAFF COMPLEMENT	%	SAMPLE SIZE	% TO POPULATION
Senior Management	2	0.35	2	0.35
Middle Management	7	1.23	7	1.23
Supervisors	17	3.00	8	1.41
Team Leaders	24	4.22	12	2.11
Labour / Clerk / Other	519	91.20	33	5.80
TOTAL	569	100	62	11%

Figure 3.3: Company Profile: Job Positions



Pilot Study

The initial survey was pilot tested with 5 employees from different departments, with the purpose of collecting feedback on the instrument; to identify confusing and / or misleading

Data Analysis

Inferential Statistics was used to analysis and to determine the correlation coefficient level of the variables was done using Moon Stats CC (2002). Results are demonstrated on the Tables 3.1 and Table 3.2 bellow. Pearson coefficient correlation was used to show the strength of the relationship between variables. A Pearson coefficient correlation was suitable to use if it can be assumed that the variables are approximately normally distributed (Wegner, 2008).

The r value indicates the strength of the correlation. An r of -1 is a perfect negative correlation, and r of 1 is a perfect positive correlation, and an r of 0 means there is no correlation. The p value indicates if the correlation is statistically significant. This will be demonstrated using the results of the sample data and the response data in the next chapter.

Table 3.4: Variable Descriptive Statistics (Sample Data)

Variable	N	\bar{u}	Mean	Std. Dev	Min	Max
SRM	168	0.36	0.83	0.75	0.00	2.00
DM	168	1.29	0.83	0.75	0.00	2.00
MFM	168	1.15	0.83	0.75	0.00	2.00
CA	168	0.68	1.00	0.75	0.00	2.00

Calculated using Moon Stats Software (OUP-200)

Supplier Relationship Management:

SRM measure was used to determine the extent to which the organisation developed network and business processes for procuring raw material, transforming these materials into intermediate and finished products, and distributing the finished products to customers.

This measure was assessed using 20 items. These 20 items were answered on a 5 - point Likert-type response scale (1 = strongly agree, 2 – Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Disagree, 6 = Not Applicable) to assess the extent to which an organisation strategically developed their SRM process.

The reported Cronbach's Alpha for this measure was 0.36. The scale response range from 0.00 to 2.00, with the mean of 0.83, standard deviation of 0.75 and n = 168.

Demand Management:

DM measure was used to determine how the organisation coordinate and influence all sources of demand for the firm's products to help operations managers target their system's resources efficiently to promote implementation of the firm's competitive strategy.

This measure was assessed using 20 items. These 20 items were answered on a 5 - point Likert-type response scale (1 = strongly agree, 2 – Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Disagree, 6 = Not Applicable) to assess the extent to which an organisation strategically developed their DM process.

The reported Alpha for this measure was 1.29. The scale response range from 0.00 to 2.00, with the mean of 0.83, standard deviation of 0.75 and n = 168.

Manufacturing Flow Management:

MFM measure was used to determine the extent to which the organisation developed processes that includes all activities necessary to obtain, implement, and manage manufacturing flexibility in the supply chain and plants.

This measure was assessed using 20 items. These 20 items were answered on a 5 - point Likert-type response scale (1 = strongly agree, 2 – Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Disagree, 6 = Not Applicable) to assess the extent to which an organisation strategically developed their MFM process.

The reported Cronbach's Alpha for this measure was 1.15. The scale response range from 0.00 to 2.00, with the mean of 0.83, standard deviation of 0.75 and n = 168.

Competitive Advantage:

CA measure was used to determine the extent to which the organisation is able to create a defensive position over its competitors. It assesses how the organisation uses its core competencies to develop perceived customer benefits; to enter a variety of markets and to making it difficult for its competitors to imitate (Kotler, P., and Keller, K.L., 2009: 76).

This measure was assessed using 12 items. These 12 items were answered on a 50 point Likert-type response scale (1 = strongly agree, 2 – Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Disagree, 6 =

Not Applicable) to assess the extent to which an organisation strategically developed their SCM processes.

The reported Cronbach's Alpha for this measure was 0.68. The scale response range from 0.00 to 2.00, with the mean of 1.00, Standard deviation of 0.75 and n = 168.

Table 3.2: Variable Descriptive Statistics (Response Data)

Variable	N	$\bar{\alpha}$	Mean	Std. Dev	Min	Max
SRM	432	0.36	206.67	155.71	3.00	446.00
DM	432	1.29	206.67	191.66	6.00	548.00
MFM	432	1.15	206.67	258.02	1.00	627.00
CA	432	0.68	124.00	128.39	2.00	305.00

Calculated using Moon Stats Software (OUP-200)

Supplier Relationship Management:

SRM measure was used to determine the extent to which the organisation developed network and business processes for procuring raw material, transforming these materials into intermediate and finished products, and distributing the finished products to customers.

