

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

**Using Activity Based Costing in Customer
Profitability strategies in a South African
SME
environment: a South African Case study**

Theodorus Daniel Potgieter
B-Rek (US), B-Commt (Hons) UNISA

A dissertation submitted in partial fulfilment of the requirements for the degree

MCom in Strategic Cost Management

In the Department of Accounting

Faculty of Commerce

University of Cape Town

Supervisor: Professor Dr Richard Chivaka

August 2009

Acknowledgements

I am indebted to Dr Richard Chivaka, my supervisor, Professor of Cost and Management Accounting in the Department of Accounting in the Faculty of Commerce, University of Cape Town for his patience, leadership, guidance, encouragement and support during the course of this dissertation. It would not have been possible without his guidance.

I would also like to extend my special thanks to the Chief Executive Officer and Managing Director of XYZ Co (who unfortunately have to remain anonymous) for their contributions and support as well as willingness to allow me to use XYZ Co as the guinea pig in my case study.

To my wife Ellian, son Franz and daughter Lilian I express my deepest gratitude for their encouragement and for not only tolerating the many hours I spend cloistered in my study researching and drafting this dissertation, but also performing the boring task of proof reading the manuscript.

Finally, I thank our Heavenly Father who gave me the wisdom and perseverance to complete this research project.

Declaration

I declare that "Using Activity Based Costing in Customer Profitability strategies in a SME environment : a South African Case study " is my own work, both in concept and execution. It has not been submitted for examination in any other university, and all the sources that I have used or quoted from have been indicated and acknowledged by complete references.

.....

Theodorus Daniel Potgieter

25 August 2009

University of Cape Town

Dedication

I dedicate this dissertation to my parents, Franz and Hetta who through hard work, many sacrifices and encouragement helped me to take the first steps on the long and winding road of my education culminating in this dissertation. Baie dankie Pa en Ma.

University of Cape Town

Abstract

Small to medium scale enterprises (SMEs) face an ever increasing competitive and unforgiving business environment. Deregulation, increased global competition, the global economic downturn and the technical recession that South Africa has entered into (SACCI, May 2009), place increased pressure on their profit margins and ability to generate positive cash flow. These tough trading conditions are likely to continue for some time to come (De Klerk, 2009) and therefore companies need to respond appropriately to these challenges in order to survive (Sartorius *et al*, 2007).

Survival is dependant on positive cash flow generated by profitable trading. Yet, many SMEs do not have effective strategies in place to maximise their customer profitability in order to enhance their cash flows. The challenge is therefore the development and adoption of practical customer profitability analysis tools for use by these SMEs.

In this research an investigative single case study in a business to business setting based on detailed field work was performed. The study focussed on a typical South African SME trading with all the major retail groups in South Africa. The case study was performed via diachronic research into the use of Activity Based Costing (ABC) in customer profitability analysis (CPA). The objective of the study was to critically evaluate whether ABC is a practical tool for conducting customer profitability analysis in a South African SME environment. This was done by investigating what might motivate a SME to adopt ABC and determining the specific benefits likely to accrue to a SME following the implementation of ABC.

The research has shown that the implementation of ABC made it possible to identify customers who, despite the fact that they generate a modest gross profit, are in fact unprofitable as a result of the overheads consumed by them. This insight shaped future marketing, pricing, sales and customer support

strategies. More specifically, it assisted management to maximise income by identifying areas in the value chain to which resources should be channelled for maximum profit while still maximising customer satisfaction. This led to a substantial improvement in overall profitability. Owing, firstly, to increased gross profit following enhancements in the pricing policy and secondly, to increased sales volumes as a result of revised marketing strategies and new product launches.

No significant additional costs were incurred in implementing ABC. A standard desktop computer and readily available accounting and spreadsheet software were used in the CPAs. No outside consultants were used since the champion of the project was knowledgeable in the application of ABC techniques. This suggests that it is both practical and cost effective to implement ABC in a SME environment provided the necessary skills and infrastructure are available or can be outsourced.

