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PERFORMANCE MEASURES IN SUPPLY CHAIN MANAGEMENT OF SMALL MANUFACTURING ENTERPRISES

by

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DECLARATION

I, **Mamorena Lucia Matsoso**, declare that the contents of this thesis represent my own unaided work, and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

Signed **Date**

ABSTRACT

Supply chain was introduced in the 1980s, when the majority of existing companies realised that these are new manufacturing technologies and strategies that allowed them to minimise costs, and therefore the topic of supply chain became popular in the 1990s. Most companies needed to cut costs by identifying suppliers who could meet their demands with the best possible quality products at the lowest possible cost. Performance measures in supply chain have become one of the vital aspects of enhancing the growth and profitability of small manufacturing enterprises (SMEs). SMEs however do consider non-financial measures as crucial but still focus more on financial indicators, in essence neglecting non-financial performance measures as a whole. This study reports on the extent to which SMEs make use of these and recognise the vital role they play in the supply chain sector. A positivist paradigm was followed using questionnaires as research instruments to gather data purposively from SMEs around the Cape Metro pole in Cape Town, South Africa. The data was analysed to generate descriptive results through a statistical package for social science (SPSS). The major findings indicate that SMEs do consider and recognise the significance of non-financial measures and, to some extent, incorporate them in their Supply Chain Management (SCM), although measures are not formally implemented. Again, SMEs, in particular within manufacturing businesses, do not prepare their books adequately.

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DEDICATION

This research is dedicated to my late father Johannes Sello Matsoso and my mother Mary Maseja Matsoso.

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ACRONYMS USED IN THIS THESIS

Acronyms	Explanation
SCM	Supply Chain Management
SME	Small manufacturing enterprise
BSC	Balanced Scorecard
KPI	Key performance indicators
C2C	Cash to cash cycle
EOQ	Economic order quantity
JIT	Just in time
DTI	Department of Trade and Industry
TCA	Transaction cost analysis
RVB	Resource based view
PAT	Principal agency theory
PM	Performance measures
SC	Supply chain
NT	Network theory
SMME	Small, medium and micro enterprise

CHAPTER ONE
INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

This chapter outlines the background and objectives of the study and the rationale behind it, the motivation and methods chosen to answer the research question. The study focuses on the performance measures from a balanced scorecard (BSC) perspective in Supply Chain Management (SCM) of small manufacturing enterprises (SMEs) in the manufacturing sector.

1.2 BACKGROUND TO THE STUDY

Performance measures are ways in which the efficiency and effectiveness of actions may be quantified to provide meaning and an indication of failure or growth (Neely, Adams & Kennerly, 2002:2). They originated with the invention of double-entry book keeping, founded by Luca Pacioli in 1494 (Morgan, 2004:522; Eccles, 1991:131), but the application of 'modern' performance measures were only evident from 1850. Their early use in rail operations was extended in 1870 to steel and chemical production processes, since large scale problems within these organisations created a high degree of uncertainty and risk (Morgan, 2004:522). Such industries required reliable cost data to determine prices when assessing the results of operations, and to evaluate capital-intensive technological innovations (Morgan, 2004:529). Initially, performance measurement was used to identify profit and control cash flow in an organisation, prior to the early 1900s, when William Durant, founder of *General Motors*, realised that profit was not the ultimate result of an accounting exercise but rather the outcome of a cost stream pool throughout the supply chain (Morgan, 2004:529).

In 1951, the Chief Executive Officer (CEO) of *General Electric*, Ralph Cordiner, organised a task team to identify key corporate measures which consisted of financial and non-financial measures (Neely, 1999:207, citing Meyer & Gupta 1994; Eccles, 1991:132). These developments inspired some accounting professionals and academics, such as Johnson and Kaplan (1987:3), to argue that

traditional financial performance measures were losing relevance to modern organisations and needed to produce an effective evaluation of products that would meet customer demands and contribute to an efficient production process and distribution within an organisation.

During the 1980s many organisations realised that their financial records were declining due to unnoticed deterioration in quality and customer satisfaction. As a result many managers began to focus on quality as a strategic weapon and committed their resources to develop measures such as defects rates, response time, and delivery commitment to control, monitor and evaluate performance within their organisations (Eccles, 1991:134). During the 1990s customer satisfaction became the focus for many organisations (Eccles, 1991:134). Using basic methods to manage large corporation's dates back to 1910 and *Du Pont Cousins* (Chandler, 1977:417), however, the dilemma remained that organisations did not have effective performance measurement systems in place. As Neely (1999:205-207) indicates, there were many critics of traditional financial measures in the mid-1980s, but even in the late 1980s and early 1990s the performance measurement system of many companies was irrelevant to their business targeted goals. These challenges led some authors to suggest measurement frameworks that might be suitable for them (Kaplan & Norton, 1992:71; Lynch & Cross, 1991:5), and during the mid-1990s organisations were concerned as to how balanced performance measurement systems could be developed and deployed (Neely, 2005:1266). However, barriers to implementation were also reported (Bourne, Mills, Wilcox, Neely & Platts, 2000:759). During the early 2000s BSC became a popular performance framework that provided empirical findings of mixed results (Neely, Kennerly & Martinez, 2004:3; Ittner & Larcker, 2003:2). Table 1.1 (below) summarises the history of performance measures.

Table 1.1: Evolution of performance measurement

1494	Performance measures originates from the invention of double entry by Luca Pacioli(Eccles, 1991:131).
1850	Application of modern performance measures to identify profit and control cash flow (Morgan, 2004:522).
1900	Wiliam Durrant realised performance from outcomes measures of cost stream pools throughout the SC (Eccles, 1991:131).
1951	CEO of *General Electric*, Ralph Cardinar organised a task team to identify key corporate measures, consisting of financial and non-financial measures (Meyer & Gupta, 1994, cited in Neely, 1999:207).
1980s	Companies realised the decline in financial records due to unnoticed deterioration in quality and customer satisfaction and began to focus on quality (Eccles, 1991:134).
1990s	Customer satisfaction became the primary focus for many businesses (Eccles, 1991:134). During the mid-1990s businesses were concerned on how performance measures could be developed and deployed (Neely, 2005:1266)
2000s	BSC became the popular performance framework (Neely et at, 2004:2; Ittner & Larcker, 2003:2).

Sources: (reflected in the table)

The BSC is a performance management tool used to provide executives with a framework that translates strategic objectives into a set of performance measures (Bryceson & Slaughter, 2010:329; Kaplan & Norton, 1993:134). It was invented in January-February 1992 by Robert Kaplan and David Norton to help improve organisational performance in certain areas, including products, processes, customers and market development (Kaplan & Norton, 1993:66). Companies that first implemented it in their organisations were the *Mobil* North American Marketing and Refining division, which moved from bottom to top ranking in 1995 at 56 percentage profits above industry range. This improvement was realised after the new management team developed a customer-focused strategy (Kaplan & Norton, 2001:4). *CIGNA Property and Casualty Insurance* moved from bankruptcy in 1993 to BSC implementation in 1994 and strategy, thus becoming specialists in areas of business that had a comparative information advantage. The organisations performance increased to a top quartile performance within the industry in 1998 (Kaplan & Norton, 2001:5). *Brow and Root Energy Services Rock Water Division*, a part of *Halliburton Corporation* in Scotland, was another company that nearly lost its money in 1992, but in 1993 a new divisional president introduced BSC to clarify and gain understanding of a new strategy that focused on value-added relationships rather than lower prices, and so led the division to be

the first in growth and profitability in 1996 (Kaplan & Norton, 2001:6). *Chemical (chase) Retail Bank* implemented BSC shortly after the merger of manufacturer *Hanover and Chemical Bank* in 1992. BSC was implemented as a new strategy to diversify bank business away from focused and dominated commodity-oriented check and savings accounts that were delivered through expensive branches in the New York metropolitan area. It was used to communicate an intense focus on targeted customers that led the company to realise increasingly large profits from 1993 to1996 (Kaplan & Norton, 2001:7).

From its inception in the early 1990s, BSC was implemented by the majority of organisations the United States of America (USA) and Scandinavia a decade later (Chavan, 2009:394). He continue to state that BSC had made a mark but challenges remain, especially in the SME sector which has yet to understand that BSC evolves and is not a uniform solution. Different organisations need different measures of performance that cascade their strategic objectives into manageable operational activities. Chavan (2009:399), also writes of the success that the *Big W* division of *Woolworths* reported after successful implementation of BSC, followed by several developments such as the *Hallet Cove Mall* renovation and another store which was planned to open in 2011 as part of the *Castle Towers* redevelopment. Noticeably, these developments emanate from large organisations, while less or nothing is mentioned about the successful implementation of BSC in SMEs.

The four perspectives of BSC invented by Kaplan and Norton in the early 1990s are as follows:

i) *Customer measures* of an organisation should seek to achieve customer satisfaction, customer retention and acquisition of new customers (Bhagwat & Sharma, 2007:55; Kaplan & Norton, 1996a:57-63).

ii) *Financial measures* focus on measures that lead to sustainability of an organisation, and include gross margin, operating income and return-on-capital (Bhagwat & Sharma, 2007:55; Kaplan & Norton, 1996a:57-63).

iii) *Internal efficiency* focuses on measures that help drive the performance of an organisation to its optimal capability, comprising product reliability, total supply cycle time, manufacturing lead time, and defects free deliveries (Bhagwat & Sharma, 2007:55; Kaplan & Norton, 1996a:57-63).

iv) *Innovation and growth measures* are taken to help an organisation grow and improve its competitiveness through new product development and the use of new technology and new product launches in order to retain customers and keep them satisfied (Bhagwat & Sharma, 2007:55; Kaplan & Norton, 1996a:57-63).

All of these performance measurements, when integrated in SCM of SMEs, may significantly influence their entities' performance due to a balance created between external and internal measures (Kaplan & Norton, 1993:66). Table 1.2 (below) outlines the history of BSC.

Table 1.2 History of BSC.

1992	BSC invented by Robert Kaplan and David Norton (Kaplan & Norton, 1993:66)
1992	*Mobil North America Marketing and Refining* division implemented BSC to develop a customer-focused strategy which led the company to become top in its industry ranking in 1995.
1992	*Chemical (Chase) Retail Bank* introduced BSC shortly after the merger of manufacturer H*anover and Chemical Bank*. The aim was to communicate intense focus on targeted customers, which led to increased profits from 1993-1996 (Kaplan & Norton, 2001:7).
1993	A new division president of *Brow and Root Energy Services Rock Water* division implemented BSC to clarify and gain understanding on new strategy that focused on value-added relationship which led the division to be the first in profitability in 1996 (Kaplan & Norton, 2001:5).
1994	*GIGNA Property & Casualty Insurance* implemented BSC with the aim of specialising in areas that business had information comparative advantage. The reported success company reported success and was ranked at the top in the industry in 1998 (Kaplan & Norton, 2001:4).
2007	*Woolworths* reported much success after the implantation of BSC (Chavan, 2009:399).
2009	SMEs still lag behind towards a successful implementation of BSC (Chavan, 2009:399).

Sources: (reflected in the table)

Supply chain (SC) is defined as the flow of material, information and services from the original supplier until the final stage, the customer, with the aim of satisfying the demands (Branch, 2009:7). The term was introduced in the 1980s, when the majority of existing organisations adopted new manufacturing technologies and strategies that allowed them to minimise costs and collaborate while strategies

such as ‘Just In Time manufacturing’, ‘Lean manufacturing’, and ‘Total Quality Management’ (TQM) became common (Hugos, 2006:3; Tan, Smith & Saad, 2006:239; Simchi-Levi, Kaminsky & Simchi-Levi, 2003:1; Lummus & Vokurka, 1999:11). On the other hand, as Morgan (2004:529) pointed out, as far back as 1926, Henry Ford had a fully integrated supply chain in his company that had balanced production cycles.

This had been followed by four major phases in the supply chain, beginning between 1930 and 1970 with “Just in Case”, a philosophy that emerged around bulk orders due to poor planning and forecasting systems, coupled with unreliable technology and inconsideration of the customer (Morgan 2004:529). During the 1970s and 1980s, manufacturers focused on “Material Resource Planning” (MRPII), which was a more structured approach to planning and forecasting, with the reduction of safety stock and recognition of lead time (Morgan, 2004:529; Chandra & Kumar, 2000:100). Safety stock here refers to an extra inventory being kept during a period when demand is uncertain and lead time is longer than normal (Van Rensburg, Ambe, Evangelou, Govender, Koortzen, & Ziemerink, 2008:43). ‘Lead time’ is the period from order to delivery of commodities (Le Roux & Lotter, 2003:45). During the 1980s and 1990s “Just-in-time” (JIT) was dominant, allowing management systems to influence their firm’s performance in efficiency, effectiveness and cycle time. Moreover, manufacturing concerns began to realise the significance of cooperative buyer supplier relationships (Morgan, 2004:529; Tan, 2002:43). The structured approach during the 1980s cemented the introduction of SC, as defined above. The latest phase was recognised towards the end of 1990s, when manufacturing firms refocused on their SC. During this time firms were considering a reduction in the number of suppliers and greater information sharing between the upstream-supplier and downstream-customer (Tan, 2002:43; Chandra & Kumar, 2000:101). So-called ‘Agile SC’ became the focus in the first decade of the 2000s (Morgan, 2004:530), with ‘Agile’ characterised as a quick customer response, supply chain flexibility, customised manufacturing and scheduling that is synchronised to customer demands.

According to Lummus and Vokurka (1999:11), the topic of SC became popular in the 1990s, when most companies needed to cut costs in order to minimise

expenses, and realise higher profits by identifying suppliers who could meet their demands with the best possible quality products at the lowest possible cost. When competition in markets skyrockets and consumers begin to regain their freedom of choice, SCM also played a major role, as it was established that performance should be measured not only within one unit in an organisation (Lummus & Vokurka, 1999:11) but rather all units, in collaboration to ensure the attainment of maximum performance levels. SCM is defined as management of activities from point of supplier to the final destination, the customer, and encompasses many organisations, including manufacturing, wholesale and retail (Brewer & Speh, 2000:77).

Manufacturing firms introduced SCM into business processes during the 1990s (Tan et al., 2006:239; Lummus & Vokurka, 1999:14). Organisations that had fully attained supply chain integration reported success (Fernandes, Rajah & Whalley, 2006:623; Lummus & Vokurka, 1999:16), as did large organisations. Although the developments can be observed in many large organisations, many SMEs have not developed their SC due to a lack of resources, time and information (Aragon-Sanchez & Sanchez-Marin, 2005:287-288). According to Towill, Childerhouse and Disney (2002:79; 2000:122), only a minority of SCM organisations have effective SC strategy and operations.

Simchi-Levi *et al*. (2003:8) found that many companies had reduced manufacturing costs as much as practically possible, further highlighting that many managers wished to learn more about SCM and the application of the BSC as a separate management tool. However, only those who understood the interrelationship between these two concepts would have a greater advantage on bargaining their supply chain into a source of competitive advantage (Brewer & Speh, 2000:76). Despite the popularity of performance measures in supply chains, SMEs recognise the significance of non-financial performance, still focussing on financial indicators whilst neglecting non-financial performance measures as a whole (Chia, Goh & Hum, 2009:617; Thakkar, Kanda & Deshmukh, 2009:712; Bhagwat & Sharma, 2007:52). This motivated the researcher to conduct this study.

Table 1.3 (below) summarises the history of SC through important dates in the development of smooth material flow.

Table 1.3: Important dates in the history of smooth material flow control

1574	Venice *arsenalotti* regularly deliver one war galley per day, and a demonstrator for Henry III of France, in half a day.
1916	Value stream management (Keirutsu) invented in USA by William Durant of GM.
1925	Value stream management concepts exploited in the retail sector by *Sears Roebuck.*
1940	UK deliver Spitfire aircraft via clearly identifiable lean supply chains
1946	UK expresses great relief and reverts to comfort levels of stock throughout the chain.
1955	Value stream management hits the *General Motors* rocks of unionisation.
1961	Rules for smooth material flow control published by Jack Burbidge.
1970	*Toyota* exploit smooth material flow control principles via the 'Understand Document Simplicity and Optimise' concept of Edwards Deming.
1980	Some Western firms follow suit, achieving impressive results, but in many cases regression follows progression.
1990	The Machine That Changed The World unambiguously benchmarks performance improvement obtained by adopting smooth material flow control principles, hence world-class performance becomes much more transparent.
1995	It is variously estimated that still only between 7 and 10% of supply chains properly exploit material flow control with stockpiling providing no guarantee of availability.

Source: Towill *et al*., 2002:80)

SMEs are entities that employ to a maximum of 500 people in their businesses, however, the majority of countries regard businesses with a maximum of 250 employees and others of 100 (Nichter & Goldmark, 2009:1454). In this thesis, SMEs are referred to as small and medium enterprises in the manufacturing sector. The significance of small businesses has been at the forefront of policymaking for many years (McPherson, 1996:253). However, there was no interest in the potential and growth of small businesses in the 1940s. Only in the 1970s did the focus reverse, now concentrating on Small, Medium, and Micro Enterprises (SMMEs) as the primary drive for growth in the development of national and global economies (McPherson, 1996: 254).

Rogerson (2004:769) asserts that progress has been noticed in the SMME development since 1994, as in the early 1990s, including in the case of South Africa, there was no infrastructure in place to support SMMEs (Bloch & Daze, 2000:1). However, a paradigm shift occurred between 1994 and 2003, when the government recognised SMMEs as the primary source of employment, poverty alleviation, redistribution and global competitiveness improvement (Rogerson, 2004:766). On the other hand, Manning (1996:63), argues that perceived importance of support by government in SMMEs was weaker in South Africa than in other developing countries, whilst Kingdon and Knight (2004: 391) aver that unemployment in the country was increasing rapidly, at 41% by the broad definition and 30% by the narrow. Despite the intentions of the government to promote the growth of SMMEs, proactive measures were not put in place to facilitate the smooth running of SMMEs (Kingdon & Knight, 2004:391).

According to the National Small Business Act of 1996, No.102 of 1996 and National Small Business Amendment Act of 2003, No 1732 of 2003 (South Africa, 1996:12-14; 2003:8), small ventures fall into the category of SMMEs, with a minimum of five to a maximum 200 employees. For the purpose of this study, the research focuses primarily on SMEs as opposed to SMMEs. According to Nichter and Goldmark (2009:1456), it is evident that SMEs share common problems that arise at their development stage, although they vary significantly in size and capabilities, and are characterised by independence, organisational structure and different styles of management. Luiz (2002:55) is of the opinion that the South African small business sector has the ability to contribute towards employment and economic growth, the SME sector having grown since 1994, and received significant attention and investments ranging from the establishment of state-initiated projects, such as Ntsika-one of the government agencies to help facilitate the development and growth of SMMEs, to supportive legislation (Luiz, 2002:54).

Despite all the initiatives facilitated by government to support and encourage the development of SMEs, Ferreira (2007:8) believes that they are still subject to a high rate of failure, culminating in large numbers closing down soon after being established, often within the first year of operation. This points to poor performance measurement in small enterprises, while technological planning

within SMEs is negatively impacted upon by insufficient monetary and human resources support that prohibits them from exploring new processes, new suppliers, new material, new shop-floor design, and new channels through which to deliver commodities (Thakkar *et al.,* 2009:719). As Lynch and Wilson (2009:144) argue, SMEs spend less time dealing with strategy than larger enterprises, due to lack of time, money and resources.

1.3 RATIONALE OF THE STUDY

The purpose of a study, according to Terre Blanche, Durrheim and Painter (2006:35), should clearly indicate who or what the researcher wishes to draw conclusions about, and the type of conclusions as the unit of analysis. The purpose of this study is to draw conclusions about SMEs and conclude on the extent to which they measure performance from the four perspectives of the BSC in their SCM. The rationale was influenced by research findings that small businesses do not measure performance from a BSC perspective but rather focus on financial measures (Chia, *et al.,* 2009:617; Thakkar *et al.,* 2009:712; Bhagwat & Sharma, 2007:52). This biased dependency to focus on traditional financial performance measures, necessitates research into the SME sector, since it plays a significant role in the national economy and alleviation of the unemployment rate (Effah & Light, 2009: 5; Naimy, 2004: 28).

1.4 STATEMENT OF THE RESEARCH PROBLEM

Hudson, Lean and Smart (2001:805) believe that SMEs are perceived to be heavily dependent on traditional financial measures, but that this may lead to the ignoring of non-financial performance measures, for instance customer satisfaction, innovation, and internal efficiency, quality, and time (Bhagwat & Sharma, 2007:55; Brewer & Speh, 2000:83-84; Gumbus & Lussier, 2006:409; Niven, 2002:15-17; Kaplan & Norton, 1996a:57-63;).

It is crucial for South Africa, as at least a partially developing country, to have more emerging and competitive SMEs to boost the national economy. SMEs' contribution towards the national economy may have been influenced by how well they measure performance in their businesses, but the research problem is based on the premise that they only utilise financial performance measures, excluding non-financial measures, and that is likely to have a negative influence on their supply chain management.

1.5 RESEARCH QUESTION AND SUB-QUESTIONS

The research question which formed the crux of this research study is as follows:

- To what extent do SMEs recognise the significance of financial performance measures and incorporate non-financial performance measures in their supply chain management?

The research investigative questions that follow the main research questions of this study are as follows:

- How do SMEs perceive the significance of financial performance measures in the implemented supply chain?
- To what extent do SMEs recognise the importance of financial performance in supply chain management?
- Which non-financial performance measures are used currently by SMEs in the implemented supply chain?
- To what extent do SMEs recognise the role which non-financial performance measures from BSC play in effective decision making for SMEs in supply chain management?

1.6 OBJECTIVES

The objectives help the researcher to avoid deviating from the intended goals and remain focused and attentive to the set boundaries of the research study (Watkins, 2010:38). The research objectives of this study are stated as follows:

- To establish how SMEs perceive the significance of financial performance measures in supply chain management.
- To determine the extent to which SMEs recognise the significance of financial performance measures in supply chain management.
- To identify non-financial measures which are currently in use by SMEs in supply chain management.
- To ascertain whether SMEs recognise the role, which non-financial performance measures from a BSC perspective play in effective decision making for SMEs in supply chain management.

1.6. RESEARCH DESIGN AND METHODOLOGY

Research design, according to Watkins (2010:42), includes important aspects that relate to the collection of data. It requires a thought process that involves multiple decisions on how the data will be collected and analysed, to ascertain that the final report answers the main research question (Terre Blanche *et al.,* 2006:35). This study was an empirical investigation through application of a positivistic research paradigm, whereby findings are to be communicated statistically (Leedy & Ormrod, 2001:102).

This study followed a quantitative research approach, which involves numerical data. Denscombe (2010:132) postulates that this is linked to the realist ontology and positivistic epistemology by focusing on the measurement of external truth and by providing a paradigm change to focus on the way in which the world shapes people. It emphasises the way in which humans are determined by external realities, the existence of which is beyond humans' comprehension or control.

1.6.1 Sampling

A sample refers to the size or number of the members of the target population (Maree & Pietersen, 2007:54), for this study selected purposively from potential participants who were relatively knowledgeable about the subject and in a position to advance the purpose of the research (Rule & John, 2011:29). The targeted population were SMEs situated in Cape Town, South Africa, in particular managers in the production, supply chain, financial divisions, and directors of the companies. Although a primary rule for identifying a sufficient sample size is *the larger the better* (Watkins, 2010:56), difficulties were encountered on requesting from the office of the Department of Trade and Industry (DTI) a list of all manufacturing companies situated in Cape Town. Rather than assist, officials sent the researcher from one person to another with no help given. The researcher decided to embark on a door-to-door search through the industrial manufacturing areas in Cape Town, including Epping 1, Epping 2, Montague Gardens, Maitland and Thornton. A purposive inquiry sought out managers and owners of these businesses based on representativeness of their potentially diverse perspectives on issues pertaining to performance measurement of their SCM in the manufacturing sector (SMEs).

The 'unit of analysis' may refer to the organisation, a person or a group of people being studied (Watkins, 2010:47). The respondents targeted to complete the questionnaire as representatives of the SMEs were the production managers, supply chain managers, financial managers and directors.

SMEs were purposively selected as the organisations mapped the key elements under investigation pertaining to non-financial performance measures. Furthermore, these companies were specifically selected on the following inclusion criteria:

- Operating as manufacturers.
- Using supply chain management in their operations.
- Using only certain types of performance measures.
- Known not to actively have non-financial performance measures implemented.

1.6.2 Methods

Questionnaires were used as a data collection method (Rule & John, 2011:29) thereafter the data collected was analysed by means of the Statistical Package for the Social Sciences (SPSS). Ethical considerations, as stipulated by the Cape Peninsula University of Technology (CPUT) were observed, and procedures were taken into consideration before and during the dissemination of the questionnaires. The ethical issues are elaborated upon in chapter four of this study.

Table 1.4 (below) summarises how the objectives were derived and the methods used to answer the investigative questions.

Table 1.4 Sub-Question, Research Methods and Objectives

Sub-Question	Research Methods	Objectives
How do SMEs perceive the significance of financial performance in the implemented supply chain?	Questionnaires	To establish how SMEs perceive the significance of financial performance measures in supply chain management.
To what extent do SMEs recognise the importance of financial performance in supply chain management?	Questionnaires	To determine the extent to which SMEs recognise the significance of financial performance measures in supply chain management
Which non-financial performance measures are currently in use by SMEs in the implemented supply chain?	Questionnaires	To identify non-financial measures, which are currently in use by SMEs in supply chain management.
To what extend do SMEs recognise the vital role which non-financial performance measures from balanced scorecard perspective play in effective decision making for SMEs in the manufacturing sector in supply chain management?	Questionnaires	To ascertain whether SMEs recognise the vital role, which non-financial performance measures from a balanced scorecard perspective play in supply chain management.

1.7 DELINEATION OF THE RESEARCH

The research focused on SMEs in the SCM industry in Cape Town. The study aimed to target owner managers and executives of SMEs.

1.8 LIMITATIONS OF THE RESEARCH

The major limitation in this research was accessibility to managers in this sector, whilst the major challenge encountered was to receive a consent letter from the companies, with almost nine months being spent before finding the right person to handle the request. Another limitation was receiving a fixed scheduled date for appointment, which took some months to be granted in other companies.

1.9 RESEARCH ASSUMPTIONS

It is necessary for the researcher to state the assumptions on which the research is undertaken so that readers know what one assumes with respect to the study being conducted (Watkins, 2010:71). Research assumptions may further assist readers to judge the entire thesis, essential to the proposed study as a whole (Watkins, 2010:71).

The following assumptions apply to this research study:

- Owners and managers cannot manage the supply chain if they do not measure performance, because they cannot tell if there is failure or improvement in what they do.
- Owners and managers cannot design and implement performance measures in the supply chain if they are not certain about the targeted objectives.
- Owners and managers cannot realise success and profitability if unmeasured work is not minimised or eliminated.

1.10 CONTRIBUTION OF THE RESEARCH

The research may culminate in more knowledge being channelled to SMEs regarding how to conduct performance measures in the supply chain, and how to apply a BSC efficiently. This would ultimately contribute towards the country's economic growth. Furthermore, the results of this study have been or will be

disseminated in conference presentations and the CPUT research day through poster presentation. A paper or papers will also be submitted for consideration of publication in an accredited academic journal. Outlets of dissemination of the results so far approached are listed below:

Matsoso and Benedict (2014): The customer - supplier relationships in supply chain management: A small manufacturing enterprise (SME) perspective. *Journal of Economics*, 5(2): 177-184.

Matsoso and Benedict (2013): *Non-financial performance measures in SMEs' supply chain management,* a paper presentation at the Southern Africa Institute of Management Scientists (SAIMS) conference hosted by North-West University.

Matsoso and Benedict (2013): *Financial performance measures in SMEs' supply chain management" a* poster presentation at the Cape Peninsula University of Technology (CPUT) research day. A celebration of research excellence.

Matsoso and Benedict (2013): *Addressing non-financial performance measures in SMEs' supply chain management" a* poster presentation at the Cape Peninsula University of Technology (CPUT) research day. A celebration of research excellence.

Matsoso and Benedict (2012): *Practicality of Implementing supply chain management as a tool for value - adding and sustainability in a small manufacturing environment: An exploratory study,* a paper presentation at the Value in sustainable business practices conference hosted by University of Johannesburg in Drakensberg.

Matsoso (2012): *Customer and supplier relationship in SMEs supply chain management,* a paper presentation at the South African Accounting Association (SAAA) Western Cape regional conference hosted by Cape Peninsula University of Technology.

Matsoso (2011): *Performance measures in supply chain management,* a poster presentation at the Cape Peninsula University of Technology (CPUT) research day. A celebration of research excellence.

1.11 REMAINING PART OF THE THESIS

The remaining chapters which apply to this research study are the following:

Chapter 2 Concepts and theories: Key concepts pertaining are defined and broadly unpacked to provide an explanation and account of how they are used and understood in this study. They include performance measures, supply chain, supply chain management, balanced scorecard, and SMEs. Theories are also explained and their application to extant literature is indicated throughout the study. The theoretical framework is also provided as a basis to position the study as applied to performance measures in SCM of SMEs. The theories that are specifically used to locate this study entail principal agency theory (PAT), network theory (NT), and the resource based view (RBV) of a firm.

Chapter 3 Literature review on performance measurement of supply chain: This is a review of literature on SCM, in particular SMEs. The review provides an argument of how SMEs measure performance in SCM from a BSC perspective. Various aspects that impact on SCM in the SMEs are discussed and theories explained in Chapter 2 are used to locate the study. Aspects discussed include issues confronting small businesses, key factors that impact on success of the SMEs, and SCM issues in the SMEs. Adding to these supply relations with upstream-supplier and downstream customers is examination of reviews of SCM business processes, SC activities, performance measurement of SC, evaluation of SCM performance, performance monitoring, benefits of utilising BSC and demerits. Lastly, performance indicators or metrics as used to construct questionnaires are also discussed.

Chapter 4 Research design and methodology: In this chapter, the research methodology, population, sampling techniques, and data collection methods, used

for the study are discussed in detail. Ethical issues and measures taken to ensure validity and reliability are also disclosed. Data analysis methods are briefly explained.

Chapter 5 Presentation and analysis of the findings: The data collected during the data collection process is analysed and presented in this chapter.

Chapter 6 Discussions, conclusions and recommendations: In this chapter a summary of the research is given, with objectives revisited and a statement of how they were achieved presented. Recommendations are made to mitigate the research problem.

This chapter introduced the reader to the entire thesis by stating the background to the study, the objectives, the research problem, research questions and the methodology used to answer the research question. Lastly a breakdown of the remaining sections of the thesis was stated.

The next chapter discusses the key concepts and theories used in this study.

CHAPTER TWO
CONCEPTS AND THEORIES

2.1 INTRODUCTION

The previous chapter provided an introduction and background to this study, the research problem, research question and objectives as well as strategies and methods of how the results were achieved. The aim of this chapter is to describe all the key concepts used throughout this study, purposively defined to help readers comprehend easily the contents of this material and thus avoid confusion and ambiguity. The theoretical framework of the study is discussed, with theories that are used to locate this research explained in relation to this study. The nature of small businesses is also described, particularly the manufacturing sector.

2.2 KEY CONCEPTS

It is important here to outline how the key concepts used in this study are understood by the researcher.

Small and Medium Enterprises are entities that are broadly defined as businesses with minimum requirements to set up, and less legality if any. Small and Medium Enterprises have a minimum of five employees and a maximum of 200 employees (South Africa, 1996:12-14; 2003:8). For the purpose of this study Small and Medium Enterprises have been chosen as the focus, with specific reference to the manufacturing sector.

Manufacturing firms are entities engaged in the production of commodities and or services which are aimed at meeting the customer's demands (Lodewyck, Lotter, Rhodes, Seedat & Claase, 2007:129).

Supply chain, according to Mentzer, DeWitt, Keebler, Min, Nix, Smith, Zacharia (2001:4), is a set of organisations or individuals directly involved in the upstream and downstream flows of products, services, finances, and information from a source to a customer. For the purpose of this study it is the flow of material,

information and services from the original supplier to the ultimate customer in the value chain.

Supply chain management (SCM) is defined by many authors (in Mentzer *et al*., 2001:7-10), as a management of philosophy by which holistically all entities involved in the chain are viewed as one rather than being independently managed. Again, it is defined as a management of processes in which all activities are engaged, ranging from the supplier to the customers. For the purpose of this study it is the management of all activities engaged from the point of raw material order to suppliers, production and distribution, until commodities reach their final destination, being the consumer. This definition is provided to serve the purpose of this study.

Performance measures are means of quantifying the effectiveness and efficiency of past actions (Neely *et al.,* 2002:2; Neely, Richards, Mills, Platts, & Bourne, 1997:1132). In this study, measures of performance across SCM are used solely to evaluate performance based on key performance indicators.

Key performance indicators are measurable characteristics that are commonly used by organisations to measure success or failure of particular objectives set (Chandi, 2009:16). In this study the performance indicators used to construct the questionnaire from the four perspectives of the BSC are defined.

Balanced scorecard is a management approach implemented to monitor business activities and strategies, thus ensuring that objectives of the organisation are translated into manageable performance measures from the four perspectives, namely financial, customer, internal efficiency and innovation and growth measures (Kaplan & Norton, 1996a:53), on which the study focuses.

Communication, according to Katriel and Philipsen (1981:30), refers to close, supportive and flexible speech which functions as the “work” necessary to self-definition and interpersonal bonding. For the purpose of this study, communication is defined as the flexible speech between customers and suppliers relationships, and between all parties engaged in the SCM, in particular of SMEs, to achieve organisational goals and satisfy customers’ requirements. In this study,

communication is regarded significant to help build relationships that enable flow of information, discussion and feedback on tasks performed to allow a review of some measures and therefore to discard any unwanted or absolute measures when necessary.

2.3 THEORETICAL FRAMEWORK

According to Argyrous (2011:58), theories are ways in which the world may be interpreted and reconciled to ourselves. A theoretical framework is a well-developed explanation of events that helps researchers locate their studies and signal the origin of their proposed research (Vithal & Jansen, 2010:17). The researcher deemed a theoretical framework necessary to locate this study, and apply the theories to performance measures in SCM of SMEs towards their growth and development (Maree & van der Westhuizen, 2009:17). Principal agency theory, transaction cost analysis, network theory and resource-based views are used to frame the research.

2.3.1 Principal agency theory

Principal agency theory (PAT), described by Eisenhardt in 1989, applies when two parties, the principal and the agent, come together to deliver the objectives of the principal, in this situation the principal delegates' responsibilities, to the agent from which problems arise as a result of conflicting goals (Halldorsson, Kotzab, Mikkola & Skjøtt-Larsen, 2007:287; Ketchen, Tomas & Hult, 2007:576; Zsidisin & Ellram, 2003:16). In SCM, entities referred to in this study, the principal is the strategic management consisting of directors and owners of the manufacturing entities. The agent refers to all the lower level management in the SCM engaged in the day-to-day activities of the organisation to meet its desired objectives, which if not well cascaded to the lower levels, managerial and operational, may give rise to conflict of results. It is indispensable therefore for strategic managers to ensure that performance measures are well articulated with those involved in SCM at the lower level, in order to work towards the desired goals of the entity (Chen,

2011:265). In this study performance measures are utilised from the four perspectives of the BSC to ascertain that the middle, lower level of operations and all members of SCM act to satisfy the organisational goals. According to Eisenhardt (1989:59), SMEs that implement performance rewards systems encourage those involved in SCM to deliver towards the organisational objectives.

2.3.2 Transaction cost analysis

Transaction cost analysis (TCA) was originally developed by Coase in 1937 (Halldorsson *et al.*, 20007:285; Grover & Malhotra, 2003:4; Coase, 1998:72). TCA stems from the "make or buy decision" concept of a firm (Halldorsson *et al.*, 2007:285), which refers to the decision that a firm may conclude on whether it has to manufacture the product in house or buy a finished product. The decision on whether to produce or to outsource is made with the intention of reducing costs while attaining the best desired quality of products needed. TCA, since its inception, has as its focal point the minimising of the total cost of products incurred by a firm while ensuring the quality aspired to in meeting the demands of the consumer. The costs of coordination are affected by the ability of a firm to buy commodities and supply to the end customers, which influences its transactional cost (Coase, 1998:72). TCA in the context of SCM may be based on choice of alternatives on what a firm may perform within its boundaries and which activities should be outsourced from external parties.

Performance measures are used across the value chain, ranging from suppliers, to ensure smooth material flow at economical cost, reliability and flexibility, to on-time delivery and quality of products to ensure customer satisfaction and retention. When all these measures are controlled and properly evaluated and monitored, it may reduce unnecessary costs, thus helping to achieve the quality of goods delivered to the customers. These also may lead to higher returns and help SMEs maintain a competitive advantage, thereby increasing their performance. While researchers advise that TCA be used for "make or buy decisions" (Williamson, 2008:5; Halldorsson *et al*., 2007:285; Arnold, 2000:23;). Ketchen *et al*. (2007:575), in turn posit that it should focus not only on transaction cost as a basis for these

but also on all total cost engaged in SCM, a view supported in this study. For the purpose of this study, the total costs engaged in the SCM of SMEs are taken into account to ensure maximum efficiency in the value chain. The costs, ranging from point of raw material, suppliers, production and distribution until the goods reach the final stage of the customers, are deemed necessary to determine the total cost engaged in the entire value chain.

2.3.3 Network theory

Network theory (NT) is used to explain the relations among interdependent organisations (Thoreli, 1986:37). Good relationships with external parties in SCM, such as buyer and supplier, are the optimum network designed to improve performance in SCM, in particular SMEs. According to Halldorsson *et al*. (2007:287), a business needs to understand the dynamics of company relations towards building long-term cooperative relations through the exchange process. The network in this study, in relation to SMEs, is made up of suppliers, firms, internal parties in organisations, and customers. The buyer-supplier relationship may lead to speed delivery, quality of material supplied, shorter lead times in manufacturing and eventually customer satisfaction (Shook, Adams, Ketchen & Craighead, 2009:5). When close ties are maintained with members of the SCM, SMEs may leverage their performance as speed delivery, and manufacturing lead time enhances internal efficiency operations measures, while customer satisfaction measure is achieved as a result of timely delivery and quality of products delivered. As a result, financial measures may improve due to increased sales. Strong customer-supplier relationships may encourage innovation and development of new products that meet customer demands as a result of effective communication.

2.3.4 Resource based view

Resource based view (RBV) analysis how best certain assets and capabilities of a firm may be utilised and/or lays the basis for competitive advantage (Barney, 1986:1512; 1991:99). SMEs are faced with inadequate skills, lack of resources, human capital and financial constraints (Nichter & Goldmark, 2009:1454), however, they may utilise SCM linkage by maintaining close ties among customer-supplier relationships to assist in achieving smooth flow of material throughout the value chain, and so meet the customers' demands and help improve performance of SMEs in the manufacturing sector (Halldorsson *et al*., 2007:288; Rungtusanatham, Salvador, Forza & Choi, 2003:1084). In this study, the researcher uses RBV from the point of view of SMEs' capabilities, such as building relationship between customers and suppliers are looked at. Strong relationship may allow them the opportunity to receive on-time deliveries from their suppliers, good quality of commodities at economical costs and supplier engagement in the product design. Apart from customer-supplier relationships, cooperative partnership among SMEs is seen as a tool to enhance the competitive advantage in this sector.

2.4 CONCEPT OF SMALL AND MEDIUM BUSINESSES

The small and medium businesses (SMEs) are uniquely defined from one country to another, with no consensus other than that they play a critical role in the economic development and corresponding conditions that govern the state in question (Effah & Light, 2009:5). According to Naimy (2004:28), certain measures are used to define SMEs, such as number of employees, asset value, sales turnover, capital invested, and managerial characteristics.

Table 2.1 (next page) sets out the boundaries to draw from in certain countries when defining SMEs.

Table 2.1 Parameter used in certain countries to define SMEs

Country	Selected criteria
Indonesia	Number of employees, assets value, and sales volume
Mexico	Number of employees and sales volume
Japan	Number of employees and equity shareholders
Brunei	Number of employees
Philippines	Number of employees and total assets
Thailand	Number of employees and equity shareholders
South Africa	Number of employees, total turnover, and total gross asset value (fixed property excluded)
USA	Number of employees

Source: (Effah & Light, 2009:5; Naimy, 2004:28)

The overall perception from the above various definitions of SMEs is that they do not have more than 500 employees, although the majority of countries define them as having up to 250 and others not more than 100. Small businesses are further characterised as entities with a low skills base, and tend to employ incompetent people or owners who themselves have little or no education (Nichter & Goldmark, 2009:1454; Thong, 2001:153). Limited resources are common among these enterprises, which leads to failure of expansion and growth in competitive environments, and deficiency in technological implementation that often results in loss of market share (Nichter & Goldmark, 2009:1454; Thong, 2001:153). These impediments may also hamper the supply chain management processes.