This measure was assessed using 20 items. These 20 items were answered on a 5 - point Likert-type response scale (1 = strongly agree, 2 – Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Disagree, 6 = Not Applicable) to assess the extent to which an organisation strategically developed their DM process.

The reported Cronbach's Alpha for this measure was 0.36. The scale response range from 3.00 to 446.00, with the mean of 206.67, standard deviation of 155.71 and n = 432.

Demand Management:

DM measure was used to determine how the organisation coordinate and influence all sources of demand for the firm's products to help operations managers target their system's resources efficiently to promote implementation of the firm's competitive strategy.

This measure was assessed using 20 items. These 20 items were answered on a 5 - point Likert-type response scale (1 = strongly agree, 2 – Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Disagree, 6 = Not Applicable) to assess the extent to which an organisation strategically developed their SRM process.

The reported Alpha for this measure was 1.29. The scale response range from 6.00 to 548.00, with the mean of 206.67, standard deviation of 191.66 and n = 432.

Manufacturing Flow Management:

MFM measure was used to determine the extent to which the organisation developed processes that includes all activities necessary to obtain, implement, and manage manufacturing flexibility in the supply chain and plants.

This measure was assessed using 20 items. These 20 items were answered on a 5 - point Likert-type response scale (1 = strongly agree, 2 – Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Disagree, 6 = Not Applicable) to assess the extent to which an organisation strategically developed their MFM process.

The reported Alpha for this measure was 1.15. The scale response range from 1.00 to 627.00, with the mean of 206.67, standard deviation of 258.02 and n = 432.

Competitive Advantage:

CA measure was used to determine the extent to which the organisation is able to create a defensive position over its competitors. It assesses how the organisation uses its core competencies to develop perceived customer benefits; to enter a variety of markets and to making it difficult for its competitors to imitate (Kotler, P., and Keller, K.L., 2009: 76).

This measure was assessed using 12 items. These 12 items were answered on a 50 point Likert-type response scale (1 = strongly agree, 2 – Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Disagree, 6 = Not Applicable) to assess the extent to which an organisation strategically developed their SRM process.

The reported Alpha for this measure was 0.68. The scale response range from 2.00 to 305.00, with the mean of 124.00, standard deviation of 128.39 and n = 6.

Research Limitations

There are some inherent limitations to the results that were found in this research effort.

- Research instrument was administered to a single group of participants of an organization involved in a complex network of the supply chain. Only the single organization's view was generated and limited coverage was done only focusing on the single organization. Some measurement inaccuracy and bias may result or are possible.
- Misinterpretation and lack of understanding of the questions is a potential limitation. To ensure the interpretation and understanding of the question, a pilot test was conducted to thoroughly evaluate the adequacy of each item. Items were reworded where necessary.

RESULTS, DISCUSSION AND INTERPRETATION OF FINDINGS

Introduction

The purpose of this study was to analyse and evaluate the level of strength of the relationship between the strategic implementation of the SCM key business processes, with specific emphasis on SRM, DM, MFM and Competitive Advantage. This chapter summarises the findings of analysis conducted on data collected using the questionnaires, in testing the research hypothesis.

Survey Results

The results of the survey (responded data) were arranged, edited, coded using spreadsheet. Percentages of each response item were calculated to give a proper indication of the percentage representation by the survey population. The results of the survey were then interpreted as follows:

Supplier Relationship Management

- SRM01 98.39% (30.65% + 67.74%) of the candidates said yes and only 1.61% was in disagreement. We safely accept that the company has examined how their corporate strategy influences the SCM process.
- SRM02 100% of the candidates said yes. This means the organisation has proper structure to handle supplier relationships – to develop and manage performance contracts etc.
- SRM03 88.71% (61.29% + 27.42%) was in disagreement with the statement and 6.45% was neutral, which could mean they are not informed about the subject and only 4.84% was in agreement with the statement. 5% out of 62 people represents about 3 people. This is insignificant portion to worry about. We will accept that the company has indeed identified key criteria for segmenting suppliers.
- SRM04 96.78% Of the candidates responded positively and 3.22% was in disagreement.
- SRM05 90.33% of the candidates were in agreement with this. 9.67% could be representing employees who are further from management or administration duties, as they would not be informed of the fine details of the PSA's.
- SRM06 96.77% (40.32% + 58.06%) agreed with the statement and only 1.61% of candidates were unsure about their answer. We accept that this measure is in place in the organisation.
- SRM07 93.55% was in disagreement with the statement. Which means the organisation does have formal performance goals for supplier relationship management.
- SRM08 98.34% said that the company actually does regularly measure its suppliers' contribution to the company's profit.
- SRM09 100% (43.55% + 56.45%) of the candidates were in agreement with the statement.
- SRM10 Only 33.87% of the candidates are in agreement with the statement and 45.61% are unsure about the subject, and 20.97% are in disagreement with the statement. This reveals that only the employees dealing direct with the suppliers are able to comment on this.
- SRM11 80.64% of the candidates responded positively, 3.23% were unsure and about 16.13% were in disagreement with the statement. This is a worrying factor, even though only 19.36% (16.13% + 3.23%) of the candidates are represented. It could be 19.36% of the whole organisation (almost 110 employees = 569 x 0.1936) who do not understand how their decisions affect SRM process. This number could grow and lead into a series of issues if not dealt with and people are well informed and trained.
- SRM12 Only 61.29% responded positively, 11.29% were unsure and a whole 27.42% was in disagreement with the statement. The Cross-functional team should interact with the suppliers and make them aware of how their decisions affect the SRM process.
- SRM13 66.13% of the candidates agreed with the statement, 9.68% were neutral and 24.19% were in disagreement. This could be a fact that is only known and could be responded adequately to by those who deal closely with the customers, such as the Sales & Marketing and Logistics employees. The rest of the candidates have limited interaction with the customer to be able to give proper or informed response.