Although these findings are of a single case study and cannot be generalised, the combination of this empirical case study and the literature review findings presented in this study strongly suggest that Activity Based Costing is a practical tool for the formulation and measuring of outcomes of customer profitability strategies in a South African SME environment.

KEYWORDS

Customer Profitability Analysis (CPA), Activity Based Costing (ABC), Small to medium scale enterprises (SMEs), case study, South Africa.

August 2009

TABLE OF CONTENTS

	PAGE	
Acknowledgements	ii	
Declaration	iii	
Dedication	iv	
Abstract	v	
Keywords	vi	
1	Introduction	1
1.1	The definition and importance of SMEs	1
1.2	The importance of customer profitability analysis	2
1.3	The research problem	5
1.4	Organisation of the dissertation	7
2	Literature Review	8
2.1	Activity Based Costing –a general overview	8
2.1.1	<i>Traditional Management Accounting Systems vs Activity-Based Costing (ABC)</i>	8
2.1.2	<i>Activity Based Cost management (ABM) vs ABC</i>	9
2.1.3	<i>The application of ABC</i>	10
2.1.4	<i>The benefits of ABC</i>	11
2.1.5	<i>Criticisms and limitations of ABC</i>	12
2.1.6	<i>Vital factors in ABC implementation</i>	14
2.1.6.1	<i>Implementation must be grounded on a clear business purpose</i>	14
2.1.6.2	<i>Top management support</i>	14
2.1.6.3	<i>Model too complex</i>	15
2.1.6.4	<i>Resistance to change or perceived threat</i>	15

2.1.6.5	<i>Adequate employee resources</i>	16
2.2	Customer Profitability Analysis	16
2.2.1	<i>What is Customer Profitability Analysis (CPA)</i>	16
2.2.2	<i>What determines customer profitability?</i>	17
2.2.2.1	<i>Sales revenue generated</i>	18
2.2.2.2	<i>The cost of product supplied</i>	18
2.2.2.3	<i>Cost to serve the customer</i>	18
2.2.3	<i>Future economic value</i>	20
2.3	The application of ABC in Customer Profitability Analysis	21
2.4	ABC and the formulation of an effective customer profitability strategy	23
2.5	ABC and the development an effective pricing policy	24
2.6	Summary	25
3	Research Methodology	26
3.1	Introduction	26
3.2	Case study definition	26
3.3	Type of case study	26
3.4	Suitability	26
3.5	Research setting	27
3.6	Unit of analysis	29
3.7	Research periods and formulation of objectives	29
3.8	Quality assessment	31
3.8.1	<i>Construct validity</i>	31
3.8.2	<i>Internal validity</i>	32
3.8.3	<i>External validity</i>	33
3.8.4	<i>Reliability</i>	34
3.9	Data collection	34
3.10	Data analysis	35
3.11	Conclusion	36

4	Results	37
4.1	Introduction	37
4.2	Background to XYZ Co	37
4.3	Customer Profitability Analysis (CPA) using the Traditional Approach	40
4.4	CPA using ABC	41
4.4.1	<i>Introduction</i>	41
4.4.2	<i>Identification and formulation of key concepts</i>	42
4.4.2.1	<i>Identification of customer groups</i>	42
4.4.2.2	<i>Characteristics of customer's business models</i>	43
4.4.2.3	<i>Formulation of "cost to serve" and "contribution"</i>	44
4.4.2.4	<i>The identification of cost drivers</i>	45
4.5	CPA Findings	46
4.5.1	<i>Interpretation of results: April 2008's benchmarking exercise</i>	46
4.5.1.1	<i>Financial results</i>	46
4.5.1.2	<i>Operational outcomes</i>	50
4.5.2	<i>Interpretation of results :January 2009</i>	52
4.5.2.1	<i>Financial results</i>	52
4.5.2.2	<i>Operational results</i>	53
4.5.3	<i>Interpretation of results :April 2009</i>	55
4.5.3.1	<i>Financial results</i>	55
4.6	Conclusion	60
5	Conclusions	62
5.1	Introduction	62
5.2	Problem statement	62
5.3	Research findings	63
5.4	Conclusion	65
5.5	Suggested areas for further research	66