2.5 SMALL MANUFACTURING ENTERPRISE SECTOR

Manufacturing can be described as the process of converting raw materials into finished products (Le Roux & Lotter, 2003:4), taking place through use of manpower, machines and tools to achieve the desired output, that is, finished goods. The three elements of production are direct material, direct labour and manufacturing overheads (Van Rensburg *et al.*, 2008:17; du Toit, Hopkins, Oosthuizen, Qua- Enoo & Smith, 2007:27-28). The first, *direct material* is the raw material made available for conversion to attain the finished product, raw material being the goods supplied by the vendors. The cost of purchasing encompasses delivery costs and other costs associated with bringing goods to their condition of

usage (Lodewyck *et al*., 2007:96). All these costs signal to TCA of a firm and concur with Ketchen *et al.* (2007:575), on the grounds that TCA should focus not only on the make or buy but on all total costs involved in SCM. Upon arrival, raw material is stored in the warehouse and transferred to the production for conversion when a requisition is made by the production department (Van Rensburg *et al*., 2008:53). The conversion of raw material is made possible through utilisation of direct labour and manufacturing overheads costs (Van Rensburg *et al.,* 2008:17; Le Roux & Lotter, 2003:4).

The second, *direct labour* refers to the people employed to transform raw material into finished goods and can be traceable and easily identified with the units of output produced (Van Rensburg *et al*., 2008:17; du Toit *et al*., 2007:28). Direct labour is divided into two categories of the remuneration system, namely piece wage and time wage (Van Rensburg *et al*., 2008:67; Le Roux & Lotter, 2003:63-65). In a piece wage system employees are remunerated on the basis of output and not the time spent, while in a time wage system employees are remunerated according to the number of hours taken to complete the task (Van Rensburg *et al*., 2008:67; Le Roux & Lotter, 2003:63-65).

The third component, *manufacturing overheads* relates to all the indirect costs of production which are not traceable to a cost object but can be allocated according to their usage (Van Rensburg *et al.,* 2008:17; du Toit *et al*., 2007:28). They concern all costs that are incurred to facilitate smooth running of the production, such as electricity and rent for the factory, and supervisors' salaries. These overheads and costs of production also involve SCM, although they may be hardly noticed. For instance, the municipality is a service provider of electricity whereby bills must be settled, and machinery and production equipment must be maintained to conform to standards. Therefore, costs incurred to ascertain that equipment conforms to specification, such as audits, inspection and maintenance, may be a result of engagement with external parties or service providers (Ellram, Tate & Billington, 2004:19).

In view of the above mentioned costs, which are elaborated categorically, the researcher uses TCA theory that regards transaction cost as a basis for all the costs involved in the SCM rather than as a concern for "make or buy decision"

(Halldorsson *et al.,* 2007:285). In order for an SCM entity to survive in a competitive environment all associated costs in the value chain are of importance towards maximisation of performance and realisation of profits, which may lead to sustainability.

Service providers are also entities in the SCM which may not be neglected in the process of maximising performance in the supply chain (Ellram *et al.,* 2004:19). The service providers form part of the NT in which the organisation forms relationships with external parties in order to strengthen the efficiency and effectiveness in an SCM. In a manufacturing firm the SCM concerns not only those involved in the supply of raw materials, manufacturing and distribution to the consumers but also entities responsible for ensuring that the equipment utilised is maintained at the required set standard for an effective and efficient supply chain. Ellram *et al.* (2004:19, 21) examine the difficulty which entities may encounter in the measurement of service performance and adds that it is critical to comprehend the supply chain complexities and processes involved in the creation and delivery of those required. When all the manufacturing activities have been performed and the finished goods attained, the cost of manufacturing is determined and goods marked up to arrive at the selling price. These are sold to the customers as the end result in the value chain.

Manufacturing entities are distinguished from other forms of business through innovation, and supply of commodities on a large scale. Manufacturers are clustered under the various categories of production, such as basic and fabricated metal products, clothing and footwear, pulp and paper products, food, beverages and tobacco, apparel, chemicals, rubber and plastics, and furniture (Kesper, 2001:182). According to Kesper (2001:182), Western Cape manufacturing in South Africa is counted as the third major contributor to the national output and job creation, although it does not demonstrate the industrial dominance shown by the Gauteng SME manufacturing sector. Researchers have highlighted that SMEs are regarded as the driving force for the national economy (Effah & Light, 2009:5; Naimy, 2004:28), which is a result of less paperwork in the formation of business, unlike their counterparts the large organisations that require numerous legalities and complexities. Small business can be formed by one individual and self-

financed to commence its operations (Lodewyckx *et al.*, 2007:282). The researcher deemed fit to give an account of manufacturing sector as the study was done in this industry.

2.5.1 The significance of the small manufacturing enterprise sector

The significance of manufacturing businesses cannot be overemphasised as they contribute towards the country's economic growth through job creation, employment and alleviation of poverty (Rogerson, 2004:766). According to the business environment specialist, SBP (2009:3), an estimate of 73 percent of people work for firms with fewer than 50 employees and 45 percent of all employees work in firms with fewer than 10 people in South Africa. However, one of the major factors impeding the success of SMEs, especially in the manufacturing environment, is the lack of access to finance (Beck & Demirguc-Kunt, 2006:2932). This prohibits these firms from expanding their businesses, which may enable greater employment opportunities, thus alleviating poverty, and as Beck and Demirguc-Kunt (2006:2932, 2935) assert, efforts targeted at the SME sector are usually focused on the basis that SMEs are the "engine for growth", although market imperfections and institutional weaknesses prohibit them from growth. SMEs are often faced with a segregated level of decision-making, which makes it difficult for these entities to overcome their challenges as a collective. The decision-making level may be effective when every member of the organisational SCM in the manufacturing business is involved, thus enabling effective decisions that aim for a higher satisfaction level (Jansen, Curseu, Vermeulen, Geurts & Gibcus, 2011:195).

One may consider manufacturing firms to be the heart of innovation, however SMEs are lagging behind innovativeness, regarded as key for these entities to sustain themselves in a competitive environment. Innovations may come in various forms, such as capability to produce and introduce new products that suit the market and attain the customer satisfaction level (Margues & Ferreira, 2009:55). Therefore, much attention is required to ensure that the manufacturing sector is well-developed and performance measurement systems are in place.

Improving the performance of the supply chain in manufacturing is inevitable when one considers the impact of this sector on the national economy. One of the factors that may help improve performance of SCM in manufacturing entities is Just-in-time (JIT).

2.5.2 Just-in-time manufacturing system

The implementation of JIT purchasing and manufacturing may also enhance the performance of supply chain management in a manufacturing environment (Yasin, Small & Wafa, 2003:215). The JIT inventory and production management system is a comprehensive inventory and manufacturing control system whereby raw material is not purchased and products manufactured until there is a demand (Van Rensburg *et al*., 2008:54), or when required in the production process. Likewise, component parts and sub-assemblies are not processed until they are needed in the next stage of production. JIT as defined by Kannan and Tan (2005:158) is the use of techniques such as set-up time and lot size reductions, in order to improve the flow of material. These authors believe that the effort to achieve a reduced inventory level may be attained through integrated coordination and relationship with supply partners, as propounded by the NT.

The objective of JIT production is to cut costs and eliminate inventories in all the production stages, ranging from raw material and work in progress, until the finished goods are readily available for resale (Kannan & Tan, 2005:153). JIT leads to reduction in storage costs of handling stock, and related non-value added costs (Yasin *et al*., 2003:215), while quality of products is manufactured as a result of JIT production that leads to more satisfied customers. Furthermore, a close relationship with suppliers in a manufacturing environment is significant, due to less time spent in vendor relations. In JIT, only highly reliable suppliers who at most supply high quality of goods on scheduled dates are utilised (Zhou, Shou, Zhai, Li, Wood & Wu, 2014:626). Long-term relations with suppliers help minimise costs on paperwork and numerous negotiations on each transaction because the price, quality and delivery terms are stated in long-term contracts with vendors (Chan & Qi, 2003a:209), which again supports the TCA of a firm when unnecessary costs in the value chain are eliminated to improve performance of an SCM entity.

JIT ties in with Economic Order Quantity (EOQ) in cost reduction (Van Rensburg *et al.,* 2008: 58), that is the size of an order that can be made in order to pay the lowest ordering and inventory holding costs. In an EOQ model, the demand and lead time is certain, thus facilitating smooth production running at the lowest costs, which promotes prompt response to customers' demands. Where JIT is implemented it is effortless to retain customers because they receive goods ordered on time at a high quality level of supply. JIT paves the way for a successful supply chain in manufacturing, and improves the flexibility and performance of business through speedy delivery.

The aims of JIT as set out by Van Rensburg (2008:56) are to:

- *"Eliminate one of the value- added activities*
- *Zero inventory levels*
- *Zero defects*
- *Batch sizes of one*
- *Zero breakdown*
- *100% on time delivery"*

JIT and EOQ are examples of manufacturing strategies used to improve performance. Aligning strategy with manufacturing may elevate growth thus strengthening market position. The strategy of maintaining timely delivery may require suppliers of high eminence to aim for on-time delivery while production cycle time may be curtailed and production be free from defects. Manufacturing strategy aims to develop seamless production process, coordinated suppliers and customer relationships (Chenhall, 2005:401).

A well-functioning small and medium enterprise may impact positively on the growth of the national economy by creating jobs, while on the one hand offering a wide range of commodities through innovation and product development, thus enhancing the skills of those involved in the value chain. The government should in practice continue to support the growth and development of SMEs to enhance their liquidity and sustainability status. The Small Enterprise Development Agency (SEDA) is an agency of the South African DTI which was established through the

National Small Business Amendment Act, Act 29 of 2004 to implement and facilitate the network for small business development.

2.6 THE CONCEPT SUPPLY CHAIN MANAGEMENT

Supply chain management (SCM) is a set of approaches used to effectively integrate suppliers, manufacturers, warehouses, and stores so that commodities are manufactured and delivered to the right places, in the right quantities and at the right time, resulting in committed service in order to reduce system wide costs while fulfilling customer service level requirements (Branch, 2009:2; Simchi-Levi *et al*., 2003:1). Burt, Petcavage and Pinkerton (2010:13) in turn describe it as a "fraction of the organisations value chain, which is responsible for supplying the production and transformation process". Burt, Dobler and Starling (2003:7), illustrate that the supply chain goes far beyond the last stage, which is the consumer and back to "Mother Earth" - the supplier, while Carr and Smeltzer (1999:44) view it as one alternative organisation when compared to clusters, where each group performs its own activities.

Supply chain management is also defined by Hugos (2006:4) as "the supervision of manufacturing stock location and delivery amongst role players in the supply chain in order to attain maximum satisfaction for the client". A supply chain consists of all the events that are involved in transporting commodities from the raw material stage until they reach the final stage of the consumer, and encompasses various organisations ranging from manufacturing to wholesale and retail (Brewer & Speh, 2000:77). It consists of multiple firms, both upstream (i.e., supply) and downstream (i.e., distribution), and ultimately the consumer (Mentzer *et al.,* 2001:3). The following section explains the key aspects that relates to efficiency in SCM.

In order for SCM to be successful there must be a clear tangent plane (linkage) between internal integration and customer (Lee, Kwon & Severance, 2007:445), thus encouraging business information sharing amongst parties involved. Lee *et al.* (2007:445) write that 'customer linkage' is about sharing product information with the clients, through acceptance of their orders, engaging with them to

manage demands, having an order placing system, communicating the status of the customer orders as well as the product delivery phase. This promotes the ability to communicate the delivery of products to customers at the right time, place, quality and quantity. Customer and supplier linkages points to the NT of a firm. Information sharing and partnership with external parties improves relationships between them, thus satisfying the NT. In turn, 'supplier linkage' deals with strategic links with suppliers and should indulge suppliers in new product development, in production planning and inventory management, in order to maintain a hurried response order processing with suppliers, put in place a supplier network that guarantees delivery reliability and information sharing with suppliers.

Koh, Demirbag, Bayraktar, Tatoglu and Zaim (2007:109) aver that use of few suppliers enables effective communication and supplier relationship that promotes the growth of supply chain management performance. There should, however be a close relationship with customers in order to ascertain the trends of customer demand changes, thus enabling flexible and effective SCM.

2.7 PERFORMANCE MEASUREMENT OF SUPPLY CHAIN

According to Neely *et al*. (2002:2) and Neely, Gregory and Platts (2005:1229), performance measures play an integral part in the management of control systems. Furthermore, this can be described as a regular measurement of results and efficiency of services and can also be regarded as a parameter used to quantify the efficiency and effectiveness of past actions taken or implemented (Tangen, 2004:727). Neely *et al*. (2002:32-71), state that for performance measures to be effective, four fundamental processes should be deployed:

1. **Design of the measures:** The first step requires a cautious mind, encourages one to comprehend what should be measured, and explains how.
2. **Plan and build:** A vital stage in the process and one that calls for communication amongst parties involved in the measurement system, which should access data, be able to explain how to use the measurement

data, and how to improve performance (Neely *et al*., 2002:32-71). This could also require some development of the applicable technological measurement system.

3. **Implement and operate:** The third process, this involves execution of the plan and employing developed systems in the planning and building stage (Neely *et al*., 2002:32-71). It could also mean working with identified and chosen measures in conjunction with well-defined measurement systems.
4. **Refresh:** The fourth stage in the process is when managers redefine measures to ascertain their relevancy and usefulness. It is at this critical stage that obsolete measures can be discarded and new ones implemented, if they are found to be fit for purpose, and it addresses the performance measurement that requires development.

The abovementioned process is graphically depicted in Figure 2.1 (below).

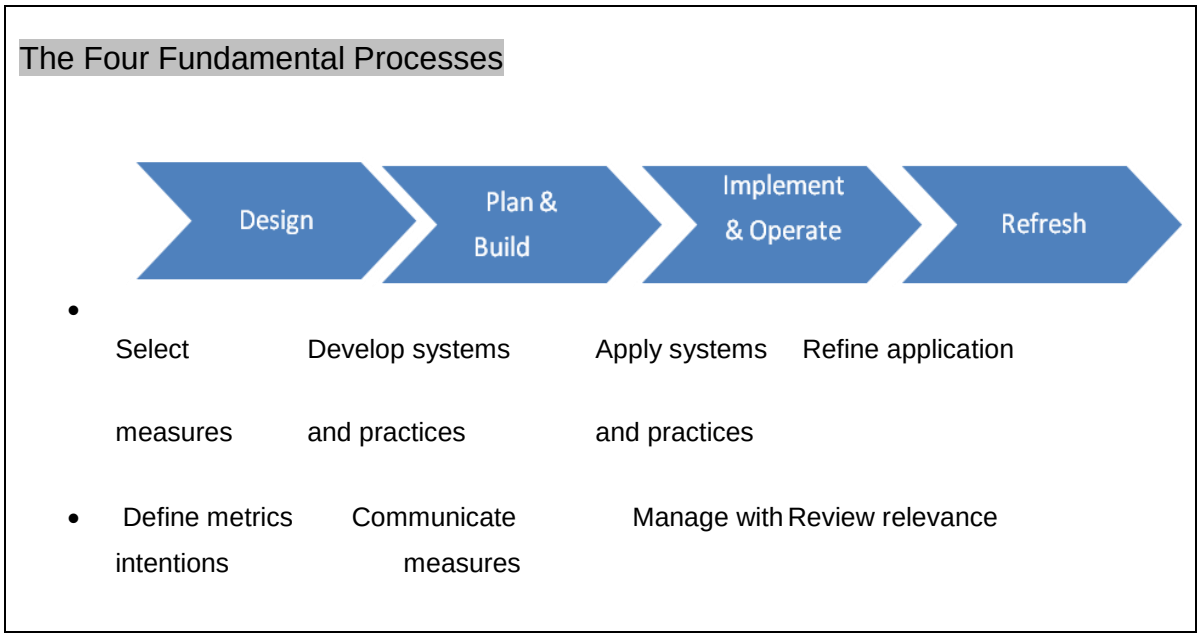

Figure 2.1: Four fundamental processes of a performance measurement system
(Source: Neely *et al.,* 2002:33)

Handfield, Monczka, Giunipero and Patterson (2009:709) posit that performance measures should clearly define and support the company's strategic goals and objectives, enhance communication across the supply chain, and should not drift from the strategic goals in order to attain the desired results. Researchers aver that it is important to monitor supply chain performance persistently by utilising

metrics from the following five categories, namely cost, time, quality, flexibility and innovativeness, and take action upon performance measurement results in order to stay competitive (Olugu, Wong & Shaharoun, 2010:875; Shepherd & Gunter, 2006:244-245). It is more demanding and costly for SMEs to implement a performance measurement process, therefore it is critical to maximise on quality and time to ensure minimal waste and attainable customer satisfaction at its highest level (Hudson, Smart & Bourne, 2001:1105). This could also entail SMEs responding abruptly to changing markets.

2.8 BALANCED SCORECARD

The success of supply chain management is not solely dependent on financial performance measures. SMEs predominantly focus on financial measures, which lead to the compromise of the long-term strategic goals. Financial performance measures are regarded as short-term performance measures and therefore cannot sustain the business in isolation from non-financial performance measures which are long-term goals. A balanced scorecard (BSC) refers to financial and non-financial performance measures. Other than focusing on the short-term investment returns, non-financial performance measures provide a clear vision of the business as these are linked to the organisational strategic goals. Application of the BSC to SCM is of importance because four areas of performance are taken into consideration, leading to the attainment of organisational goals through innovation and growth, customer satisfaction, financial and internal business processes. These enable smooth operations when clearly defined, objectives stated, and feedback provided for developmental purposes.

The BSC is a strategic management system that monitors the implementation of business strategies by utilising measures on four perspectives to ascertain that vision and strategy are translated into a coherent set of performance measures (Kaplan & Norton, 1996a:53;1996b:75). The four perspectives of a balanced scorecard are elaborated upon below:

1. **Financial measures consist of various stages**: The growth stage stresses the rising of sales, which could result from fresh consumers, newly innovated products, employee initiatives and development of new marketing strategies plus distribution channels. Sustainability in turn stresses traditional financial measures, which include gross margin, operating income and return-on-capital employed. Harvest emphasis is based on cash flow, with an objective being to maximise return-on-investment.
2. **Customer satisfaction measures**: The customer perspective seeks to address how customers should perceive the entity, which must ensure customer satisfaction, customer retention and acquisition of new customers, although this could only be achieved if on-time delivery takes place, the cost unit is economical, and quality is delivered consistently.
3. **Internal efficiency, quality, and time measures**: This perspective intends to distinguish processes in which business must excel internally in order to satisfy customers' demands and entities' financial goals. It encompasses measures such as quality-oriented measures, flexibility, time-based and cost measures.
4. **Innovation and growth measures**: The fourth perspective seeks to address how a business can improve on a continuous basis to capture the interest of customers and retain them. It therefore encompasses measures such as process improvements, and new product development.

   (Bhagwat & Sharma, 2007:55; Gumbus & Lussier, 2006:409; Niven, 2002:15-17; Brewer & Speh, 2000:83-84; Kaplan & Norton, 1996a:57-63).

According to Kaplan and Norton (1996a:56), the four perspectives of the BSC enable firms to maintain a balance between short-term and long-term objectives. By introducing the BSC, Kaplan and Norton (1996b:75) aim to complement rather than substitute financial performance measures. Brewer and Speh (2000:82), state that the BSC commences when executives begin to define the firm's strategy. The balance scorecard framework is graphically depicted in Figure 2.2 (below).

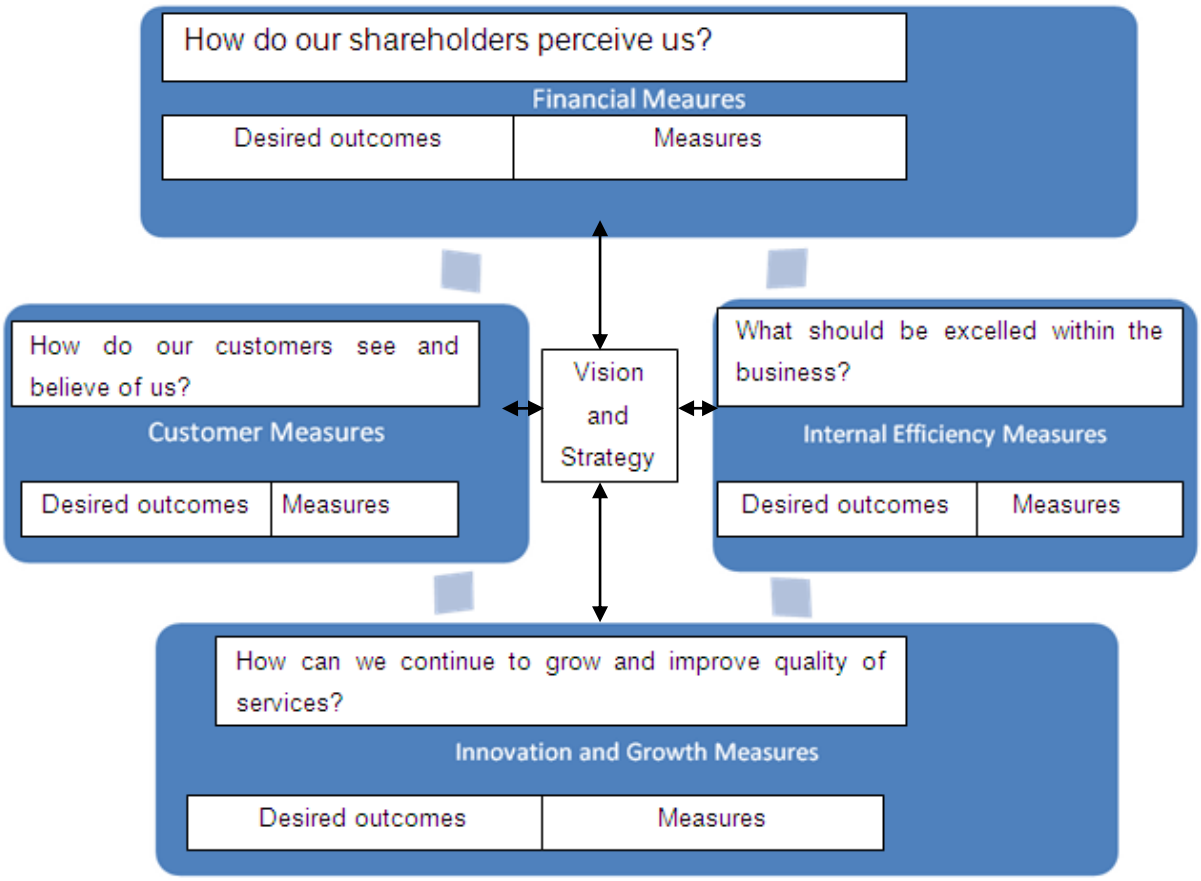

Figure 2.2: Translating Vision and Strategy: Four Perspectives **(Source:** Kaplan & Norton, 1996a:54)

2.9 PERFORMANCE INDICATORS

SME success in SCM may not be apparent if the organisational strategy is not clearly articulated. Performance indicators play a critical role in the value chain by providing all the parties (agent) in SCM with a clear indication of the organisational strategy (principal), which would enable them to ascertain key areas that require more effort and attention in order to attain the targeted objectives of the entity. Performance indicators impact positively on the accomplishment of the organisational goals if the objectives are 'SMART' – that is conforming to the acronym delineated letter-by-letter as follows:

S - Specific: It should be clear to everyone involved what is to be measured, that is both the strategic management (principal) and lower level managers (agent) in manufacturing businesses should be clear on what is expected of them.

M - Measurable: It should be uncomplicated in measuring what is to be achieved. Those involved in the measurement processes in SMEs need to understand and know how to measure their goals.

A - Achievable: Objectives must be attainable. Those that set objectives in the managerial level in SMEs need to take cognisance of level of skills and expertise of those measured in their manufacturing businesses.

R - Realistic: The nature of goals must be relevant and applicable to those who are measured. People should not be measured on skills that they do not have or for which they are not trained.

T- Time bound: There should be time lines adhered to in order to evaluate the performance in the SCM and provide feedback to parties involved. All parties concerned in the organisation must be aware of deadlines.

Performance indicators play a paramount role in the success of the entity involved in the SCM processes. As a result, before any measure is taken all parties involved should have common understanding of the objectives and the business strategic plan. Without a clear vision of the organisational strategy and goals cascaded into operational goals, performance indicators are unnecessary burdensome cost measures incurred and negatively influence the profitability and sustainability of the entities.

Performance indicators, as defined by Chandi (2009:16), are measurable characteristics of products, processes, services and operations, which are directly linked to the organisation's strategy, and provide a clear indication of success or failure of success that determines the critical factors for the execution of the organisation's strategy. It is of utmost importance that small businesses ascertain performance indicators, or metrics used in their scorecard (SC). This will enable SC entities to easily know what to measure and how to measure it. Kleijnen and Smits (2003:6) recommend that a list of performance metrics be drafted by utilising a BSC approach from an SC perspective, giving a clear indication of how the metrics will be monitored. This can be performed on a monthly basis, quarterly or at the strategic level.

However, monitoring the performance of supply chain and its improvements has become a challenging task for managers, mainly as a result of the large number of

management processes involved, such as identifying measures, defining targets, planning, communicating, monitoring, reporting and providing feedback (Cai, Liu, Xiao & Liu, 2009:512). Improving performance in a supply chain may be regarded as a continuing process that seeks an analytical performance measurement system and techniques to introduce systems for realising goals of Key Performance Indicators (KPI).

According to Cai *et al*. (2009:514), the challenge in relationship between KPIs are mounting, which makes it difficult to redefine them if plans, targets, and goals have been stated, even in periods of changing markets and demands. The six steps of a performance measurement cycle must be implemented prior to any alteration in plans, thus lengthening the feedback period. Therefore, a shorter performance management cycle maybe implemented to allow for a speedy response to any deviation on KPI. An improved model of business performance management cycle is graphically depicted in Figure 2.3 (next page).

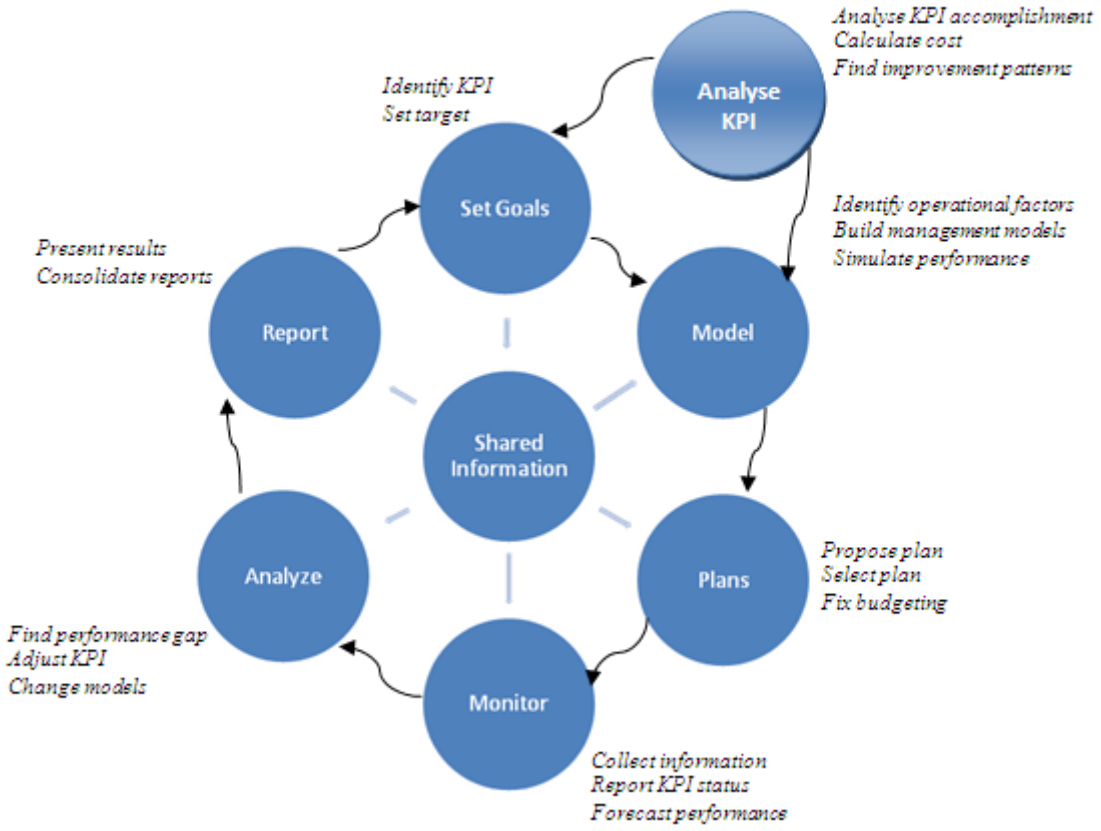

Figure 2.3: An improved model of business performance management cycle. **(Source**: Cai *et al*., 2009:514)

The figure presents a model developed to analyse KPIs, however, to do so clear goals must be set and linked to the model developed in order to plan (Cai *et al.,* 2009:514). The planning is intended to gather information on the possible KPI, which may help improve the efficiency and effectiveness of performance in SCM of SMEs, particularly in the manufacturing sector. Once the KPIs have been identified and implemented they are monitored to identify gaps, and shortcomings from the set targets, if any. The KPIs are then analysed and changes affected when necessary, to improve performance. The model can be modified to respond to changes and deviations identified. Finally, a report is compiled to present results of the existing model and a new one developed to improve performance.

2.9.1 Customer measures

According to Bhagwat and Sharma (2007:54), the BSC demands that management should translate their mission statement on customer service into measures that reflect the factors that matters to the customers. This is vital because customers are concerned with lead time, quality of products and services, cost effectiveness and company's performance services (Bhagwat & Sharma, 2007:54). Performance indicators on customer perspective are discussed below in detail:

- **Customer satisfaction measures:** The customer is the end result in the supply chain but the most prominent of all. The company places orders from suppliers, manufacture products and services by converting them into finished products because there is a demand to be satisfied, which is the consumer. According to Gunasekaran, Patel and McGaughey (2004:338), a happy customer is of great significance to a *world class* entity.
- **Customer response time:** Customer response time may be referred to as the time it takes for a company to respond to a customer query pertaining to issues at hand. Gunasekaran *et al*. (2004:338) write that it is normal for consumers to inquire about delivery problems, make inquiries on damaged stock delivered to them and perhaps inquire about status of their orders, therefore prompt and appropriate response is highly encouraged.
- **Flexibility:** Customers cannot be happy as a result of an inflexible SC. Flexibility should be ensured throughout the chain because all activities engaged in SCM signal back to the customers. Flexibility, as explained by Gunasekaran *et al*. (2004:338) and Bhagwat and Sharma (2007:47) (citing Gunasekaran *et al*., 2001), is the capability to respond quickly in order to meet the demands of the customers. Koh *et al*. (2007:107) in turn describe it as the ability to welcome new developments as the need arises in order to meet the desired objectives. Other flexibility measures, according to Gunasekaran *et al*. (2004:338), encompass product development cycle time, machine set-up time and JIT lot size and the number of inventory turns. JIT lot size helps reduce inventory holding costs and enables quick flow of cash.

- **Customer retention:** It is only when customers are pleased with the products and services offered by the organisation that they can be loyal to the company. It is of paramount importance to ensure that good quality of products and services be maintained. Nevertheless, flexibility should not be ignored if prompt response to customers' needs is to be achieved. In this way the company can retain most of its customers.

The performance metrics discussed above relates to the customer measures that lead to the successful supply chain management.

2.9.2 Financial measures

Financial measures are commonly referred to as 'short term' and 'historically based'. Their emphasis is on the past rather than future-oriented measures, and they are significant in measuring performance from four key areas, namely, profitability, capital structure, efficiency and liquidity (Lodewyckx *et al.*, 2007:456-457). While each measure stands out for a unique purpose, profitability informs users of financial statements about the performance of an organisation regarding the realisation of profits or losses (Lodewyckx *et al.*, 2007:456-457). Again, efficiency informs users of how effectively business assets are managed. Furthermore, capital structure informs whether owners' capital or borrowed capital is being utilised. Lastly, liquidity measures how easily assets in the business can be converted into cash (Lodewyckx *et al.*, 2007:456-457).

The above four areas on financial measurement are derived from financial statements. There are four components of financial statements, as follows:

1. **Statement of profit and loss and other comprehensive income:** Informs users as to whether the business is making a profit or a loss, and encompasses income earned and expenses incurred during the financial year (Sowden- Service, 2011:44).
2. **Statement of financial position:** Provides information on what the business owns and what it owes to others as well as the entity's net worth. The elements of this statement include assets, liabilities and equity

(Sowden-Service, 2011:40). According to International Accounting Standards (IAS 1.60) of the International Financial Reporting Standards (IFRS), an entity should present current and non-current assets, and current and non-current liabilities separately under relevant categories of the statement of financial position, except when a presentation based on liquidity provides information that is reliable and more relevant (Oberholster, Koppeschaar, Jansen, Van Rensburg, Binnekade, Hattingh, De klerk, Rossouw & Du Toit, 2011:40).

3. **Cash flow statement:** Provides data on cash flow from financing, investing, and operating activities. The cash flow from operating activities inform the users of financial statements about the amount of cash coming from sales of the company's goods and services, less the amount needed to make or buy and sell those goods and services. Apart from this, cash flow from investing activities reflects the amount of money the company spent on capital expenditure, such as new machinery, equipment, and vehicles. This may include acquisition of other businesses. Lastly, cash flow from financing reflects inflow of cash from outside financing activities, such as bank loans. Payments on bank loans would however indicate the uses of cash flow (Sowden- Service, 2011:52). Performance indicators from these measures are elaborated upon below.
4. **Return on Assets (ROA):** In an SC, assets utilised encompass accounts receivable (debtors), property, plant and equipment and inventories. Owing to increased inflation and deterioration in liquidity it is crucial for firms to elevate the productivity level of their capital and ascertain the effectiveness and efficiency of assets. It is therefore important to determine how costs associated with each asset in conjunction with its turnover impact on the 'total cash flow time', which can be measured as the average number of days required to convert cash invested in assets into the cash collected from a customer (Steward, 1995, cited in Bhagwat & Sharma, 2007:50; Gunasekaran *et al*., 2004:338-339).

   Return on Assets (ROA) is defined as:

$$\textbf{ROA} = \frac{\text{Profit before interest expense and taxation}}{\text{Total Assets}}$$

Return on investment (ROI): Return on Investment is defined as:

$$\textbf{ROI/ROE} = \frac{\text{Profit after taxation and preference dividend}}{\text{Equity}}$$

According to Gunasekaran *et al*. (2004:339) and Bhagwat and Sharma (2007:50), when the total cash flow time is determined it can be added to the profit, to provide an insight into the rate of return on equity (ROE). This helps establish the performance the top management can obtain on the total capital invested. ROI plays a significant role in the supply chain, impacting not only on financial but also on non-financial measures, such as customer measures and internal control measures as a result of sales made (Bhagwat & Sharma, 2007:50; Gunasekaran *et al*., 2004:339).

In order to manufacture products a cost must be incurred in the form of purchases from suppliers, with an additional carriage inwards or transport duties when applicable. This cost proceeds to the production, where direct labour and manufacturing overheads are expensed to convert raw material into finished goods. When the conversion of raw material has been completed the cost of goods is determined. This flow of costs signals to the TCA the necessity to consider all costs engaged in the SCM (Ketchen *et al.,* 2007:575) and so makes decisions, in particular in SMEs.

The cost of goods determined enables managers to mark them up in order to arrive at the selling price. All the variable costs incurred are deducted from the sales to establish the contribution margin (Van Rensburg et al., 2008:143). When this is realised it indicates a positive light in terms of viability and the fixed costs are deducted to achieve the 'net margin' (Van Rensburg et al., 2008:143). The sales feed the financial measurement and impact on the ROI as well as customer measures, and internal efficiency measures. The revenues realised inform whether there is a good market for a particular product. When customers are happy with quality, reasonableness in costs and speed of delivery, more revenues will flow into the entity (Halldorsson *et al.,* 2007:288). Innovation and growth may also have a significant impact on the ROI. The more innovative the firm is the more the returns may be realised, because customers are coming in for new products and may enhance the competitiveness of the environment. This paragraph points to the RBV of the firm, where a firm's capabilities and resources

are best utilised to enhance the company's competitive advantage (Barney, 1986:1512; 1991:99).

Inventories play a significant role in the supply chain. Relationships are built between customers and suppliers as a result of a need in inventory levels from suppliers as raw material and to customers as finished goods. Availability of material enables smooth process of production in a manufacturing environment. The total inventory cost should be determined and calculated with accuracy to achieve the correct cost of goods manufactured. Inventory costs are categorised according to the following statement:

- **Total inventory cost:** In an SC, inventories range from raw materials, sub-assemblies and assemblies to finished products as well as inventories in transit (Bhagwat & Sharma, 2007:50).
- **Cash conversion cycle:** Hausman (2002:11) writes that conversion cycle time measures how long it takes for an entity to pay trade payables (creditors), how long it takes for trade receivables (customers) to pay their debts, and how long the inventory stays before it is converted into cash. This can be measured in days and months. For the purpose of clarity the abovementioned key terms are defined as follows:
    - **Trade payables:** Are suppliers of commodities and services to the customers on credit terms, depending on the time agreed upon between the parties involved. In this study the trade payables refer to suppliers of raw material and services to SMEs.
    - **Trade receivables:** Are clients of the business who receive goods and services on credit with the hope that cash will be received in the future according to the time agreed upon (Lodewyckx *et al.*, 2007:63). These trade receivables are customers of the SMEs in the manufacturing businesses, as referred to in this study.
- **Inventory:** Refers to the raw material, work in progress and finished goods that is available and in the business. This also includes inventory in transit. The inventory costs associated with production and distribution reflects on TCA of a firm. TCA for the purpose of the study is based on total costs incurred by the SCM.

According to Farris 11 and Hutchison (2002:292:) *"*The cash to cash (C2C) metric is an important measure as it bridges across inbound material activities with suppliers, through manufacturing operations, and the outbound logistics and sales activities with customers"*.* The C2C cycle time according to Farris 11 and Hutchison (2002:294-295), can be improved by delaying payments of amount owing to trade payables until the last moment, while speeding the cash collection from accounts receivable. This can also be enhanced by shortening the production cycle in order to minimise inventory days of supply:

$$\textbf{Current ratio:} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Current assets are those that can be easily converted into cash in a period not exceeding the accounting cycle. This includes items such as inventory, cash at bank and other receivables such as expenses paid in advance and income accrued to SMEs. Income accrued is a result of monetary value owing from services provided during the financial year. Current liabilities in turn refer to debts owed to suppliers of material and services in SMEs which can be settled during the reporting period. Current liabilities include trade payables, accrued expenses and income received in advance, that is money received prior to rendering of services to the clients. According to Lodewyckx *et al.* (2007:468), the current ratio provides cash to settle the short-term debts as they become due. This is calculated in the form of ratio, with the larger ratio usually indicating a low risk regarding the unpaid short-term liabilities:

$$\textbf{Quick ratio:} = \frac{\text{Current Assets – Inventory}}{\text{Current Liabilities}}$$

Quick ratio is described as the real test of liquidity as it eliminates inventory from the calculation (Flynn, Koornhof, Kleynhans, Meyer & Posthumus, 2005:29). This arises because inventory is not easily converted into cash. This ratio intends to measure cash available to pay short term liabilities of SMEs in the manufacturing businesses as they become due (Lodewyckx, *et al.,* 2007:468).

2.9.3 Internal efficiency, quality and time measures

This measure solely focuses on the business processes that directly impact on the customers' satisfaction and affects cycle time, quality, and productivity (Sharma & Bhagwat, 2007:62). Performance indicators from this perspective are as follows:

- **On-time deliveries:** According to Gunasekaran *et al*. (2004:337), on-time delivery is an indication of whether SMEs delivers goods and services to the final stage, the consumer, at the right time and at the right place or otherwise, thus also contributing to customer service level.
- **Defects-free deliveries:** Defect-free deliveries can be achieved if SMEs in the manufacturing entities employ skilled staffs who know, understand and have the ability to utilise the technological equipment efficiently in order to attain quality of products. It can also entail adhering to the developed schedule to avoid complaints (Gunasekaran *et al*., 2004:337).
- **Total supply chain cycle time:** According to de Trevill, Shapiro and Hameri (2004:623), supply lead time refers to the time between commitments to product by SMEs, which implies identifying the desired product, placing an order, getting raw material from the supplier until goods reaches the final stage-the consumer. Supply lead time requires development to ensure reduced lead time in the production of goods to delivery. Lead time, according to Persson and Olhager (2002:232), is "a function of quality levels and of the supply chain structure".
- **Manufacturing lead time:** This is the time taken by SMEs to manufacture one unit of production (Beamon, 1999:284), and should ensure reduced production lead time and turn demand information to actual demand satisfaction by prompting deliveries to the customers (de Trevill, *et al.,* 2004:625).
- **Product reliability:** According to Chan and Qi (2003b:185), reliability refers to the ability of one particular activity, person or event to perform its functions under the stated conditions in the SMEs' business in order to achieve the desired result at the stipulated time. Products in the SC need to be reliable in order to ensure customer retention and satisfaction. A happy customer can also lead to higher profit margins. This links to RBV, where

capabilities of a firm are used to improve competitive advantage in SMEs' business (Barney, 1991:99).