- SRM14 79.03% of the candidates were in disagreement with the statement, which means the company does share benefits from process improvements with the suppliers.
- SRM15 80.61% responded positively, which means does measure the impact that their suppliers have on the firm's competitive advantage.
- SRM16 Only 51.61% responded positive to the statement. This tells us that only half of the organisation understands SRM process impact on the firm's competitive advantage. The company should put some more effort in educating and informing employees about what impacts competitive advantage. This way the whole organisation will adopt the responsibility of increasing competitiveness in all departments and results will be seen on organisational level.
- SRM17 61.29% of the candidates were in agreement, 11.29% were unsure and 27.42% were in disagreement with the statement. It seems that those in disagreement are not informed about the matter and only 11.29% were honest about not knowing the facts on this issue. The statement could be answered adequately by those who deal closely with suppliers.
- SRM18 79.03% of the candidates were in disagreement with the statement. This tells us that the statement is untrue in this organisation.
- SRM19 79.04% were in disagreement with the statement. This tells us that the statement is untrue in this organisation.
- SRM20 85.49% were in disagreement with the statement. This means a big majority of the organisation recognises the importance of SRM to competitive advantage of the organisation. More effort in informing and training the other portion of employees to know the importance of SRM to competitive advantage has to be put in, in order to have everyone in the organisation working together for common good.

Demand Management

- DM01 74.19% of candidates were in agreement with the statement, 6.45% were unsure and 19.36% were in disagreement. A quarter of the organisation is not aware that DM strategy is implemented throughout the organisation. This could mean that it is only known by the Support and leadership personnel and the bottom level employees are left out.
- DM02 83.87% of the candidates agreed with this statement and only 16.13% were in disagreement and/ or neutral. Cross-functional teams are made of representation from different departments and 84% is good enough to indicate that this team does exist and give input of DM process.
- DM03 77.42% of the candidates disagreed with this statement, about 9.68% were unsure and 12.9% were in agreement. 22.58% is a significant number and perhaps in some sections of the business, the organisation has not identified bottlenecks.
- DM04 82.26% were in agreement with the statement. This means that the organisation does coordinate with key suppliers when doing their forecasts.
- DM05 91.94% were in agreement also on this statement. We are satisfied that the organisation does coordinate internally and externally when doing their forecasts.

- DM06 93.55% were in agreement with the statement. This means that the organisation does coordinate with key customers when doing their forecasts.
- DM07 90.32% were in agreement, about 4.84% were neutral and 4.84% were in disagreement. This reflects that almost 10% of the organisation could be uninformed or ignorant of the factors that contribute to superior customer service.
- DM08 61.29% of the candidates were in disagreement with the statement, 19.35% were neutral or unsure and 19.36% were in agreement. Almost 39% of the organisation says there are no formal procedures in place to match supply and demand in the organisation.
- DM09 93.55% were in agreement with the statement. This is a good representation and reflects positively on the organisation.
- DM10 96.77% of the candidates, were in agreement with the statement. This is also a good representation and reflects positively on the organisation.
- DM11 88.71% were in agreement, and 11.29% were in disagreement. We accept that the 11.29% could be coming from the production level employees and 89% is adequate to prove the Dm metrics are in place in the organisation.
- DM12 88.71% also responded positively, while 6.45% were unsure and 4.84% were in disagreement. We are satisfied that the organisation understands the impact of DM on financial performance.
- DM13 61.29% of the candidates responded positively, 11.29% were unsure and 27.42% were in disagreement. We accept that the organisation's suppliers, does understand how their decisions affect DM process. The 39% of candidates that are unsure and / or in disagreement could be the personnel that do not deal closely with suppliers.
- DM14 66.13% of the candidates responded positively, 9.68% were unsure and 24.19% were in disagreement. We accept that the organisation's customers, does understand how their decisions affect DM process. The 39% of candidates that are unsure and / or in disagreement could be the personnel that do not deal closely with suppliers.
- DM15 90.32% were in agreement with this statement. This confirms that company's employees are well aware of this fact. This would improve productivity and ultimate customer service.
- DM16 90.32% of the candidates agreed with the statement. This reflects that proper communication exists between management and staff. Majority of employees knows and understands management's input and / or involvement in achieving customer service.
- DM17 93.54% of the candidates were in agreement with the statement. This is good enough representation.
- DM18 74.19% responded negative to the statement, 9.68% were unsure and 16.13% were in disagreement. We accept that the opposite of the statement is true in the organisation.
- DM19 75.81% of the candidates were in disagreement with the statement. This is adequate response to prove that the organisation does contribute to increasing market share. However the 24.19% represented portion of employees is a worrying factor and reflects