References

67

List of tables and figures

Figure 1	Whale graph	22
Figure 2	Research framework	29
Figure 3	CPA process flow	35
Figure 4	XYZ Co's value chain	39
Figure 5	Active customer groups	42
Figure 6	Contribution Margin: Traditional approach vs ABC	49
Figure 7	Cost to Serve vs Gross Profit – April 2008	49
Figure 8	Gross margin April 2008 vs January 2009	53
Figure 9	Whale curve depicting cumulative contribution	57
Figure 10	Gross profit April 2008 vs April 2009	58
Figure 11	Cost to serve: April 2008 vs April 2009	59
Figure 12	Contribution April 2008 vs April 2009	60
Table 1	Reasons for not implementing ABC	13
Table 2	Identifying diversity in cost-to-serve	19
Table 3	Customer segmentation – April 2008 Traditional approach	40
Table 4	Differentiating characteristics of XYZ Co's customers	43
Table 5	Identified activities and cost drivers	45
Table 6	Profitability by distribution channel	47
Table 7	Profitability by customer groups	47
Table 8	Profitability by distribution channel April 2008 vs April 2009	55
Table 9	Customer segmentation – April 2009	56

Chapter 1

INTRODUCTION

This chapter discusses customer profitability analysis in the context of small to medium scale enterprises (SMEs). First, the discussion focuses on SMEs followed by a background to customer profitability analysis. The chapter then highlights the importance of and challenges encountered in undertaking customer profitability analysis within SMEs. These discussions lead to the statement of the problem that guided this research.

1.1 The Definition and importance of SMEs

The National Small Business Act, Act 102 of 1996 defines a small business as a separate and distinct business entity, including co-operative enterprises and non-governmental organisations managed by one owner or more. A SMEs business is predominantly carried out in a sector or sub sector of the economy. Small businesses in each sector can be classified as micro, very small, small or medium enterprises, based on a set of thresholds (South Africa, 1996).

The SME sector plays an important economic role in the creation of national and international wealth and job opportunities, thereby making a valuable contribution to the accelerated and shared growth strategy.

Beaver (2007) argues that small businesses that engage in contemporary strategic business practices outperform those which do not. SMEs are often owner managed with these owners usually being experts in production, engineering, marketing, human resources or other fields. In the context of running a business, one other area of expertise seems to be conspicuous by its absence – financial management. This lack of experience in financial management and shortage of resources to outsource financial management expertise make SMEs vulnerable to business failure.

1.2 The importance of Customer Profitability Analysis

SMEs face an ever increasing competitive and unforgiving business environment. Deregulation, increased global competition, increased privatisation and increased customer demands place mounting pressure on companies and their business systems. Companies need to respond to these challenges to survive (Sartorius *et al*, 2007).

The global credit crunch negatively affected economies around the globe. South Africa is not completely buffered from the international financial meltdown, and entered a technical recession during the fourth quarter of 2008 as a result of negative growth during two successive quarters (SACCI, May 2009). This slow down in the South African economy seems to be a combination of internal factors and the global credit crunch. Global factors such as the volatility of the Rand and a slowdown in exports had a negative effect on the economy, while internal factors such as rising inflation, the energy crisis and financial constraints, as a result of tighter lending policies also negatively impacted on the South African economy (De Klerk, 2009). These tough conditions are reflected in The South African Chamber of Commerce and Industry (SACCI) Business Confidence Index turning downwards from an average of 100 in 2005 to 81.8 in May 2009. Retail sales volumes decreased by 2.3% year on year during the first eleven months of 2008 (SACCI, January 2009).

Positive cash flow is the lifeblood of any business. However, cash flow is under severe pressure due to the lack of credit, high debt servicing costs, high debt levels and high fuel and food prices. This is evidenced by company liquidations that increased by 4.7% from 2007 to 2008. De Klerk (2009) argues that companies can expect these tough trading conditions to continue for some time to come, while SACCI (2009) reports that small and medium sized businesses in particular found the business environment tougher in 2008 than in 2006/7.