- **Product quality:** This conforms to specifications and set standards of a firm, perhaps including defect free deliveries. When a product conforms to specification it should satisfy the customers' demands. Quality on its own is not sufficient, but rather supply at the right time, place and cost is also important for SMEs to survive in a competitive environment (Robinson & Malhotra 2005 cited in Vanichchinhai & Igel, 2011:3406)
- **Production flexibility:** Sanchez and Perez (2005:685), Duclos, Vokurka and Lummus (2003:450) and Beamon (1999:285), define flexibility according to five categories:

    1. **Volume flexibility**: The ability of SMEs to increase the production level to meet changes in quantities desired by customers.
    2. **Delivery flexibility:** The ability of managers in the SMEs to improve planned dates of delivery.
    3. **Mix flexibility:** The ability of SMEs to manufacture various products.
    4. **New product flexibility:** The ability of SMEs to innovate and manufacture new products, and also to develop existing products.
    5. **Responsiveness flexibility:** The ability of SMEs to react quickly to the needs of the targeted market.

Sanchez and Perez (2005:685) state that product flexibility is central to operational activities. An effective alliance among partners in the value chain, including marketing, product design, developments and engineering, is required to enhance flexibility in operations. Furthermore, volume flexibility is not only about the ability to meet customers demand but also impacts significantly on supply chain performance by preventing products that are mostly high in demand being out of stock. This helps managers to plan for Re-Order Level (ROL), which is a point at which the next order must be placed before the firm runs out of stock (Van Rensburg *et al*., 2008:43).

ROL is calculated as follows:

ROL= Maximum usage × Maximum lead time.

Again, volume flexibility encourages flow of inventory and so avoids keeping large inventory turns in the store. An obsolete maximum stock level is avoided to enable quick cash flow from inventory by producing and delivering goods when orders are placed, thus promoting the JIT inventory system.

Flexibility helps the business to improve its performance and enhances the supply chain as a whole. Stevenson and Spring (2007:691) list the following five elements required to provide a more inclusive explanation of supply chain:

1. **Robust network flexibility:** The range of events which parties in the existing supply chain structure, especially SMEs are able to cope with.
2. **Re-configuration flexibility:** The ease with which SMEs can re-configure their supply chain. The need to reconfigure is wholly dependent on the range of an existing supply chain structure.
3. **Active flexibility:** The ability of SMEs to act as a chain, either as a response to, or in anticipation of changes and events.
4. **Dormant flexibility:** The flexibility of the supply chain is partially a contingent resource, for instance it does not have to be a demonstrable capability.
5. **Network alignment:** Entities may need to focus on aligning their capabilities in order to meet the targeted objectives of the supply chain. For instance, internal goals may be linked to those of the supply chain as a whole (Stevenson & Spring, 2007:691).

Supply chain flexibility is dynamic and requires a proper definition before its measurement. This flexibility may be categorically defined according to shopfloor, plant, firm and supply chain as a whole (Sanchez & Perez, 2005:683; Stevenson & Spring, 2007:692) to help the understanding of users in order to augment the performance throughout the supply chain. The hierarchical levels of supply chain flexibility are presented in Appendix A.

2.9.4 Innovation and growth measures

This perspective emphasises the ability to innovate and improve in order to satisfy varied demands of the customers (Sharma & Bhagwat, 2007:62). Innovativeness and perpetual learning can lead to efficiency in the business operation, cost reduction and finally strengthening of the financial ability to earn higher profits. This entails the following indicators:

- **New product launches**: These bring a product to a market where there are no limited historical forecasts that can make it difficult to estimate pick up in the market, failures, returns and length of lifecycle (Van Hoek & Chapman, 2006:387). According to Calantone and Benedetto (2007:7), timing of the launch is paramount because it impacts on the success of the new product in businesses, especially SMEs.
- **New product development:** On the supply chain, according to Van Hoek and Chapman (2006:387), this enhances the product with the aim of maximising on efficiency in the SCM of SMEs.
- **Use of new technology:** Use of new technology may refer to the level in which SMEs adopt the use of technology when the need arises. According to Marques and Ferreira (2009:54), innovation is reported as one of the main aspects that leads to a competitive advantage amongst firms.

To conclude on the four perspectives of the BSC and their performance indicators as discussed in this chapter. Kleijnen and Smits (2003:3), postulate that the customer metric will become the most significant as one company's client becomes another's supplier. They state that developing an internal operation metric and stimulating a supply chain innovation metric through information technology (IT) will be deemed vital, and when the above three metrics improvements have been attained the financial one will then apply leverage.

2.10 CONCLUSION

In this chapter the researcher has applied theories to locate the study, notably the NT, PAT, RBV and TCA of a firm. The NT emphasises relationships that promote

flexibility and efficiency among interdependent organisations, whilst PAT relates to the strategic management (principal) and lower level managers and other parties (agent) in SCM. These parties come together to deliver the organisational objectives. The argument in this thesis is that the objective needs to be clear and all parties know what is expected of them in order to satisfy the organisation's goals. RBV points to assets and capabilities that SMEs may use to maintain their competitive advantage, while TCA emphasises the importance of taking into cognisance all costs engaged throughout the SCM of SMEs.

The next chapter is a review of extant literature on the performance measures in SMEs and SCM.

CHAPTER THREE
PERFORMANCE MEASURES IN SUPPLY CHAIN MANAGEMENT: A LITERATURE REVIEW

3.1 INTRODUCTION

Having presented the theoretical framework in the previous chapter, this chapter is a review of extant literature on performance measures in SCM from a BSC perspective. Issues that confront SMEs are discussed, with key factors that impact on the success of the small manufacturing sector, and SCM reviewed. Other aspects discussed relate to supply relations with upstream-suppliers and downstream customers, SCM business processes, SC activities, performance measurement of SC, evaluation of SCM performance, performance monitoring, benefits of utilising BSC and demerits.

3.2 ISSUES CONFRONTING THE SMALL BUSINESSES

SMEs are still confronted with a great failure rate (Jones, 2009:3), raising the question as to why it persist even in the present. Lack of education remains a critical challenge (Nitcher & Goldmark, 2009:1454), whilst Lyons and Mattare (2011:15) postulate that they do not engage in formal training, with their employees often limited to informal training that includes orientation to the business, tasks, and hands-on training in relevant job skills. Other forms of guidance are needed, and the authors posit that this form of informal training mainly affect SMEs with a limited number of employees, up to 20 (Lyons & Mattare, 2011:15). If SMEs were to actively provide formalised training as part of their staff development, progress would be inevitable, hence the knowledge knowhow and expertise of the employees. However, when SMEs are less well-developed in knowledge and skills, the small businesses may continue to be disadvantaged compared to larger corporations. High involvement in formal training and workshops leads to effectiveness and efficiency of processes and activities undertaken by large corporations (Lyons & Mattare, 2011:16). Suggestions for development to improve performance in SMEs are that trainees, be it employees or managers, be involved directly in the process of strategy

formulation, design, application of training activities and material, innovation and technology (Lyons & Mattare , 2011:16; Ahmad & Seet, 2009:99;). Although SMEs are more attentive to the needs of their customers, irrespective of country, they all face common problems which significantly impact on their performance, survival and success (Ahmad & Seet, 2009:98-99). It is highlighted that major factors which negatively impact on the development and growth of SMEs are the primarily lack of resources, competitiveness, and great changes in customers' tastes and needs (Ahmad & Seet, 2009:99). In South Africa, SMEs are still confronted with the difficulty of redressing the historical imbalances and increase in level of black economic participation in the development and growth of small businesses (Luiz, 2002:55).

Issues confronting SMEs may be mitigated by engaging large entities to come into partnerships (Luiz, 2002:55), possibly enabling them to perform with the guidance and certainty of demand from large corporations. This may boost their confidence in the production and delivery of the right quality of material, whilst trading internationally as well as locally would also improve their level of performance when goods are exported (Wagner, 2007:64). For instance, these activities may increase profitability and help SMEs build strong relationships with external parties. Conventionally, SMEs have to face challenges in order to survive with limited resources or support from governments, which worsens the situation in uncertain economic periods (Casals, 2011:118).

Globalisation of markets and escalating competition from the international markets coerces SMEs to source for alternative ways of survival, such as flexibility and innovativeness. On the one hand, Luiz (2002:56) argues that for large entities to become stimuli for SMEs, close contact will have to be maintained and processes monitored to ensure smooth production processes of the required quality and to meet target dates. The question is whether large companies have enough time to invest in close relationship with small entities. Contrary to Luiz's proposal that large entities be engaged to help SMEs development, Casals (2011:120), suggests adoption of co-operative approaches among small firms to supplement their weaknesses, with similar approaches for groups. The cooperative approach is in favour of the NT, which aims to strengthen relationships among

interdependent organisations. According to Casals (2011:120), the following three dimensions may be considered when analysing collaboration:

1. **The strategic dimension:** This encompasses variables such as network goals, business models, performance metrics to be monitored, strategy for competition, market position, partners' interests, and how work should be divided in the organisation. It relates to RBV and how capabilities of a firm may be used to maximise competitive advantage.
2. **The management dimension:** This includes ascertaining business autonomy, mechanisms to overcome internal problems, the governance structure and the decision-making style, the type of cooperation and the management location. RBV is also applicable in this regard, hence governance and decision-making style informs how the business utilises its resources and capabilities to succeed in a rapidly changing environment.
3. **The social dimension:** This relates to communication between partners, motivation, trust, culture, personal relationships, partner commitment and organisational values. Partner commitment, trust and communication between partners will signal to the NT, which places emphasis on the relationship between interdependent organisations.

Casals (2011:121) is of the opinion that SMEs may conquer the battle of co-partnerships if they are careful in identifying partners to work with and are willing to devise new business opportunities when necessary. This may also be a contributory factor towards the success and performance improvement in SME manufacturers, although it is not a common practice within these entities.

There are problems and barriers to SME collaboration and partnership which impede its growth and success. (Casals, 2011:122), as presented in the following table.

Table 3.1: Problems and barriers to SME collaboration

Internal problems and barriers
Partners search and selection. Lack of time for partner search and problems to find appropriate partners.
Lack of strategic diagnosis. Acquiring a collaborative approach should be part of the cultural and strategic domains of the company and normally SMEs do not investigate alternative businesses due their lack of time.
Scarcity of resources. Traditionally SMEs have little to offer.
Bad cooperative planning. Most SMEs' decisions are made by the owners, without a clear strategic plan. It is important to have a clear idea about the cooperation objectives and the type of cooperation before the beginning.
Individual behaviour and fear. SMEs' propensity to co-operate is significantly less than that of large companies because they are more reluctant to share internal knowhow.
Disinterest in cooperation. The lack of knowledge about specific success factors of alliances is one of the main reasons why SMEs do not develop cooperative approaches.
Lack of skilled personnel. The lack of skilled personnel (e.g., IT, managers) hinders the implementation of collaborative approaches.
Inability to devise new business opportunities. Due to lack of time and knowhow, many SMEs lose the opportunity to create new business, enter new markets or create new products in collaboration with other SMEs.
Investment. SMEs with limited resources are not willing to invest in cooperation projects with unclear outcomes and benefits.
External problems and barriers
Poor efficiency. Some studies show poor results of cooperation and a failure rate of around 50 percent.
Lack of efficient mechanisms to evaluate co-operation. There is no consensus about how to evaluate the performance of cooperation.
Competence of big corporations. Normally larger firms have more to offer and therefore have more possibilities to form alliances than SMEs.
Organisation difficulties. Alliances are difficult and costly to manage, as it is necessary to invest in specific monitoring and management resources.
Trust, commitment and compromise. Lack of mechanisms to overcome trust, credibility and compromise problems related to win-win cooperation.

Source: Casals (2011:122)

The PAT helped identify recurring problems caused by inaccurate information or no information being communicated to members of the SCM, which resulted in failure to attain the strategic objectives (Halldorsson *et al.,* 2007:287).

SMEs are further confronted with a dilemma in performance management, misinterpreting its role by simply identifying indicators that do not match the strategic objectives, with the result that employees are not directed to dedicate their work to the entity's strategic objectives (Chen, 2011:264). Nor are managers sufficiently skilled to assess performance or distinguish good performing employees from bad performers, therefore scoring them equally instead of accurately. There is no communication during performance management process so employees consider performance management as a punishment to restrain and monitor them indirectly and ultimately cut their salaries (Chen, 2011: 264). Again, performance appraisal becomes a mere procedure due to lack of responsibility to analyse performance and use the results where possible to help employees avoid recurring problems and adapt to the needs of the enterprise development. Lack of training offered for employee's development is a major contributory factor to this quandary (Chen, 2011:264). Employees are not offered relevant training to improve their job performance and upgrade systems and methods that, if implemented, could help achieve the strategic objective of the enterprise and lead to its overall success (Chen, 2011:264).

Ahmad and Seet (2009:100) posit that SMEs fail as a result of failing to identify or set the appropriate business strategy. They are in a hurry to start their business rather than establish their goals or say how targets should be met. As a result the businesses are in inappropriate locations where customers are not easily accessible. In addition, inability to partner with the right suppliers makes it difficult for the business to function in a turbulent environment, while mounting pressure combines with failure to attract competent employees or trustworthy business partners (Ahmad & Seet, 2009:100). Nevertheless, failure to comply with timely decision-making and poor business judgement is a major impediment to the success of small businesses (Ahmad & Seet, 2009:101). Loss of opportunities has also been identified as a result of failure to network with the right people and at the right time (Ahmad & Seet, 2009:101).

3.3 KEY FACTORS IMPACTING ON THE SUCCESS OF THE SMALL MANUFACTURING ENTERPRISE SECTOR

Manufacturing companies are known for production of goods and services, therefore it is important to be informed about the evolving needs of the customer. When small businesses keep abreast of these they can develop appropriate strategies to keep pace, with innovations that impact on their success. For instance, an innovative business may be in a position to penetrate new markets and attract customers of different taste (Ritter & Gemunden, 2004:549), however, not all SMEs have the necessary computerised systems required when implementing innovative ideas that require competence in technological applications (GoL, 2008:7; Thong, 2001:153). Innovation in small businesses may boost the economic growth and attract different talents, thus contributing to alleviation of poverty by increasing the employment rate.

According to Becheikh, Landry and Amara (2006:659), encouraging innovation begins with a lucid and precise definition of a firm's strategies; therefore, managers should encourage specialisation built on the firm's distinctive competencies to address a unique business strategy. International trading through export and patenting guards against loss of competitive advantage, but other appropriation mechanisms are also recommended. For example, the structure of the firm should strive for employees' empowerment and the interaction between the various company units. Not only financial but also strategic indicators should be used to monitor and control systems and managers should work towards building a culture of innovative support in an organisation, inspired by the total quality management and continuous improvement principles (Becheikh *et al.,* 2006:659).

According to Casals (2011:120-121), when SMEs form collaborative partnerships in line with NT, based on open systems and information sharing and emphasising the relationship between cooperation and innovation, they may experience improved performance and productivity. Such collaboration is significant to the needs of SMEs to complement their internal knowledge with external sources. The NT and RBV of the firm better serve to support Casals' reasons for SMEs collaborating towards performance improvement. Table 3.2 summarises the areas

of critical importance in collaboration. The NT, on one hand, helps boost organisational performance, for example with increased sales, buying power and new business opportunities. RBV, on the other hand, centres on the knowledge and capabilities, as well as assets of the organisation, which may be utilised to enhance the competitiveness of a firm, such as performance, increased product quality and learning and sharing.

Table 3.2: Reasons for SME collaboration towards performance improvement

Internal reasons for SME collaboration
Learning and sharing experience. There is a strong relationship between SMEs' innovation and the collaboration-learning collaboration cycle.
Innovation. Firms increasingly rely on external sources of innovation by emphasising the sharing of ideas, knowledge, resources and individuals.
Find complementarities. Sometimes related to economies of scale, collaboration permits SMEs to complement their resources, including production, marketing or management capabilities. Some studies conclude that collaborations with complementary partners achieve better results in terms of performance and innovation.
Saving costs by sharing resources (e.g.: space, transport). Sharing of resources results in a reduction of individual costs.
Increase sales. Some types of collaboration permit a firm to achieve a better selling position and/or enter new markets, which results in more sales for its participants.
Gain buying power. If some firms act together, normally they increase the buying power to suppliers, permitting them to obtain better deals.
External communication. Working with alliances leads to improved branding and communication power.
Improve investments. Being part of an alliance increases the investment capacity of an individual firm.
Access to large projects and funding. Collaborating with other organisations, it is possible to access larger projects and obtain funding from the large number of research funding programmes which exist.
Lobbying power. Acting together, companies can increase their negotiating and political power and influence governments and their decisions.
Increase product quality. Collaborating with partners with better knowhow of some phase of product development can have a positive influence on the quality.
Increase flexibility. Outsourcing and collaboration with other firms permit SMEs to reduce investments in internal tasks and increase flexibility to market demands. In addition, if one partnership does not work properly, it is easier to change it for another.
Improve competitiveness. SMEs can improve their competitiveness by providing access to external resources.
Performance. Collaboration represents a vital source of knowledge for most SMEs which affect the quality of their human capital and the firm's performance.

Keep business autonomy. Cooperation is a promising strategic option for SMEs, which traditionally want to keep their business autonomy.
External reasons for SME collaboration
Internationalisation Strategic alliances permit SMEs to access international markets, selecting partners in terms of quality of services/products provided independently of their location.
Overcome uncertain economic periods. As a response to insecurity to develop/adapt new technologies networks represent an alternative to complement their own capacity, reducing the barriers to develop or adapt new technologies and/or technological changes.
New businesses opportunities. From a strategic perspective, collaboration opens up the possibility of creating new business models or joining developments in collaboration with other partners that would otherwise have been impossible.
Reputation.
Better position to face the fast-changing and increasingly competitive global market.
Risk sharing. Non-internal activities are an easily reversible form of investment. Sharing the risks of activities that are beyond the scope or capabilities of a single firm is a smart approach to explore new ideas and markets.

Source: Casals (2011:121)

This section locates the PAT through suggestion for an improved performance system in SMEs SCM entities. Well-communicated performance measures and strategic objectives of a firm may lead to members of the SCM acting towards the desired objectives. When all parties understand what is required and expected from them it may be easy to participate effectively and deliver on the principal (organisational) goals, thus minimising the problems that arise from divergence between the strategic management, that is the principal and lower level members (agent) of the SCM.

SMEs may also realise growth and development if they take into consideration performance measures and formally implement them in their operation. This would assist them in identifying areas of weakness and so take proactive measures towards the development and improvement of systems and methods in place. Chen (2011:264) presents suggestions for establishing effective performance management in SMEs as follows:

- **Confirm the enterprise's strategic objective:** The enterprise strategic objective of SMEs must be clear and able to filter the objectives down to the departmental and position levels (Chen, 2011: 265). PAT serves to support

Chen; hence its focus is to work towards a common goal with a clear understanding to avoid conflicts.

- **Set up a scientific performance appraisal system:** In order for SMEs to determine performance indicators successfully, employees must be engaged and their views taken into account, and they should be allowed to participate in the process (Chen, 2011:265). Again, performance appraisal should be designed to leverage workforce productivity and take decisions on promotion and increase in salaries, thus serving the enterprises development.
- **Choose reasonable and effective incentives:** SMEs need to expose employees' problems and help them to improve in their jobs in the future. Other than linking compensation to performance appraisal, PAT supports Chen's (2011:265) view that emotional incentives between superiors (principal) and subordinates (agent) and between colleagues enhance accord and solidarity of the enterprise.
- **Strengthen training for employees:** SMEs should build a thorough and complete training system for their managers (principal) and employees (agents), invite and encourage managers and employees to receive performance management training in order to equip themselves with knowledge and knowhow, avoid subjective judgements, and enable effectiveness of the performance appraisal system (Chen, 2011:265). These points to PAT as encouraging the principal and the agent to identify and understand their common goal while fulfilling different obligations.

3.4 SUPPLY CHAIN MANAGEMENT ISSUES IN THE SME SECTOR

Supply chain management may be necessary in the SME sector for success and effective operation; however, there are persistent problems, risks and uncertainties faced by SMEs regarding supply chain operation (Trkman & McCormack, 2009:250):

- **Market turbulence:** This is a result of changing markets in customer demands, taste, quality and type of products. The supply chain and its

market share may change significantly, which makes it difficult for SMEs to forecast customer preference in tastes and demands.

- **Technological turbulence:** This is the degree to which technology changes over time, arising from changes in the underlying technologies of products or services and their rates of obsolescence (Chatterjee, 2004:718). These changes may be continuous, such as material price increase, which may allow an opportunity for planning. Other changes are discrete and difficult to predict, which may make it difficult for SMEs to measure, for example possible transport disruption, accidents and transportation union strikes, political events and natural disasters (Trkman & McCormack, 2009:250).

Other factors that impede SMEs from asserting their contribution towards effective and efficient implementation of SCM emanate from the operating behavioural pattern of SMEs (Hamisi, 2011:1268), and include:

- **High inventory levels:** SMEs particularly manufacturing businesses appear to be victims of high inventory levels. They keep large quantities of stock to cater for uncertainties in customer demands, however, this practice leads to higher inventory holding costs, including on storage, insurance, spoilage, obsolescence and capital cost of inventory (Hendricks & Singhal, 2005:17). Again, there is a risk of loss of inventory value when these entities keep excess stock and may lead to additional expenditure, such as rework and storage costs (Hamisi, 2011:1269). This practice therefore points to TCA, which states that all cost incurred in the business SCM are important and firms need to ensure minimal spending while they ascertain that quality is maintained to meet the demands of the customers.
- **Setting customer service levels:** SMEs are often faced with lack of operational efficiency, which ultimately affects customer satisfaction. These small entities aim for a specific customer service level but often fail to translate their mission into improved performance (Hamisi, 2011:1269). It may be necessary for SMEs to strive to achieve a positive encounter with each customer, for whom satisfaction requires that their demands be met.

- **High transportation and logistics costs:** According to Hamisi (2011:1269), logistics is about creating value for customers and suppliers in a supply chain environment. However, SMEs encounter delivery problems, and as a result customers do not receive their goods or services on time, again jeopardising the SMEs in striving for an effective supply chain (Hamisi, 2011:1269).
- **Complexities associated with global sourcing:** Due to scarcity, SMEs lack the potential to source globally for the best possible resources at the lowest cost (Hamisi, 2011:1270). They are unable to attract markets and therefore large enterprises have the opportunity to influence national as well as international markets because of their competitive advantage (Hamisi, 2011:1269).
- **Outdated and or non-integrated technologies:** SMEs are faced with difficulty in adopting new technology and their competitiveness is reduced due to poor quality of goods and services provided. The cost of new technology is an obstruction towards the successful implementation of supply chain management. According to Hamisi (2011:170, citing Mbamba, 2009), technology is a driving force in achieving set targeted objectives, although some difficulties are encountered by SMEs that partake in multiple supply chain investment. It may be difficult for SMEs to maximise their competitive advantage RBV of the firm due to lack of resources.

An integrated supply chain is viewed as one of the best practices which SMEs have to leverage their performance when applying it to their business processes (Harland, Caldwell, Powell & Zheng, 2007:1234). These entities, however, would require smooth communication in order to maximise their processes (Harland *et al*., 2007:1234). Integration of supply chain processes is essential for SMEs and needs to be addressed, with the focus on meeting customer needs, suppliers' effectiveness and other variables, such as industry and market penetration (Power, 2005:60).

3.4.1 Supply relations with the supplier and customer

A buyer-supplier relationship is characterised as adversarial and collaborative (Cox, 2004:347), with the former described as antagonistic, 'arm's length', contractual or competitive, and the latter as cooperative, obligational or voiced (Gules & Burgess, 1996:32-33). According to Gules and Burgess (1996:33), most firms tend to adopt a Japanese approach that favours a collaborative relationship based on mutual benefit and trust. Integrated industrial relations between manufacturer and suppliers are the critical success factor of Japanese manufacturing firms (Shin, Collier & Wilson, 2000:320).

Although the NT advocates cooperation, SCM entities may need to take into cognisance the significant role a customer-supplier relationship plays throughout the value chain. This may enable SMEs to strengthen their relationship with external parties, thus fulfilling the role of NT. Therefore, it is necessary for SMEs to institute a strategic partnership with suppliers in order to achieve a successful supply chain (Chandra & Kumar, 2000:104-105). In this respect, some firms limit the number of suppliers by implementing review programs that assist them in scrutinising operational excellence with them, whereby the best may be selected when found fit for the purpose. Again, identifying fewer suppliers enables smooth operations because it is easier to work with suppliers when closer customer-supplier relationships are maintained. This enhances communication and reduces the level of mistrust amongst parties involved, which may leverage performance on delivery services that adhere to minimum lead time. Towill *et al.* (2002:128) postulate that best practice should be transferred to suppliers while excelling at value-added process, and firms should cooperate with customers to complete seamless operations.

Suppliers have a strong and significant impact on cost, quality, time, and responsiveness of the customer in the chain (Liao, Hong & Rao, 2010:10), as a result SMEs may be required to have a supplier flexibility network that enhances communication for ideal plans and collaboration on resolving matters. Supplier flexibility facilitates smooth running of inter-organisational coordination and cross-functional collaboration. This implies that an effective supplier performance in relation to RBV can lead to higher returns, because customers' demands will be

met, raw materials arrive on time, and good quality of material supplied with no defects. These advantages eventually enhance the production process as time, quality and cost are key to a successful supply chain. Liao *et al*. (2010:10), aver that supply network flexibility opens channels to a responsive supply base that guarantees an effective and reliable supply of commodities, whilst Mikkola and Skjøett-Larsen (2003:34) and Chan and Qi (2003a:209) in turn propose that long-term relationships with a few suppliers enable a firm to cut costs while maintaining a competitive stage.

Despite the complexities of a dynamic supply chain, according to Stevenson and Spring (2007:685), SMEs should prioritise their customers' needs in order to maintain a competitive advantage. Customers are the end-user in the value chain, however they play a paramount role because without customers there would not be a need to source a potential supplier, manufacture products or aim for better delivery service, quality and reasonable costs. As a result, it is of importance to focus every activity in the supply chain on customers, so as to enhance supply chain performance (Stevenson & Spring, 2007:685). Without improved product development, improved processes, and flexible systems that enhance the firm performance to achieve its objectives, such a supply chain firm cannot survive in a competitive environment and is at great risk of losing its valuable and potential clients. Some of the aspects that lead to an improved customer-supplier relationship are discussed below.

Shin *et al.* (2000:319) model of Supply Management Orientation (SMO) has four performance characteristics that are significant to an improved supply chain performance:

1. **Long-term relationship with suppliers**: According to Choi and Hartley (1996, cited by Shin *et al.,* 2000:319), a well-developed long-term relationship with suppliers as NT advocates results in part of a well-managed supply chain and has an effect on the competitiveness of the entire supply chain. Again, a long-term relationship with few suppliers that is well and strategically managed has a positive impact on the financial performance of a firm (Carr & Pearson, 1999:497). This is supported by the RBV, arguing that a firm needs to maintain competitive advantage, especially an SME.

Increased financial performance is a result of well integrated industrial relations that leads to speed delivery and quality of goods.

2. **Supplier involvement in the product development process:** Suppliers must be involved in the design and development of new and existing products of SMEs. The supplier involvement is possible when there are fewer supplier relations. Dealing with many suppliers for one product line is more expensive than monitoring a single supplier, especially for SMEs. According to Kannan and Tan (2005:158), involving suppliers early in the design and development of the product is important and may enhance the product development stage of these entities.
3. **Reduced number of suppliers:** When SMEs, particularly in the manufacturing sector, deal with a reduced number of suppliers it may purge the level of mistrust between buyers and suppliers, because when few partners are involved it is easy to enhance ways of communication (Chan & Qi, 2003a:209).
4. **Quality performance focus:** Quality performance is the main priority for SMEs wishing to identify the best suppliers. Shin *et al.* (2000:321) aver that the quality of suppliers is significant in the product quality and costs, the quality control system of supplier information, and quality performance. Selecting the right price of components, and a close buyer-supplier relationship act as a prerequisite for information sharing.

Shin *et al*. (2000:330) posit that manufacturing firms with a high level of SMO have improved buyer-supplier performance and quality, and deliveries are key competitive priorities in the relationships. Kannan and Tan (2005:159), postulate that when outsourcing and core competencies increase, firms will be under pressure to improve their supplier and buyer relationships, which is key to their success.

3.4.2 Supply chain management business process

Supply chain management is a dynamic concept that not only requires managing individual functions but also implies managing the integration of management systems into key supply chain operation processes. To achieve an integrated

supply chain a firm should maintain continuous flow of information to assist in improved product flows (Lambert & Cooper, 2000:72). In order to achieve a good customer-focused system, timely and accurate data is essential to address prompt changes with regard to customer demands. Effective supply chain management should control and monitor uncertainties in customer demands during the manufacturing processes. According to Lambert and Cooper (2000:72-74), key supply chain processes identified by members of the GSCF are as follows:

- **Customer relationship management processes**: The first step towards integrated supply chain management is to identify key customers or customer groups of value to the firm's target. SMEs have to perform periodic evaluations to analyse the satisfaction level of services provided to customers.
- **Customer service management process**: This is used to provide customers with information pertaining to agreed shipping dates, distribution, and availability of products through the organisational interface.
- **Demand management process**: This should maintain a balance between the customer demands and firm supply capabilities. A good demand management system uses point-of-sale and potential clients in order to supply efficient flow of information and minimise the risk of uncertainty throughout the supply chain.
- **Customer order fulfilment process**: Effective supply chain management should adhere to customer demand scheduled dates. To attain a successful customer order fulfilment process, as the NT posits, a firm must have an effective integration of production, distribution and transportation plants. A seamless process from the supplier to the firm and the ultimate customer is important towards successful SCM.
- **Procurement process**: Strategic plans should be developed in collaboration with suppliers as NT posits the enhancement of the manufacturing flow management process and development of new products. Small groups of suppliers are central to a long-term strategic alliance, which leads to the supplier's involvement in early product design.
- **Product development and commercialisation**: Customers and suppliers must be integrated into the product development process in order to cut

costs and minimise time to market the products. Products should be developed and launched within a short time for the supply chain to remain competitive. TCA integrates well with product development and commercialisation, thus encompassing all costs engaged in the SCM.

- **Return process:** In order for the supply chain entity to remain competitive, managing returns is important from an outbound perspective, according to the RBV.

The above bullets discussed the key supply chain processes that may lead to successful supply chain.

3.5 SUPPLY CHAIN ACTIVITIES

This section relates to the PAT and NT of a firm. The activities highlighted signal the importance of communication among members of SCM towards achievement of organisational goals and effectiveness in the value chain.

It is important that SMEs indicate to all parties involved in the supply chain the necessity to comprehend the extent of activities engaged in if they are to maximise capability and attainment of goals at the expected times. Supply chain encompasses all activities from supplier, manufacturer, processes involved in the production of goods and services, retailers and eventually consumers. A supply chain network, according to Klerverlaan (2008:10), consists of three types of flows at operational level:

1. **Material flows:** The physical flow of inventory from suppliers until the material reaches the final stage-the consumers, this encompasses the returns of unsatisfactory products, servicing, and recycling.
2. **Information flows:** These represent placements of orders, tracking the physical flow until the goods arrive at their destination.
3. **Financial flows:** These include credit terms, payment schedules, and consignment and title ownership arrangements.

The above network is in turn supported by three pillars:

1. **Processes:** The firm's capabilities in logistics, new product development, and knowledge management. The RBV is better suited in this regard by enabling organisational capabilities to improve performance of SMEs.
2. **Organisational structure:** This is a range of relationships from vertical integration to companies in partnership. The structure includes management approaches, performance measurement, and reward systems.
3. **Enabling technologies:** This includes processes and information technologies.

Figure 3.1 (below) summarises the supply chain activities discussed above.

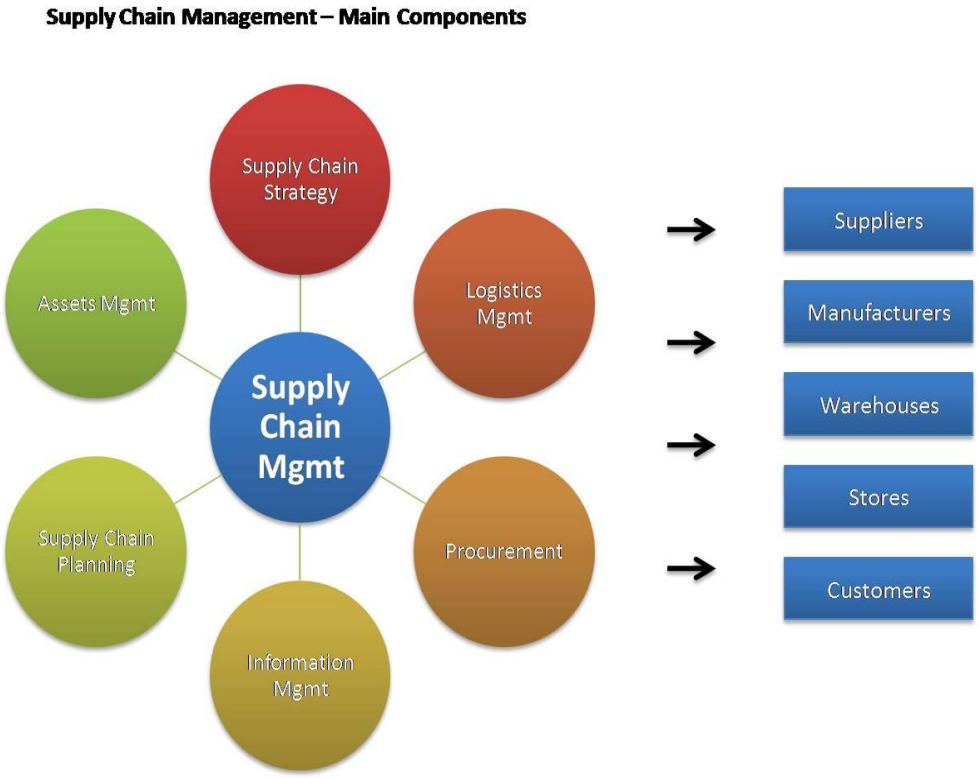

Figure 3.1: Supply chain management activities

For the purpose of this study, the figure above provides an overall picture of the definition of supply chain management as stated in chapter two, and all activities engaged from point of supplier until the final stage being the customer in the value chain.

3.6 PERFORMANCE MEASURES OF THE SUPPLY CHAIN MANAGEMENT

Recently, some firms have acknowledged the significance of supply chain management, although they still lack appropriate skills and knowledge of how well effective performance measures and performance indicators can be developed to attain a thorough integrated supply chain (Gunasekaran, Patel & Tirtiroglu, 2001:72). Bhagwat and Sharma (2007:51) and Thakkar *et al*. (2009:703) are of the opinion that a major shortfall regarding the implementation of effective performance measures concerns companies who employ a significant number of performance measures based on employees and consultants' viewpoints, thereby not taking into account indicators, which are crucial for successful performance measures in SCM. The metrics to be utilised in the SCM scorecard should be easy to comprehend, while information on them should be easily gathered and analysed in the most economical way (Bhagwat & Sharma, 2007:56).

Dealing with the most significant performance indicators would help SMEs to achieve a competitive advantage at the lowest possible cost with good quality goods and services. However, when performance indicators are clearer it will be much easier for SMEs to effectively implement the indicators and analyse them in in order to accomplish their objectives. A team of people with appropriate skills and attributes, and who have the quality of leadership required, are needed to achieve a successful strategic alliance (Tan *et al.,* 2006:244).

Relevant performance measures are required at SCM level, and should encompass comprehensive performance measures that include financial and non-financial dimensions of performance, such as JIT and lean production, delivery flexibility, and reliability of delivery. These are non-financial aspects but vital for company strategy (Chan & Qi, 2003a:212). In addition, Persson and Olhager (2002:233, citing Maskell, 1991), list seven characteristics of performance measures:

1. Directly linked to the manufacturing strategy.
2. Mainly use non-financial measures.
3. Vary with stages and locations.
4. Change with time, when necessary.

5. Are clear, simple and easy to use.
6. Provide fast feedback to operators and managers.
7. Are intended to foster improvement rather than just monitor.

Most businesses still focus on traditional financial measures, such as gross revenue, profit before tax, and cost reduction (Chia *et al.,* 2009:617; Thakkar *et al.,* 2009:712). This leads to non-financial measures being neglected, which is not ideal for a company from a supply chain perspective (Chia *et al.,* 2009:617; Thakkar *et al.,* 2009:712). According to Kaplan and Norton (1996a, cited in Chia *et al.,* 2009:605), to a certain extent a heavy reliance on financial performance measures could hinder future competitive advantages as financial indicators are outcome measures and do not reflect drivers of future performance and value creation. As a result, a balanced perspective may be adopted when approaching the topic of performance measurement. Hudson *et al.* (2001:805) advocate an informal and unstructured approach towards performance measures by SMEs, which prohibits the attainment of strategic goals that are in place. Performance measures, however, should be well-formulated and structured to enhance business processes and enable good control of the business (Hudson *et al.,* 2001:806), and should encompass financial and non-financial measures (Bhagwat & Sharma, 2007:44).

3.6.1 Implementation and use of performance measurement

It may be essential for managers and directors of SMEs that are involved in the performance measurement process to take cognisance of the significance performance measures play in an SCM system (Wouters, 2009:65; Gunasekaran & Kobu, 2007:2820). It is of importance to understand measures implemented and utilise performance measures effectively as it enables smooth operation, review and redesign when necessary (Akyuz & Erkan, 2010:5151). Implementation of performance measures should not be perceived as a simple task but a decisive step to a successful manufacturing business that requires a maximum functioning capacity of automated systems, thus enabling frequent reporting mechanisms (Bourne *et al.,* 2000:761). In addition, a manual performance measurement

system may be used to some degree to examine individual performance, however, individual performance may be automated for easy referral and updates on the development.

The PAT advocates striving for a common goal among members of SCM, to enable effective utilisation of performance measures in the supply chain (Ketchen *et al.,* 2007:576). Communication is imperative to managers and directors who are obligated to measure performance and should work together with all parties in enabling forums to review, discuss and agree upon measures. Again, a supply chain led by a team who share the vision, and who are willing to cooperate and listen can attain set strategic objectives.

3.6.2 Evaluation of supply chain management performance

Performance on a supply chain should be evaluated at strategic, tactical and operational level. Strategic level measures include lead time against industry norm, quality level, cost-saving initiatives, and supplier pricing against the market (Gunasekaran *et al*., 2001:82; Gunasekaran *et al.*, 2004:336). Tactical measures on the one hand include purchase order cycle time, cash flow, quality assurance and flexible capacity, while operational level measures include technical representation, adhering to developed schedules, complaints avoidance capability, and achievement of defect-free deliveries (Gunasekaran, *et al*., 2004:336). This sections maps according to the PAT of the firm whereby measures are cascaded from the strategic level (principal) down to the middle and operational level (agent) with a view to achieving the organisational objectives. Understanding of the strategic objectives enables those involved to actively engage towards the desired goal. Therefore, flexible communication is of essence throughout the value chain. The evaluation of supply chain management performance is categorically elaborated by Bhagwat and Sharma (2007:51) and Gunasekaran *et al.* (2001:82):

- **Strategic level measures:** These influence the decision-making of top management in SMEs on how to achieve organisational objectives, policies to be adhered to, and how to maintain competitiveness in changing

markets. Financial plans and adherence to organisational goals are measured at the top management level.

- **Tactical level measures:** These are mostly relevant for decision-making at middle management level, for resource allocation from which performance is measured against targeted goals that need to be reached. As a result, the objectives attained at this level lead to achievement of the outcomes as stipulated at the strategic level.
- **Operational level measures:** These are concerned with lower level managers. At this level, both supervisors and employees, especially SMEs, set objectives that when met will lead to achievement of tactical objectives. It is critical to acquire accurate data on measurements and metrics to examine lower level managers.

The above section focused on the categories of performance measures namely strategic, tactical and operational level measures of supply chain management.