that almost a quarter of the employees of the organisation do not know the contribution of DM to increasing market share.

DM20 88.71% were in disagreement with the statement. We are satisfied that majority of the organisation does believe that DM is important to improve competitive advantage in the organisation.

Manufacturing Flow Management

- MFM01 95.16% of the candidates agreed with the statement. We accept that it is the case.
- MFM02 96.77% of the candidates agreed with the statement. We accept that it is the case and that personnel in the organisation are aware of MFM process.
- MFM03 95.16% of the candidates agreed with the statement. We accept that it is the case. This reflects that the organisation is continuously looking for ways to improve productivity and reduce costs and / or process time.
- MFM04 93.55% of the candidates agree with the statement. We are satisfied that proper segregation of operations has been carried out.
- MFM05 93.55% of the candidates agree with the statement. We accept that it is the case. This means the organisation strives to focus on the core business and become less distracted with non-core operational parts of the operations.
- MFM06 95.16% of the candidates agrees with the statement. We accept that it is the case.
- MFM07 95.16% of the candidates agrees with the statement. We accept that it is the case.
- MFM08 80.65% of the candidates agrees with the statement. We accept that it is the case.
- MFM09 100% of the candidates agrees to the statement.
- MFM10 100% of the candidates agrees to the statement.
- MFM11 100% of the candidates agrees to the statement.
- MFM12 91.94% of the candidates agrees with the statement, and the rest are unsure and / or in disagreement. We are satisfied that the statement is true.
- MFM13 88.71% agrees with the statement, and 11.29% are unsure and / or in disagreement. The 11.29% could be from the personnel that do not deal with suppliers direct.
- MFM14 90.33% responded positively to this statement. We accept that it is the case.
- MFM15 91.94% of candidates responded positively to this statement. We accept that it is the case.
- MFM16 93.55% of candidates responded positively to this statement. We accept that it is the case.
- MFM17 93.55% of candidates responded positively to this statement. We accept that it is the case.
- MFM18 96.77% of candidates responded positively to this statement. We accept that it is the case.

- MFM19 80.64% of the candidates were in disagreement with the statement. This means that the opposite of the statement is true.
- MFM20 93.55% were in disagreement with this statement. This says that majority of the organisation agrees that MFM process is indeed important to the organisation, in order to achieve competitive advantage over its rivals.

Competitive Advantage

- CA01 100% of candidates agreed with this statement. This shows that the employees have confidence in their pricing strategy.
- CA02 98.39% agreed with this statement. Only 1.61% of the candidates are unsure.
- CA03 100% of candidates agrees with this statement.
- CA04 98.39% of candidates is in disagreement with this statement. This means that the opposite of the statement is true.
- CA05 100% of candidates agreed with this statement. This means employees have enormous confidence on their products and innovation
- CA06 83.87% of candidates agreed with this statement, 3.23% is unsure and 12.9% is in disagreement.
- CA07 98.39% of candidates agreed with this statement.
- CA08 96.77% of candidates agreed with this statement.
- CA09 85.48% of the candidates disagree with this statement. The opposite of this statement seem to be true in the organisation.
- CA10 95.16% of the candidates agreed with the statement.
- CA11 96.77% of the candidates agreed with the statement.
- CA12 100% of the candidates agreed with the statement.

Discussion

This research sought to explore ways in which Aberdare Cables could improve competitiveness using the implementation of SCM Business Processes. The research problem was that the SCM business processes are not properly developed in the organisation, to support the overall organisational strategy. The results of the survey prove a number of things, elaborated as follows:

- The survey proves that SCM business processes are not fully implemented at Aberdare. Proper cross-functional teams are not in place. Departments only consult with one another when making key decisions, regarding issues concerning SRM, DM and MFM. More structured coordination is required in order to ensure efficiency and effectiveness when it comes to SRM, DM and MFM.
- There is less representation of the lower level management in the strategic formulation and processes. Employees who are entrusted with the functions of actualising the set strategies are supposed to be invited in the formulation of those strategies, in order to give their useful input.
- Not enough benchmarking is done to compare what other parties in the industry and / or outside the industry are doing and blend best practices in the organisation. Only management

personnel answered positively to questions relating to benchmarking and some of the lower level employees answered negatively. This means that the management personnel could be aware of what the external parties are doing different to Aberdare Cables, however not much have been done to do a proper benchmarking exercise and really implement through the organisation.