Sustainable positive cash flow is only derived from profitable trading. Yet, as pointed out by Everaert *et al* (2008), many businesses, particularly SMEs, do not have effective strategies to maximise their customer profitability and

therefore enhance their cash flows. The importance of effective customer profitability strategies is likely to increase in significance as the global economy continues to become more competitive and focused on streamlined supply chains (Everaert *et al*,2008). The focus should therefore be on good quality profitable business rather than volume (De Klerk, 2009).

In this competitive and difficult business environment survival often depends on a business's ability to manage its resources effectively. This requires accurate and detailed cost information. Companies simply cannot afford to make mistakes since these mistakes are likely to be exploited by their competitors. It is therefore imperative that companies align their systems and procedures with effective strategies not only to ensure success in the current markets but also to lay the foundation for future growth. Companies therefore need to place as much emphasis on customer profitability as on turnover (Smith, 2006).

Smith, (2006) suggests that many businesses attempt to sustain profitability by driving sales volume, often by shaving points off price. By doing this they diminish the value of their own differentiation, encourage price competition among competitors, and more importantly, they virtually ignore principles of profit leverage. Kaplan, (2005) argues that in their zeal to please customers, many SMEs actually lose money on them. They become customer obsessed rather than customer focused. As a result of this strategy, many of these businesses experience profitless growth in revenue.

Many businesses do not know the cost associated with serving individual customers or customer groups because they do not accurately decompose their aggregate marketing, distribution, service and administration costs to individual customers or customer groups. These companies either treat it as an overhead cost or use an inaccurate high level method (such as a fixed percentage of sales revenue) to allocate it to customers (Kaplan, 2005). Braithwaite and Samakh (1998) argue that unless these costs are well known, management can only act on gut feel by concentrating on overhead recovery in the broadest sense. They stress that to be successful, a company must understand its full supply chain

costs and its key drivers. Guerreiro *et al*, (2008) suggest that the cost to service each individual customer should be measured in order to perform an accurate customer profitability analysis. Ryals, (2002) points out that one should not only focus on the historic (and often short term) value of customers, but also evaluate the longer term economic value of the customer relationship. These views are supported by Max (2004) who emphasises that best practice organisations explicitly measure and manage the true profitability of each customer relationship.

An understanding of the factors that influence individual customer profitability can help companies to effectively allocate management time and resources ensuring the efficient utilisation thereof and therefore increasing profits. This can be done by identifying profitable customers, focusing on those customers to maximise bottom-line profits and managing unprofitable customers in such a way that losses are eliminated.

Several tools to allocate overhead cost to individual customers have been developed over the years. These tools include Activity-Based Costing (ABC), Activity Based Cost Management (ABM), Time Driven ABC (TDABC), Customer Profitability Analysis (CPA), Cost to Serve (CTS), to name but a few. There is a wide body of research by, amongst others, Kaplan *et al* (1992, 2001, 2004, and 2005); Manning (1995); Van Triest (2005); Cokins (2001); Ryals (2002, 2005 and 2006), Everaert *et al* (2008) and Van Raaij (2005) analysing both the advantages and the disadvantages of these methods.

Research by Wessels and Shotter (2000) concludes that, unfortunately, few (15.18%) South African SMEs have adopted ABC. Of the companies that adopted ABC 64% considered it to be successful while 30% reported limited or no success. Subsequent research by Sartorius *et al*, (2007) reports that the adoption rate of ABC in South Africa dropped to 12%. This correlates with the international trend evidenced by Kaplan and Anderson (2004) who report that few SMEs adopted ABC and many of those that have done so, abandoned these techniques because they are regarded as too complex, take too long to

implement and are too expensive to establish and maintain. These objections caused a lack of management support and interest. Many smaller SMEs simply do not have the resources or knowledge to effectively use these tools (Kaplan and Anderson 2004; Cohen *et al* 2005).

Sartorius *et al* (2007) report an increased adoption rate of ABC in developed countries during the period 1995 to 2005. These authors report adoption rates of 52% in the USA, 23% in the UK, 40,9% in Greece (Cohen *et al*, 2005) and 27,9% in Ireland. Yet the adoption rate in South Africa *decreased* from only 15,18% (Wessels and Shotter, 2000) to 12% in 2007 (Sartorius *et al* , 2007).