3.6.3 Performance monitoring

Performance measurement systems should be well monitored to enhance the supply chain. In view of the NT, all parties involved in the chain must work towards a common goal and collaborate both internally and externally to meet the needs of the customers, and to attain competitiveness in the market. Kleverlaan (2008:19) notes that improved performance is not achieved through an automated machine but rather those involved must work hard with the aim of cherishing the benefits at the end. It is imperative for businesses to monitor their organisational performance in conjunction with their SCM and align the objectives to the organisational strategy (Fernandes, Raja & Whalley, 2006:623).

3.7 BALANCED SCORECARD

Brewer and Speh (2000:78) developed a framework for SCM performance on the four perspectives of the scorecard, which is graphically depicted in Figure 3.2 (next page).

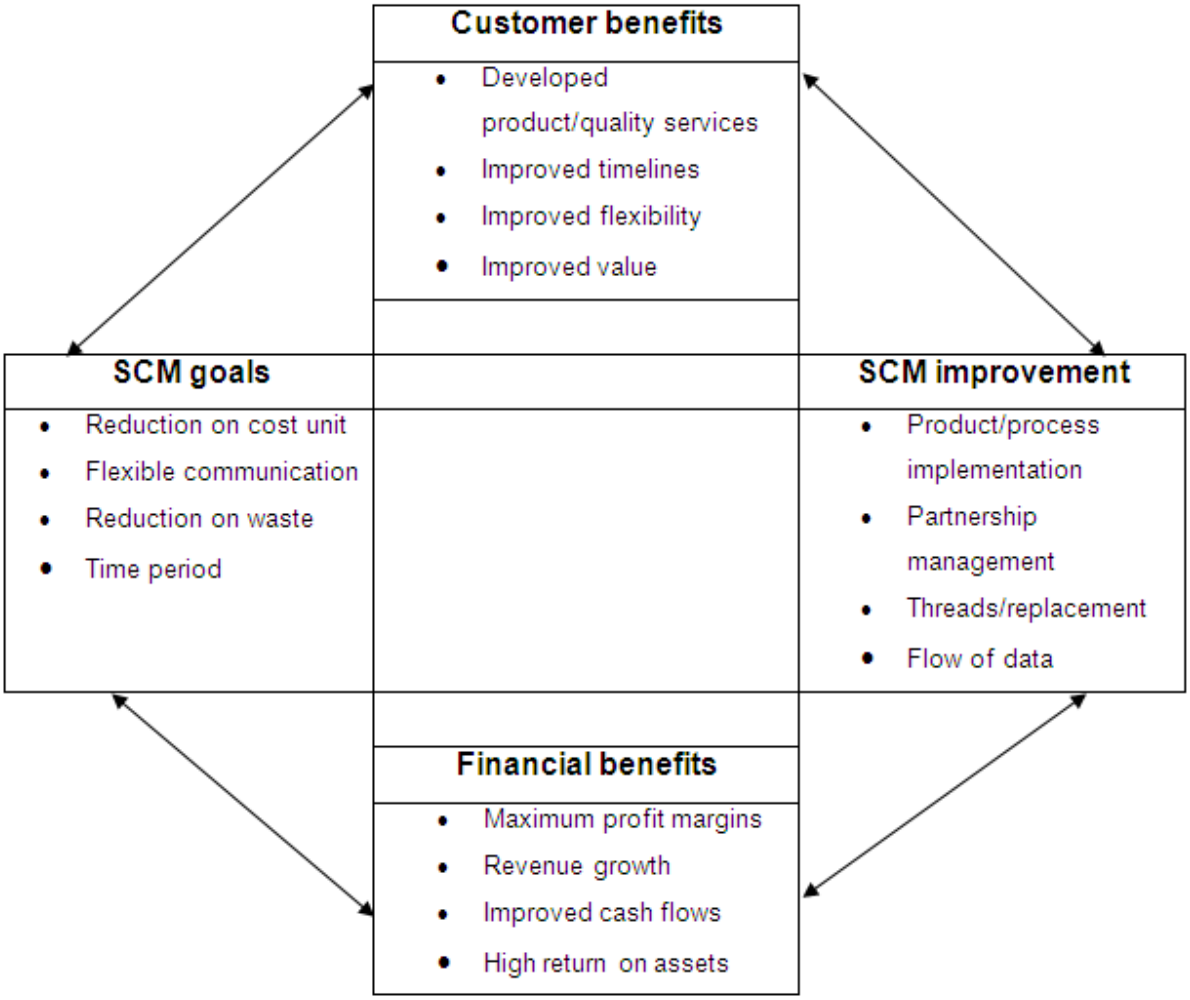

Figure 3.2: Supply chain management framework **(Source:** Brewer & Speh, 2000:78).

According to Brewer and Speh (2000:79-80), the framework enables SCM industries to function effectively and so minimise waste, and enhance quality of operations and systems. TCA is in favour of Brewer and Speh as its focus is to ensure reasonable costs throughout the SCM while maintaining the best quality of products to meet the demands of the customers. It also maximises shorter periods of order-to-delivery, which enable efficient and smooth operations. Furthermore, flexible response through SCM assists with the way orders can be handled, including order size and order handling, which result in lowest unit costs for consumers as the objectives will emerge. According to Brewer and Speh (2000:80), a supply chain that achieves the above articulated goals will eventually meet the demands of customers through supply chain management, leading to financial benefits resulting from the chain. Examples are higher profit margins, growth in revenue, and high rate-of-return on assets, as well as cash flows.

Apart from the above, SCM should realise that firms must continue to grow, learn and implement new technologies, redesign products and processes, and elevate knowledge of those involved to enhance the quality of services and products delivered to consumers (Brewer & Speh, 2000:81). Moreover, it can consistently improve communication to ascertain precise and timely decision-making that supports the demands of consumers. Notwithstanding this, the external marketplace should be monitored to prohibit potential threats that could redefine how value is transported to the client (Brewer & Speh, 2000:81).

3.7.1 Benefits of utilising balanced scorecards in small manufacturing enterprises

The BSC enables an organisation to measure its performances from four perspectives, as stated by Gumbus and Lusssier (2006:410) that, if the business is not measuring financial, customer, process and learning and growth it and its stakeholders are not cognisant of the organisational performance, whether booming or deteriorating. The authors suggest that the business and people working in it can deploy the use of red, yellow and green cards to track and trace the progress, development and achievement of goals. Such a 'traffic lights' reporting system identifies objectives not achieved (red), in danger of failure to achieve (amber), and those that are achieved (green).

The following section signals to the PAT with the view that when goals are set, and performance measures are clearly defined, it may be easy for those involved to be held accountable and managers to evaluate their performance against the targeted objectives. This leads to growth and sustainability of the enterprise.

The BSC, according to Gumbus and Lussier (2006:410), helps a business to achieve its objectives in six ways: (i) It promotes growth as the SMEs focus on both long term strategic and short term operational outcomes; (ii) it tracks performance, as those involved in the performance process are able to track and trace the achievements against desired objectives in order to take proactive measures if there are deviations from the targeted goals; (iii) it provides focus, and when measures in SMEs are aligned to strategic goals the BSC focuses on what

is more significant to the business; (iv) there is alignment to goals, the measures becomes aligned and supportive of each other. This leads to alignment throughout the organisation as a whole; (v) there is goal clarity, as the BSC helps to answer the question “How does what I do daily contribute to the goals of the enterprise?”; and (vi) there is accountability, as parties involved are given ownership of the metrics in use in order to be held accountable for the performance and outcomes of the activities undertaken (Gumbus & Lussier, 2006:410).

3.7.2 Demerits of utilising the balanced scorecard

The BSC is widely cited by researchers for its strategic approach towards successful SCM (Kaplan & Norton, 1996a:57-63; Brewer & Speh, 2000:83-84; Niven, 2002:15-17; Gumbus & Lussier, 2006:409; Bhagwat & Sharma, 2007:55). Despite its advantages for strategic management, it may be deemed null and void if not articulated clearly to parties involved in the chain and targeted objectives. When BSC is not clearly spelled out it may lead to conflicting results between the strategic managers (principal) and other members (agent) of SCM-PAT (Eisenhart, 1989:58). According to Chenhall (2005:415), the BSC largely depends on the significant differences in the effectiveness of integrative information, which implies that the implementation of BSC is not key to providing it. Some BSCs may list a combination of financial and non-financial measures without supplying a high level of integrative information (Chenhall, 2005:415; Ittner & Larcker, 2003:89). Therefore, the implementation of BSC should not be regarded as a combination of financial and non-financial measures but needs to include outcome measures of performance and performance drivers of those outcomes which link together the cause and effect relationship (Kaplan & Norton, 2001, cited by Fernandes *et al*., 2006: 625; Bhagwat & Sharma, 2007:56). Moreover, many firms implement a large number of non-financial measures, and the implementation of several non-financial measures makes it harder for managers to track and trace the performance in order to monitor, evaluate, redefine and make decisions (Ittner & Larcker, 2003:89).

3.8 CONCEPTUAL FRAMEWORK

A conceptual framework, as described by Bardenhorst (2007:21), is made up of the key concepts used in the research, categorising the relationship between them. The conceptual framework may include, among other forms, a qualitative description, diagrams or a literature review that captures the intention and scope of the research (Bardenhorst, 2007:21). The conceptual framework of this study serves as a lens and perspective to help the researcher explain the specific concepts that are investigated in order to answer the research questions (Maree & van der Westhuizen, 2009:17). A schematic presentation of the conceptual framework is shown in figure 3.3 (next page).

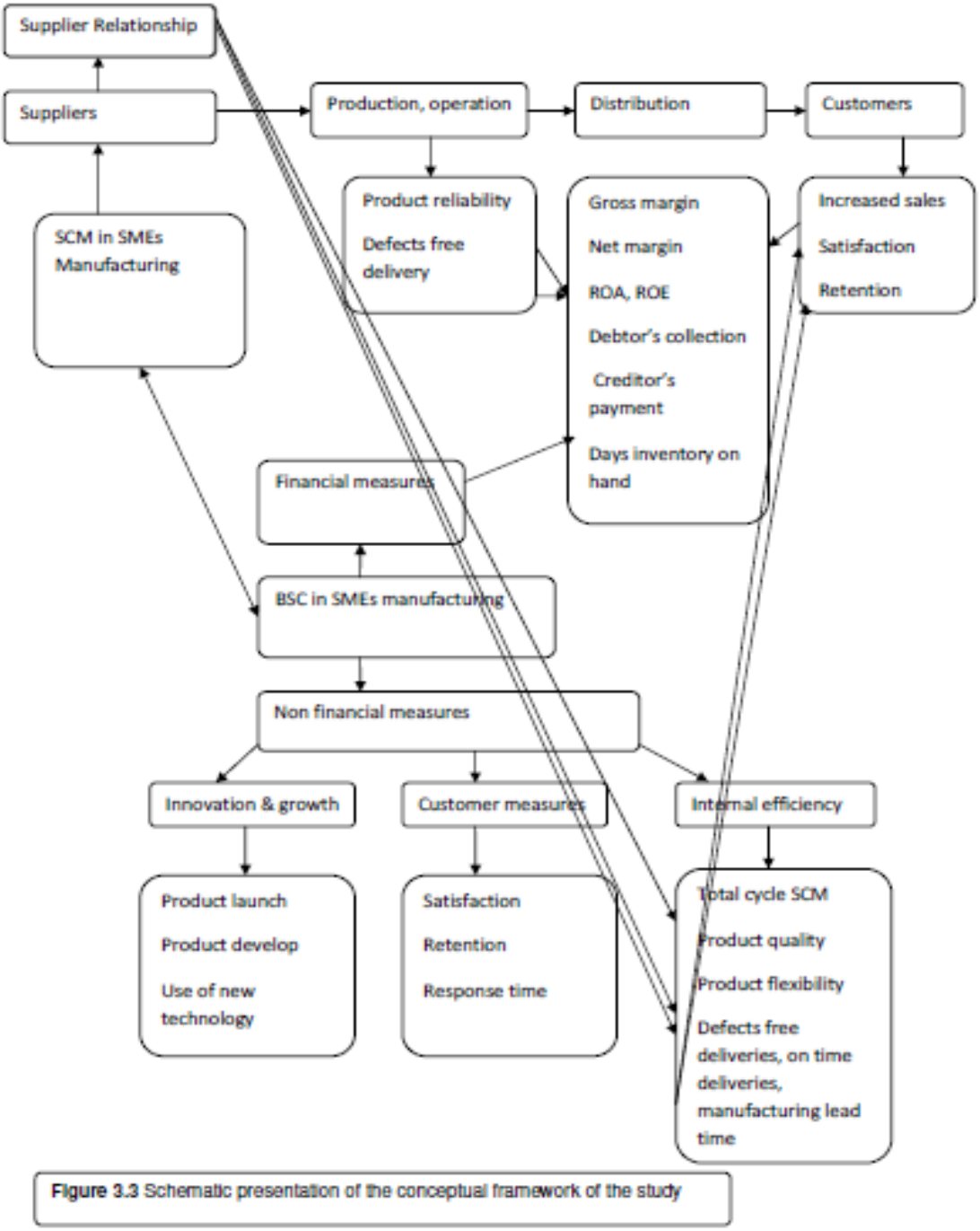

Figure 3.3 Schematic presentation of the conceptual framework of the study

High concentration on financial performance measures has become a major concern towards growth and sustainability of small businesses. Non-financial performance measures are highly neglected, which leads to poor performance measures in small businesses. Research reveals that the birth rate of small businesses is significantly mounting, likewise with closures within their first year of operation (Hotho & Champion, 2011:29). This is the result of a high concentration

on short term performance measures such as financial measures (Chia *et al.,* 2009:617; Thakkar *et al.,* 2009:712). Little or no attention has been given to learning, growth and innovative and internal, efficiency, quality and time measures, which leads to unsatisfied customers and a compromised supply chain management.

The framework of the study aims to address the shortcomings of the current situation. The researcher proposes that performance measures in SCM be addressed from a BSC perspective, to address performance measures on the following: financial, customer, learning, growth and innovation, as well as internal efficiency, quality and time measures.

3.9 CONCLUSION

In this chapter, the author has unpacked the significance of performance measures in SCM viewed from a BSC perspective. Issues confronting SMEs include large failure rate, lack of training, resources, and unskilled labour. Despite these, ways to mitigate them were also elucidated. Key factors that impact on the success of SMEs, such as innovation and collaborative partnerships among interdependent businesses, were discussed to indicate how they may positively influence the SCM performance of SMEs. Nonetheless, issues that face these organisations on a daily basis were discussed to assert an awareness of how they may overcome such challenges as market turbulence and technological turbulence.

Customer-supplier relationships were also unpacked to emphasise their significance towards the successful SCM. The business processes and activities engaged on a day-to-day basis were elaborated to provide a clear understanding of the SCM environment. Implementation and use of performance measures, performance monitoring, and performance evaluation were also discussed, as were the merits and demerits of adopting a BSC perspective in SCM, with the aim of increasing awareness of how best BSC may be implemented to enhance performance of SMEs. Financial measures are important to the success of the business but cannot alone overcome the challenges that can negatively impact on

business performance. The deployment of non-financial performance measures complements financial performance measures, which is of the essence for an entity to survive in an SCM environment. The SMEs may learn how to successfully implement and operate performance measures through continuous performance evaluation and supply of feedback timeously to parties involved. This will enhance performance and redefine measures where and when necessary to warrant the level of understanding of all value chain members.

The next chapter focuses on the design and methodology that the researcher used to address the research problem and to answer the research questions.

CHAPTER FOUR
RESEARCH METHODOLOGY

4.1 INTRODUCTION

This chapter explains the research process and methods used to collect data to answer the research question: *"To what extent could SMEs recognise the significance of financial performance measures and incorporate non-financial performance measures towards efficiency and effectiveness in their supply chain management?"* Following the previous chapters, which were the bases for the theoretical and empirical background to this study, this chapter informs the reader of how the research strategy to carry out the study under investigation was derived. The strategy and paradigm which the researcher deemed fit for purpose of this study is discussed in the methodology section that follows.

4.2 METHODOLOGY

Research methodology is described as a manner in which the research problem may be systematically solved (Kothari, 2004:8), and in its scope is much wider as it does not only constitute research methods but also the logic behind the study, coupled with an explanation why this method or technique was deemed appropriate (Kothari, 2004:8). This section endeavours to unpack the research strategy and techniques used to collect data to answer the research question. It is deemed necessary to provide a coherent explanation of the design and strategies undertaken by the researcher so that the reader may appreciate his or her work (Trafford & Leshem, 2008:90).

4.2.1 Research design

The research design is an overall plan of an investigation into the study aimed to provide answers to the research question. According to Brown (2006:63), it is based on the research question, guides the selection of sources and types of information required, enables specification of relationships among the research's various aspects and makes available every procedure for every research activity

to be undertaken. This study is based on empirical research that followed a positivistic research paradigm and required extensive interaction with people towards the attainment of data necessary to answer questions and the research problem (Watkins, 2010:7). It focuses primarily on capturing the truth which already exists (Coetzee, 2010:5; Easterby-Smith, Thorpe & Jackson, 2008:57), finding the truth through empirical means in order to describe, explain and predict the phenomenon being studied (Henning, Van Rensburg & Smit, (2004:17).

The following paragraphs unpack the significance difference between the unique characteristics of qualitative and quantitative approaches to the research process.

Quantitative research involves the attachment of numbers to the units measured and statistically performed analysis (Miller, 2007:123-124). For Barbour (2008:11) it masters the significance of statistical identification of relationships between variables, such as social class and health status, making group level comparisons. Furthermore, it stands for representative sampling and generalisation on one hand, while emphasising causal explanation on the other. Finally, it concerns the starting point for such research which is the theoretical question that the literature suggests is of importance to answer and is not yet answered. Quantitative research is widely known to produce diagrams that indicate the distribution and association of variables at different points (Barbour, 2008:11). Despite the distinction between qualitative and quantitative approach, the underlying philosophy in research is that the research method should be logically derived from the questions the researcher asks (Patton, 1997, cited by Hesse-Biber & Leavy, 2006:96).

Qualitative is distinct from quantitative in the nature of questions it seeks to answer. Qualitative stands to answer questions such as *why*? and *how*? while quantitative research may afford to answer questions such as *how many*? And *what causes*? It therefore seeks to understand the strength of relationship between variable (Barbour, 2008:11). Qualitative researchers may use interviews, observation or verbal dialogue to collect data (Hesse-Biber & Leavy, 2006:100). It reflects the true meaning of an event by providing a clear picture through utilisation of visual images to disseminate the results (Hesse-Biber & Leavy, 2006:103). For Barbour (2008:13), qualitative research is well designed to study a

context while allowing an opportunity to examine how change impacts on daily interactions and procedures. The major difference between them is that quantitative is dominated by statistical analysis while qualitative may be analysed in the form of words (de Vos , Strydom, Fouchè & Delport, 2011:311).

4.2.2 Population

The population is a larger set of measurements from which a sample may be obtained (de Vos *et al*., 2011:390; Maree & Pietersen, 2007:172). The target population for this research study was SMEs situated in Cape Town, namely production managers, supply chain managers, financial managers and company directors.

4.2.3 Sampling techniques

According to Terre Blanche *et al.* (2006:49), sampling represents a selection of research participants from the population. The researcher deemed purposive sampling fit for this study, whereby a particular group of participants was considered suitable to provide in-depth information and more knowledgeable about the topic in question (Rule & John, 2011:29). In addition, the researcher was clear as to whom to include in and exclude from the sample (Easterby-Smith *et al.*, 2008:218). The participants were primarily identified as a result of the key role that they play in the data collection process. Due to the difficulty encountered in consultation with the officials from the DTI, to access the Western Cape manufacturing data base, the researcher decided to conduct a survey on a door-to-door basis in manufacturing areas in Cape Town. During this campaign the researcher would first inquire if the company operated as a manufacturing concern prior to discussion of the research survey. The purpose of the inquiry was to exclude those who did not meet the eligibility criteria (Easterby-Smith *et al.,* 2008:218). The inclusion criteria for selection of a sample were that: (i) the enterprise operated as a manufacturing concern; and (ii) it fell within the threshold of the definition of SMEs. A total of 30 questionnaires were gathered for analysis.

4.2.4 Methods of data collection

Questionnaires were used for the purpose of data collection in this research. This section discusses how the questionnaire was formulated to help gather the data on the research investigative questions.

4.2.4.1 Questionnaire

A questionnaire is a list of questions formulated mainly to provide the most sufficient and relevant data from every member of the population identified (Maree & Pietersen, 2007:158-159). Questionnaires are mostly suited for collection of data from a large population and are highly dependent on careful and thoughtful construction of clear and unambiguous questions because they may be completed in the absence of the researcher (Rule & John, 2011:66; Thomas, 2011:165), and may be sent by post or email or conducted face to face. In this study the researcher personally distributed questionnaires to the participants upon the agreed scheduled time. De Vos et al. (2011:186) write that the objective of a questionnaire is to gather data and views about a phenomenon from participants who are well informed about a particular issue. They may be tightly structured or given an opportunity for open-ended questions (Thomas, 2011:165). The researcher used a structured questionnaire, categories of which are elaborated upon below.

The content of the questionnaire was developed and constructed according to three different categories. Section A sought to answer the research sub-investigative questions 1 and 3, which primarily focussed on the implementation level of performance measures in SMEs SCM. Section A was made up of four categories of performance indicators, based on the level of implementation with a total of 25 questions on a 4-point Likert scale. The participants were required to indicate whether they agreed to the implementation, ranging from *strongly disagree* to *strongly agree*. The categories encompass the performance measures from BSC in a SCM. Section B consisted of 12 questions on performance measures, some categorical, others requiring *yes* or *no* answers, while others

were 4-point Likert scale type of questions. The section was designed to establish the frequency of performance evaluations by small businesses in SCM, the financial statements prepared by this entity as well as the involvement of managers and all members of it towards the achievement of organisational goals. This section addressed all the research sub-investigative questions whereby the first three questions, with questions 7 to 11 answering investigative questions 2 and 4, while question 4 to 6 and 12 intended to answer sub-investigative research questions 1 and 3.

Section C focused specifically on the general questions regarding SCM. The sections consisted of 28 questions, 10 of which are *yes* or *no* questions and the remaining 18 are based on an ordinal 4-point Likert scale from 1 - *strongly disagree* to 4 - *strongly agree*. Section C seeks to answer the research sub-investigative questions 2 and 4, which were intended to answer the questions on the usefulness and significance of performance measures towards effective decision-making in a SCM environment. The last part of this section concerns business information regarding the existence of the company, the experience of the participants in the field of SCM and manufacturing as well as the total number of employees. Lastly, the closing question was an open-ended question which allowed participants to give their views on the subject matter.

4.2.5 Unit of analysis

According to Terre Blanche *et al.* (2006:49), a unit of analysis may refer to the organisation, a person or a group of people being studied, whilst for Rubin and Babbie (2005, cited in De Vos et al., 2011:93), it is specific to objects or elements whose characteristics are used by researchers to observe, describe and explain. In this study the researcher's unit of analysis was SMEs from which data was gathered on the extent to which performance measures were applied in their SCM, namely the production managers, supply chain managers, financial managers and directors.

4.3 DATA ANALYSIS

Data analysis refers to the categorisation, ordering, manipulation and summarising of the data, with the objective of answering the research question (De Vos, Strydom, Fouche` & Delport, 2005:218). It transforms raw data from the field into meaningful and organised information so that relations of the research problem could be studied, tested and conclusions drawn (De Vos *et al*, 2005: 218; Turner, Bititci & Nudurupati, 2005:136). Once the data was collected from the field, an analysis was conducted of the accumulated data. Data analysis, according to Vithal and Jansen (2010:27-28), includes at least three steps: i) scanning and cleaning the data, by which the questionnaires collected were appropriately answered; ii) organising the data, captured in a *Microsoft Excel* spreadsheet for coding purposes; and iii) representing the data, which was processed and loaded onto the Statistical Package for the Social Science (SPSS) to give a meaningful and clear presentation of the results. Descriptive statistics were utilised to analyse the quantitative data in this research. Somekh and Lewin (2005:221) suggest that tables can be used to present data in an easy-to-understand format, while graphs and charts can present data visually and often highlight patterns and issues that may be drawn out in interpretations of data. Results were presented as tables, bar and pie charts.

4.4 DATA VALIDITY AND RELIABILITY

Validity refers to the extent that an instrument measures what it ought to (Jackson, 2009:70; Burns & Burns, 2008:425; Pietersen & Maree, 2007:216). According to Denscombe (2010:143), validity involves demonstration in which the data and analysis of the researcher are rooted in the realm of relevant, genuine and real matters. There are different forms of validity as described by authors however construct validity was used in this study. In this research construct validity is viewed as the most important form of validity (Jackson, 2009:71). A construct validity measurement instrument measure the extent to which an instrument captures the theoretical concept as it is designed to measure (Jackson, 2009:71;

Burns & Burns, 2008:430). Cronbach reliability coefficient in table 4.1 was also used as a test of construct validity whereby the main purpose was to classify items that belong together with the view that they were answered similarly and therefore measures the underlying construct (Burns & Burns, 2008:430; Pietersen & Maree, 2007:219).

Reliability is of importance in a study for one to ascertain if a measure used is effective to assess reliability, which is the extent to which a measuring instrument is consistent and stable to allow replication of the findings (Jackson, 2009:65; Burns & Burns, 2008:410; Pietersen & Maree, 2007:215). Should a measure be reliable, one can be confident that all items that make it up are consistent with each other, and that should one use it again with the same individuals they would be rated similarly as in the first instance (Rule & John, 2011:104; Lapan & Quartaroli, 2009:62; Kvale, 1996:162). This can also apply to a situation whereby two or more different people will conduct similar research at varying times and obtain similar results.

Jackson (2009:68-69), Burns and Burns (2008:415-417) and Pietersen and Maree (2007:215-216) have identified different types of reliability test, namely, test retest, equivalent form, split half and internal. For the purpose of this study, internal reliability testing was applied using the Cronbach alpha coefficient based on inter-item correlation (Pietersen & Maree, 2007:216). A strong correlation on one hand was denoted by a high internal consistency, which led to the alpha coefficient being close to one while on the other hand weak correlation would lead alpha coefficient correlation close to Zero. The following are prescribed as generally accepted by researchers (Pietersen & Maree, 2007:216);

- 0.90- high reliability
- 0.80- moderate reliability
- 0.70- low reliability

Table 4.1 (next page) shows results of the study's Cronbach alpha reliability test.

Table 4.1 Cronbach reliability test

SECTION A: Level of implementation of performance measures in SCM	Initial	Extraction
This following financial measures are implemented in my supply chain operation		
Gross Margin	1.000	.908
Net Margin	1.000	.839
Return on Assets(ROA)	1.000	.936
Return on Equity (ROE)	1.000	.955
Current Ratio	1.000	.964
Quick/Acid Test Ratio	1.000	.746
Debtors Collection period	1.000	.982
Creditors Payment period	1.000	.953
Days Inventory on hand	1.000	.871
Fixed Assets Turnover	1.000	.923
Inventory Turnover	1.000	.925
This following customer measures are implemented in my supply chain operation		
Customer Satisfaction	1.000	.913
Customer Retention	1.000	.969
Customer Response Time	1.000	.873
This following internal efficiency, quality and time measures are implemented in my supply chain operation		
Number of on time deliveries	1.000	.782
Product reliability	1.000	.946
Product quality	1.000	.883
Production flexibility	1.000	.897
Direct Material Efficiency Variance	1.000	.818
Defects-Free deliveries	1.000	.908
Manufacturing Lead time	1.000	.928
Total supply chain cycle time	1.000	.882
Inventory costs-range	1.000	.938
This following innovation and growth measures are implemented in my supply chain operation		
New product launches	1.000	.821
New product development	1.000	.874
Use of new Technology	1.000	.875
SECTION C: General questions regarding supply chain		
Total cost of inventory always includes raw material, work in progress, finished goods and stock in transit.	1.000	.788
Manufacturing lead time always takes longer than the budgeted period.	1.000	.938

Deliveries are free from defects when they reach the customers.	1.000	.881
Deliveries are always on time when they arrive at the customers.	1.000	.940
I have an understanding of fixed and variable costs.	1.000	.877
Inventory takes longer to be converted into cash/sold.	1.000	.887
Use of new technology is implemented when changes come.	1.000	.892
Debts are collected on time from customers.	1.000	.901
Suppliers are reliable.	1.000	.808
Good quality of products is delivered to customers.	1.000	.770
The performance metrics used in my supply chain are clear and easy to understand.	1.000	.831
Deliveries are not free from defects when they arrive from suppliers.	1.000	.916
I have a good relationship with parties involved in the supply chain.	1.000	.890
Contribution margin less operating expenses equals Net profit.	1.000	.902
I am able to calculate the ROE from Financial Statements.	1.000	.843
Large inventory turns are achieved in one production line.	1.000	.918
Quick ratio eliminates inventory to measure cash available to pay short term liabilities.	1.000	.817
All assets of the business are included in the balance sheet.	1.000	.964

(Source: fieldwork)

The majority of the variables in the questionnaire had a Cronbach coefficient that was close to 0.90, which indicates high reliability (Pietersen & Maree, 2007:216).

4.5 ETHICAL ISSUES

Ethics, as defined by Thomas (2011:68), are principles of conduct which concern right and the wrong. For Rule and John (2011:111-112) it follows from a system of moral principles embraced by a society or particular community of people, with research ethics requirements flowing from the three standard principles and guidelines for research practice, namely:

1. **Autonomy:** This stands for confidentiality, anonymity and participants privacy, and translates into the need for researchers to protect and respect the individual's right to be informed of the nature of the study and voluntarily choose to participate or withdraw from it at any time (Rule & John, 2011:112). Anonymity and confidentiality of all respondents in this study as well as their rights were protected (Thomas, 2011:69), and participants were informed of their role.

2. **Non – maleficence** (do not harm): It is an ethical principle that requires the researcher not to cause any harm to anyone involved in the research process (Rule & John, 2011:112). The research did not involve any harm to the participants.
3. **Beneficence** (for public good): This is about a positive contribution to the public, although not all research provides this. A critical paradigm such as action research fosters this principle as an essential outcome of the research (Rule & John, 2011:112). This study may benefit SMEs.

As guided by the Cape Peninsula University of Technology (CPUT) policies and procedures regarding ethical issues, the researcher adhered to ethical consideration when conducting the research. A formal request was sent to the participants informing them about the nature and content of the study. They confirmed by issuing a consent letter which was submitted to the Faculty of Business's Research Ethics Committee (REC), together with a proposal and draft questionnaire. As prescribed by Lapan and Quartaroli (2009:6), the consent form was a document that notified participants about the nature of the study to be undertaken, the risk involved and the participants' right to leave the study at any time, without repercussions. Soon after the REC awarded an ethics clearance certificate, the researcher submitted to the higher degree committee (HDC) to register the research proposal of this study.

4.6 CONCLUSION

This chapter was an illustration of how the research strategy and methods used to collect data in this study were derived. The methodology adopted was expounded as encompassing the design, population, sampling technique, and data collection procedures deemed suitable for this study. Data validity and reliability of this study, together with ethical considerations, were unpacked for clarity and ease of how the researcher guarded against unreliable and invalidated data.

The subsequent chapter is a presentation and analysis of the results from the data collected in this study.

CHAPTER FIVE
PRESENTATION AND ANALYSIS OF THE FINDINGS

5.1 INTRODUCTION

This chapter is an analysis and presentation of data collected from managers, owner managers and directors of SMEs in the manufacturing companies around the Cape Metropole area in Cape Town, South Africa. The research method informed the analysis and presentation of this research as indicated in Chapter Four. The data is presented using descriptive statistics with the aim of organising and presenting data in a meaningful manner. The presentation and analysis of the results in this study is placed into six categories according to the demographics of SMEs, and descriptive results according to the four objectives of the study are presented in a consecutive manner, with descriptive results on general questions regarding the SCM of SMEs. In addition, analysis is performed to help condense the mass of collected data into interpretable results to enable the researcher to study the relations of the results to the research problems, and be able to draw conclusions

5.2 DATA ANALYSIS

The analysis of data is presented in this section.

5.2.1 Questionnaire

The questionnaire developed for the purpose of this study and distributed for data collection contained three sections. The first focused on the implementation of performance measures from BSC perspectives. Responses from these items of performance measures were in the form of a four-point Likert scale, with 1= *strongly disagree*, 2= *disagree*, 3= *agree* and 4= *strongly agree*. Respondents were asked to indicate with an X the most appropriate answer to them. Section B of the questionnaire comprised categorical *yes* or *no* answers and a 4-point Likert scale of questions ranging from 1= *strongly disagree* to 4= *strongly agree* as per

section one above in which participants were also instructed to mark with an X their answer. The data from the completed and collected questionnaires was first captured in a *Microsoft Excel* spreadsheet for coding purposes (Floyd & Fowler, 2009:146; De Vos *et al.,* 2005:220-221), to convert answers into numbers.

5.2.2 Descriptive statistics

With the use of SPSS, the researcher analysed the data that had already been captured. 'Descriptive statistics' is a joint term for various statistical techniques used to systematise and recapitulate data meaningfully (Pietersen & Maree, 2007:183). They are presented from different variables in the questionnaire, measuring performance measures in SMEs' SCM from a BSC perspective. For each category of variables, the frequencies and percentage output from a total of the respondents were determined. In some instances, there were no answers provided, and these were treated as 'missing' values during analyses. The data analysed from descriptive statistics is presented using frequency distribution tables, pie and bar charts.

The last section of the analysis provides descriptive statistics of business information, crafted from the number of years in industry experience and the type of managerial position each of the respondents held in the company, as well as the number of years the company had been in existence and the number of its employees.

5.3 SAMPLE

Purposive sampling was adopted for this study. The sample was made up of owner managers, managers and directors in the SME sector around the Cape Metropole in Cape Town, South Africa. However, the researcher encountered difficulty in consultation with the officials from the DTI to access the Western Cape manufacturing database. Therefore, it was inevitable that the researcher conduct a survey on a door-to-door basis in manufacturing areas in Cape Town. During this exercise the researcher had to inquire firstly if the company operated as a

manufacturing concern prior to discussion of the research survey, thus helping to eliminate those who did not meet the eligibility criteria (Easterby-Smith *et al.,* 2008:218) from which 30 completed and returned questionnaires were analysed.

The next section is an analysis and presentation of the results. Each section presents the results of the study which are analysed separately in accordance with the research objectives. Each section commences with an introduction and ends with a conclusion.

5.4 DESCRIPTIVE RESULTS OF THE STUDY

This section presents the analysis pertaining to the results obtained to address the research objectives of this study. Each objective is addressed separately under different sections. Each section of the presentation consists of an introduction, analysis and conclusion. Tables and diagrams are used where deemed suitable to foster analysis and presentation of processed data. The leading section analyses the biographical information of SMEs in manufacturing sectors which were identified as participants for this study. The aim was to provide an overview of the nature and the environment in which the study was conducted.

5.4.1 Descriptive results on demographic information

This section of the analysis provides a background to the businesses and experiences of the managers in their position. The questions asked to collect data derive from Section C of the questionnaire, as follows:

- What is your status in the business?
- How many years of experience?
- How many years has the company been in existence?

5.4.1.1 Status held by participants

Half (50%) of the respondents were managers among the SMEs, while the other half (50%) were directors (30%), shareholders (13.3%), and owners (6%) in the businesses. This indicates that most businesses were not owner-managed and owners were not directly involved in the day-to-day activities of the organisations.

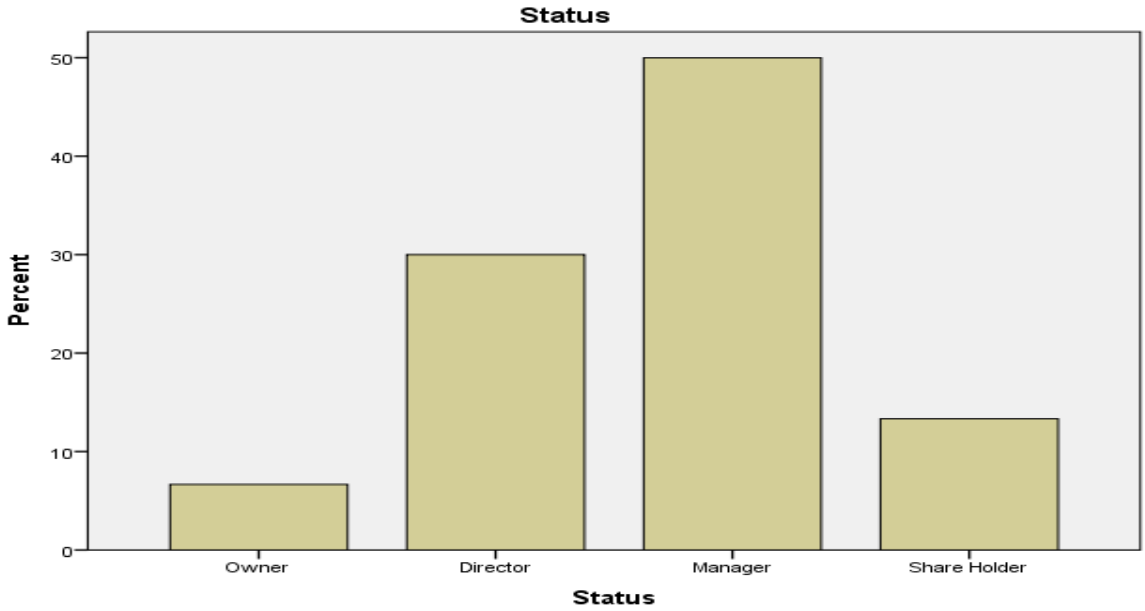

Figure 5.1: Status (Source: fieldwork)

5.4.1.2 Experience of SME participants

Figure 5.2: Experience (Source: fieldwork)

The highest number (27.6%) of the respondents comprised those with experience of more than 20 years in the manufacturing sector, followed by (24.1%) who had been in the business environment for not more than five years. Some 17.2% of the respondents had been in the industry for over 15 years but not more than 20. The fewest (10.3%) of the respondents were within the range of 6-10 years' experience in the field.

5.4.1.3 Company age

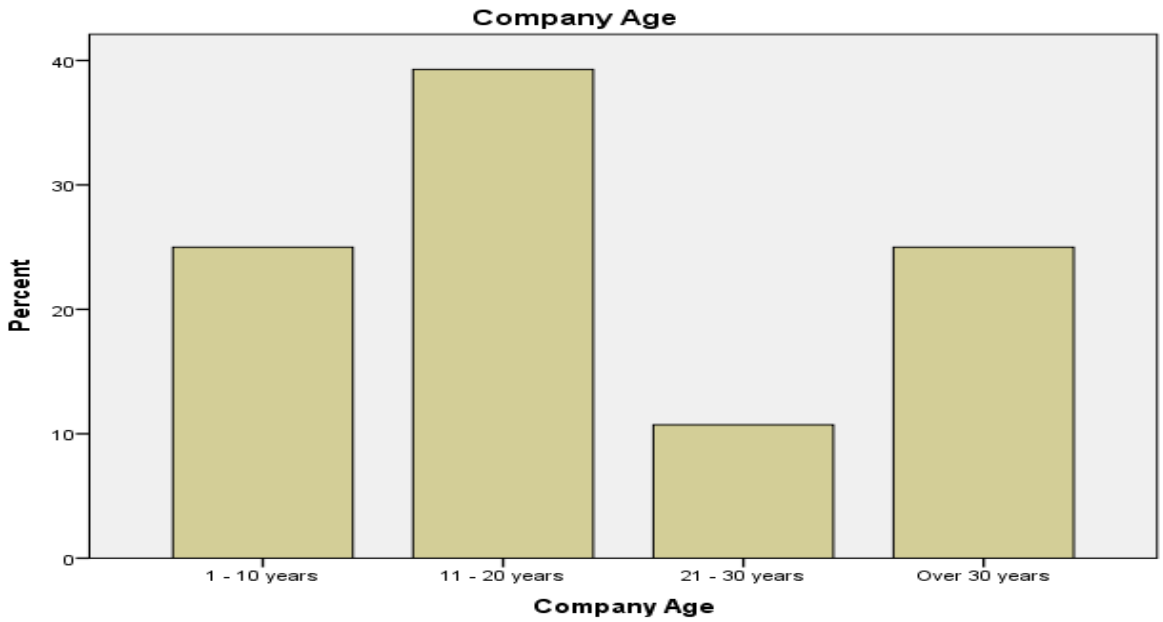

Figure 5.3: Company age (Source: fieldwork)

Many companies had been in existence for 11-20 years (39.3%). The smallest percentage was of companies who had been operating for 21-30 years (10.7%). 50% of the companies had been in existence for up to 10 years and over 30 years.