The survey also proves that there are proper systems and elements of the SCM business processes in the organisation; however they are not properly integrated to have a more effective impact on competitive advantage. PSA's are in place; demand forecasting is done and used to inform manufacturing in order to align their operations accordingly; the organisation is successfully operating on a JIT system and is able to benefit from its advantages; the organisation keeps close attention to every move by their rivals, ensure they do not lose market share; and majority of the personnel are well aware of the importance of creating customer value and shareholder value.

Proper implementation of the SCM business processes will certainly help increase internal efficiencies, while improving external integration of the organisation to its supply chain partners for sustainable competitive advantage.

Hypothesis Testing

This research sought to address the following hypothesis. Each hypothesis being accompanied by a null hypothesis:

H1: The development of SRM process will be positively related to competitive advantage

H2: The development of DM process will be positively related to competitive advantage

H3: The development of MFM process will be positively related to competitive advantage.

As previously discussed on Chapter 3 – Research Methodology, parameters (mean and standard deviation) for each variable (SRM, DM, MFM and CA) was done using the response data collected, by making use of Microsoft Excel, Data Analysis - Descriptive Analysis. All generated data were analyzed using the Moon Stats Software. Once all data refinements were completed, the number of cases used in the analysis of the four hypotheses was 432.

To measure the relationship, a Pearson correlation coefficient was calculated between SRM and competitive advantage using Moon Stats Software. The correlation coefficient, denoted r , is a measure of how strongly related two variables of the observed sample are (Regent Business School, 2009). The correlation coefficient (r), can range from $r = -1$, the largest possible degree of negative relationship, to $r = 1$, the largest possible degree of positive relationship (Devore, 2004). The greater the absolute value of the correlation coefficient (r), the stronger the relationship.

Table 4.1: Pearson Correlation Coefficient Summary (Sample Data)

		SRM Variable	DM Variable	MFM Variable	CA Variable

SRM Variable	Pearson Correlation R (x, y)	1	-0.42	-0.42	0.84
	N	168	168	168	168
	P	0.000	0.407	0.407	0.036
DM Variable	Pearson Correlation R (x, y)	-0.42	1	-0.42	-0.42
	N	168	168	168	168
	P	0.407	0.000	0.407	0.407
MFM Variable	Pearson Correlation R (x, y)	0.84	-0.42	1	-0.42
	N	168	168	168	168
	P	0.036	0.407	0.000	0.407
CA Variable	Pearson Correlation R (x, y)	0.84	-0.42	-0.42	1
	N	168	168	168	168
	P	0.036	0.407	0.407	0.000

Interpretation

Sample Data Interpretation:

Hypotheses One

The first hypothesis sought to determine whether or not the strategic development of the SRM process was positively related to Competitive Advantage. The SRM measure was comprised of 20 items and utilized a 5-point Likert type response scale and the CA measure was comprised of 12 items and utilized a 5-point Likert type response scale adopted from Li et al. (2006).

Pearson product moment correlation for SRM and CA

- $r(x, y) = 0.84$
- $n = 168$
- $p = 0.036$

A Pearson product-moment correlation shows the strength of the relationship between two continuous variables. It is suitable for use if it can be assumed that the variables are approximately normally distributed. The **r** value indicates the strength of the correlation. In this case the value of **r** is **0.84** which can be considered a very strong correlation. The **p** value indicates if the correlation is statistically significant. The **p** value is **0.036** which means that the correlation is statistically significant.

Therefore:

SRM and CA are statistically significantly correlated at the **5%** level ($r = 0.84$; $p = 0.036$).

Hypotheses Two

The second hypothesis sought to determine if the strategic development of the DM process was positively related to Competitive Advantage. The DM measure was comprised of 20 items and utilized a 5-point Likert type response scale and the CA measure was comprised of 12 items and utilized a 5-point Likert type response scale adopted from Li et al. (2006).

Pearson product moment correlation for DM and CA

- $r(x, y) = -0.42$
- $n = 168$
- $p = 0.407$

A Pearson product-moment correlation shows the strength of the relationship between two continuous variables. It is suitable for use if it can be assumed that the variables are approximately normally distributed. The **r** value indicates the strength of the correlation. In this case the value of **r** is **-0.42** which can be considered a very strong correlation. The **p** value indicates if the correlation is statistically significant. The **p** value is **0.407** which means that the correlation is statistically significant.

Therefore:

DM and CA are not statistically significantly correlated.

Hypothesis Three

The third hypothesis sought to determine if the strategic development of the MFM process was positively related to Competitive Advantage. The MFM measure was comprised of 20 items and utilized a 5-point Likert type response scale and the CA measure was comprised of 12 items and utilized a 5-point Likert type response scale adopted from Li et al. (2006).