1.3 The Research Problem

The identified problem is that, despite the sophisticated resources (software and computers) that became readily available during the last decade and the evolution in integrated information systems, SMEs in South Africa still do not have an effective strategy to manage customer profitability. Therefore, the challenge is the adoption of effective and practical customer profitability analysis tools by SMEs. Thus, this study will address the following research question : **Does ABC lend itself to customer profitability analysis in the context of a South African SME environment?**

The above research question consists of areas that need to be unpacked in order to facilitate the research investigation. Thus, the following sub-problems were investigated as part of the overall research question.

Sub-problems

- a) Given the lack of adoption of customer profitability analysis tools by SMEs, what might motivate an SME to adopt ABC for the purpose of undertaking customer profitability analysis?
- b) How does ABC support an SME in undertaking customer profitability analysis?
- c) Is it practical to use ABC in an SME environment?

d) What specific benefits accrue to an SME when ABC is adopted for the purpose of undertaking customer profitability analysis?

Very few empirical studies address the practical application of ABC in customer profitability studies in a SME environment. These studies include the following:

- Hughes (2005) concludes that there are opportunities for SMEs in the clothing and textile industry in the UK. To improve their profitability they are willing to invest the time and effort into setting up a ABC/ABM system.
- A case study by Everaert *et al* (2008) concentrated on the application of TDABC and the differences between TDABC and ABC in a wholesale environment in Belgium by studying the successful application thereof in logistics.
- Guerreiro *et al* (2008) focus on the usefulness of ABC and cost to serve in the context of customer profitability management. However, the subject of this study was a large Brazilian national food industry company with a wide range of products and customers. This sophisticated group of companies has access to substantial resources and cannot be classified as a SME.
- A study by Wessels and Shotter (2000) was aimed solely at South African companies listed on the Johannesburg Stock Exchange (JSE) and therefore excluded smaller South African SMEs. It did, however, research the organisational problems faced by companies adopting ABC.
- Sartorius *et al* (2007) explore the reasons for the implementation or non-implementation, as well as, the critical success factors for the implementation of ABC in South African companies. They identify the role of ABC in inter-organisational transactions as an area for future research. This leads to customer profitability analysis.

The above suggests that no or very little research has been done concentrating on the practical application of ABC as a tool to calculate customer profitability in a South African SMEs context.

This research bridges this gap between theory and practice by concentrating on whether ABC is a practical tool to use to manage customer profitability in a South African SME context. ABC, from a theoretical point of view, appears competent to support customer profitability analysis via the establishment of a causal relationship between customers and the host of service costs arising from interacting with those customers. However, from a practical point of view, more research is required to demonstrate whether the potentially useful attributes of ABC in customer profitability analysis actually do confer the said advantages.

1.4 Organisation of the dissertation

The rest of this dissertation is organised into four chapters. Chapter 2 is a literature review of previously published papers and articles on ABC and the application thereof, while chapter 3 discusses the research methodology followed in this research. This leads to chapter 4 which presents the results and key insights of this case study in answering the research question. Finally, chapter 5 concludes with a synopsis of the key findings of this research and suggests areas of further research.

Chapter 2

LITERATURE REVIEW

This chapter introduces ABC, compares it with traditional costing systems and highlights the advantages and disadvantages of ABC. This leads to a review of customer profitability focusing on the “cost to serve” concept. Finally, the application of ABC techniques in customer profitability strategies and the resultant management decisions are presented.

2.1 Activity Based Costing –a general overview

2.1.1 Traditional Management Accounting Systems (TMAS) vs Activity-Based Costing (ABC)

Management accounting systems are designed to provide information, both financial and non financial to managers and employees within an organisation. This information enables the decision makers to effectively plan, organise and control key activities inside the organisation. This contrasts with financial accounting which is primarily designed to report to external individuals and organisations (Atkinson *et al*, 2007).