5.4.1.4 Conclusion

SMEs in the manufacturing industry within this population were not necessarily owner-managed, but rather managers with ample experience of over 20 years in the industry were followed by those new to the sector. The majority of these companies had been in existence for over a decade. Although there were also missing values, that left a rate of 6.7% non-response.

5.4.2 Descriptive results: Objective one

The following section of the descriptive results is an analysis of Section A of the questionnaire, which measures the implementation level of financial measures in SCM of SMEs. Objective one of the study is answered using the following tables and graphs. The objective establishes *how SMEs perceive the significance of financial performance measures in supply chain management.*

5.4.2.1 Financial measures

The respondents were asked the following research question in the form of a 4-point Likert scale:

Which of the following financial measures are implemented in my SCM?

Table 5.1 below illustrates the level at which gross margin is measured as a financial performance measure.

Table 5.1: Gross Margin

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Disagree	**1**	**3.3**	**3.8**	**3.8**
	Agree	**10**	**33.3**	**38.5**	**42.3**
	Strongly Agree	**15**	**50.0**	**57.7**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

(Source: fieldwork)

The results indicate that a total of 95.5% respondents (38.5% = *agree* and 57.7%= *strongly agree*) measure gross margin while 3.8% do not. From an accounting perspective it is difficult to determine the profit or loss made on the sales of goods if the business does not use gross margin. The next table explains the level at which net margin is measured by SMEs manufacturers.

Table 5.2: Net Margin

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Disagree	**3**	**10.0**	**11.5**	**11.5**
	Agree	**7**	**23.3**	**26.9**	**38.5**
	Strongly Agree	**16**	**53.3**	**61.5**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

(Source: fieldwork)

Net margin is used or measured by 88.4% (26.9%= *agree* and 61.5%= *strongly agree*) of the respondents, while 11.5% disagreed with the implementation of this measure. This measure informed the business of its financial performance; whether it realised profits or losses after all expenses were taken into account.

The following table determines the rate at which SMEs measured the debtors' collection period in order to monitor their debtors.

Table 5.3: Debtors Collection period

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Disagree	**1**	**3.3**	**3.7**	**3.7**
	Agree	**11**	**36.7**	**40.7**	**44.4**
	Strongly Agree	**15**	**50.0**	**55.6**	**100.0**
	Total	**27**	**90.0**	**100.0**	
Missing	System	**3**	**10.0**		
Total		**30**	**100.0**		

(Source: fieldwork)

Some respondents (3.7%) did not measure debtors' collection period while a total of 96.3% (40.7%= *agreed* and 55.6%= *strongly agreed*) of the respondents implemented this measure in their businesses. This could be due a to lack of understanding and the knowledge of the significance of monitoring the cash flow in a business. The exception of 10% non-response was also experienced in this measure. The table on the next page determines the rate at which SMEs measured creditors' payment period.

Table 5.4: Creditors Payment period

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Disagree	**2**	**6.7**	**7.4**	**7.4**
	Agree	**13**	**43.3**	**48.1**	**55.6**
	Strongly Agree	**12**	**40.0**	**44.4**	**100.0**
	Total	**27**	**90.0**	**100.0**	
Missing	System	**3**	**10.0**		
Total		**30**	**100.0**		

(Source: fieldwork)

92.5% (48.1%= *agree* and 44.4%= *strongly agree*) of respondents measured the creditors' collection period. However, 7.4% did not utilise the measurement. The 10% of participants who did not respond to this question was similar to the one above in the debtors' collection period.

The following measure was to establish the level at which SMEs controlled their inventory by the tracing the number of days it took them to convert their inventory to cash.

Table 5.5: Days inventory on hand

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Disagree	**1**	**3.3**	**3.8**	**3.8**
	Disagree	**5**	**16.7**	**19.2**	**23.1**
	Agree	**11**	**36.7**	**42.3**	**65.4**
	Strongly Agree	**9**	**30.0**	**34.6**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

(Source: fieldwork)

It is important to monitor the day's inventory on hand because that determines the cash flow and how long it takes for assets to be converted into cash. Some 23 percent (3.8%= strongly disagree while 19.2%= disagree) of the respondents did not measure day's inventory, which is a major concern while 76.9 % (42.3%=

agreed and 34.6%= *strongly agreed*) measured it. A total of 13.3% did not answer this question.

Table 5.6 highlights the implementation level of inventory turnover to get an overview of whether SME manufacturers takes into account the rate at which their assets convert into cash.

Table 5.6: Inventory Turnover

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Disagree	**2**	**6.7**	**7.7**	**7.7**
	Disagree	**3**	**10.0**	**11.5**	**19.2**
	Agree	**13**	**43.3**	**50.0**	**69.2**
	Strongly Agree	**8**	**26.7**	**30.8**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

(Source: fieldwork)

Almost 20% (7.7% = *strongly disagree* and 11.5%= *disagree*) of the respondents did not measure inventory turnover in their businesses, while 80.8% (50%= *agree* and 30.8%= *strongly agree*) of the total respondents measured inventory turnover and 13.3% missing values were encountered as a result of non-response to the question.

5.4.2.2 Conclusion

The above section analysed and presented results from section A of the questionnaire which addresses research objective one of the study. Generally, the majority of the respondents did make use of financial measures to a certain extent. The most measured metric was debtors' collection period, followed by the gross margin. However, some SMEs did not perceive the significance of day's inventory on hand and inventory turnover. The inventory on hand in days provides a clear picture of the movement of inventory and how long it takes for the inventory to convert into cash as well as turnover which indicates the rate at which inventory converts into cash.

5.4.3 Descriptive results: Objective two

This section presents the descriptive results which focus on objective two of the study that reads: *To determine the extent to which SMEs recognise the significance of financial performance measures in supply chain management*. This section provides an understanding and information on how frequently SMEs evaluate their financial performance measures, their use of financial statements and which measures are regarded as critical success factors in their businesses. The respondents were asked the following questions:

- How often do you evaluate financial performance measures in your SCM?
- Which financial statements do you use?
- Do you make use of financial ratios?
- Which financial ratios do you make use of to interpret your financial statements?
- Which financial performance indicators are regarded as the critical success factors in SCM?

The next three questions were in form of a four-point Likert scale ranging from 1= *strongly disagree* to 4= *strongly agree*.

- Debts are collected on time from customers
- Inventory takes longer to be converted into cash
- All assets of the business are included in the balance sheet.

5.4.3.1 Evaluation of financial performance measures

The figure below is an illustration of the extent to which SMEs measure their financial performance in the manufacturing sector,

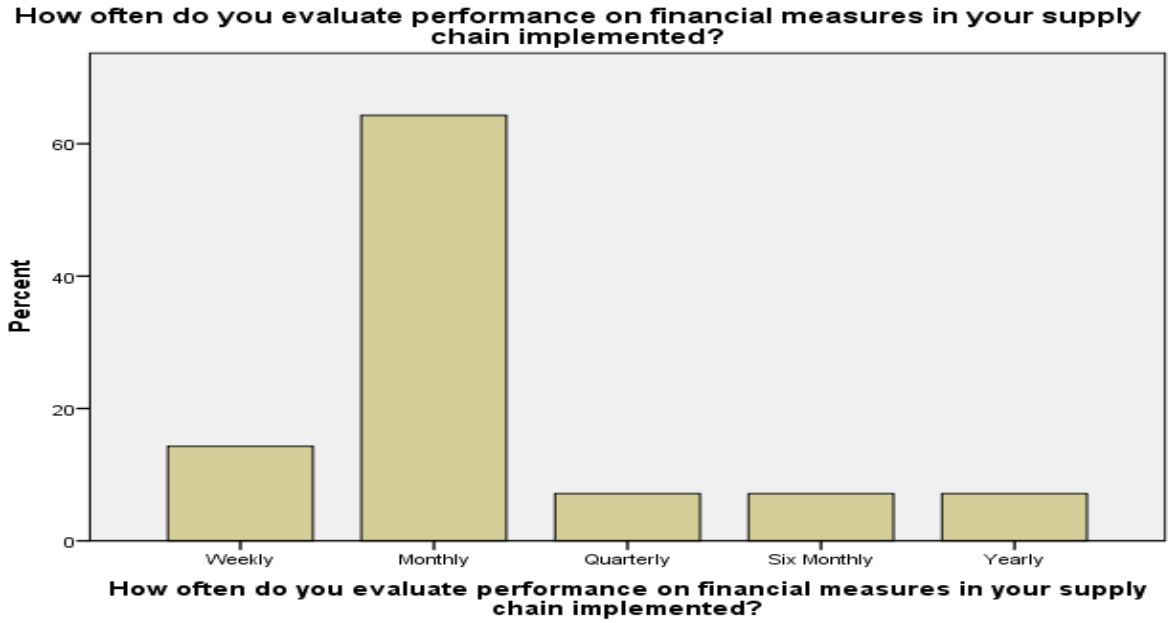

Figure 5.4: Evaluation of financial performance measures (Source: fieldwork)

From figure 5.4 it is perceived that some SMEs recognise the significance of financial measures. For those who measured financial measures, the majority measured on a monthly basis (64.3%), 14.3% on a weekly basis, while the remaining 21.3% shared equally amongst quarterly, six monthly and yearly.

5.4.3.2 Financial statements preparation

This figure presents the financial statements which are mostly used by SMEs in the manufacturing sector.

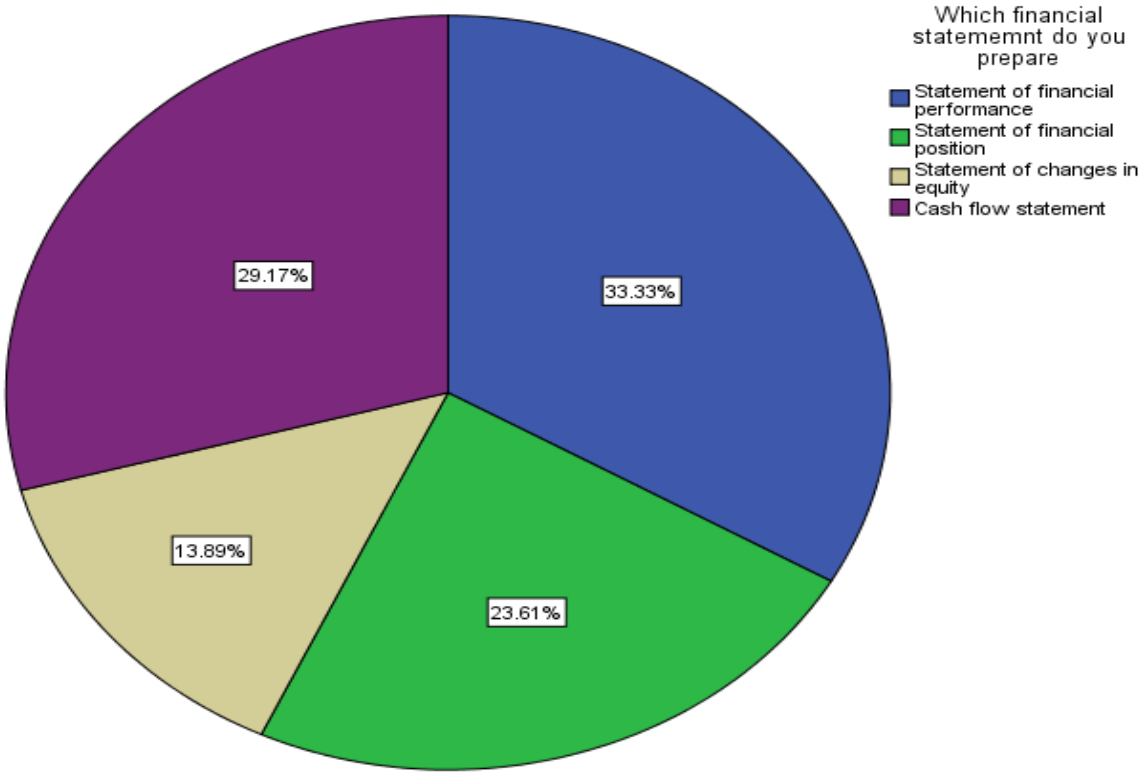

Figure 5.5: Financial statements prepared by SMEs (Source: fieldwork)

Figure 5.5 refers to question 31 of Section B. Responses from the respondents indicate that SMEs in the manufacturing industries do not know how to account for their books properly. Some respondents did not prepare a statement of financial performance. The major concern was how their profit or loss was calculated. Again, some did not prepare a statement of financial position, which was surprising since all assets and liabilities should be reflected in the balance sheet to provide an overview of the business status at a point in time as well as the entity's net worth. The least percentage of the respondents' prepared statement of changes in equity. 70% of the total respondents prepared cash flow statements for their businesses.

5.4.3.3 Use of financial ratios

Table 5.7 depicts results on whether SMEs uses financial ratios to interpret their financial statements.

Table 5.7: Do you make use of financial ratios to analyse data from financial statements?

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Yes	**19**	**63.3**	**63.3**	**63.3**
	No	**11**	**36.7**	**36.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

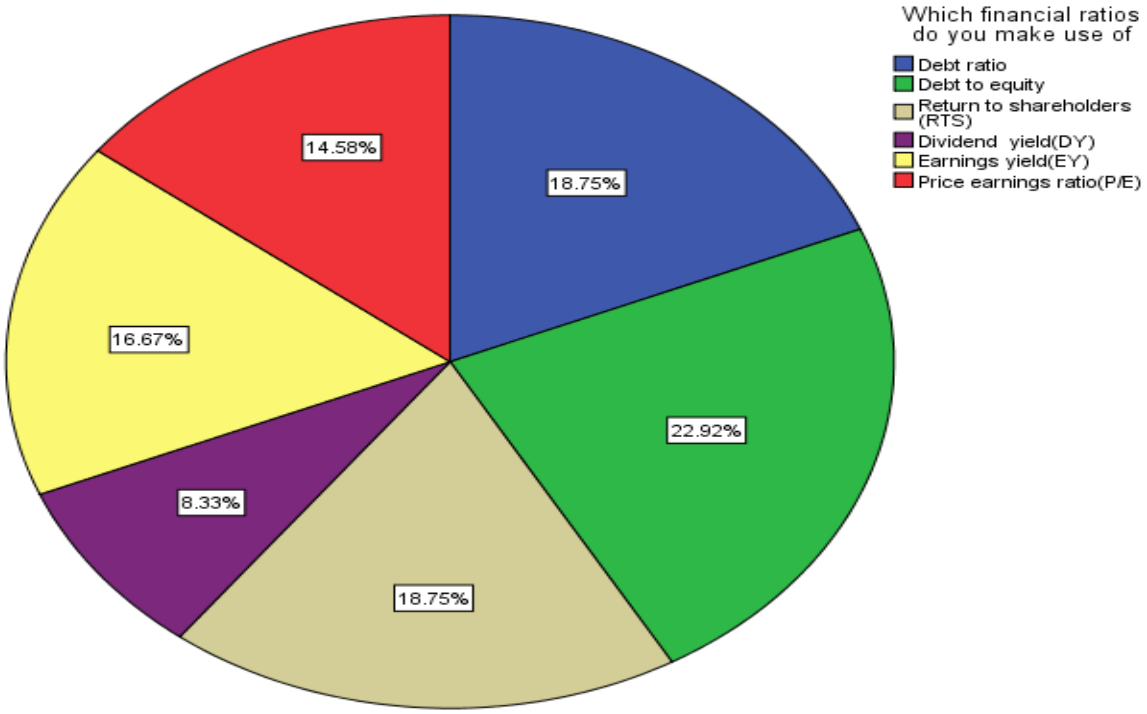

Figure 5.6: Which financial ratios do you make use of to analyse financial statements? (Source: fieldwork)

Table 5.7 and figure 5.6 represent questions 32 and 33 of Section B. Some of the respondents did not make use of financial ratios to analyse or interpret their financial statements, which may lead to difficulty in determining the growth or deterioration of business performance. However, some SMEs highlighted that their financial statements were prepared from their head office, mainly situated in Johannesburg while others were in KwaZulu-Natal. Therefore, these subsidiaries

might not have had a thorough knowledge of how financial statements were comprehensively prepared.

Although 63.3% of the respondents agreed that they used financial ratios, of the 63.3% who agreed, 81.25% did not use debt ratio and return to shareholders, 85.4% did not use a price earnings ratio P/E while 77.08% did not use debt to equity.

5.4.3.4 Critical financial performance measures

Table 5.8 presents the critical financial performance measures as identified by SMEs in the manufacturing sector.

Table 5.8: Critical financial measures identified by SMEs in their businesses

	Count	Column N %	Column Responses %	Column Response % (Base: Count)
Net Margin	20	71.4%	19.23%	71.4%
Gross Margin	16	57.1%	15.38%	57.1%
Return on Assets (ROA)	5	17.9%	4.81%	17.9%
Return on Equity (ROE	1	3.6%	0.96%	3.6%
Current Ratio	1	3.6%	0.96%	3.6%
Quick/Acid Test Ratio	0	0.0%	0.00%	0.0%
Debtors collection period	25	89.3%	24.04%	89.3%
Creditors Payment period	14	50.0%	13.46%	50.0%
Days inventory on hand	10	35.7%	9.62%	35.7%
Fixed Assets Turnover	1	3.6%	0.96%	3.6%
Inventory Turnover	11	39.3%	10.58%	39.3%

(Source: fieldwork)

A net margin is a result of income less expenses of the business. It is through the statement of financial performance that the profit or loss is determined in the business. Despite 71.4% respondents regarding this measure as significant

towards success of the business, it is still a concern that 28.6% did not consider this measure as crucial when measuring their profits or losses.

A much lower percentage of (57.1%) of the respondents considered gross margin important for their businesses, compared with 71.4% on net margin. Gross margin is the total sales made less cost of goods sold. It is also defined as the residual of sales after all variable costs have been deducted. Almost 18% of the respondents considered ROA essential to their business. ROA refers to the reward/return which the business receives from the total assets invested in a company.

A similar trend from respondents highlighted less consideration of ROE, current ratio and fixed assets turnover of (3.6%), while 100% did not regard the acid test ratio as a critical success factor. The acid test ratio differs slightly from current ratio with a formula whereby the inventory is deducted from the total current assets. The reason is that inventory takes longer to be converted into cash.

Significantly, 89.3% did regard the debtors' collection period as essential. It is wise to monitor and manage debtors of the company to avoid delays in cash flow as well as financing liquidity of the business.

A total of 50% considered creditors' payment as significant. If the above debtors were managed properly this should feed into the creditors in ensuring that cash is collected earlier from debtors, as it is paid to suppliers in order to finance the liquidity status and improve the cash flow.

5.4.3.5 Customer collection

The debtors' collection period refers to the time it takes for debts to be collected from customers. It is advisable that a business should have a shorter collection period and a longer payment period to its creditors to finance the cash flow of the business.

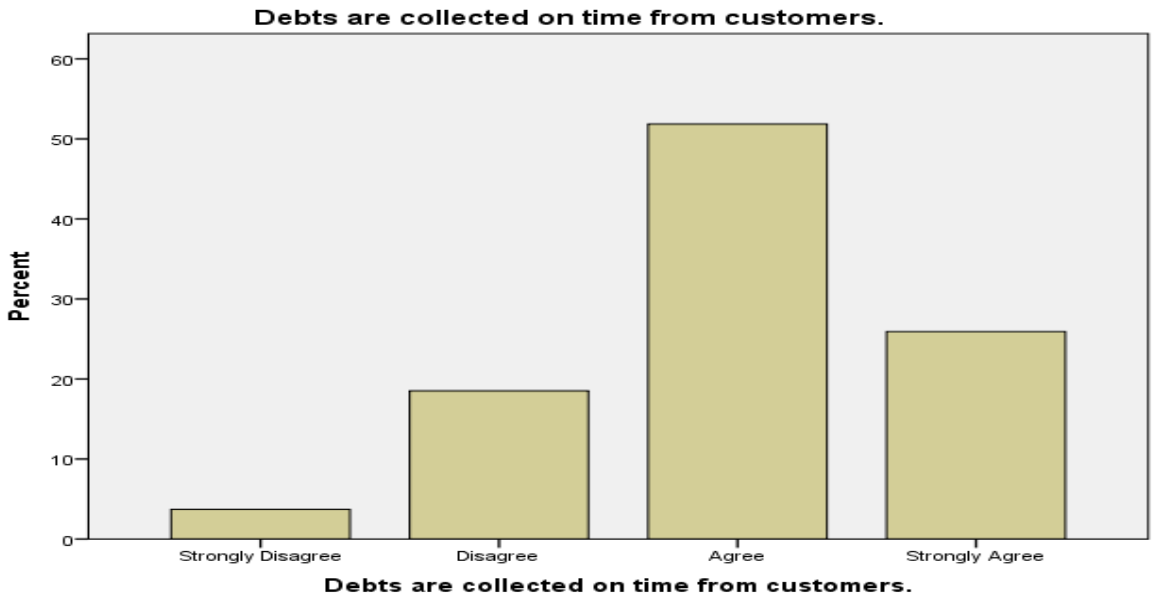

Figure 5.7: Debts are collected on time from customer (Source: fieldwork)

A total of 77.8% (51.9%= *agree* and 25.9%= *strongly agree*) of the respondents agreed that their debts were collected on time from customers while 22.2% (18.5%= *disagree* and 3.7%= *strongly disagree*) of the respondents

5.4.3.6 Conversion of inventory to cash

Figure 5.8 presents conversion of inventory to cash as perceived by SMEs in the manufacturing sector.

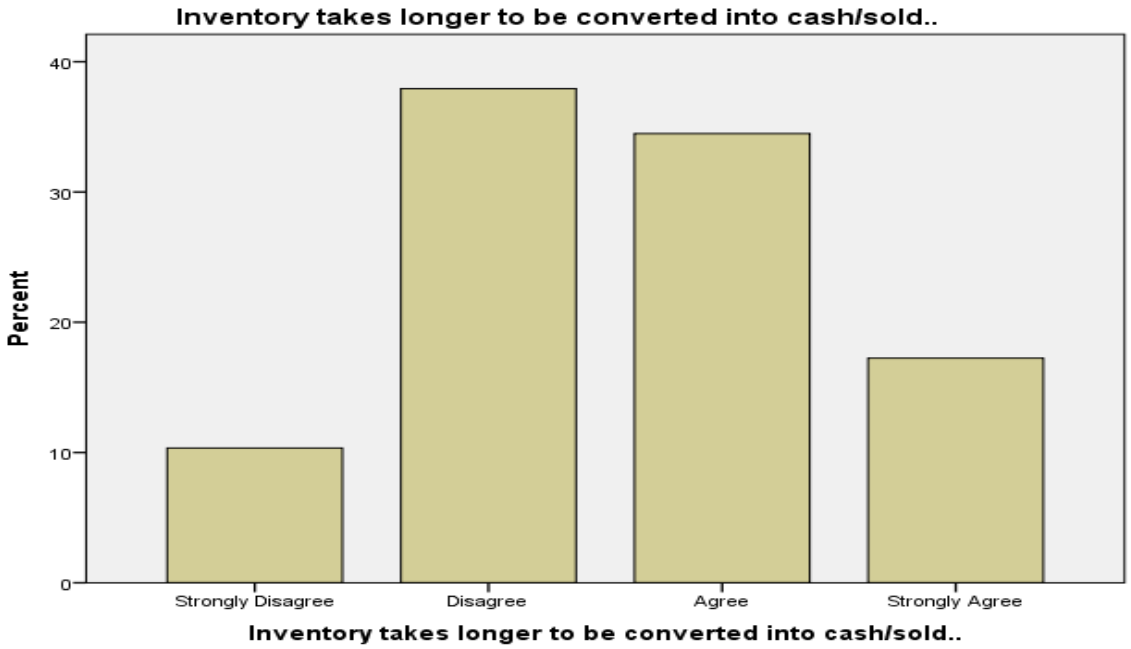

Figure 5.8: Inventory takes longer to be converted into cash/sold (Source: fieldwork)

The figure above represents conversion of assets into cash. Just over 50% of the respondents (34.5%= *agree* and 17.2%= *strongly agree*) that their inventory took longer to convert into cash, while below average (37.9%= *disagree* and 10.3%= *strongly disagree*) considered speedy conversion.

5.4.3.7 Business assets and balance sheet

Table 5.9 provides information on whether SMEs in the manufacturing sector include all assets in the balance sheet.

Table 5.9: All assets of the business are included in the balance sheet

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Disagree	**3**	**10.0**	**11.1**	**11.1**
	Agree	**17**	**56.7**	**63.0**	**74.1**
	Strongly Agree	**7**	**23.3**	**25.9**	**100.0**
	Total	**27**	**90.0**	**100.0**	
Missing	System	**3**	**10.0**		
Total		**30**	**100.0**		

(Source: fieldwork)

Some of the respondents did not include all their assets in the balance sheet, which reveals incomplete information on financial position of the business and also fails the neutral characteristic of financial statements. A response of 88.9% (63%= *agree* and 25.9%= *strongly agree*). In contrast, 11.1%= *disagree* that all their assets were included in the balance sheet.

5.4.3.8 Conclusion

The majority of the respondents evaluated their financial performance measures on a monthly basis. SMEs do not prepare adequate financial statements. Most of the respondents focused on the cash flow statement and statement of financial performance and seemed to neglect other statements such as statement of change in equity and statement of financial position. Some of the respondents made use of financial ratios although those using financial ratios were not found to be effective in their use. Debtors' collection period was regarded as the critical success factor followed by net margin and gross margin by SMEs. It is wise to monitor debts collection for it helps the business to finance liquidity of the business and improve cash flow. Net margin and gross margin were key essentials and determinants of whether the businesses realised profits or losses in their operations. Interestingly, none of the respondents regarded the acid test ratio as a significant financial measure in their businesses.

5.4.4 Descriptive results: Objective three

This section focuses on objective 3 of the research study which sought *to identify non-financial performance measures which are currently used by SMEs in supply chain management.* The results analysed in this section emanate from section A of the questionnaire. The research question that addressed this objective was as follows:

Which non-financial performance measures are currently being used by SMEs in the implemented supply chain?

5.4.4.1 Non-financial measures

A four-point Likert scale statement was used to address this question in the questionnaire: *the following non-financial performance measures are implemented in my SCM.* The question was broken down into three categories, according to the non-financial performance measures of the BSC applied in this study, namely customer measures, internal efficiency quality and time, and innovation and growth measures.

5.4.4.1.1 Customer measures

The research question in the form of a four-point Likert scale ranging from 1= *strongly disagree* and 4= *strongly agree,* was: *are the following customer measures implemented in my SCM?*

Table 5.10 (below) depicts the level at which small businesses made use of the customer satisfaction measure. Customer satisfaction improves sales and leads to profits realisation in a business.

Table 5.10: Customer Satisfaction

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Agree	**5**	**16.7**	**16.7**	**16.7**
	Strongly Agree	**25**	**83.3**	**83.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

It is significant to note that every member of the sample population measured customers' satisfaction in their businesses. This may imply that every business is willing to see its customers happy, which is key to an SCM environment. A total of 100% (83.3%= *strongly agree* while 16.7% *agree*) of the respondents did consider customer satisfaction critical towards business success. Table 5.11 illustrates the implementation measure of customer retention.

Table 5.11: Customer Retention

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Disagree	**1**	**3.3**	**3.3**	**3.3**
	Agree	**5**	**16.7**	**16.7**	**20.0**
	Strongly Agree	**24**	**80.0**	**80.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

Although 3.3% of respondents did not consider customer retention significant in their businesses, 96.7% (16.7= *agree* and 80%= *strongly agree*) of the total respondents made use of this measure. Table 5.12 (below) is an analysis of the customer response time measure.

Table 5.12: Customer Response Time

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Disagree	**1**	**3.3**	**3.4**	**3.4**
	Agree	**6**	**20.0**	**20.7**	**24.1**
	Strongly Agree	**22**	**73.3**	**75.9**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

(Source: fieldwork)

Most of the respondents 96.6% (20.7%= *agree* while 75.9%= *strongly agree*) did measure customer response time, which is important for customer retention and increased market base. While 3.4% of the respondents strongly disagreed with the implementation of this measure, 3.3% did not indicate whether it had been implemented or not.

The analysis of the results from a customer measure perspective of the BSC predicts the highest level of consideration and implementation. All metrics under this measure gained a high response rate, over 95%, with customer satisfaction showing a 100% response. SMEs seemed to understand the significant role the customer play in a SCM, and that without the customer business would not exist. Therefore, it is imperative to focus on the needs of the customer.

5.4.4.1.2 Internal efficiency, quality and time measures

This section indicates the implementation level of internal efficiency, quality and time measures. The research question in the form of a four-point Likert scale ranging from 1= *strongly disagree* and 4= *strongly agree* was: W*ere the following internal efficiency, quality and time measures implemented in my supply chain operation?* The measures included:

- Number of on-time deliveries
- Product quality
- Defects-free deliveries
- Manufacturing lead time
- Total supply chain cycle time.

Table 5.13 presented on the next page is an analysis of the number of on time deliveries measure.

Table 5.13: Number of on time deliveries

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Disagree	**1**	**3.3**	**3.3**	**3.3**
	Agree	**8**	**26.7**	**26.7**	**30.0**
	Strongly Agree	**21**	**70.0**	**70.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

Whilst 3.3% of respondents did not measure the number of on-time deliveries on some 96.7% (70%= *strongly agree* and 26.7%= *agree*) of the respondents implemented this measure.

Table 5.14 (below) reveals the significance level of implementation of product quality to SMEs in particular the manufacturing sector.

Table 5.14: Product quality

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Agree	**5**	**16.7**	**17.2**	**17.2**
	Strongly Agree	**24**	**80.0**	**82.8**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

(Source: fieldwork)

The response rate indicates that all respondents' SMEs regard quality of product as significant, with 100% (82.8%= *strongly agreed* and 17.2%= *agreed*) of the respondents saying they measured and controlled product quality. The non-response rate was 3.3% for this question.

Figure 5.9 (below) focuses on the businesses that consider defect-free deliveries significant in their organisations.

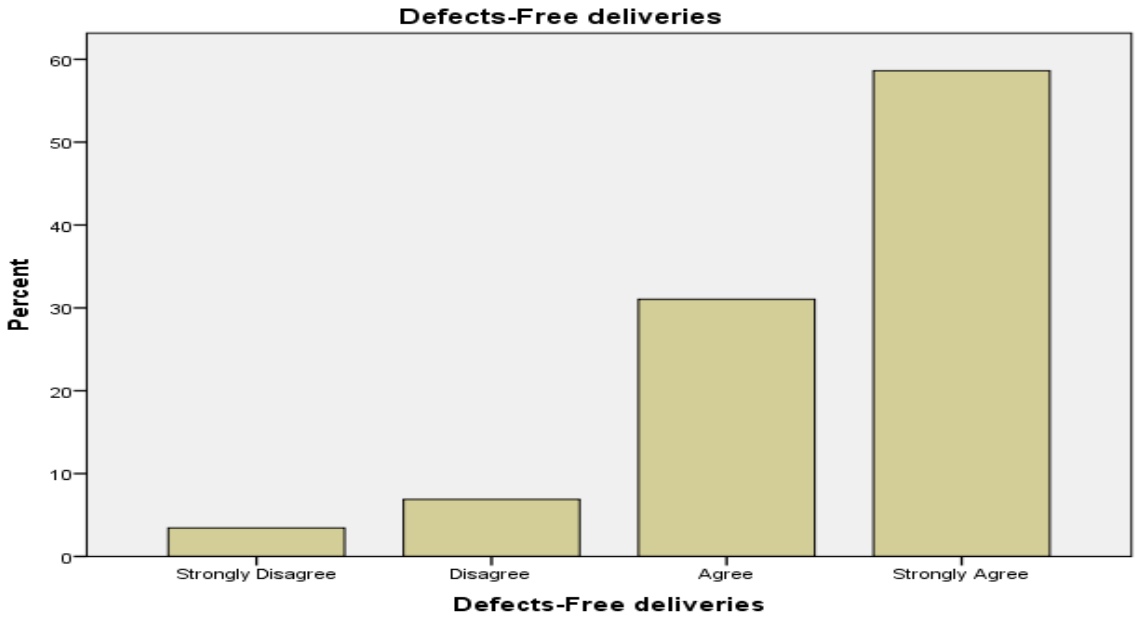

Figure 5.9: Defects-free deliveries (Source: fieldwork)

The table below show the entities that value their production process and are charged to monitor all the processes involved as well as the time it took to complete a product.

Table 5.15: Manufacturing Lead time (Source: fieldwork)

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Disagree	**1**	**3.3**	**3.6**	**3.6**
	Agree	**13**	**43.3**	**46.4**	**50.0**
	Strongly Agree	**14**	**46.7**	**50.0**	**100.0**
	Total	**28**	**93.3**	**100.0**	
Missing	System	**2**	**6.7**		
Total		**30**	**100.0**		

Defects-free deliveries (Figure 5.9) and manufacturing lead time (Table 5.15) carried a high percentage of 89.6% (31%= *agreed* while 58.6%= *strongly agreed*), although 10.3% (3.4%= *strongly disagreed* and 6.9%= *disagreed*) and 96.4% (46.4%= *agreed* and 50%= *strongly agreed*) respectively, which implies that SMEs understood the significance of a smooth production process and quality of goods delivered to the customers. However, a minor percentage of 3.6% of the respondents strongly disagreed with this implementation and its significance, while 6.7% did not respond.

The figure below focuses on SMEs that consider total supply chain cycle time significant in their organisations.

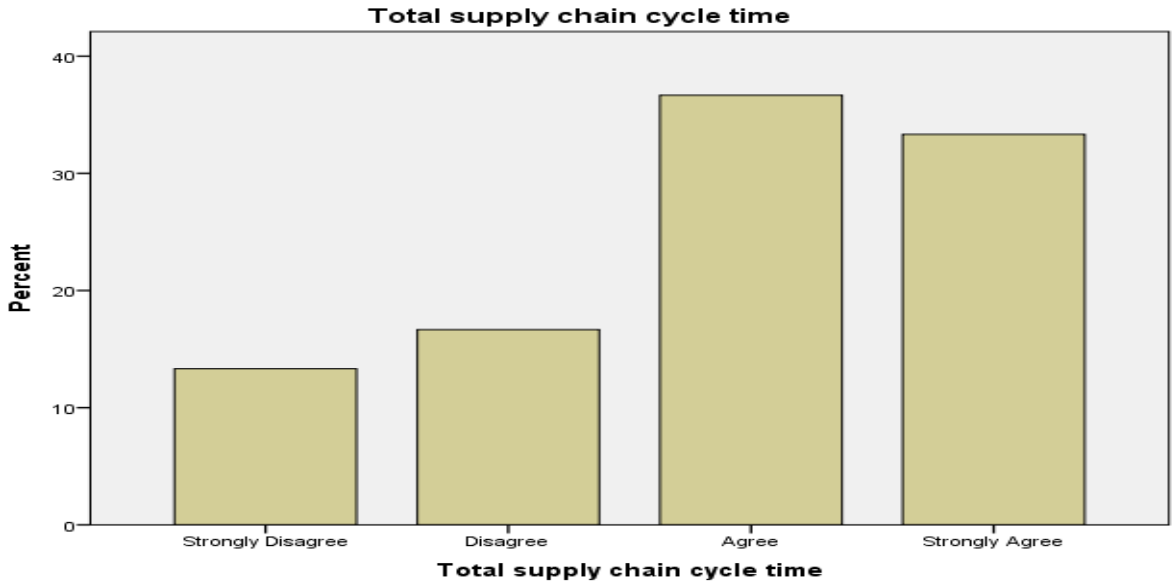

Figure 5.10: Total supply chain cycle time (Source: fieldwork)

A total of 30% (13.3%= *strongly disagree* and 16.7%= *disagree*) of the respondents did not measure their supply chain cycle time. This is the highest unmeasured metric under this section of internal efficiency control and time measure. Of the 70% respondents that implemented this measure, 36.7% agreed and 33.3% strongly agreed.

This section has analysed the internal efficiency, control and quality measures from the BSC perspective. Product quality focus according to these results indicates that SMEs attention was based on delivering good quality of products. 100% of the respondents adhered to this implementation measure, followed by 96.4% and 89.6% of manufacturing lead time and defect-free deliveries respectively. However the total supply chain cycle time seemed to be the lowest implemented measure in this perspective of the BSC, which is of concern because SMEs must not place their focus on one or a few, but rather the entire SCM processes to attain the best results towards sustainability and effectiveness of the value chain as a whole.

5.4.4.1.3 Innovation and growth measures

The fragment below seeks to answer questions 24, 25 and 26 of Section A of the questionnaire that measures the performance metrics of innovation and growth measures. The research question in the form of a four-point Likert scale ranging from 1= *strongly disagree* and 4= *strongly agree* was the following: *Innovation and growth measures are implemented in my supply chain operation.* The measures are:

- New product launches
- New product development
- Use of new technology

The figure below determines the rate of implementation of product launches in SMEs.

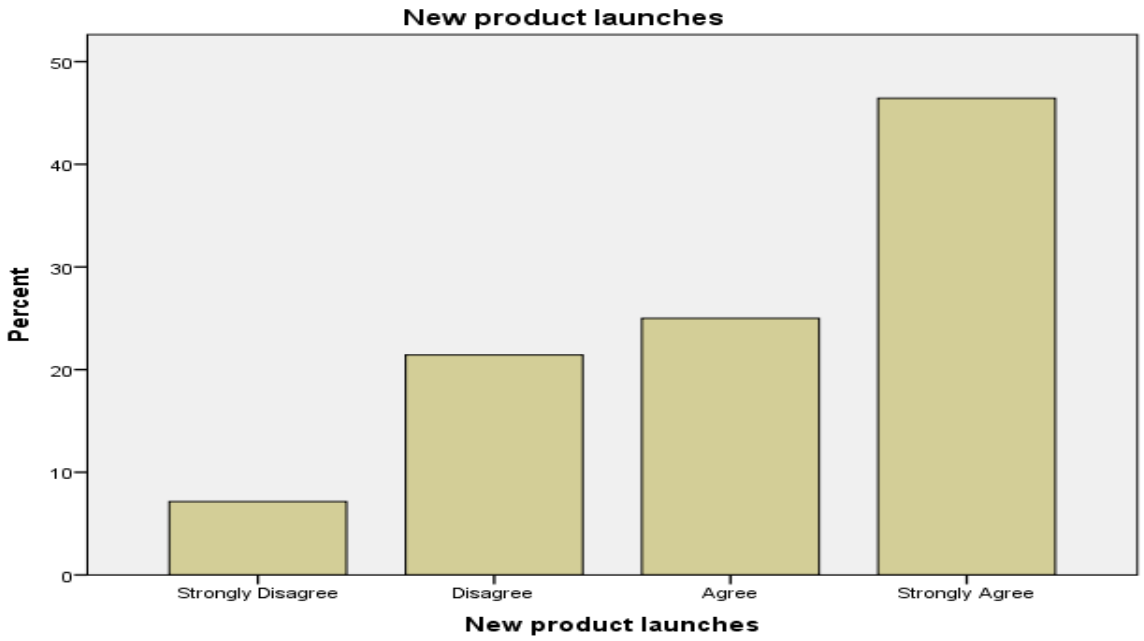

Figure 5.11: New product launches (Source: fieldwork)

Implementation of new product development measure is illustrated in figure 5.12.

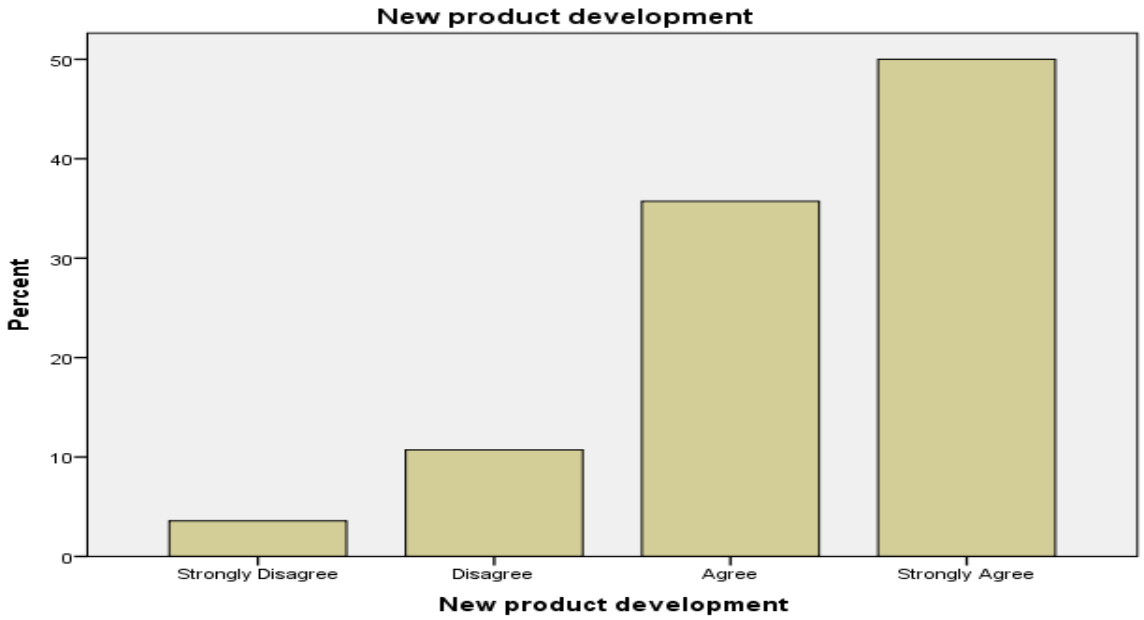

Figure 5.12: New product developments (Source: fieldwork)

Figure 5.13 (below) is a measure of innovation and growth that determines the implementation level of new technology in small businesses.