Pearson product moment correlation for MFM and CA

- $r(x, y) = -0.42$
- $n = 168$
- $p = 0.407$

A Pearson product-moment correlation shows the strength of the relationship between two continuous variables. It is suitable for use if it can be assumed that the variables are approximately normally distributed. The **r** value indicates the strength of the correlation. In this case the value of **r** is **0.98** which can be considered a very strong correlation. The **p** value indicates if the correlation is statistically significant. The **p** value is **0.001** which means that the correlation is statistically significant.

Therefore:

MFM and CA are not statistically significantly correlated.

Table 4.2: Pearson Correlation Coefficient Summary (Response Data)

		SRM Variable	DM Variable	MFM Variable	CA Variable
SRM Variable	Pearson Correlation R (x, y)	1	0.94	0.85	0.85
	N	432	432	432	432
	P	0.000	0.006	0.031	0.032
DM Variable	Pearson Correlation R (x, y)	0.94	1	0.96	0.94
	N	432	432	432	432
	P	0.006	0.000	0.002	0.006
MFM Variable	Pearson Correlation R (x, y)	0.85	0.96	1	0.98
	N	432	432	432	432
	P	0.031	0.002	0.000	0.001
CA Variable	Pearson Correlation R (x, y)	0.85	0.94	0.98	1
	N	432	432	432	432
	P	0.032	0.006	0.001	0.000

Response Data Interpretation:***Hypotheses One***

The first hypothesis sought to determine whether or not the strategic development of the SRM process was positively related to Competitive Advantage. The SRM measure was comprised of 20 items and utilized a 5-point Likert type response scale and the CA measure was comprised of 12 items and utilized a 5-point Likert type response scale adopted from Li et al. (2006).

Pearson product moment correlation for SRM and CA

- $r(x, y) = 0.85$
- $n = 432$
- $p = 0.032$

A Pearson product-moment correlation shows the strength of the relationship between two continuous variables. It is suitable for use if it can be assumed that the variables are approximately normally distributed. The **r** value indicates the strength of the correlation. In this case the value of **r** is **0.85** which can be considered a very strong correlation. The **p** value indicates if the correlation is statistically significant. The **p** value is **0.032** which means that the correlation is statistically significant. **Therefore:**

SRM and CA are statistically significantly correlated at the **5%** level ($r = 0.85$; $p = 0.032$).

Hypotheses Two

The second hypothesis sought to determine if the strategic development of the DM process was positively related to Competitive Advantage. The DM measure was comprised of 20 items and utilized a 5-point Likert type response scale and the CA measure was comprised of 12 items and utilized a 5-point Likert type response scale adopted from Li et al. (2006).

Pearson product moment correlation for DM and CA

- $r(x, y) = 0.94$
- $n = 432$
- $p = 0.006$

A Pearson product-moment correlation shows the strength of the relationship between two continuous variables. It is suitable for use if it can be assumed that the variables are approximately normally distributed. The **r** value indicates the strength of the correlation. In this case the value of **r** is **0.94** which can be considered a very strong correlation. The **p** value indicates if the correlation is statistically significant. The **p** value is **0.006** which means that the correlation is statistically significant.

Therefore:

DM and CA are statistically significantly correlated at the **1%** level ($r = 0.94$; $p = 0.006$).

Hypothesis Three

The third hypothesis sought to determine if the strategic development of the MFM process was positively related to Competitive Advantage. The MFM measure was comprised of 20 items and utilized a 5-point Likert type response scale and the CA measure was comprised of 12 items and utilized a 5-point Likert type response scale adopted from Li et al. (2006).

Pearson product moment correlation for MFM and CA

- $r(x, y) = 0.98$
- $n = 432$
- $p = 0.001$

A Pearson product-moment correlation shows the strength of the relationship between two continuous variables. It is suitable for use if it can be assumed that the variables are approximately normally distributed. The **r** value indicates the strength of the correlation. In this case the value of **r** is **0.98** which can be considered a very strong correlation. The **p** value indicates if the correlation is statistically significant. The **p** value is **0.001** which means that the correlation is statistically significant.

Therefore:

MFM and CA are statistically significantly correlated at the **1%** level ($r = 0.98$; $p = 0.001$).

CONCLUSIONS AND RECOMMENDATIONS

Findings from the Study

This research led to a number of findings, relating to the literature reviewed and also to the primary research (study) that was conducted.

According to Hugo et al. (2011) Supply Chain Management (SCM) is a management philosophy aimed at integrating a network (or a web) of Upstream Linkages (sources of supply), Internal Linkages inside the organisation and Downstream Linkages (distribution and ultimate customers) in performing specific processes and activities that will ultimately create and optimise value for the customer in the form of products and services which are specifically aimed at satisfying customer demands (Hugo et al. 2011:5).