In TMAS the manufacturing cost of a product is broken down in two broad categories namely, direct and indirect or fixed costs (overheads). TMAS allocate overheads arbitrarily, primarily based on a predetermined unit of measure such as labour hours, units produced or sales revenue. However, these units of measure often do not accurately represent overheads consumed by a specific cost object during a specified period. As a result, product cost distortion occurs. These inaccuracies make it difficult for managers to enact sensible strategies, since product cost plays an important role not only in pricing strategies, but also in the decision to expand or discontinue product lines (Cooper and Kaplan, 1988 and Atkinson *et al*, 2007).

The inaccuracies in the TMAS led to the development of ABC as an alternative method to allocate overheads. A broad body of literature supports ABC as a more accurate system enhancing the inherent value of product cost information (Cooper and Kaplan, 1988; Kaplan, 1992; Atkinson *et al*, 2007; Everaert *et al*, 2008).

The fundamental difference between TMAS and ABC is the way overheads are assigned to products, services or customers. ABC does not use an index of volume but rather identifies the activities (cost drivers) that cause the cost to be incurred. It then determines the true costs associated with these individual cost drivers. Finally, by allocating and aggregating the overheads associated with these specific individual cost drivers, the cost consumed by each activity is determined. ABC therefore uses the premise that activities and not products or services consume costs (Cooper and Kaplan, 1992; Atkinson *et al*, 2007).

Manning, (1995, p. 45) summarises the difference between TMAS (conventional approach) and ABC as follows:

“The ABC approach has one large advantage over the conventional approach: it costs products more accurately. Overhead costs are allocated in a more logically related fashion than under the conventional approach. The result is improved accuracy over the typical standard costing approach.”

2.1.2 Activity Based Cost management (ABM) vs ABC

ABC entails a procedure to assign costs to products, customers and services by taking the cost to perform the underlying activities into account. ABM uses this information obtained through ABC to reduce or eliminate non-value added activities, and as a result, improve the overall process (Cooper *et al*, 1992; Atkinson *et al*, 2007).

The terms ABC and ABM cannot be used interchangeably. ABC is a tool and, by itself, is not enough for continuous improvement of the company. ABM, to the contrary, is a discipline that, by using the information ABC provides, focuses management attention on the planning, execution and measurement of

activities. It helps companies to survive in the competitive world of business (Cooper *et al*, 1992; Swenson, 1997).

2.1.3 The application of ABC

ABC was initially developed to allocate overhead costs in a manufacturing environment. Cooper (1989) discusses the implementation of ABC at Siemens Electric Motor Works, tracking and allocating the costs associated with the manufacture of low volume customised motors. This made it possible to compete with the Eastern Block countries enjoying much lower labour rates. This author also discusses how the implementation of ABC helped John Deere Component Works cost high volume parts. The existing TMAS under cost low volume products and over cost high volume products, causing the bid price of high volume products to be pitched uncompetitively high. The implementation of ABC enabled John Deere Component Works to successfully bid for high volume contracts.

It did not take long before it was realised that ABC is an ideal tool for other applications as well. Rotch, (1990) concludes that ABC can be successfully implemented in the service industry as well, since traditional allocation bases fail to capture the diversity of resource consumption. Subsequently, numerous research papers discussing the application of ABC in several industries, other than manufacturing, followed in quick succession. These papers include the following examples:

a) Kaplan and Narayanan, (2001) introduced the use of ABC in customer profitability. By identifying unprofitable customers, companies were able to take appropriate action and limit losses related to these customers.

b) The financial services sector benefited from the use of ABC to identify the costs incurred in the many processes and procedures typical of this industry. Sweeny and Mays, (1997) discuss how ABM/ABC was successfully implemented at First Tennessee National Corporation, assisting the bank in restructuring their value chain and product range. Max, (2004) points out that

ABC is becoming the sophisticated foundation for enterprise performance management in the financial services sector. This is supported by Sartorius *et al*, (2007) who report that 83% of the South African financial institutions, that responded to their survey, had adopted ABC.

c) Car, (1993) reports on the successful application of ABC in the health care sector. This was done by accurately calculating the cost of nursing care and unbundling previously fixed charges by accurately allocating costs to activities.

d) Harris Corporation, a very large US based manufacturer of electronics and communications systems, used ABC to charge back customers for the use of resources, such as mainframe computing, wide area networking, communication and help desk facilities. They also used ABC to reduce the cost of providing services to customers and benchmark the cost of their services against that of their competitors (Brewer, 1998).