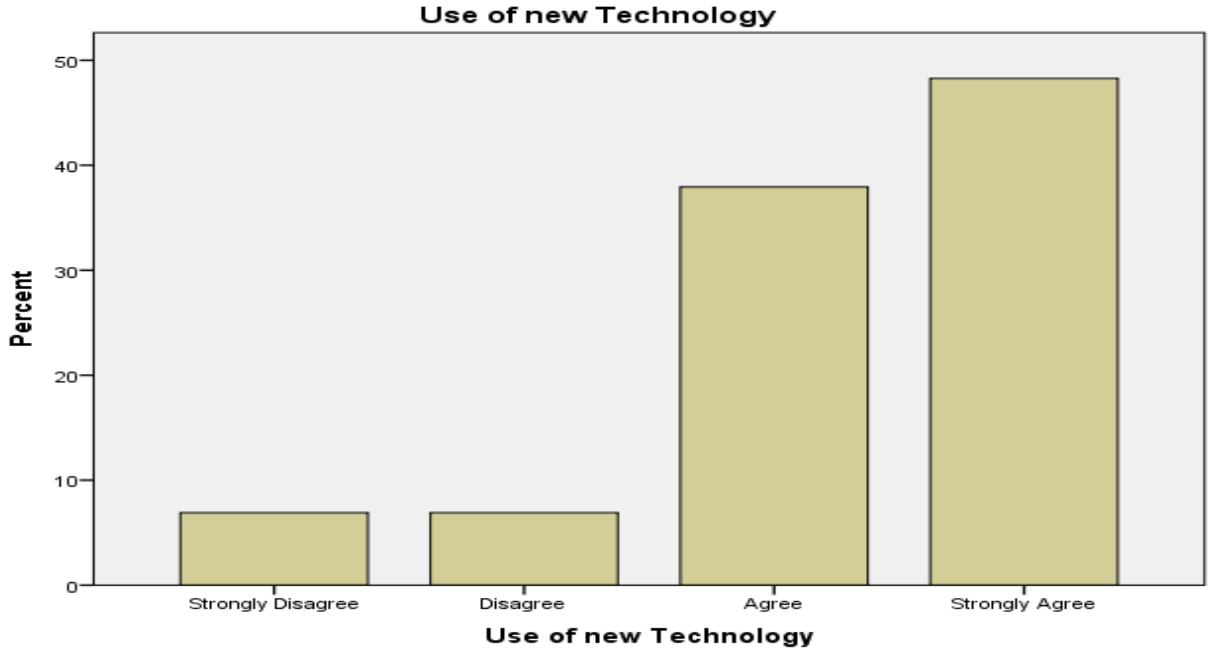

Figure 5.13: Use of new technology (Source: fieldwork)

Under innovation and growth, the majority of the respondents agreed to implementation of metrics measured, 71.4% (25%= *agreed* and 46.4%= *strongly agreed*) new product launches, 85.7% (35.7%= *agreed* and 50%= *strongly agreed*) new product development 86.2% (37.9%= *agreed* and 48.3%= *strongly*

agreed) use of new technology. Unlike these implementation measures and significance as viewed by SMEs, almost 29% (7.1%= *strongly disagreed* and 21.4%= *disagreed*) did not measure or launch new products in their businesses. Apart from that 14.3% of the respondents (3.6%= *strongly disagreed* and 10.7%= *disagreed*) on the implementation and significance of new product development. A further 13.8% (equally distributed between *strongly disagreed* and *disagreed*) regarding the use of new technology.

SMEs are working towards innovation and growth, although there was some still lagging behind in developing their SCM.

5.4.4.1.4 Conclusion

The analysis from Objective 3 reveals that SMEs did make use of non-financial performance measures. All these businesses aimed at customer satisfaction in their daily activities, though quality of the item produced and delivered to customers was of magnitude in their SCM environment. However, some of these businesses did not consider supply chain cycle time important and therefore did not implement it in their SCM. This may be as a result of lack of resources and skills on how to monitor and control the entire SCM processes. The majority of the respondents implemented use of new technology, which signalled a bright future toward success of the SMEs.

5.4.5 Descriptive results: Objective four

The presentation and analysis of research results based on Objective 4 of this study is unpacked under this section:

To ascertain whether SMEs recognise the vital role, which non-financial performance measures from a balanced scorecard perspective play towards efficiency and effectiveness in supply chain management.

The research sub-question that leads to this objective was: *How useful are the non-financial performance measures from BSC in effective decision making for SMEs in supply chain management?*

The first question under this objective is an umbrella for all non-financial measures and reads as follow:

- How often do you evaluate non-financial performance measures in your SCM implemented?

Figure 5.14 determines the extent to which SMEs in the manufacturing sector evaluate non-financial performance measures in their organisations.

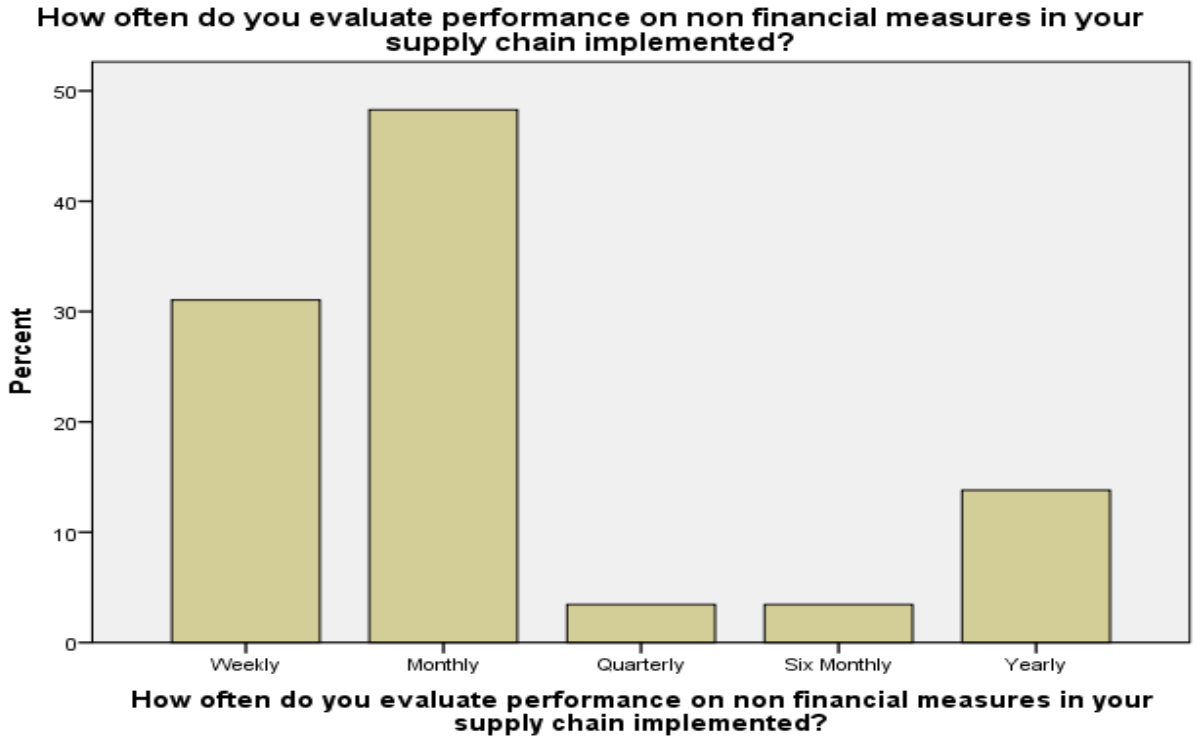

Figure 5.14: Evaluation of non-financial performance measures (Source: fieldwork)

As with financial performance measures, the same could be said about non-financial performance measures, with 31% of the respondents evaluating performance on a weekly basis, 48.3% on monthly basis and 6.8% divided equally between quarterly and six-monthly. Some 13.8% of the respondents evaluated performance yearly.

5.4.5.1 Customer measures

Customer measures were analysed based on the three performance indicators, namely customer satisfaction, customer retention and customer response time. The following questions were posed:

- Which performance indicators are regarded as the critical success factors of customer measures in your SCM?
- Are your customers happy with the goods sold?
- Do you respond quickly to customer queries?
- Have you retained all your customers in the past five years?

Figure 5.15 presents critical success factors of customer measures as perceived by SMEs.

5.4.5.1.1 Critical success factors of customer measures

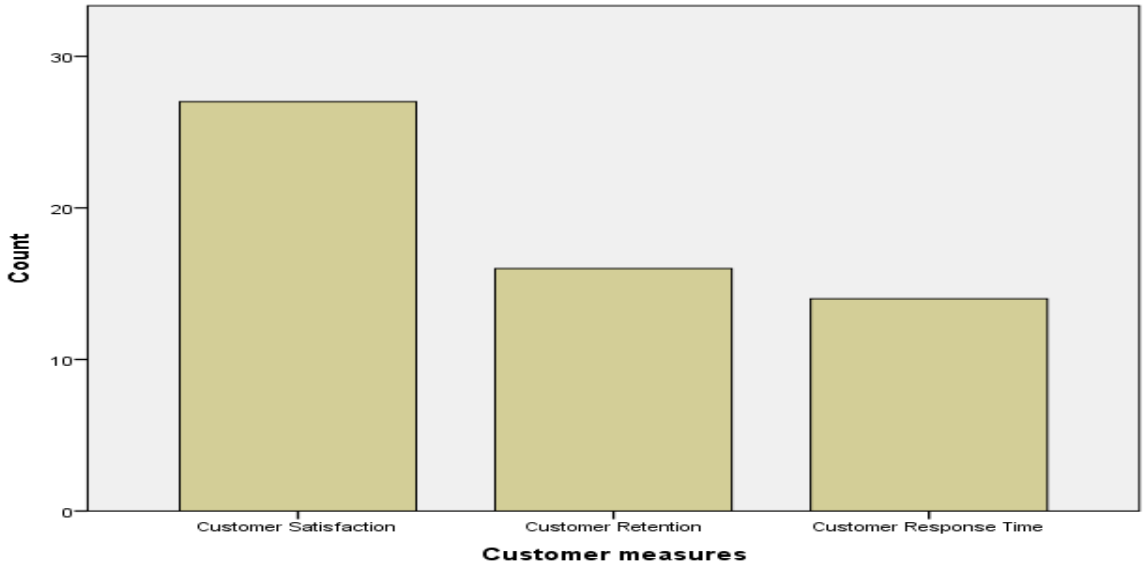

Figure 5.15: Critical success factors of customer measures as perceived by SMEs (Source: fieldwork)

It was significant that 90% of respondents considered customer satisfaction critical, which is of importance to any firm because without the customer there is no business and therefore sustainability might not be achieved. Customer retention was important to some degree, for 53.3% of SMEs respondents, while customer response was considered critical by 46.7%.

Although SMEs do not consider customer retention and response time as key when compared with customer satisfaction, their understanding may be that when customers are satisfied they are bound to stay, so it is imperative to check with their happiness rather than retaining them first. Customer response time is also significant, however if customers are not happy with the products delivered and services provided they will still leave for attractive suppliers.

5.4.5.1.2 Customer satisfaction

The table below is a measure of customer satisfaction.

Table 5.16: Are your customers happy with the goods sold?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**29**	**96.7**	**96.7**	**96.7**
	No	**1**	**3.3**	**3.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

The above table on satisfaction measure provides analysis of a favourable number (96.7%) of respondents who affirmed that their customers were happy with the products sold to them, with a marginal of 3.3% who believed their customers were not happy.

5.4.5.1.3 Customer response time

Table 5.17 is a measure of customer response time

Table 5.17: Do you respond quickly to customer queries?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**29**	**96.7**	**96.7**	**96.7**
	No	**1**	**3.3**	**3.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

According to the increased positive response from participants, it is evident that it was because of prompt deliveries and quick customer response that most

respondents were able to achieve customer satisfaction measure. The above two tables on satisfaction and response time to customers share the same favourable 96.7% with a little inconsideration of 3.3% on these measures by SMEs.

5.4.5.1.4 Customer retention

Not all the customers were retained, despite their satisfaction and response time. Only 46.7% of the respondents agreed that their customers had been retained in the past five years, while 53.3% of the respondents did not retain their customers.

Table 5.18: Have you retained all your customers for the past five years?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**14**	**46.7**	**46.7**	**46.7**
	No	**16**	**53.3**	**53.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

5.4.5.1.5 Conclusion

Customer measures show that the respondents provided maximum attention towards customer satisfaction in their businesses, which is of importance to a successful SCM. Otherwise, quick customer response time would lead to customer satisfaction; however, some of the respondents did not afford to retain their customers despite a higher satisfaction rate, as indicated by SMEs.

5.4.5.2 Internal efficiency, quality and time measures

This section is an analysis of the results based on measures of internal efficiency, quality and time such as manufacturing lead time, defect free deliveries, on-time deliveries, product quality and total supply chain cycle time. These analyses were derived from questions in Section C of the questionnaire (Appendix B). The respondents were asked the following questions in the form of a four-point Likert scale ranging from 1= *strongly disagree* to 4= *strongly agree*:

- Manufacturing lead time takes longer than the budgeted period
- Deliveries are free from defects when they reach the customers
- Deliveries are always on time when they arrive at the customer
- Suppliers are reliable
- Good quality of products is delivered to customers
- Deliveries are not free from defects when they arrive from suppliers
- Which are the critical success factors of internal efficiency, quality and time measures in your SCM implemented?

5.4.5.2.1 Manufacturing lead time

Figure 5.16 the perception about SMEs manufacturing lead time.

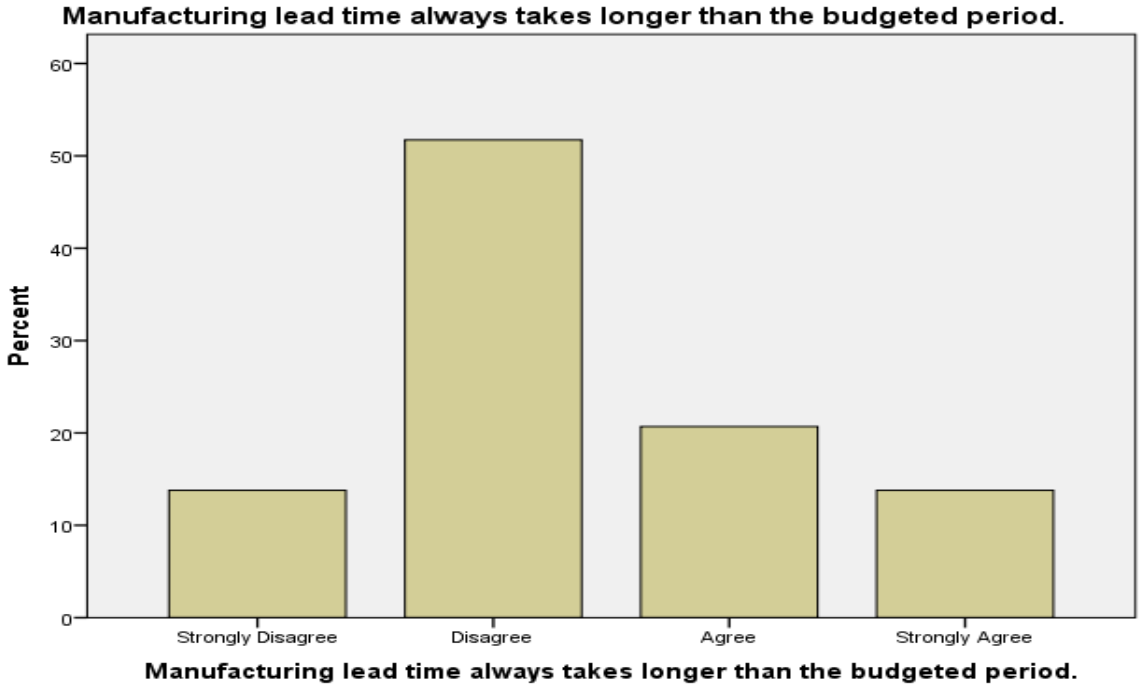

Figure 5.16: manufacturing lead time takes longer than the budgeted period (Source: fieldwork)

Almost 35% (20.7%= *agree* and 13.8%= *strongly agree*) of the respondents agreed that their manufacturing lead time took longer than the targeted time while 65.5% (50%= *disagree* and 13.3%= *strongly disagree*) of the respondents adhered to manufacturing lead targets.

5.4.5.2.2 Defects-free deliveries

Table 5.19 analyses perception of SMEs regarding defect free deliveries

Table 5.19: Deliveries are free from defects when they reach the customers

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Disagree	**3**	**10.0**	**10.0**	**10.0**
	Agree	**22**	**73.3**	**73.3**	**83.3**
	Strongly Agree	**5**	**16.7**	**16.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

An overall perception is that most of the SMEs respondents were able to supply their customers with products that were in good condition, that is 90% of the respondents (73.3% = *agree* and 16.7%= *strongly agree*), although 10% of the respondents did not achieve defect-free deliveries. This may be due to the nature of products delivered as these entities manufactured different products.

5.4.5.2.3 On-time deliveries

Table 5.20 analyses SMEs perception on their on-time deliveries.

Table 5.20: Deliveries are always on time when they arrive at the customers (Source: fieldwork)

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Disagree	**3**	**10.0**	**10.0**	**10.0**
	Agree	**23**	**76.7**	**76.7**	**86.7**
	Strongly Agree	**4**	**13.3**	**13.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

A similar trend is indicated by an on-time delivery. The minority were of the opinion that goods did not reach their final destination on time, with 10% of the respondents disagreeing (76.7%= *agree* and 13.3%= *strongly agree*).

5.4.5.2.4 Supplier reliability

Suppliers are providers of commodities or services to the entity. It is of importance to have a good relationship with suppliers in a SCM, perhaps increasing the chances of on-time deliveries and reliable suppliers who adhere to schedules.

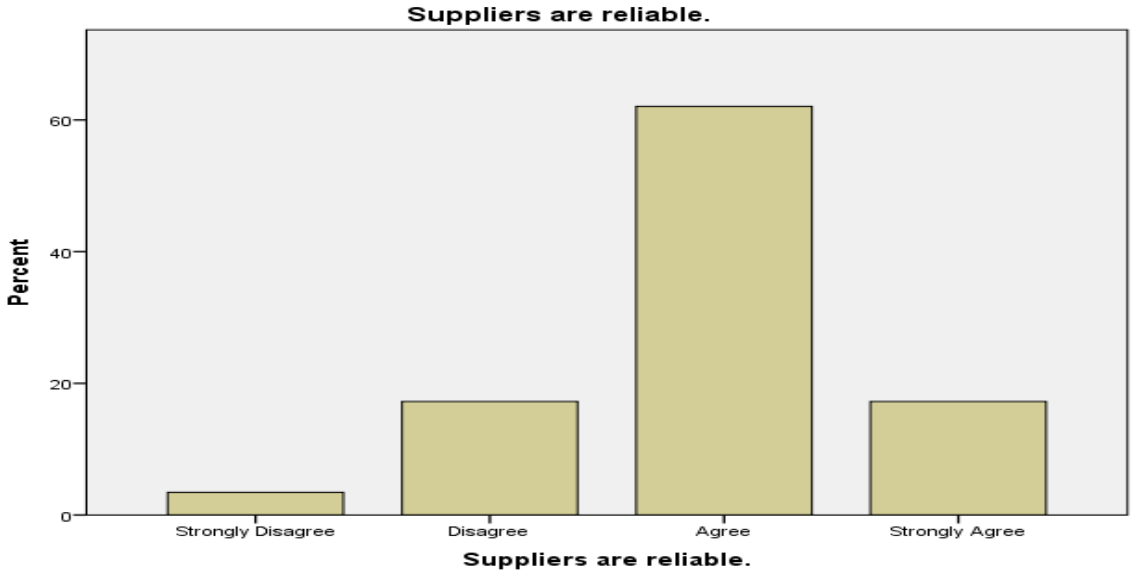

Figure 5.17: Suppliers are reliable (Source: fieldwork)

A total of 79.3% (62.1%= *agree* and 17.2%= *strongly agree*) of the respondents were of the perception that their suppliers were reliable. On the other hand, 20.6% (17.2%= *disagree* and 3.4%= *strongly disagree*) believed suppliers were not reliable.

5.4.5.2.5 Quality of goods delivered to the customers

The table below is an analysis of the perception of SME manufacturer on product quality

Table 5.21: Good quality of products is delivered to customers

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Agree	**14**	**46.7**	**48.3**	**48.3**
	Strongly Agree	**15**	**50.0**	**51.7**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

(Source: fieldwork)

Almost 100% (51.7%= *strongly agree* and 48.3%= *agree*) of the respondents are of the opinion that good quality of goods is delivered to their customers

5.4.5.2.6 Defect free deliveries from suppliers

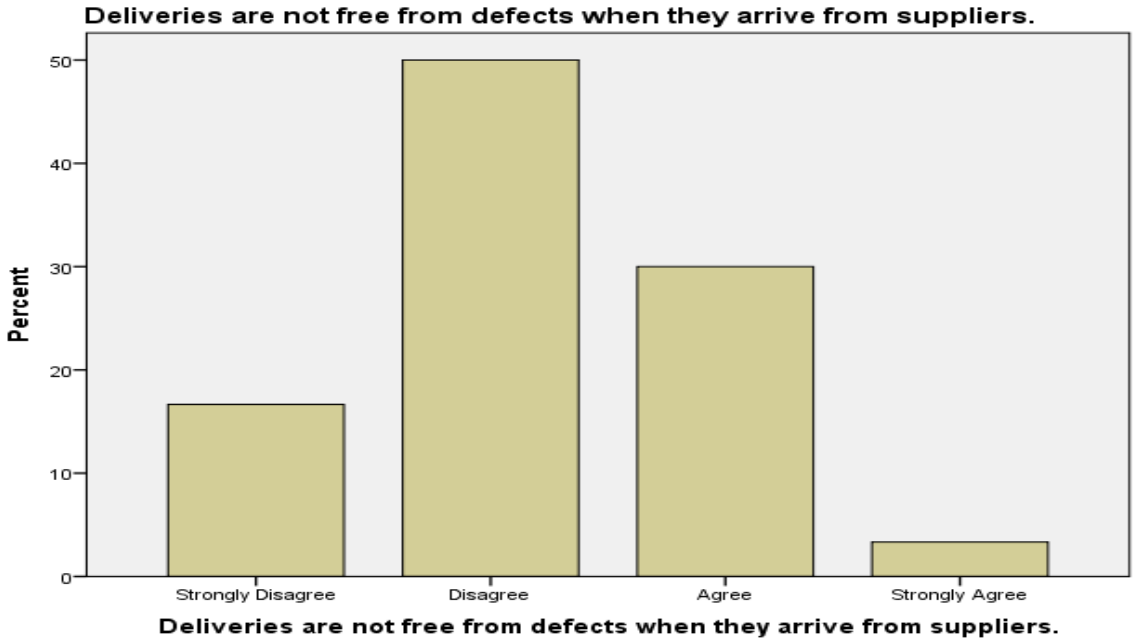

Figure 5.18: Deliveries are not free from defects when they arrive from suppliers (Source: fieldwork)

A total of 66.7% to some extent disagreed (50%= *disagree* and 16.7%= *strongly disagree*) that their goods were not free from defects, while 33.3% (30%= *agree* and 3.3%= *strongly agree*) agreed.

5.4.5.2.7 Critical success factors of internal efficiency, quality and time measures as perceived by SMEs

Figure 5.19 presents' critical success factors of internal efficiency, quality and time measures as perceived by SMEs

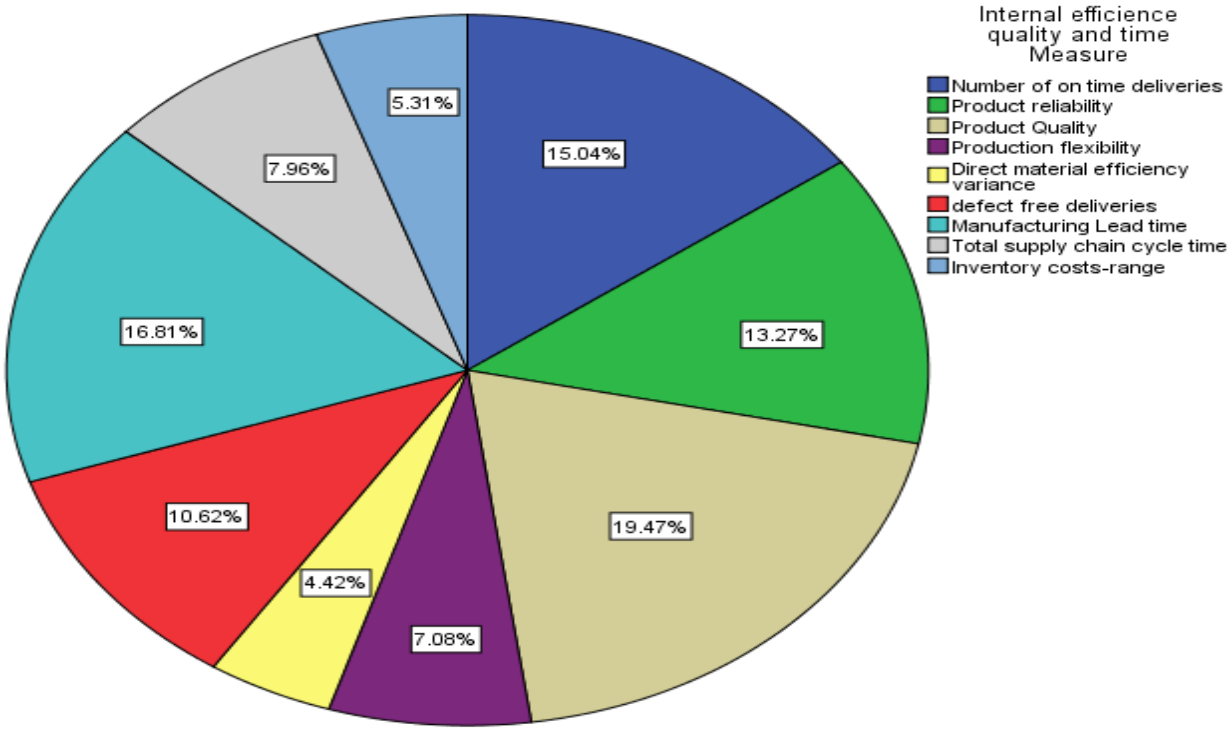

Figure 5.19: Critical success factors of internal efficiency, quality and time measures (Source: fieldwork)

It seems that just over average percentage of the respondents do regard on-time deliveries as crucial in their SCM. It is however significant to maximise on this measure because it helps to identify suppliers who do not adhere to scheduled delivery dates, and as a result unreliable suppliers may hamper the production processes due to delayed delivery and lead to unsatisfied customers.

Product quality is considered more critical in comparison with reliability and a lower percentage of response regarding flexibility. Quality is indeed a critical measure and this should indicate that if a product is of good quality it will definitely prove reliability. However, from the responses it was evident that flexibility did not prove significant if good quality was not given top priority.

A lower percentage of respondents agreed on the significance of direct material efficiency variance and defects-free deliveries which is of concern and may imply poor inventory management.

Manufacturing lead time is as important in a manufacturing firm for a company to be able to assess whether they reach their target as scheduled. The degree of significance indicated by the respondents is not satisfactory. Manufacturing lead time plays a significant role in on-time delivery to customers, which eventually results in customer satisfaction.

Total supply chain cycle time is a critical measure of SCM, and encompasses all aspects and flow of material from the supplier to production, distribution and finally the customer. Therefore, it is of importance to monitor the entire process in order to be able to evaluate and redefine measures in the SCM should there be any deviations from the targeted objectives. A higher rate of the respondents disagreed about the significance of this measure in their SCM, which poses a threat.

From the responses given, it was evident that the majority of the participants lacked understanding on how to improve performance of inventory valuation.

5.4.5.2.8 Conclusion

The analysis of internal efficiency, quality and time measures indicates that respondents regard product quality as a critical success factor under internal efficiency, quality and time measures. That manufacturing lead time was not given priority by respondents in its level of significance which may pose a threat and result in delayed deliveries and unsatisfied customers. Total supply chain cycle time is also not regarded as a key performance indicator by most of the respondents. It may be risky not to consider this measure as it is the only one that monitors the entire SCM process to enable evaluation, so that obsolete measures may be discarded when necessary and new ones are implemented.

The majority of the respondents claimed that suppliers were reliable and able to deliver commodities on time to the customers**.** However, some disapproved of supplier reliability, which might be a result of ineffective communication and poor relationships with their suppliers.

5.4.5.3 Innovation and growth measures

The analysis pertaining to the significant role that innovation and growth measures play in SCM of SMEs is presented here. Performance indicators and critical success factors of this measure encompass new product launches, new product development and use of new technology. This aspect of the questionnaire (Appendix B) under Section B gathered information by asking the respondents the following questions:

- What are the critical success factors of innovation and growth measures in your SCM implemented?
- How often do you launch new products?

Section C of the questionnaire asked the following question and statement:

- Does the new technological equipment allow quick production of quality goods?
- Use of new technology is implemented when changes occur.

5.4.5.3.1 Critical success factors of innovation and growth measures

New product launches did not seem significant to the majority of SMEs. That may signal to a variety of manufacturing entities that venture into different production setups and therefore the diversity and nature of products manufactured per entity will differ significantly from each other. This is similar with product development and use of new technology which are all considered below (50%) in their level of significance by respondents. New product development was high (43.3%) in

comparison to use of new technology at (36.67%) and new product launches (20%).

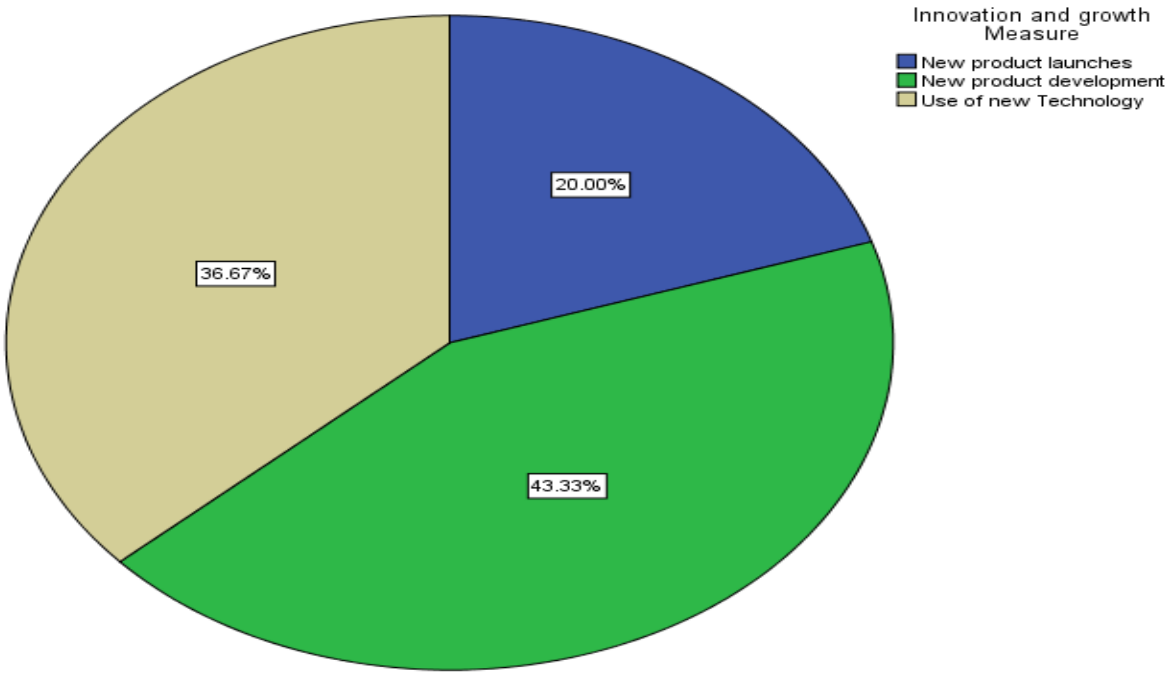

Figure 5.20: Critical success factors of innovation and growth measures (Source: fieldwork)

5.4.5.3.2 Product launch

Figure 5.21 presents how often SME manufacturers launch new products.

Figure 5.21 How often do you launch new products? (Source: fieldwork)

From a total of 71.4% of the respondents that measured new product launches, 64% in a split launched products on a monthly and yearly basis, 16% on a quarterly basis and 20% in six months. This may imply a variety of products manufactured from different entities.

5.4.5.3.3 New technological equipment

Table 5.22 analyses the perception of SMEs on the use of new technology.

Table 5.22: Does the new technological equipment allow quick production of quality goods?

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Yes	**21**	**70.0**	**72.4**	**72.4**
	No	**8**	**26.7**	**27.6**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

(Source: fieldwork)

Technological equipment enhances smooth production and eliminates delayed production runs if managed properly. More respondents (72.4%) agreed that new technological equipment improved their production systems, while 27.6% of the respondents did not.

5.4.5.3.4 Use of new technology

New technology is inevitable in the 21st century and therefore SMEs must adapt to changes in order to retain and attract new markets. 80% (60%= *agree* and 20%= *strongly agree*) of the respondents agreed that technology was implemented when necessary in their entities, while 20% (3.3%= *strongly disagree* and 16.7%= *disagree*) of the respondents did not make use of new technology.

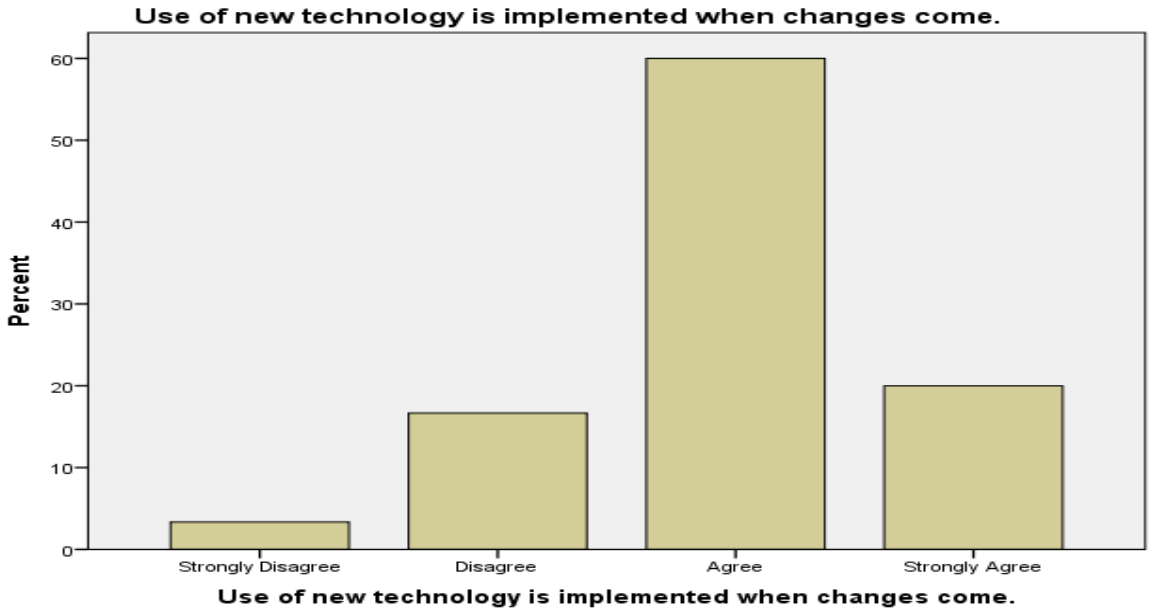

Figure 5.22: Use of new technology is implemented when changes come (Source: fieldwork)

5.4.5.3.5 Conclusion

The majority of the respondents made use of new technology and agreed that it improved their production processes. More launched their products on a monthly and yearly than quarterly and semester basis. This section of the analysis received less consideration on their level of importance than other performance indicators from other perspectives of the BSC. New product launches were regarded as the least critical measure under innovation and growth, despite all indicators scoring below average on their level of significance.

5.4.6 Descriptive results on SCM in SMEs

This section presents descriptive results affecting the day-to-day management of supply chain in SMEs and ultimately addresses Objectives 2 and 4 of this study, that is it is imperative to effectively manage and monitor SCM processes from across the entire value chain. The questions used to provide an analysis in this section was in the form of a four-point Likert scale, with 1= *strongly disagree* and 4= *strongly agree*. The respondents were supplied with the following statements emanating from Section C of the questionnaire:

- The performance metrics used in my supply chain are clear and easy to understand.
- I have a good relationship with parties involved in the supply chain
- There is good communication amongst parties involved in the measurement system.
- Absolute measures are discarded and new ones implemented when necessary.
- Feedback on performance measures is given on regular basis to relevant parties.
- Business is sustainable.

5.4.6.1 Clarity of performance metrics used by SMEs

Figure 5.23 is an analysis on the clarity of performance metrics used in SCM of SMEs in the manufacturing sector.

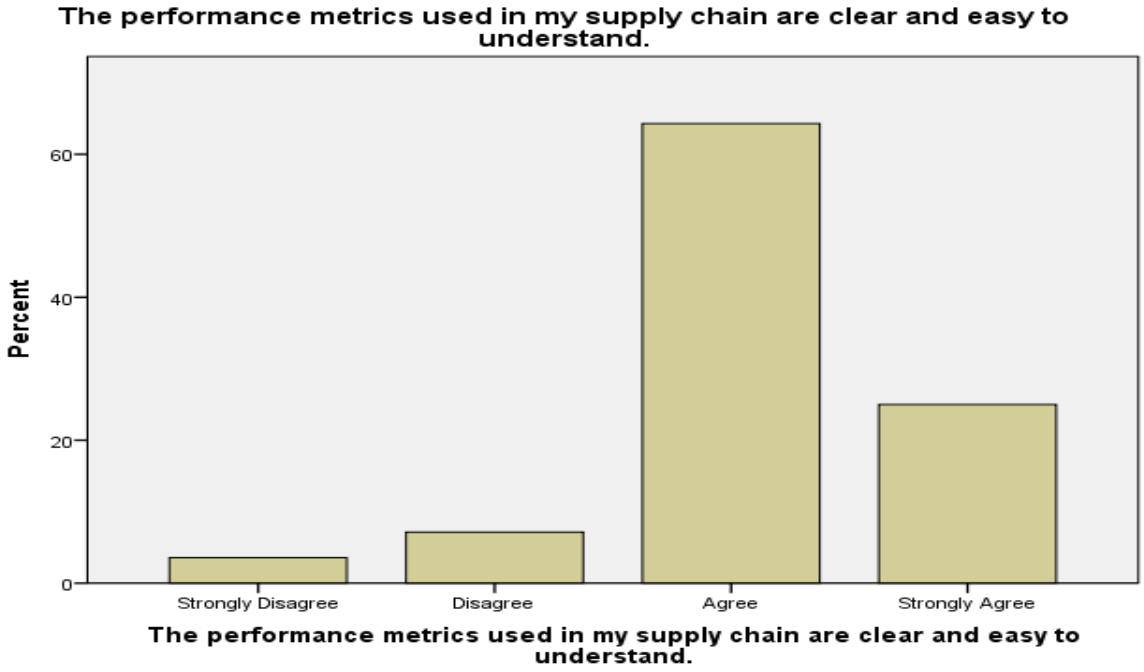

Figure 5.23: The performance metrics used in my supply chain are clear and easy to understand (Source: fieldwork)

Performance metrics are measurable characteristics of business activities from which four perspectives of performance measures are used in this study. It is central to performance metrics to be made clear to the parties involved in the

measurement system in order to ascertain what is expected from them by those in charge at the beginning of the project.

A total of 89.3% (64.3%= *agree* and 25%= *strongly agree*) of the respondents averred that metrics used were clear and easy to understand, while 10.7% (7.1%= *disagree* and 3.6%= *strongly disagree*) of the respondents did not.

5.4.6.2 Relationships among members of SCM

Table 5.23 presents perceptions on relationships with parties involved in the SCM of SMEs in the manufacturing sector.