Specific focus was paid on the strategic development of three of the eight key business processes of the SCM, which included Supplier Relationship Management (SRM), Demand Management (DM) and Manufacturing Flow Management (MFM) and each their relationship with Competitive Advantage. The significant importance was to attempt to expose to the focal company the importance of implementing these SCM business processes in the organisation, in order to establish competitive advantage.

Findings from the Literature

The purpose of the literature review was to briefly introduce and provide a recent history of Supply Chain Management (SCM); Supplier Relationship Management (SRM); Demand Management (DM); Manufacturing Flow Management (MFM) and Competitive Advantage as it relates to literature that has significantly contributed to the field of SCM. The review of the literature provided the foundation for the research model that was developed and hypothesis evaluations done in this dissertation.

The literature highlighted and contributed the following:

Supplier Relationship Management:

- That competition is no longer between firms; it is between the supply chains of those firms (Handfield et al. 2011:07). As customer demand increase, organisations and their suppliers must be responsive or face the prospect of losing market share.
- The importance of developing Products and Service Agreements (PSA), in order to regulate the relationships with the suppliers. This provides a much needed and quit necessary structure for how relationships are developed and maintained.
- Importance of Cross-functional teams which tailor PSA's with key suppliers; identify key criteria for segmenting suppliers; achieve coordination and integration between supplier & the organisation; and measuring supplier performance (among others).

The results of these are shown through, improving information sharing; changing of incentives; operational improvements; stability on prices; built cooperation and trust within the supply chain.

Demand Management:

- DM plays a facilitating role between Customer Demand and Operating Decisions, enabling the organisation to align its operations or to unify its channel members with the common goal of satisfying customer demand and solving customer problems.
- DM collaborates on activities related to the flows of products, services, information, and capital, in order to achieve competitive advantage through operational efficiency.

Manufacturing Flow Management:

- MFM thrives when it is not only left to the plant management, but made an integrated function which includes Sales and Marketing, Procurement, Finance, Logistics, and so on.
- MFM relies on external connectivity to accomplish its objectives and is influenced by the up- and down-stream members or partners of the supply chain, through the demand for product assortment that meets customer expectations; accurate product design (as per defined product specifications required by the customer / market); and production and material engineering and controls.

Competitive Advantage:

- Supply Chain is more effective and result to a superior competitive advantage when a firm's value chain is linked to the value chain of its suppliers, distributors, and customers.
- Competitive Advantage is seen though increased customer value. It is of paramount importance for an organisation to continue involving itself on benchmarking practices, by importing the "best in the world" practices in a specific value chain activity and institutionalise these practices in the normal operating procedures (Narayanan, 2001:14).

The study conducted touches on these same identified aspects (and more) and has proven to be in agreement with the literature reviewed. Questions such as: **SRM05** – 'our company documents our relationships with suppliers through formal PSAs'; **DM02** - 'our company uses cross-functional input within the DM process'; **MFM12** – 'MFM process in our company is integrated to other key systems in order to function optimally'; **CA09** – 'our company does not benchmark itself against other industry and non-industry players'.

Survey questions covered most, if not all of the literature aspects and the ultimate results prove that there was some significant relationship between the Competitive Advantage and the variables. This means that the study agrees or in sync with the literature reviewed.

Findings from the Primary Research

This research sought to answers to the following questions:

- Does strategic implementation of SRM process influence organisational competitive advantage?
- Does DM process have an impact on organisational competitive advantage?
- Does MFM process have an influence on organisational competitive advantage?

The generated data (based on the actual generated data received from the survey respondents) analysis suggested that SRM, DM, and MFM had a statistically significantly strong relationship with Competitive Advantage, which was supported by each of the hypotheses this research sought to evaluate.

The hypothesis that was sought gave the following results, based on the response data:

1. SRM Business Process Development:

SRM and CA are statistically significantly correlated at the **5%** level ($r = 0.85$; $p = 0.032$).

The hypotheses test proved that the strategic development of the SRM process was positively related to Competitive Advantage.

2. DM Business Process Development:

DM and CA are statistically significantly correlated at the **1%** level ($r = 0.94$; $p = 0.006$).

The hypotheses test proved that the strategic development of the DM process was positively related to Competitive Advantage.

3. MFM Business Process Development:

MFM and CA are statistically significantly correlated at the **1%** level ($r = 0.98$; $p = 0.001$).

The hypotheses test proved that the strategic development of the DM process was positively related to Competitive Advantage.

This research has therefore provided answers to the research questions that were asked and have used statistical presentations to satisfy the results of the evaluation.

The results of the study also confirm and meet the objectives of the research as follows:

- Implementation of the SRM business process does result to organizational competitive advantage.
- DM business process does, indeed have an impact on organizational competitive advantage.
- MFM business process does influence competitive advantage of the organization.

Thus, the results of this research effort suggests that an organization's strategic development of the SRM, DM and MFM business processes are associated with increased competitive advantage. In today's competitive business environment that continues to expand beyond more fixed boundaries, it continues to be clear that supply chain exist (Slone et al. 2001), and it is up to the organization to take an active role and manage it in order to create a unique advantage to establish a competitive position over their rivals.