Table 5.23: I have a good relationship with parties involved in the supply chain

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Agree	**19**	**63.3**	**63.3**	**63.3**
	Strongly Agree	**11**	**36.7**	**36.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

SMEs claimed to have a good relationship with members of the SCM. Significantly, all participants 100% (63.3%= *agree* and 36.7%= *strongly agree*) believed they were in good standing with others.

5.4.6.3 Communication among members of SCM

Table 5.24 presents perception on communication among members of SCM.

Table 5.24: There is good communication amongst parties involved in the measurement system

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Disagree	**2**	**6.7**	**6.7**	**6.7**
	Agree	**15**	**50.0**	**50.0**	**56.7**
	Strongly Agree	**13**	**43.3**	**43.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

A total of 93.3% (50%= *agree* and 43.3%= *strongly agree*) of the respondents had good communication with other parties involved in the measurement, with a minority (6.7%) disagreeing that there was good communication amongst members of SC. Communication is critical towards successful SCM, therefore this signals that SMEs in particular the manufacturing sector can still do better and improve their SCM

5.4.6.4 Are absolute measures discarded and new ones implemented?

The figure below is an analysis of the obsolete performance measures and the extent to which they are controlled and monitored.

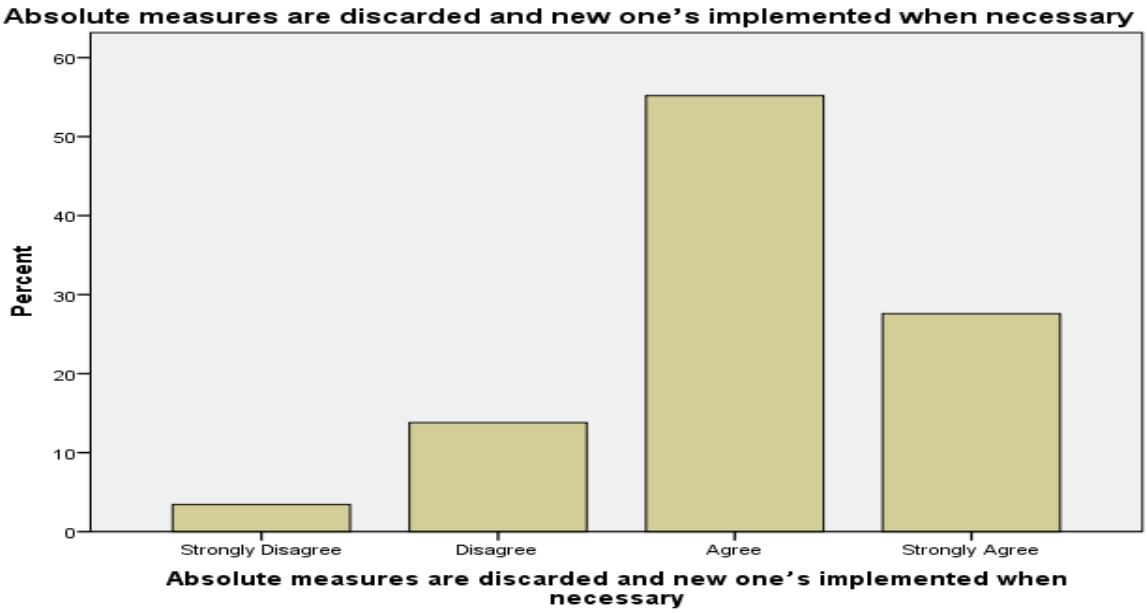

Figure 5.24: Absolute measures are discarded and new ones implemented when necessary (Source: fieldwork)

As 17.2% (13.8%= *disagree* and 3.4%= *strongly disagree*) of the respondents did not agree that absolute measures were discarded and new ones implemented when necessary, which signals communication coming from one side and not two-sided when parties had a say and were able to contribute towards the improvement of their SCM performance. However, 82.8% (55.2%= *agree* and 27.6%= *strongly agree*) of the respondents did discard absolute measures when there was a need.

5.4.6.5 Feedback on performance measures

Table 5.25 presents how often is feedback provided to relevant parties.

Table 5.25: Feedback on performance measures is given on regular basis to relevant parties

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Disagree	**5**	**16.7**	**16.7**	**16.7**
	Agree	**13**	**43.3**	**43.3**	**60.0**
	Strongly Agree	**12**	**40.0**	**40.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

(Source: fieldwork)

Although 16.7% of the respondents did not agree that feedback was communicated to them on a regular basis, 83.3% were of the opinion that they received feedback on a regular basis. This signals the significance of financial and non-financial performance measures, and that without communication there cannot be an improvement in the SCM of these SMEs.

5.4.6.6 Business sustainability

Table 5.26 analyses the perception of SMEs on their business sustainability

Table 5.26: The business is sustainable

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Agree	**15**	**50.0**	**53.6**	**53.6**
	Strongly Agree	**13**	**43.3**	**46.4**	**100.0**
	Total	**28**	**93.3**	**100.0**	
Missing	System	**2**	**6.7**		
Total		**30**	**100.0**		

(Source: fieldwork)

All (53.6% *agree* and 46.4%= *strongly agree*) of the respondents believed that their businesses were sustainable, with the exception of 6.7% that did not respond to the question.

5.4.6.7 Conclusion

All the respondents indicate that they have good relationships with all members of their SCM and that their businesses are sustainable with the exception of 6.7% of the respondents that did not respond to the latter. However some of the respondents do not eliminate unusual measures when changes come which may signal ineffective performance evaluation and poor communication channels. The majority of the respondents are of the opinion that feedback is provided on a regular basis.

5.5 INFERENTIAL STATISTICS

This section outlines results from the inferential statistics.

5.5.1 Chi-square test

According to Burns and Burns (2008:324), the chi-square is the most common and simple non-parametric test of significance, in which nominal data can be classified into discrete categories and dealt with as frequencies. It was performed to test whether the number of years served by the respondents in this sector, the existence of their companies and the status held, would show a statistical significance difference on how they perceived the significance of financial measures and the extent to which non-financial performance measures played a vital role in their SCM. Results were regarded as significant if the p-value were smaller than 0.05 because this value presents an acceptable level of 95% interval denoted by ($p \leq 0.05$)

5.5.1.1 The correlation of financial measures

The status, experience and company age does not impact on the implementation and perception about financial measures by SMEs, in particular the manufacturing industry. This was denoted by a chi-square performed to test the statistical

significance. The results proved to be constant on all variables or slightly deviated from each other, which led to this test not being statistically significant. The test was performed on all variables such as status, experience of the respondents and existence of their companies, and whether they had an impact on the implementation of financial performance measures and the perception about significance of financial measures in the SCM. However, the p-value of p≥0.05 was encountered in most instances and therefore the results were not statistically significant in differences. The analogy from this observation would be that respondents from SMEs had a general perception on the significance of BSC in their businesses.

5.5.1.2 The correlation of non-financial measures

The chi-square test performed on all variables against the status of the participants, their experiences in the industry and again the number of years the businesses has been in existence. All these tests performed were not statistically significant. As with financial performance measures, the chi-square test was performed to determine if the longer the experience of the respondents the longer the existence of their companies, as well as whether their status held in the businesses would have a more positive impact on the implementation of non-financial measures and the extent to which they recognise the pivotal role played by non-financial measures in their SCM. The results were not statistically significant in their differences as the chi-square indicated a p- value of p≥ 0.05 under different circumstances.

5.6 CONCLUSIONS

The major findings of this descriptive study revealed that both financial and non-financial measures were implemented in the SCM of SMEs in the manufacturing enterprises (participants). However, these measures were not formally implemented in most companies. This information was gathered from the

questionnaire distribution and collection periods from the participants. They measured their performances but measures were not formally implemented:

- Under the implementation of financial measures, debtors' collection periods were a highly measured metric, with the lowest being fixed assets turnover.
- Customer satisfaction was a regarded measure in SCM of SMEs followed by retention and response time.
- Internal efficiency provided product quality as the highest measured metric in the SCM of these entities.
- Use of new technology gained a higher implementation rate compared to new product development and new product launches.
- Internal efficiency provided product quality as the highest measured metric in the SCM of these entities, whilst material efficiency variance gained a lower implementation consideration by SMEs in the manufacturing industry which might indicate poor inventory controls.
- SMEs indicate a lack of knowledge on how financial statements are prepared. The majority of these entities did not utilise all components of financial statements to prepare their books. Ratios were not used by these SMEs to analyse or interpret their financial statements in order to make meaningful for decisions. However, some of these entities were found to be subsidiaries, if their head offices were mainly situated in Johannesburg or KwaZulu-Natal. They pointed out that comprehensive financial statements were prepared at the head office level, to which they did not have much access and only measured and monitored the performance on their premises.
- Communication is regarded as key by SMEs, although their suppliers were still not formally measured.
- All the respondents claimed that they had a good relationship with all parties involved in their SCM. However, some of them did not discard obsolete measures when they became due. This may be an indication of ineffective communication in the value chain.
- Most of these businesses had been in operation for more than a decade and the majority were controlled by managers and directors, and were not owner-managed entities.

- All of the respondents indicated that their businesses were sustainable.
- Innovation and growth was the least regarded measure in the SCM of these SMEs.

The ensuing chapter discusses the results presented in this chapter, concludes the entire thesis and provides recommendations and suggestions for further studies.

CHAPTER SIX
DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

Performance measures from a BSC perspective are deemed critical towards a successful SCM which leads to profitability and sustainability of SMEs. It is crucial for SMEs to measure their financial performance measures but not to neglect the non-financial measures, which would lead to an ineffective SCM, as in real time, the latter act as drivers of the former. In this study categories of BSC include customer measures, internal efficiency, quality and time measures, innovation and growth measures plus financial measures. Customer measures encompass customer response time, satisfaction and customer retention. When a high quality of goods is delivered to the customer at the right time and place, and their queries are promptly answered, customers are more likely to remain loyal and retained for a longer time.

Also important are internal efficiency, quality and time, including examples of manufacturing lead time, product quality, on-time delivery and product flexibility. These are measures controlled internally and if managed and controlled properly may feed through to the satisfaction of the end customer in the value chain. It is in this manner that suppliers may be managed to ensure the smooth flow of material for production processing in order to beat the lead time in production. It is not only to achieve lead time but also quality of commodities and services that conform to specification. Distribution of merchandise on time is then achieved to meet the customer demands.

Measures of innovation and growth comprise product development, product launches and the use of new technological equipment. When all these non-financial performance measures are satisfied they may lead to increased sales and return on assets which eventuates profitability and sustainability of these SMEs in the manufacturing firms. Therefore, the purpose of this research was to investigate the extent to which SME manufacturers incorporate non-financial performance measures in their SCM towards their business profitability and sustainability. A positivistic research paradigm was followed in which data was

purposively gathered from owners and managers by means of questionnaires. The results were analysed through statistical means and were descriptive in nature. SPSS was used to analyse data captured. Major findings indicate that SMEs do measure non-financial performance measures as well as financial measures, although measures are not formally implemented.

6.2 AIMS OF THE CHAPTER

The aim of this chapter is to discuss and summarise the major findings of this study as they pertain to the research objectives stated in Chapter One. The discussion and summaries are based on the findings and literature in this study that may help provide possible suggestions for further research. Some limitations envisaged in this study are also listed.

6.3 DISCUSSIONS

The results which were analysed and presented in the previous chapter are discussed categorically under different sections according to the objectives of the study (Chapter One). From the outset of the study the cascaded research questions were aligned to the research objectives.

6.3.1 Demographic information

Most businesses operate under the control of managers and only a few are owner-managed. Their success and sustainability could be maintained as a result of accountability. Managers are accountable for the day-to-day activities in an operation and therefore entitled to a proper reporting procedure. This could perhaps be an indication that those businesses exposed to high failure rate are owner-managed, and due to lack of accountability they use money inappropriately, which results in their businesses closing down in the first few years (Hotho & Champion, 2011:29). From the researchers' findings, it was evident that the majority of the respondents' companies had been in existence for over a decade,

contradicting claims in the literature that there is a high failure rate that culminates in large number of SMEs closing soon after only a few years of operation (Hotho & Champion, 2011:29; Jones, 2009:3; Ferreira, 2007:8). However this contradiction may be as a result of the population used in this study and may not be generalised.

6.3.2 Research question one

The results from the questionnaires which aimed to achieve objective one of this study are discussed in this section. The research question was:

How do SMEs perceive the significance of financial performance measures in SCM?

Debtors' collection period is the highest measured metric under financial measures, at 96.3%. This is in line with an emphasis made by Farris 11 and Hutchison (2002:294-295), that the C2C cycle may be enhanced by quick collection from debtors while keeping their payment period prolonged. Although some of the respondents did not pay much attention to this it may be necessary to consider it in order to keep track of how long it takes them to settle their debts when compared to their customer collection period. The majority of the respondents measured the gross margin, however net margin received a lower percentage, which is of concern with regard to how these businesses determine the profit or loss made in any given financial period (Sowden-service, 2011:44). Gross margin and net margin are traditional financial measures that signal the sustainability of a firm and so should be considered as important (Bhagwat & Sharma, 2007:55; Gumbus & Lussier, 2006:409; Kaplan & Norton, 1996a:57-63).

A total of 23% participants did not measure their inventory days on hand, which went together with a non-response rate of 13.3%. This is alarming as the inventory days on hand are at the core of their businesses. Failure to control inventory may lead to loss of inventory value, in cases when excess stock is kept, and additional costs such as rework and storage costs (Hamisi, 2011:1269). Likewise, inventory turnover was not measured by 20%, coupled with 13.3% non-respondents. The

finding from these results is that, contrary to the literature, these SMEs focus more on financial measures (Thakkar *et al*., 2009:712; Chia *et al*., 2009:617). The researcher is of the view that they do not know with certainty what is crucial for their core businesses and financial measures are not properly measured. A total of 40% did not measure their fixed assets turnover, which implies lack of understanding of the importance of how much the business can make, or is making, from the fixed assets invested in it.

6.3.3 Research question two

Results emanating from objective two of the study are discussed in this section. The research question was:

To what extent do SMEs recognise the significance of financial performance measures in SCM?

Some SMEs recognise the significance of financial measures, as indicated in the results presented and this concur with (Thakkar *et al*., 2009:712; Chia *et al*., 2009:617). However, measuring financial measures on a weekly and monthly basis does not provide a clear indication of the overall performance of these businesses over the accounting period. The most used financial statement is that of financial performance, with 80% rate followed by 70% cash flow statement, while a lower 33.3% prepared statements of changes in equity. Almost 44% did not prepare a statement of financial position. Lack of financial management education may have been an impediment (Nichter & Goldmark, 2009:1454) to proper and accurately drawn financial statements that represent a fair presentation of financial statements according to GAAP. Of the 63% SME respondents that agreed to the utilisation of financial ratios in order to analyse and interpret their financial statements, 70% did not use the debt ratio and return to shareholders, which indicates a lack of understanding of the emphasis on cash flow, mainly to maximise the return on investment (Niven, 2002:15-17; Kaplan & Norton, 1996a:57-63).

Financial measures identified as critical success factors in SCM of these SMEs include debtors' collection period, net margin, gross margin and creditors' payment period. The above results indicates that SMEs value the traditional financial measures which coincide with Kaplan and Norton (1996a:57-63), while it is vital to create a balance between these measures by taking into account those that promote cash flow, thus maximising return on investment (Bhagwhat & Sharma, 2007:55; Kaplan & Norton, 1996a:57-63). Most of these businesses collect debts from customers within 30 days, while maintaining a good reputation with their suppliers. This information was obtained during the data collection period and is in line with Farris 11 and Hutchison (2002:294-295), who posit that the C2C cycle might be improved by shortening collection from accounts receivable while delaying payment to creditors.

A total of 100% participants indicated that the quick / acid test ratio is not a critical financial measure. Quick ratio eliminates inventory from total current assets to determine the cash flow available to finance short-term debts, while being described as a real test of liquidity (Flynn *et al.,* 2005:29). If SMEs do not make use of these measure it may be difficult for them to determine the number of times their current assets (cash) may be able to cover short-term liabilities (Lodewyckx, *et al.,* 2007:468). Apart from the return on equity (ROE), current ratio and fixed assets turnover were the least critical financial measures (3.6%) of the response rate, which compromises the RBV on the ground that certain assets and capabilities of a firm may be utilised and/or lay the premise for competitive advantage (Barney, 1991:99; 1986:1231). ROE is a crucial measure in SCM as it not only plays a vital role in financial measures but also impacts on the non-financial measures, such as internal efficiency and customer measures as a result of sales realised (Bhagwat & Sharma, 2007:50; Gunasekaran *et al.,* 2004:339). Sales made inform whether the product has a good market and more revenues are likely to flow into the entity if customers are pleased with the quality, speed of delivery and economical cost of products sold. Again, innovativeness may feed into more return on investments, leading to competiveness of a firm and thus fulfilling the RBV.

6.3.4 Research question three

This section discusses results on objective three of the study from which the following research question was asked:

Which non-financial performance measures are currently in use by SMEs in SCM?

The mostly used non-financial performance measures in this section are categorised according to customer measures, internal efficiency, quality and time measures plus innovation and growth measures.

Under customer measures the most utilised metrics are customer satisfaction, customer retention and customer response time. The mostly used internal efficiency measures encompass the number of on-time deliveries, product reliability, product quality, product flexibility, material efficiency variance, defects-free deliveries, manufacturing lead time, inventory cost range and supply chain cycle time. Lastly, under innovation and growth, the metrics mostly used by SMEs include use of new technology, new product developments and new product launches.

Gunasekaran *et al*. (2004:338), emphasise that all the supply chain metrics must be centred on customer satisfaction, because if customers are not content with the services provided and quality as expected they may opt for alternate suppliers. Therefore, all these measures provided should not work in isolation but as a collective. Some of the measures overlap, and internal efficiency and control measures have an impact on the customer measures as well as financial ones. Metrics such as product quality, on-time deliveries, product flexibility, defect-free deliveries and manufacturing lead time may significantly impact on customer satisfaction and retention while fulfilling good return on investment and increased revenue (Shook *et al.,* 2009:5).

On-time deliveries may significantly improve the customer-supplier relation, therefore it is necessary for firms to have a supplier flexibility network, which may positively impact on cost, quality, and customer responsiveness, and eventually lead to higher returns (Liao *et al.,* 2010:10). This linkage refers to NT, which highlights network relations among interdependent organisations (Thoreli,

1986:37). Strong customer-supplier relationships may further promote innovation and development that meets the demands of the customers. Innovative business stands a chance of attracting new markets, retaining its customers and increasing profits to sustain itself (Ritter & Gemunden, 2004:549). However, the challenge is that the above-used measures as indicated by the respondents are not structured (Appendix C) to identify the appropriate business strategy (Ahmad & Seet, 2009:100). Lynch and Wilson (2009:144) found that SMEs do not invest as much time in addressing the business strategy as do large entities, due to scarcity of resources, time and money.

6.3.5 Research question four

The research question read as follows:

To what extent do SMEs recognise the vital role which non-financial performance measures from a balanced scorecard perspective play in SCM?

Non-financial measures are also often evaluated on a monthly basis by the majority of SME respondents, followed by those on a weekly basis as Kleijnen and Smiths (2003:6) postulate. This could be a good approach to evaluate non-financial performance measures, such that should there be any deviation from the intended goals managers may be in a position to redefine their measures, and discard them when necessary in order to stay aligned with their strategic objectives towards the organisational goals (Neely et al., 2002:32-71). However, these may be successful if there is good communication among parties involved in the measurement system. Results may be effectively communicated with smooth flow of information from bottom up and vice versa. A large number (93.3%) of these SMEs posit that there is good communication among those members of the SCM engaged with the measurement system and this is in line with Lambert and Cooper (2000:72) who propose that communication be regarded as key in SCM for efficiency and effectiveness of operations. The majority of SME respondents averred that feedback on performance measures was given to appropriate members on a regular basis. Critical success factors of non-financial measures

identified by SMEs are illustrated according to customer measures, internal efficiency, quality and time measures, plus innovation and growth measures.

Critical measures under customer measures were customer satisfaction and customer retention, whilst those on internal efficiency, quality and time measures were product quality, manufacturing lead time, number of on-time deliveries and product reliability. Regarding critical measures of innovation and growth measures, although all these metrics scored below average on their level of criticality, new product development was recognised only by 43.3%.

Customer satisfaction reached a high 90% from respondents as a critical measure, compared to customer retention at 53.3%. This supports claims by Stephenson and Spring (2007:658), that for a firm to stay competitive its customers must take the top priority at service level which should target shorter lead times and attain the highest customer satisfaction rate (Vanichchinchai & Igel, 2011:3407; Hudson, *et al.,* 2001:1105). Some SME managers said that their businesses were evaluated by customers on a quarterly basis based on product delivery, product flexibility and defect-free deliveries; hence customer satisfaction is more critical to them. This evaluation supports Kleijnen and Smith (2003:6), who reported that performance may be evaluated monthly, quarterly or at a strategic level. Some 96.7% of the respondents indicated that their customers were happy with products sold to them and customers' queries were attended to on a timely basis (Gunasekaran *et al.,* 2004:338). However, only 46.7% had retained their customers for the previous five years. The results under this measure of customer imply that SMEs understood the significant role the customer plays in the value chain. SCM encompasses all processes and parties involved engaged from the point of supplier to end customer in the chain, which is the boundary in which this study lies. Therefore, the SCM would be meaningless without the customer because all the activities and processes engaged in production and distribution are meant to achieve the demands of the customers.

Product quality is regarded as the most critical measure by SME respondents, receiving 73.3% from the respondents while manufacturing lead time received 63.3% and on-time deliveries 56.7%, followed by 50% of product reliability. It is indeed critical to monitor SCM performance by maximising on metrics such as

quality, time, and cost to ensure customer satisfaction level (Shephered & Gunter, 2006:244-245; Hudson *et al*., 2001:1105). However, there is a mounting problem to be addressed since some of the SMEs do not focus on these critical measures that lead to an effective and successful SCM. These results fit to the TCA in which total cost engaged in SCM is considered with the focus to achieve an economic cost while ensuring customer satisfaction level (Ketchen *et al*., 2007:575). Of concern is the high level of disagreement by SME respondents over the significance of the supply chain cycle time of 70%

The total supply chain cycle time is of importance in the value chain and its effectiveness may not be justified without this measure. The entire SCM ought to be monitored, controlled and evaluated so as to help facilitate smooth flow of information and activities engaged to meet the desired objectives of the organisation (Fernandes *et al.*, 2006:623). The inventory-cost range and material efficiency obtained a lower 20% and 16.7%, which indicates that SMEs do not have a thorough understanding of inventory management, thus inventory is not well controlled, monitored or properly evaluated.

Measures of innovation and growth are viewed differently by the researcher. Although these metrics scored less than average in their level of significance, product development being the highest at 43.3% and the lowest 20% of new product launches, the researcher's viewpoint is that it is as a result of diversity in the nature of commodities manufactured and sold, despite all being manufacturing firms. Some businesses would not need to focus on product launches if they did not specialise in seasonal products. Product development and product launches may be of significance to entities that manufacture a variety of products, including seasonal, which require intensive creativity and customer reliance due to competition and may exist for some or a particular commodity. However, this discussion acknowledges that SMEs lack the skills and knowledge towards the implementation of technological systems and utilisation of computerised system (Gol, 2008:7; Thong, 2001:153). These difficulties eventually lead to deterioration in the competitiveness of a firm due to poor quality of goods and services provided, hence negatively impacting on the implementation of successful SCM (Hamisi, 2011:1270).

6.4 LIMITATIONS OF THE RESEARCH

One of the major limitations in this research was accessibility of managers in this sector. The challenge which the researcher encountered was to receive a consent letter from the companies as it took almost nine months to meet the right persons to handle the request. Another limitation was identified as receiving a fixed scheduled date for appointment, as this took some months to be granted in some companies. This predicament was encountered with companies that were unable to complete the questionnaire at the first meeting with the researcher.

Other limitations encountered by the researcher emerged from the fieldwork whereby some of the owner managers were not willing to listen or understand the significance and purpose of the study. They considered paperwork as a waste of time when compared with their daily activities, while others indicated that they could not disclose the company's information to outside parties, and hence could not assist.

Some of the manufacturing entities in the cape Metropole were found to be branches of the main entities, mostly located in Johannesburg and others in KwaZulu-Natal. Most of these branches were unable to complete the entire questionnaire due to lack of information on financial measures. They said that all related financial aspects of the companies were handled by the head offices, hence some of the questionnaires were returned incomplete.

6.5 RECOMMENDATIONS AND SUGGESTIONS

Based on the results, performance measures of SCM from the four perspectives of the BSC is of importance to the success and effectiveness of the entire SCM environment in SMEs. Despite these businesses taking non-financial performance measures into consideration over financial performance measures (Bhagwat & Sharma, 2007:44), they lack strategy and their performance measures are not formally implemented (Ahmad & Seet, 2009:100). Lack of knowledge (Nichter & Goldmark, 2009:1454) on how to implement, monitor and evaluate performance management system could be a cause of this informality in the structure of

performance measures, therefore they should be well formulated and structured to enhance business processes and enable better control (Hudson *et al.,* 2001:806). They must be implemented at the strategic level and be directly linked to the organisational goals, which when set may see measures cascaded to the managerial and operational level.

The operational level deals with day-to-day activities of the operation in a business and therefore needs to ensure supplier reliability, smooth production processes, on time deliveries, defect-free deliveries and customer satisfaction. SMEs should ascertain that all tasks performed at the lower level feed back to the managerial and strategic level objectives of the organisation. A further improvement in performance in the SME sector would be for employees and managers to be directly involved in the process of strategy formulation, design, and application of training activities and material, innovation and technology.

SMEs require the use of new technology and therefore need to integrate their SCM in order to succeed, enabling them to network with the outside world. Integrated systems can be used to source globally at economical costs and help to provide feedback on their orders instantly without incurring additional costs. Integrated systems may further enable SMEs to attain the set standard of customer service level, thus fulfilling customer response time on needs and queries and meeting the demands. Smooth operation of processes throughout the SC may result from integrated systems and help link customers and suppliers at economical costs, thus improving communication to a magnitude required for a successful SCM. Although SMEs are known for their lack of skills and knowledge on how to operate and manage their systems, training on how to implement integrated systems in their environment is needed. Training is essential in these entities because it may encourage them to learn and be motivated to perform well in order to achieve their organisational objectives. These entities are often limited to informal training that includes orientation to the business, tasks, and hands-on training, while other forms of guidance provided when necessary are not sufficient for these entities to survive in a competitive environment. Manufacturers need to invest in the practice and application of SCM that empowers the decision-making.

Customer supplier relationship is another important factor that SMEs should not overlook. Close ties with key customers and good relationships with suppliers are imperative for SMEs, as it is in large corporations. It is only through involvement with suppliers and flexible communication that SCM processes may improve and increase efficiency of operations in their businesses. These relationships may help SMEs to reduce their stockpiling, which leads to high inventory holding costs. They may also have the confidence to order reasonable quantities that allow them to cut the costs of holding stock. These may also cascade to reduction in manufacturing lead time because goods would arrive on time from suppliers.

Good relationships between customers and suppliers may lead to effectiveness of SC cycle time and the SCM as a whole. The sooner SMEs recognise the significance of SC cycle time the better, because this measure governs the entire SC and cannot be ignored if success is to be realised in an SCM environment. SMEs are reported to have limited bargaining power, which reduces their chance of maintaining a good relationship with suppliers. However, SMEs may conquer this barrier through cooperative partnerships amongst themselves, whilst those with other entities in the sector may help them minimise their stock levels, reduce transportation costs and help them regain their bargaining powers with suppliers. When SMEs engage in cooperative partnerships they may also learn from each other how to control, monitor, and evaluate their inventory over time. They may further learn effective ways to monitor their inventory, such as a perpetual system whereby for every movement of inventory a transaction takes place to account for the purchase and sales, and the value of inventory on hand is determined at any particular time. Such a method of inventory control also helps entities to determine the cost of goods available at any stage.

This readily available information is useful, especially during periods of uncertainty, such as theft or fire. In that case the business would be in a position to provide the value of inventory prior to the incident. Manufacturers may not function in isolation and therefore proper application and practice that engages all parties involved must be maintained. It is also important for SMEs to monitor the quality of goods received from suppliers to enhance material efficiency and immediate returns of unwanted material to replace or change products delivered

when necessary. Further studies may be conducted based on qualitative in-depth interviews, as these allow a deeper comprehension of the impact of performance measures in SMEs, and perception on their training needs towards structured implementation of performance measures in their SCM. A larger scope of respondents will be used in future to allow for greater generalisation.

6.6 CONCLUSION

Performance measures from a BSC perspective are deemed key in SCM. The purpose of the study was “to investigate the extent to which SMEs recognise the significance of financial performance measures and incorporates non-financial performance measures in their supply chain management”. A positivist paradigm was followed using questionnaires as research instruments to gather data purposively from SME manufacturers around the Cape Metropole in Cape Town, South Africa. The data was used to yield descriptive results through SPSS. The results indicate that SMEs are faced with lack of knowledge on how to manage their books properly. They do consider and recognise the significance of non-financial measures and to some extent incorporate these measures in their SCM. Of major concern, however, is that despite measuring non-financial performance measures the majority of the respondents reported that measures were not being formally implemented. They were of the opinion that it worked for them and their businesses were doing well, as expressed by the 100% response rate from the participants who said their businesses had been in operation for more than a decade, which contradicts the popular literature regarding a significant failure rate of SMEs in their first few years of starting up (Jones, 2009:3; Ferreira, 2007:8). However this contradiction may not be generalised because of the sample size used in this study.

Most businesses paid attention to customer satisfaction measures and product quality, while the majority of the respondents said at the data collection stage that their businesses were evaluated by customers quarterly, based on quality of products, on-time delivery, defect-free delivery and flexibility which is supported by Kleijnen and Smits (2003:6). Despite the progress noticed among SMEs

towards consideration of non-financial measures, all measures need to be formally implemented to ensure traceability of ineffective measures, be properly evaluated, redefined and purged of obsolete measures when the need arises. However, the implementation of such strategies could be hampered by the initial capital injection required to invest in SCM. Ultimately, SMEs may be faced with a shortage of personnel with the appropriate skills in SCM, or with the high cost of training on SCM.

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Appendix A

Four tiered hierarchy of flexibilities. (**Source:** Stevenson & Martin, 2007:692)

Hierarchical level	**Flexibility dimension**	**Description**
Operational flexibilities (resource and shop flow level)	Machine equipment	Range of operations that a piece of can perform without resulting in a major setup
	Material handling	Capability of a process to move different parts throughout the shop
	Operations	The range of alternative processes or ways in which a part can be produced within the shop
	Automation	Extent to which flexibility relies upon automated manufacturing technologies
	Labour	The number of tasks that an operator can perform on the shop floor
	Process	The range of parts that can be produced without resulting in a major setup
	Routing	Number of alternative paths that a part can take through the shop in order to be completed
	Program	Length of time the shop can operate unattended
	Output	Ease with which short term capacity adjustments can be made to the shop
Tactical flexibilities	Production/	Ability to add or substitute new parts into the (plant level) modification system
	Volume	Range of output levels at which the system can cost effectively produces products
	Delivery	Ability of the system to respond to changes in delivery requests
	Production	Range of products the system can produce without adding new equipment
Strategic flexibilities	New design	Speed (and cost effectiveness) at which the firm (firm level) can design and introduce new products into the system
	Expansion	Ease with which a firm can add long capacity to the system
	Market	In-house ability to adapt to changes in market environment

Supply chain flexibilities	Robustness	Range of market change with which the existing (network level) supply chain configuration is able to cope
	Re- configuration	Potential to re align or re-invent the supply chain in response to (or in anticipation of) market change
	Relationship	Ability to build collaborative relationship both up and downstream, including relationship for new development
	Logistics	Potential to rapidly send and receive products cost effectively as customers and sources of supply change
	Organisational	Ability to align (or re- distribute) skills to meet the current needs of the whole supply chain
	Inter- organisational	Ability to align information system with existing Supply chain entities to meet changing information needs

Appendix B

20TH March 2012

To whom it may concern

Dear Participant

Mamorena Lucia Matsoso, a lecturer and a master's student at the Cape Peninsula University of Technology, is conducting research in the field of Cost and Management Accounting. We therefore kindly request you to please grant permission to conduct her research survey based on the topic: **Performance Measures in Supply Chain Management,** in your organisation. The research is intended to investigate the performance measures that are currently in place in Small Manufacturing Enterprise (SME) supply chain operations, with the aim to help them improve the current practice in order to enhance their liquidity and profitability status.

Support for our research will be greatly appreciated.

The research study is carried out under the supervision of Mr Benedict.

Contact details:

Mr. Benedict; Email: Benedicth@cput.ac.za

Mr Benedict is a senior lecturer in the department of financial accounting and taxation at the Cape Peninsula University of Technology.

Mamorena Matsoso; Email: matsosom@cput.ac.za

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SECTION A:

This section is on the level of implementation of the following performance indicators (Indicate your option on a scale of 1-4)1=strongly disagree, 2=disagree, 3=Agree and 4=strongly agree

	FINANCIAL MEASURES				
	This following financial measures are implemented in my supply chain operation	**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**
1	Gross Margin				
2	Net Margin				
3	Return on Assets(ROA)				
4	Return on Equity (ROE)				
5	Current Ratio				
6	Quick/Acid Test Ratio				
7	Debtors Collection period				
8	Creditors Payment period				
9	Days Inventory on hand				
10	Fixed Assets Turnover				
11	Inventory Turnover				
	CUSTOMER MEASURES				
	This following customer measures are implemented in my supply chain operation				
12	Customer Satisfaction				
13	Customer Retention				
14	Customer Response Time				
	INTERNAL EFFICIENCY QUALITY AND TIME MEASURES				
	This following internal efficiency, quality and time measures are implemented in my supply chain operation				
15	Number of on time deliveries				
16	Product reliability				
17	Product quality				
18	Production flexibility				
19	Direct Material Efficiency Variance				
20	Defects-Free deliveries				
21	Manufacturing Lead time				
22	Total supply chain cycle time				
23	Inventory costs-range				
	INNOVATION AND GROWTH MEASURES				
	This following innovation and growth measures are implemented in my supply chain operation				
24	New product launches				
25	New product development				
26	Use of new Technology				

27. If other please specify

……

……

……

SECTION B: PERFORMANCE MEASURES

28. How often do you evaluate performance on financial measures in your supply chain implemented?

Weekly ☐ **Monthly** ☐ **Quarterly** ☐ **Six months** ☐ **Yearly** ☐

29. How often do you evaluate performance on non-financial measures in your supply chain implemented?

Weekly ☐ **Monthly** ☐ **Quarterly** ☐ **Six months** ☐ **Yearly** ☐

30. How often do you launch new products?

Weekly ☐ **Monthly** ☐ **Quarterly** ☐ **Six months** ☐ **Yearly** ☐

31. Which financial statements do you prepare? Please mark with an **X**

Statement of financial performance	**a**
Statement of financial position	**b**
Statement of changes in equity	**C**
Cash flow statement	**d**

32. Do you make use of **financial ratios** to analyse data from financial statements? Please mark with an **X** ☐ **No** ☐

33. Which financial ratios do you make use of to analyse and interpret data from financial statements? Please mark with an **X**

Debt ratio	**a**
Debt to equity	**b**
Return to shareholders(RTS)	**c**
Dividend yield(DY)	**d**
Earnings yield(EY)	**e**
Price earnings ratio(P/E)	**f**

	QUESTIONS	**SD**	**D**	**A**	**SA**
34.	Objectives on performance metrics are well explained to parties involved.				
35	There is good communication amongst parties involved in the measurement system				
36	Absolute measures are discarded and new one's implemented when necessary				
37.	The business is sustainable				
38.	Feedback on performance measures is given on regular basis to				

	relevant parties				

39. Which performance indicators are regarded as the **critical success factors** in your supply chain operation implemented? Please mark with an **X**

FINANCIAL MEASURE	**1**	Fixed Assets Turnover	**k**	Direct material efficiency variance	**e**
Net Margin	**a**	Inventory Turnover	**l**	defect free deliveries	**f**
Gross Margin	**b**	**CUSTOMER MEASURES**	**11**	Manufacturing Lead time	**g**
Return on Assets (ROA)	**c**	Customer Satisfaction	**a**	Total supply chain cycle time	**h**
Return on Equity (ROE	**d**	Customer Retention	**b**	Inventory costs-range	**i**
Current Ratio	**e**	Customer Response Time	**c**	**INNOVATION AND GROWTH MEASURES**	**1v**
Quick/Acid Test Ratio	**f**	**INTERNAL EFFICIENY,QUALITY AND TIME MEASURES**	**111**	New product launches	**a**
Debtors collection period	**g**	Number of on time deliveries	**a**	New product development	**b**
Creditors Payment period	**h**	Product reliability	**b**	Use of new Technology	**c**
Days inventory on hand	**i**	Product Quality	**c**		
Fixed Assets Turnover	**j**	Production flexibility	**d**		

SECTION C: General Questions regarding supply chain. Please mark with an **X Yes** or **No**

	QUESTIONS	**YES**	**NO**
40.	Are your customers happy with the goods sold?		
41.	Do you deliver products on time to customers?		
42.	Have you retained all your customers for the past five years?		
43.	Do you respond quickly to customer queries?		
44.	Do you have a good relationship with your suppliers?		
45.	Does the new technological equipment allow quick production of quality goods?		
46.	Is creditors payment period of your company shorter than debtors collection period?		
47.	Is the insurance cost of production equipment included in the manufacturing cost?		
48.	Is the investment in property, plant and equipment used efficiently?		
49.	Is the business profitable?		

1=strongly disagree, 2=disagree, 3=Agree and 4=strongly agree. Please mark with an **X**

	QUESTIONS	SD	D	A	SA
50.	Total cost of inventory always includes raw material, work in progress, finished goods and stock in transit.				
51.	Manufacturing lead time always takes longer than the budgeted period.				
52.	Deliveries are free from defects when they reach the customers.				
53.	Deliveries are always on time when they arrive at the customers.				
54.	I have an understanding of fixed and variable costs.				
55.	Inventory takes longer to be converted into cash/sold..				
56.	Use of new technology is implemented when changes come.				
57.	Debts are collected on time from customers.				
58.	Suppliers are reliable.				
59.	Good quality of products is delivered to customers.				
60.	The performance metrics used in my supply chain are clear and easy to understand.				
61.	Deliveries are not free from defects when they arrive from suppliers.				
62.	I have a good relationship with parties involved in the supply chain.				
63.	Contribution margin less operating expenses equals Net profit.				
64.	I am able to calculate the ROE from Financial Statements.				
65.	Large inventory turns are achieved in one production line.				
66.	Quick ratio eliminates inventory to measure cash available to pay short term liabilities.				
67.	All assets of the business are included in the balance sheet.				

BUSINESS INFORMATION

68. Your the owner ☐ Director ☐ Manager ☐ Share Holder? ☐

69.How many years of experience?1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ ☐
over 20 ☐

70.How many years has the company been existing? 1-10 11-20 ☐ 21-30 ☐ over 30 ☐

71.Total number of employees ☐

COMMENTS:

72.You may include comments on other issues regarding supply chain

Thank you for your time and participation

Appendix C: Summary of frequency output

Frequencies

[DataSet1] C:\@LaCie\Research\Research PostGraduate\MTech\CPUT\MatsosoMamorena\Survey Data.sav

Frequency Table

The first section of the questionnaires covers aspects relating to implementation of financial performance measures in SCM of SMEs. This fragment seeks to answer research objective 1 of the study. From a total of completed questionnaires, majority of SMEs manufactures do have financial measures in place.

Gross Margin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.8**	**3.8**
	Agree	**10**	**33.3**	**38.5**	**42.3**
	Strongly Agree	**15**	**50.0**	**57.7**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

The results indicate that a total of 95.5% are measuring gross margin while 3.8% does not.

NET MARGIN

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**3**	**10.0**	**11.5**	**11.5**
	Agree	**7**	**23.3**	**26.9**	**38.5**
	Strongly Agree	**16**	**53.3**	**61.5**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

Net margin is used or measured by 88.4% of the respondents while 11.5% disagreed to implementation.

Return on Assets(ROA)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**3**	**10.0**	**12.0**	**12.0**
	Agree	**17**	**56.7**	**68.0**	**80.0**
	Strongly Agree	**5**	**16.7**	**20.0**	**100.0**
	Total	**25**	**83.3**	**100.0**	
Missing	System	**5**	**16.7**		
Total		**30**	**100.0**		

88% measured their ROA while 12% did not.

Return on Equity (ROE)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**5**	**16.7**	**20.0**	**20.0**
	Disagree	**4**	**13.3**	**16.0**	**36.0**
	Agree	**13**	**43.3**	**52.0**	**88.0**
	Strongly Agree	**3**	**10.0**	**12.0**	**100.0**
	Total	**25**	**83.3**	**100.0**	
Missing	System	**5**	**16.7**		
Total		**30**	**100.0**		

About 64% of the respondents measured their ROE while 36% did not.

Current Ratio

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**3**	**10.0**	**12.0**	**12.0**
	Disagree	**1**	**3.3**	**4.0**	**16.0**
	Agree	**18**	**60.0**	**72.0**	**88.0**
	Strongly Agree	**3**	**10.0**	**12.0**	**100.0**
	Total	**25**	**83.3**	**100.0**	
Missing	System	**5**	**16.7**		
Total		**30**	**100.0**		

The majority of the participants agreed to implementation of current ratio. A total of 84% implemented with the exception of 16% that did not.

Quick/Acid Test Ratio

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**4**	**13.3**	**15.4**	**15.4**
	Disagree	**3**	**10.0**	**11.5**	**26.9**
	Agree	**15**	**50.0**	**57.7**	**84.6**
	Strongly Agree	**4**	**13.3**	**15.4**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

Debtors Collection period

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**1**	**3.3**	**3.7**	**3.7**
	Agree	**11**	**36.7**	**40.7**	**44.4**
	Strongly Agree	**15**	**50.0**	**55.6**	**100.0**
	Total	**27**	**90.0**	**100.0**	
Missing	System	**3**	**10.0**		
Total		**30**	**100.0**		

Only a minority of 3.7% did not measure debtors' collection period. This could be due to lack of understanding and the knowledge of how significant is monitoring the cash flow in a business.

Creditors Payment period

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**2**	**6.7**	**7.4**	**7.4**
	Agree	**13**	**43.3**	**48.1**	**55.6**
	Strongly Agree	**12**	**40.0**	**44.4**	**100.0**
	Total	**27**	**90.0**	**100.0**	
Missing	System	**3**	**10.0**		
Total		**30**	**100.0**		

Although 92.5% of the respondents measure the creditors' collection period, 7.4% did not utilise the measurement.

Days Inventory on hand

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.8**	**3.8**
	Disagree	**5**	**16.7**	**19.2**	**23.1**
	Agree	**11**	**36.7**	**42.3**	**65.4**
	Strongly Agree	**9**	**30.0**	**34.6**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

It is important to monitor days inventory on hand because that determines the cash flow and how long it takes for assets to be converted into cash. 23% of the respondents did not measure days inventory which is a major concern while 76.9% measured it.

Fixed Assets Turnover

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**5**	**16.7**	**20.0**	**20.0**
	Disagree	**5**	**16.7**	**20.0**	**40.0**
	Agree	**11**	**36.7**	**44.0**	**84.0**
	Strongly Agree	**4**	**13.3**	**16.0**	**100.0**
	Total	**25**	**83.3**	**100.0**	
Missing	System	**5**	**16.7**		
Total		**30**	**100.0**		

A total of 40% did not measure their fixed assets turnover which implies lack of understanding the importance of how much the business can or is making out of the fixed assets invested in the business.

Inventory Turnover

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**2**	**6.7**	**7.7**	**7.7**
	Disagree	**3**	**10.0**	**11.5**	**19.2**
	Agree	**13**	**43.3**	**50.0**	**69.2**
	Strongly Agree	**8**	**26.7**	**30.8**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

Almost 20% did not measure inventory turnover in their businesses.

This segment of the questionnaires covers aspects relating to implementation of customers performance measures in SCM of SMEs.

Customer Satisfaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	**5**	**16.7**	**16.7**	**16.7**
	Strongly Agree	**25**	**83.3**	**83.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

83.3% of the respondents do consider customer satisfaction critical towards business success.

Customer Retention

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.3**	**3.3**
	Agree	**5**	**16.7**	**16.7**	**20.0**
	Strongly Agree	**24**	**80.0**	**80.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Only 3.3% did not consider customer retention significant in their businesses.

Customer Response Time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.4**	**3.4**
	Agree	**6**	**20.0**	**20.7**	**24.1**
	Strongly Agree	**22**	**73.3**	**75.9**	**100.0**
	Total	**29**	**96.7**	**100.0**	

Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Of the total 96.6% of the respondents do measure customer response time which is important towards customer retention and increased market base.

These sections encompass measures of internal efficiency, quality and time measures.

Number of on time deliveries

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**1**	**3.3**	**3.3**	**3.3**
	Agree	**8**	**26.7**	**26.7**	**30.0**
	Strongly Agree	**21**	**70.0**	**70.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Only 3.3% did not measure the number of on time deliveries.

Product reliability

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.4**	**3.4**
	Agree	**5**	**16.7**	**17.2**	**20.7**
	Strongly Agree	**23**	**76.7**	**79.3**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

3.4% did not measure product reliability while 96.6% made use of that measure.

Product quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	**5**	**16.7**	**17.2**	**17.2**
	Strongly Agree	**24**	**80.0**	**82.8**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

The response rate indicates that many SMEs regard quality of product significant hence 82.8% measured and controlled product quality.

Production flexibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**2**	**6.7**	**6.9**	**6.9**
	Disagree	**1**	**3.3**	**3.4**	**10.3**
	Agree	**10**	**33.3**	**34.5**	**44.8**
	Strongly Agree	**16**	**53.3**	**55.2**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Although a certain percentage did not take product flexibility important, 89.7% measured it which proves that SMEs do consider non-financial performance measures.

Direct Material Efficiency Variance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**3**	**10.0**	**10.3**	**10.3**
	Disagree	**2**	**6.7**	**6.9**	**17.2**
	Agree	**12**	**40.0**	**41.4**	**58.6**
	Strongly Agree	**12**	**40.0**	**41.4**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

From a total of the respondents, 82.8% make use of material efficiency measure.

Defects-Free deliveries

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.4**	**3.4**
	Disagree	**2**	**6.7**	**6.9**	**10.3**
	Agree	**9**	**30.0**	**31.0**	**41.4**
	Strongly Agree	**17**	**56.7**	**58.6**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Manufacturing Lead time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.6**	**3.6**
	Agree	**13**	**43.3**	**46.4**	**50.0**
	Strongly Agree	**14**	**46.7**	**50.0**	**100.0**
	Total	**28**	**93.3**	**100.0**	
Missing	System	**2**	**6.7**		
Total		**30**	**100.0**		

Defects free deliveries and manufacturing lead time carried a high percentage of 89.6% and 96.4% respectively which implies that SMEs manufactures understand the significance of smooth production process and quality of goods delivered to the customers.

Total supply chain cycle time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**4**	**13.3**	**13.3**	**13.3**
	Disagree	**5**	**16.7**	**16.7**	**30.0**
	Agree	**11**	**36.7**	**36.7**	**66.7**
	Strongly Agree	**10**	**33.3**	**33.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

A total of 30% of the respondents did not measure their supply chain cycle time which the highest unmeasured metric under this section of internal efficiency control measure. This raise a concern since this measure covers the whole process from supplier to the customer hence plays a vital role in SCM and should be considered.

Inventory costs-range

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**3**	**10.0**	**10.3**	**10.3**
	Disagree	**3**	**10.0**	**10.3**	**20.7**
	Agree	**13**	**43.3**	**44.8**	**65.5**
	Strongly Agree	**10**	**33.3**	**34.5**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

79.3% measured inventory cost range while 20.6% did not.

The fragment below seeks to answer question 24, 25 and 26 of section A that measures the performance metrics of innovation and growth measures.

New product launches

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**2**	**6.7**	**7.1**	**7.1**
	Disagree	**6**	**20.0**	**21.4**	**28.6**
	Agree	**7**	**23.3**	**25.0**	**53.6**
	Strongly Agree	**13**	**43.3**	**46.4**	**100.0**
	Total	**28**	**93.3**	**100.0**	
Missing	System	**2**	**6.7**		
Total		**30**	**100.0**		

New product development

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.6**	**3.6**
	Disagree	**3**	**10.0**	**10.7**	**14.3**
	Agree	**10**	**33.3**	**35.7**	**50.0**
	Strongly Agree	**14**	**46.7**	**50.0**	**100.0**
	Total	**28**	**93.3**	**100.0**	
Missing	System	**2**	**6.7**		
Total		**30**	**100.0**		

Use of new Technology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**2**	**6.7**	**6.9**	**6.9**
	Disagree	**2**	**6.7**	**6.9**	**13.8**
	Agree	**11**	**36.7**	**37.9**	**51.7**
	Strongly Agree	**14**	**46.7**	**48.3**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Under innovation and growth, majority of the respondents agreed to implementation of metrics measured, 71.4% new product launches, 85.7% new product development and 86.2% use of new technology. Almost 29% did not measure or launch new products in their businesses.

If other please specify

		Frequency	Percent
Missing	System	**30**	**100.0**

SECTION B

This section dominantly seeks to achieve research objective 2 and 4 of this study.

How often do you evaluate performance on financial measures in your supply chain implemented?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Weekly	**4**	**13.3**	**14.3**	**14.3**
	Monthly	**18**	**60.0**	**64.3**	**78.6**
	Quarterly	**2**	**6.7**	**7.1**	**85.7**
	Six Monthly	**2**	**6.7**	**7.1**	**92.9**
	Yearly	**2**	**6.7**	**7.1**	**100.0**
	Total	**28**	**93.3**	**100.0**	
Missing	System	**2**	**6.7**		
Total		**30**	**100.0**		

How often do you evaluate performance on non-financial measures in your supply chain implemented?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Weekly	**9**	**30.0**	**31.0**	**31.0**
	Monthly	**14**	**46.7**	**48.3**	**79.3**
	Quarterly	**1**	**3.3**	**3.4**	**82.8**
	Six Monthly	**1**	**3.3**	**3.4**	**86.2**
	Yearly	**4**	**13.3**	**13.8**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

From the above two tables, it is perceived that some SMEs recognise the significance of financial and non-financial measures. For those who measured financial and non-financial

measures, majority of them measured on a weekly and monthly basis, 14.3% measures financial measures on a weekly basis, 64.3% measured on a monthly basis while the remaining 21.3% shared equally amongst quarterly, six monthly and yearly. The same could be said about non-financial performance measures where 31% evaluated performance on a weekly basis, 48.3% on monthly basis and 6.8% divided equally between quarterly and six monthly while 13.8% evaluated performance yearly.

How often do you launch new products?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Monthly	**8**	**26.7**	**32.0**	**32.0**
	Quarterly	**4**	**13.3**	**16.0**	**48.0**
	Six Monthly	**5**	**16.7**	**20.0**	**68.0**
	Yearly	**8**	**26.7**	**32.0**	**100.0**
	Total	**25**	**83.3**	**100.0**	
Missing	System	**5**	**16.7**		
Total		**30**	**100.0**		

From a total of 71.4% of the respondents that measured new product launches, 64% split launched products on a monthly and yearly basis, 16% on quarterly basis and 20% in six months. This may imply variety of products manufactured from different entities.

Statement of financial performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**24**	**80.0**	**80.0**	**80.0**
	No	**6**	**20.0**	**20.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Statement of financial position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**17**	**56.7**	**56.7**	**56.7**
	No	**13**	**43.3**	**43.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Statement of changes in equity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**10**	**33.3**	**33.3**	**33.3**
	No	**20**	**66.7**	**66.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Cash flow statement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**21**	**70.0**	**70.0**	**70.0**
	No	**9**	**30.0**	**30.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

The above four tables refer to question 31 of section B. Evidence from the respondents proves that SMEs do not know how to account for their books properly. A total of 20% did not prepare statement of financial performance. The major concern is how is their profit or loss calculated? A further 43.3% did not prepare statement of financial position which is shocking because all assets and liabilities must be reflected in the balance sheet to provide an overview of the business status at a point in time as well as the entity's net worth. Only 33.3% prepared statement of changes in equity. 70% of the total respondents prepared cash flow statements for their businesses.

Do you make use of financial ratios to analyse data from financial statements?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**19**	**63.3**	**63.3**	**63.3**
	No	**11**	**36.7**	**36.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Debt ratio

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**9**	**30.0**	**30.0**	**30.0**
	No	**21**	**70.0**	**70.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Debt to equity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**11**	**36.7**	**37.9**	**37.9**
	No	**18**	**60.0**	**62.1**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Return to shareholders(RTS)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**9**	**30.0**	**30.0**	**30.0**
	No	**21**	**70.0**	**70.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Dividend yield(DY)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**4**	**13.3**	**13.3**	**13.3**
	No	**26**	**86.7**	**86.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Earnings yield(EY)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**8**	**26.7**	**26.7**	**26.7**
	No	**22**	**73.3**	**73.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Price earnings ratio(P/E)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**7**	**23.3**	**23.3**	**23.3**
	No	**23**	**76.7**	**76.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

The above tables represent question 32 and 33 of section B. The majority of the respondents do not make use of financial ratios to analyse and interpret their financial statements which may lead to difficulty in determining the growth or deterioration of business performance. However, some SMEs highlighted that their financial statements are prepared from their head offices mainly situated in Johannesburg while others in Natal. Therefore these subsidiaries might not have a thorough knowledge of how financial statements are comprehensively prepared.

Although 63.3% agreed that they use financial ratios. Of the 63.3% that agreed, 70% did not use debt ratio and return to shareholders, 76.7% did not use price earnings ratio P/E while 62.1% did not use debt to equity.

Objectives on performance metrics are well explained to parties involved.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**3**	**10.0**	**10.0**	**10.0**
	Agree	**15**	**50.0**	**50.0**	**60.0**
	Strongly Agree	**12**	**40.0**	**40.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Only 10% disagreed that performance metrics are well explained to all parties involved.

There is good communication amongst parties involved in the measurement system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**2**	**6.7**	**6.7**	**6.7**
	Agree	**15**	**50.0**	**50.0**	**56.7**
	Strongly Agree	**13**	**43.3**	**43.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

A total of 93.3% (50%=agree and 43.3%= strongly agree) with a minor 6.7%= disagree which indicates that there is good communication amongst members of SCM. Communication is critical towards a successful supply chain management therefore this signals that SMEs can still do better and improve their SCM.

Absolute measures are discarded and new one's implemented when necessary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.4**	**3.4**

	Disagree	**4**	**13.3**	**13.8**	**17.2**
	Agree	**16**	**53.3**	**55.2**	**72.4**
	Strongly Agree	**8**	**26.7**	**27.6**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

17.2% (13.8%= disagree and 3.4%= strongly disagree) do not agree that absolute measures are discarded and new ones implemented when necessary which signals communication coming from one side and not two sided where parties have a say and are able to contribute towards the improvement of their SCM performance. However 82.8% (55.2%= agree and 27.6%= strongly agree).

The business is sustainable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	**15**	**50.0**	**53.6**	**53.6**
	Strongly Agree	**13**	**43.3**	**46.4**	**100.0**
	Total	**28**	**93.3**	**100.0**	
Missing	System	**2**	**6.7**		
Total		**30**	**100.0**		

Almost 100% (53.6% agree and 46.4%= strongly agree) of the respondents believe that their businesses are sustainable, with the exception of 6.7% that did not respond to the question.

Feedback on performance measures is given on regular basis to relevant parties

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**5**	**16.7**	**16.7**	**16.7**
	Agree	**13**	**43.3**	**43.3**	**60.0**
	Strongly Agree	**12**	**40.0**	**40.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Although 16.7% did not agree that feedback is communicated to them on regular basis 83.3% are of the opinion that they receive feedback on regular basis. This signal to the significance of financial and non-financial performance measures and that without communication there cannot be an improvement in the supply chain management of these SMEs.

Net Margin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**20**	**66.7**	**66.7**	**66.7**
	No	**10**	**33.3**	**33.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

A net margin is a result of income less expenses of the business. It is through the statement of financial performance that the profit or loss is determined in the business. 66.7% regard this measure critical for towards success of the business. It is still a concern for 33.3% that do not consider this measure as crucial how they measure their profits or losses.

Gross Margin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**16**	**53.3**	**53.3**	**53.3**
	No	**14**	**46.7**	**46.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

A much lesser percentage of 53.3% from 66.7% of net margin, consider gross margin critical for their businesses. Gross margin is total sales made less cost of goods sold. It is also defined as the residual of sales after all variable costs have been deducted. Significant as it is, it does not provide a holistic view of the profit made when only looked at because all other expenses are not taken into account.

Return on Assets (ROA)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**5**	**16.7**	**16.7**	**16.7**
	No	**25**	**83.3**	**83.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Only 16.7% consider ROA critical. ROA refers to the reward/return which the business receives from the total assets invested in a company.

Return on Equity (ROE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**1**	**3.3**	**3.3**	**3.3**
	No	**29**	**96.7**	**96.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Current Ratio

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**1**	**3.3**	**3.3**	**3.3**
	No	**29**	**96.7**	**96.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Quick/Acid Test Ratio

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	**30**	**100.0**	**100.0**	**100.0**

A similar trend from respondents highlighted less consideration of ROE and current ratio of 3.3%, while 100% do not regard acid test ratio as critical success factor. The acid test ratio is identical to current ration with a slight difference in formula whereby the inventory is deducted from the total current assets. The reason being that inventory takes longer to be converted into cash.

Debtors collection period

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**25**	**83.3**	**83.3**	**83.3**
	No	**5**	**16.7**	**16.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Of significance here, 83.3% did regard the debtors' collection period as essential. It is wise to monitor and manage debtors of the company to avoid delays in cash flow as well as financing liquidity of the business.

Creditors Payment period

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**14**	**46.7**	**46.7**	**46.7**
	No	**16**	**53.3**	**53.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

A total of 46.7% consider creditors' payment significant. If the above debtors are managed properly that should feed into the creditors collection in ensuring that cash is collected earlier from debtors than it is paid to suppliers in order to finance the liquidity status and improve the cash flow.

Days inventory on hand

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**10**	**33.3**	**33.3**	**33.3**
	No	**20**	**66.7**	**66.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Days inventory on hand measure enables a firm to determine the time it takes for inventory to be converted into cash. However if it is not measured may create difficulty for managers in solving problems towards inventory management, when to change the products and perhaps to identify right season for products sales. Only 33.3% regard day's inventory on hand as a crucial measure in their SCM.

Fixed Assets Turnover

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**1**	**3.3**	**3.3**	**3.3**
	No	**29**	**96.7**	**96.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Fixed assets turnover is not regarded as a critical measure for many SMEs from the population. Almost 98% disagreed to its significance. Fixed assets turnover enables a firm

to determine if the investment in property plant and equipment is used efficiently. When this is not measured or considered significant it may mislead managers due to ignorance of the returns made on assets invested in the business.

Inventory Turnover

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**11**	**36.7**	**36.7**	**36.7**
	No	**19**	**63.3**	**63.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Likewise with the inventory, the more inventory is bought or invested in a business the bigger the sales are expected. Therefore, it is essential to monitor such measures in order to be able to cut where necessary towards profit realisation.

Customer Satisfaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**27**	**90.0**	**90.0**	**90.0**
	No	**3**	**10.0**	**10.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Customer Retention

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**16**	**53.3**	**53.3**	**53.3**
	No	**14**	**46.7**	**46.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Customer Response Time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**14**	**46.7**	**46.7**	**46.7**
	No	**16**	**53.3**	**53.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

The above three tables represent customer measures in SCM. It is interesting to realise that 90% of the respondents do consider customer satisfaction critical which is of importance to any firm because without the customer there is no business and therefore sustainability may not be achieved.

Customer retention has been proven critical to some degree of 53.3% by SMEs while customer response is not considered critical by the same percentage of 53.3%.

Although SMEs do not consider customer retention and response time as key when compared with customer satisfaction, their understanding may be that when customers are satisfied they are bound to stay, so it is imperative to check with their happiness rather than retaining them first. Customer response time is also significant, however, if customers are not happy with the products delivered and services provided they will still leave for attractive suppliers.

The following tables represent measures of internal efficiency, quality and time measures.

Number of on time deliveries

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**17**	**56.7**	**56.7**	**56.7**
	No	**13**	**43.3**	**43.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

It seems that just over average percentage of the respondents do regard on-time deliveries crucial in their SCM. It is however significant to maximise on this measure because it

helps to identify suppliers who do not adhere to scheduled delivery dates. As a result, unreliable suppliers may hamper the production processes due to delayed delivery, and so lead to unsatisfied customers.

Product reliability

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**15**	**50.0**	**50.0**	**50.0**
	No	**15**	**50.0**	**50.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Product Quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**22**	**73.3**	**73.3**	**73.3**
	No	**8**	**26.7**	**26.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Production flexibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**8**	**26.7**	**26.7**	**26.7**
	No	**22**	**73.3**	**73.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Product quality is considered more critical in comparison with reliability and a lower 26.7% of flexibility. Quality is indeed a critical measure and this should indicate that if a product is of good quality then it will definitely prove reliability. However, from the respondents, it was evident that flexibility does not prove to be significant if good quality is not given the first priority.

Direct material efficiency variance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**5**	**16.7**	**16.7**	**16.7**
	No	**25**	**83.3**	**83.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Defect-free deliveries

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**12**	**40.0**	**40.0**	**40.0**
	No	**18**	**60.0**	**60.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

A lower percentage of respondents on the significance of direct material efficiency variance and defects-free deliveries expressed concern, which may imply poor inventory management.

Manufacturing Lead time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**19**	**63.3**	**63.3**	**63.3**
	No	**11**	**36.7**	**36.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Manufacturing lead time is as important in a manufacturing firm for a company to be able to assess whether they reach their target as scheduled. The degree of significance as per the respondents is not satisfactory. Manufacturing lead time plays a significant role towards on time delivery to customers which eventually result in customer satisfaction.

Total supply chain cycle time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**9**	**30.0**	**30.0**	**30.0**
	No	**21**	**70.0**	**70.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Total supply cycle time is a critical measure of SCM which encompasses all aspects and flow of material from the supplier to production, distribution and finally the customer. Therefore, it is of importance to monitor the entire process in order to be able to evaluate and redefine measures in the SCM should there be any deviations from the targeted objectives. A higher rate of 70% disagreed to the criticality of this measure in their SCM which poses a thread.

Inventory costs-range

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**6**	**20.0**	**20.0**	**20.0**
	No	**24**	**80.0**	**80.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

From the responses given, majority of the participants indicate lack of understanding on how to better perform inventory valuation.

The following are measures of innovation and growth.

New product launches

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**6**	**20.0**	**20.0**	**20.0**
	No	**24**	**80.0**	**80.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

New product development

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**13**	**43.3**	**43.3**	**43.3**
	No	**17**	**56.7**	**56.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Use of new Technology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**11**	**36.7**	**36.7**	**36.7**
	No	**19**	**63.3**	**63.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

New product launch does not seem significant to majority of SMEs. That may signal to a variety of manufacturing entities that venture into different production setups and therefore the diversity and nature of products manufactured per entity will differ significantly from each other. Likewise with product development and use of new technology.

SECTION C

The section encompasses general questions regarding matters of SCM operation which significantly seek to answer research sub-questions related to research objectives 2 and 4.

Are your customers happy with the goods sold?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**29**	**96.7**	**96.7**	**96.7**
	No	**1**	**3.3**	**3.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Do you deliver products on time to customers?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**28**	**93.3**	**93.3**	**93.3**
	No	**2**	**6.7**	**6.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Have you retained all your customers for the past five years?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**14**	**46.7**	**46.7**	**46.7**
	No	**16**	**53.3**	**53.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Do you respond quickly to customer queries?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**29**	**96.7**	**96.7**	**96.7**
	No	**1**	**3.3**	**3.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

There is a significant relationship/ correlation between the implementation of customer satisfaction measure, its critical consideration towards SCM implementation by SMEs and customer response rate. It is appealing to realise that SMEs do take cognisance of non-financial performance measures.

According to the increased positive response from participants, it is evident that it is due to prompt deliveries and quick customer response that most respondents were able to achieve customer satisfaction measure.

Do you have a good relationship with your suppliers?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**29**	**96.7**	**96.7**	**96.7**
	No	**1**	**3.3**	**3.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Good relationship with suppliers is critical towards a successful SCM. It is vital to maximise relationship building between suppliers because that may facilitates smooth production processes and products arrive on time to the customers.

Does the new technological equipment allow quick production of quality goods?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**21**	**70.0**	**72.4**	**72.4**
	No	**8**	**26.7**	**27.6**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Technological equipment enhances smooth production and eliminates delayed production runs if managed properly. 72.4% agree that new technological equipment improves their production systems while 27.6% do not believe that.

Is creditors payment period of your company shorter than debtors collection period?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**10**	**33.3**	**34.5**	**34.5**
	No	**19**	**63.3**	**65.5**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

A relatively higher percentage of respondents do collect their debts in a shorter period when compared with the payment period.

Is the insurance cost of production equipment included in the manufacturing cost?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**17**	**56.7**	**58.6**	**58.6**
	No	**12**	**40.0**	**41.4**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

At least above average of the total sample have of knowledge of manufacturing costs. It is also key for SMEs to know how the total manufacturing costs are derived at to circumvent under or over costing of overheads. A room for improvement is still needed.

Is the investment in property, plant and equipment used efficiently?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**26**	**86.7**	**86.7**	**86.7**
	No	**4**	**13.3**	**13.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

A higher return on investment indicate that assets are well utilised and therefore more profits are expected or likely to be realised

Is the business profitable?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	**27**	**90.0**	**90.0**	**90.0**
	No	**3**	**10.0**	**10.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

Most businesses believe that their businesses are able to realise profits despite any circumstances.

Total cost of inventory always includes raw material, work in progress, finished goods and stock in transit.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**3**	**10.0**	**11.1**	**11.1**
	Agree	**12**	**40.0**	**44.4**	**55.6**
	Strongly Agree	**12**	**40.0**	**44.4**	**100.0**
	Total	**27**	**90.0**	**100.0**	
Missing	System	**3**	**10.0**		
Total		**30**	**100.0**		

Manufacturing lead time always takes longer than the budgeted period.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**4**	**13.3**	**13.8**	**13.8**
	Disagree	**15**	**50.0**	**51.7**	**65.5**
	Agree	**6**	**20.0**	**20.7**	**86.2**
	Strongly Agree	**4**	**13.3**	**13.8**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Almost 35% (20.7%= agree and 13.8%= strongly agree) of the respondents agree that their manufacturing lead time takes longer than the targeted time while 65.5% (50%= disagree and 13.3%= strongly disagree). Manufacturing lead time is referred to as the time it takes to convert raw material into a finished product.

Deliveries are free from defects when they reach the customers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**3**	**10.0**	**10.0**	**10.0**
	Agree	**22**	**73.3**	**73.3**	**83.3**
	Strongly Agree	**5**	**16.7**	**16.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

An overall perception is that most of the SMEs are able to supply their customers with products that are in good condition.

Deliveries are always on time when they arrive at the customers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**3**	**10.0**	**10.0**	**10.0**
	Agree	**23**	**76.7**	**76.7**	**86.7**
	Strongly Agree	**4**	**13.3**	**13.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

A similar trend is indicated by an on time delivery. Only a minority are of the opinion that goods do not reach their final destination on time.

I have an understanding of fixed and variable costs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	**18**	**60.0**	**62.1**	**62.1**
	Strongly Agree	**11**	**36.7**	**37.9**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Almost every participant showed an understanding of the difference between fixed and variable costs with the exception of 3.3% that did not respond to the question. Fixed costs are the costs that are not affected by changes in the production level although their unit cost changes as production levels fluctuate. Variable costs are on the other hand affected by production level every time there is a change. They increases as production level increases and decreases as production level decreases. It is of importance for SMEs to understand the significance difference between the two as they play a significant role in determining the cost of a product.

Inventory takes longer to be converted into cash/sold

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**3**	**10.0**	**10.3**	**10.3**
	Disagree	**11**	**36.7**	**37.9**	**48.3**
	Agree	**10**	**33.3**	**34.5**	**82.8**
	Strongly Agree	**5**	**16.7**	**17.2**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Just over 50% (34.5%= agree and 17.2%= strongly agree) that their inventory takes longer to convert into cash while below average (37.9%= disagree and 10.3%= strongly disagree) considers speedy conversion. It is critical to ensure that there is a proper inventory control process that monitors the flow of inventory to ascertain quick conversion and or elimination of unwanted stock. Inventory is an asset that should be easily converted into cash within an accounting cycle and if the conversion cycle prolong, other avenues needs to be explored.

Use of new technology is implemented when changes come

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.3**	**3.3**
	Disagree	**5**	**16.7**	**16.7**	**20.0**
	Agree	**18**	**60.0**	**60.0**	**80.0**
	Strongly Agree	**6**	**20.0**	**20.0**	**100.0**
	Total	**30**	**100.0**	**100.0**	

New technology is inevitable in the 21 century and therefore SMEs must adapt to changes in order to retain and attract new markets. A promising 80% (60%= agree and 20%=

strongly agree) that technology is implemented when necessary in their entities while 20% (3.3%= agree and 16.7%= disagree) to this measure.

Debts are collected on time from customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.7**	**3.7**
	Disagree	**5**	**16.7**	**18.5**	**22.2**
	Agree	**14**	**46.7**	**51.9**	**74.1**
	Strongly Agree	**7**	**23.3**	**25.9**	**100.0**
	Total	**27**	**90.0**	**100.0**	
Missing	System	**3**	**10.0**		
Total		**30**	**100.0**		

Debtors' collection period refers to the time it takes for debts to be collected from customers. It is advisable that a business should have a shorter collection period and a longer payment period to its creditors to finance the cash flow of the business. 77.8% (51.9%= agree and 25.9%= strongly agree) that their debts are collected on time from customers while 22.2% (18.5%= disagree and 3.7%= strongly disagree).

Suppliers are reliable.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.4**	**3.4**
	Disagree	**5**	**16.7**	**17.2**	**20.7**
	Agree	**18**	**60.0**	**62.1**	**82.8**
	Strongly Agree	**5**	**16.7**	**17.2**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Suppliers are providers of commodities or services to the entity. It is of importance to have a good relationship with suppliers in a SCM. Good relationship may increase chances of on time deliveries and reliable suppliers who adhere to time schedules. A total of 79.3% (62.1%= agree and 17.2%= strongly agree). On the contrary 20.6% (17.2%= disagree and 3.4%= strongly disagree)

Good quality of products is delivered to customers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	**14**	**46.7**	**48.3**	**48.3**
	Strongly Agree	**15**	**50.0**	**51.7**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

Almost 100% of the respondents deliver quality of goods to their customers.

The performance metrics used in my supply chain are clear and easy to understand.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.6**	**3.6**
	Disagree	**2**	**6.7**	**7.1**	**10.7**
	Agree	**18**	**60.0**	**64.3**	**75.0**
	Strongly Agree	**7**	**23.3**	**25.0**	**100.0**
	Total	**28**	**93.3**	**100.0**	
Missing	System	**2**	**6.7**		
Total		**30**	**100.0**		

Performance metrics are measurable characteristics of business activities from which four perspectives of performance measures are used in this study. It is key for performance metrics to be made clear to the parties involved in the measurement system in order to ascertain what is expected from them by those in charge at the beginning of the project. 89.3% (64.3%= agree and 25%= strongly agree). 10.7% (7.1%= disagree and 3.6%= strongly disagree).

Deliveries are not free from defects when they arrive from suppliers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**5**	**16.7**	**16.7**	**16.7**
	Disagree	**15**	**50.0**	**50.0**	**66.7**
	Agree	**9**	**30.0**	**30.0**	**96.7**
	Strongly Agree	**1**	**3.3**	**3.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

It is always important to monitor the quality of goods received from suppliers to enhance material efficiency and immediate returns of unwanted material for replacement or change of products when necessary. A total of 66.7% (50%=disagree and 16.7% = strongly disagree) that their goods are not free from deliveries while 33.3% (30%= agree and 3.3%= strongly agree).

I have a good relationship with parties involved in the supply chain.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	**19**	**63.3**	**63.3**	**63.3**
	Strongly Agree	**11**	**36.7**	**36.7**	**100.0**
	Total	**30**	**100.0**	**100.0**	

SMEs claim to have a good relationship with members of the SCM. Interestingly almost all of the participants are in good standing with others.100% (63.3%= agree and 36.7%= strongly agree).

Contribution margin less operating expenses equals Net profit.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.8**	**3.8**
	Disagree	**3**	**10.0**	**11.5**	**15.4**
	Agree	**16**	**53.3**	**61.5**	**76.9**
	Strongly Agree	**6**	**20.0**	**23.1**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

Some of the SMEs do not know how to calculate their net profit. It is of a concern for SMEs how they measure their financials.

I am able to calculate the ROE from Financial Statements.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**4**	**13.3**	**16.0**	**16.0**
	Agree	**15**	**50.0**	**60.0**	**76.0**
	Strongly Agree	**6**	**20.0**	**24.0**	**100.0**
	Total	**25**	**83.3**	**100.0**	
Missing	System	**5**	**16.7**		
Total		**30**	**100.0**		

Quite a number of respondents showed an understanding of ROE. ROE is returns coming from the total investment by owners to the business. I t is essential for business to monitor and ensure returns on money invested to the business to avoid unforeseen losses.

Large inventory turns are achieved in one production line.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	**1**	**3.3**	**3.8**	**3.8**
	Disagree	**3**	**10.0**	**11.5**	**15.4**
	Agree	**16**	**53.3**	**61.5**	**76.9**
	Strongly Agree	**6**	**20.0**	**23.1**	**100.0**
	Total	**26**	**86.7**	**100.0**	
Missing	System	**4**	**13.3**		
Total		**30**	**100.0**		

Quick ratio eliminates inventory to measure cash available to pay short term liabilities.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**4**	**13.3**	**16.0**	**16.0**
	Agree	**18**	**60.0**	**72.0**	**88.0**
	Strongly Agree	**3**	**10.0**	**12.0**	**100.0**
	Total	**25**	**83.3**	**100.0**	
Missing	System	**5**	**16.7**		
Total		**30**	**100.0**		

A total of 16.7% did not respond to the question which may imply uncertainty and lack of knowledge. 16% disagreed to this measure of liquidity which indicates a poor understanding of this measure. Quick ratio eliminates inventory hence it takes time to convert into cash, because other current assets are easily convertible to cash.

All assets of the business are included in the balance sheet.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	**3**	**10.0**	**11.1**	**11.1**
	Agree	**17**	**56.7**	**63.0**	**74.1**
	Strongly Agree	**7**	**23.3**	**25.9**	**100.0**
	Total	**27**	**90.0**	**100.0**	
Missing	System	**3**	**10.0**		
Total		**30**	**100.0**		

Some members of the population did not include all their assets in the balance sheet. This reveals incomplete information on financial position of the business which also fails the neutral

Characteristic of financial statements. 88.9% (63%= agree and 25.9%= strongly agree). In contrast 11.1%= disagree that all their assets are included in the balance sheet.

Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Owner	**2**	**6.7**	**6.7**	**6.7**
	Director	**9**	**30.0**	**30.0**	**36.7**
	Manager	**15**	**50.0**	**50.0**	**86.7**
	Share Holder	**4**	**13.3**	**13.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	

The dominant majority of the status of the participants is managers (50%) among these SMEs, followed by directors (30%) and smaller percentage of the shareholders (13.3%), and finally the minority of (6%) are owners in the businesses. This indicates that most businesses are not owner managed and owners are not directly involved in the day to day activities of the organisations.

Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - 5 years	**7**	**23.3**	**24.1**	**24.1**
	6 - 10 years	**3**	**10.0**	**10.3**	**34.5**
	11 to 15 years	**6**	**20.0**	**20.7**	**55.2**
	16 - 20 years	**5**	**16.7**	**17.2**	**72.4**
	over 20 years	**8**	**26.7**	**27.6**	**100.0**
	Total	**29**	**96.7**	**100.0**	
Missing	System	**1**	**3.3**		
Total		**30**	**100.0**		

The highest 27.6% are people with an experience of more than 20 years in the manufacturing sector. Followed by 24.1% who are new in the business environment and 17.2% who have been in the industry for over 15 years but not more than 20 years. The least 10.3% is within the range of 6-10 years' experience in the field.

Company Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - 10 years	**7**	**23.3**	**25.0**	**25.0**
	11 - 20 years	**11**	**36.7**	**39.3**	**64.3**
	21 - 30 years	**3**	**10.0**	**10.7**	**75.0**
	Over 30 years	**7**	**23.3**	**25.0**	**100.0**
	Total	**28**	**93.3**	**100.0**	
Missing	System	**2**	**6.7**		
Total		**30**	**100.0**		

According to the response rate many companies have been in existent for a period of 11-20 years (39.3%). The smallest percentage is of companies who have been operating for 21-30 years (10.7%). 50% in half split shared by companies who have been in existence for up to 10 years and over 30 years. However, the overall take is that most businesses have been in operation for over a decade. This is in disagreement that SMEs closes down within the first two years of their operation. Although there were also missing values that gave a 6.7% for non-response.

Employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		**1**	**3.3**	**3.3**	**3.3**
	100	**2**	**6.7**	**6.7**	**10.0**
	100+	**1**	**3.3**	**3.3**	**13.3**
	12	**1**	**3.3**	**3.3**	**16.7**
	150	**1**	**3.3**	**3.3**	**20.0**
	16	**2**	**6.7**	**6.7**	**26.7**
	160	**2**	**6.7**	**6.7**	**33.3**
	18	**1**	**3.3**	**3.3**	**36.7**
	184	**1**	**3.3**	**3.3**	**40.0**
	19	**1**	**3.3**	**3.3**	**43.3**
	200	**1**	**3.3**	**3.3**	**46.7**
	25	**1**	**3.3**	**3.3**	**50.0**
	40	**1**	**3.3**	**3.3**	**53.3**
	400	**1**	**3.3**	**3.3**	**56.7**
	45	**1**	**3.3**	**3.3**	**60.0**
	50	**3**	**10.0**	**10.0**	**70.0**
	60	**1**	**3.3**	**3.3**	**73.3**
	68	**1**	**3.3**	**3.3**	**76.7**
	74	**1**	**3.3**	**3.3**	**80.0**
	80	**2**	**6.7**	**6.7**	**86.7**
	9	**2**	**6.7**	**6.7**	**93.3**
	90	**2**	**6.7**	**6.7**	**100.0**

	Total	**30**	**100.0**	**100.0**	

You may include comments on other issues regarding supply chain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		**12**	**40.0**	**40.0**	**40.0**
	"A lot of the structures in place are informally implemented as we are a smaller concern"	**1**	**3.3**	**3.3**	**43.3**
	"All is good on paper and if only it could stay that way." This exercise is good for the industry"	**1**	**3.3**	**3.3**	**46.7**
	"Business is a wholesaler/distributer- some of the manufacturing related questions does not apply"	**1**	**3.3**	**3.3**	**50.0**
	"Communication is key and the team is working on it-Suppliers not formally measured."Make processes simple for employees to easily participate and achieve objectives."	**1**	**3.3**	**3.3**	**53.3**
	"Communication is key in supply chain to keep all parties informed".	**1**	**3.3**	**3.3**	**56.7**
	"Communication is key" staff is evaluated on a scorecard and rewarded as bonus"	**1**	**3.3**	**3.3**	**60.0**
	"Critical for my business is to reduce production lead time, collect debtors in time and procure sufficient stock to enable us to achieve target"	**1**	**3.3**	**3.3**	**63.3**

	"Focus to BSC and customer satisfaction at all times - small companies to internalise customer/supplier relationship". "Measures are not formally implemented"	**1**	**3.3**	**3.3**	**66.7**
	"Increase marketing expenditure to improve NR"	**1**	**3.3**	**3.3**	**70.0**
	"Most important is customer satisfaction, good quality products and delivery on time".	**1**	**3.3**	**3.3**	**73.3**
	"Negative effects due to recession on all business debtors and suppliers"	**1**	**3.3**	**3.3**	**76.7**
	"Our supply chain supports the retail market-our sales gives an indication how recession periods affects production"	**1**	**3.3**	**3.3**	**80.0**
	"Quality beverage is in the canformate) beverage market growth is strong and stock turns over rating leading to an efficient use of raw materials and background"	**1**	**3.3**	**3.3**	**83.3**
	"Quantity supply in time and in full customer satisfaction"	**1**	**3.3**	**3.3**	**86.7**
	"Ratio are not highly regarded to for management but are looked into by financial executive".	**1**	**3.3**	**3.3**	**90.0**
	"Supply chain issues and measures are not worth anything without measuring leadership and people".	**1**	**3.3**	**3.3**	**93.3**

	"Technological equipment is costly to implement and supply chain cannot survive without keeping up to date with market demands". "Supply chain is a worthless effort put into action without a clear top strategic objective that filters down to the lower level employees."	**1**	**3.3**	**3.3**	**96.7**
	"we have a simple system but quite effective"	**1**	**3.3**	**3.3**	**100.0**
	Total	**30**	**100.0**	**100.0**	