Recommendations

On the basis on the study conducted, the following recommendations can be made:

More unified Cross-functional Teams

The organisation does not have formal cross-functional teams (integrated functions across the organisation). There are certain parties from different departments that get together to solve problems when they emerge, however proper cross-functional teams (cross-functional sourcing team, cross-functional forecasting team, cross-functional manufacturing team) can strengthen their SCM processes. These teams has to be entrusted with specific duties which may include, developing PSAs for key suppliers (to regulate supplier relationships, control costs, lead innovative thinking, narrow the gap between the supplier and the organisation), improve operational efficiencies, improve customer value, ensure smooth operation, increase market share, increase shareholder value, etc in order to support strategic objectives of the organisation and increase value (customer value and shareholder value) in the organisation.

Benchmarking against other industrial and non-industrial parties

Learning and comparing against SCM practices on other parties, both in the same industry and in different industries, and blending into the organisation's own SCM practices, could improve the performance of the organisation and provide a unique advantage over rivals. This involves cloning

best SCM practices on SRM, DM and MFM of others in order to make profitable amends back in the organisation.

Alignment of operations to the SCM strategies

During the survey, some of the candidates were unsure of the questions relating to alignment of SCM process to the organisational strategies. More key role player have to be included in the strategic meetings and the overall strategy of the organisation has to be made known to all who contribute to it (from senior management to the labourer in the organisation). This will drive the change in attitude and bring motivation to all who work in the organisation, when they fully understand how their little effort contributes to the bigger picture.

Areas for Further Research

In order to evaluate the strategic development of the three business processes, a research model was developed which provides a foundation for future research that involves the measurement of the SRM, DM and MFM processes or any of the eight SCM business processes. Future research should revalidate measurement scales developed through this research. As the concept of SCM is complex and involves a network of companies in the effort of producing and delivering a final product, its entire domain cannot be covered in just one study.

Future research can expand the domain of geographical proximity, JIT / Lean capability, Cross-functional coordination, Logistics Integration, and Agreed Supply Chain Leadership, which have not been dealt with in this study. The future study can also test the relationship / dependencies among the dimensions of SCM practices. For example, information sharing may require the establishment of a strategic supplier partnership.

The data for the study consisted of responses from single respondents in an organisation, which may be a cause for possible response bias. The results have to be interpreted taking this limitation into account. The use of single respondents may generate some measurement inaccuracy. Future research should seek to utilise multiple respondents from each participating organisation to enhance the research findings. It will also be of interest to use the respondents from pairs of organisation at two ends of supply chains. By comparing different view of SCM processes from organisations across the supply chain and also the best common SCM practice across the supply chain.

Future research can study SCM issues at the supply chain level. Taking a single supply chain as an example, It is of interest to investigate the characteristics, policy, and mechanism governing this supply chain, the interactions among all the participants within the supply chain (first-tier suppliers, second-tier suppliers, manufacturers, distributors, retailers and customers), and how the SCM practices differ across each participating organisation. Future studies can also examine the proposed relationships by bringing some contextual variables into the model, such as organisational size and supply chain structure and how they impact on competitive advantage.

CONCLUSION

The study was able to answer the research questions and satisfy the research objectives. It was also able to establish the status quo at Aberdare and was able to make suitable recommendations that could be of great assistance to the organisation. The survey exposed some of the weak areas in the SCM that exists in the organisation. It also provided a very strong foundation on which the recommendations

were based and on which the organisation can find guidance on issues relating to the SCM business processes.

Future areas for further research were identified, by looking at the limitations that resulted in this research and propositions made concerning further opportunities of areas of research in the SCM field.

Furthermore, empirical justification for a framework that identifies SCM business processes and describes the relationship among SCM processes and competitive advantage was provided. It examined three research questions: (1) Does strategic implementation of SRM process influence organisational competitive advantage; (2) Does DM process has an impact on organisational competitive advantage; (3) Does MFM process has an influence on organisational competitive advantage?

For the purpose of investigating these issues, a comprehensive, valid, and reliable instrument for assessing SCM processes was developed. The instrument was tested using rigorous statistical tests. This study provides evidence to support conceptual and prescriptive statements in the literature regarding the evaluation of the relationship between SCM business processes and competitive advantage.

Moreover, understanding and development of SCM will require additional research and participation from academics from various fields and practitioners with diverse backgrounds representing a wide variety of industries. The result of this study contributed to the expanding pool of SCM knowledge. It appears that the development of a SRM, DM and MFM business processes have positive implications on the organisation's competitive advantage.

This implies that it may be in the best interest of business of the organisation to take a proactive role in the management of their supply chain. The strategic development of key business processes should be of interest to business leaders in organisations in pursuit of establishing a defensible position over its competitors and achieving its market and financial goals.

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