It is, therefore, evident that the application of ABC is not unique to the manufacturing industry. Service based industries have also embraced ABC and successfully implemented it.

2.1.4 The benefits of ABC

Domingo, (2007) points out that TMAS traces costs back to the point of consumption which generally is inaccurate. He suggests that cost and activities should be traced back to the point of expenditure since costs can only be managed at the point of initiation and the role of the cost driver is to identify why and when the cost takes place. ABC does this by collecting data on activities and business processes that cut across traditional organisational functional boundaries. This pinpoints the true cost of administrative activities, such as processing customer orders, procurement, and handling special requests which enable managers to know the actual cost to serve customers. Managers can, therefore, manage the increased cost arising from inefficient or unnecessary activities (Kaplan, 1992).

A survey conducted in Greece (Cohen *et al* 2005), reports that Greek firms that implemented ABC, gained significant benefits on a multidimensional level relating to:

- a) a better understanding of cost causation and behaviour,
- b) the ability to conduct customer profitability analysis more accurately ,
- c) more accurate costing information for pricing decisions,
- d) improved cost control and
- e) refined decision making processes.

This was confirmed in a study by Everaert *et al*, (2008) on a Belgian wholesaler. The authors found that through detailed and reliable cost information, ABC provided a better understanding of the profitability of logistics, service and purchasing strategies. The availability of this information led to higher efficiency of business processes and increased profitability.

The benefits of ABC can therefore be summarised as the opportunity to improve profitability through the ability to take better informed decisions using the more accurate information provided by ABC.

2.1.5 Criticisms and limitations of ABC

It must be accepted that, as with all sophisticated systems and tools, ABC also has its shortfalls. It is not, and has not been designed as, a universal “fix all” tool.

Atkinson *et al*, (2007) and Braithwaite and Samakh, (1998) raise the following concerns with the implementation of ABC:

- a) Practical difficulties in sourcing accurate raw data such as time allocations from employees.
- b) Processing the raw data is time consuming.
- c) The accuracy of the data is questionable due to the subjectivity of individual employee's assessment of how they spend their time. Difficulties in adding additional activities or adding more detail to existing activities.

- d) The complexity of the system and exponential growth in activities, in complex processes, may cause it to exceed the capacity of generic software packages such as Microsoft Excel ®

Research by Cohen *et al*, (2005) focusing on the adoption rate of ABC in Greece, suggests that regardless of the numerous benefits of ABC cited in a wide body of literature, there are companies that strongly oppose the adoption of ABC techniques. The main reasons for this rejection are the high cost associated with the implementation of ABC, and ABC's perceived inability to provide more accurate cost information.

A survey by Sartorius *et al*, (2007) amongst South African companies supports the above concerns and cites the following main problems with or reasons for not implementing ABC:

Table 1: Reasons for not implementing ABC

Reason	Percentage of responses
Too expensive including cost of IT	30%
Difficulty with data	55%
Difficulty defining cost pools, cost drivers	35%
Lack of top management support/employee assistance	65%

Sartorius *et al*, (2007) conclude that many of the problems with and objections to ABC by South African companies are not unique and appear to be similar to those experienced in other countries.

The concerns with ABC, therefore, mainly relate to time constraints, technical/IT constraints, cost considerations and management support relating to the implementation of ABC. These concerns will be addressed in this research.

2.1.6 Vital factors in ABC implementation

ABC does, as with any new technology, have certain critical success factors that have to be taken into account to maximise the chances of successful implementation. These include the following:

2.1.6.1 Implementation must be grounded on a clear business purpose

Atkinson *et al*, (2007) point out that it is essential to implement ABC with a clearly defined business purpose in mind, such as to redesign business processes, better manage customer profitability and relationships, improve processes, etc. ABC should not be seen as an operational control system. It is rather a strategic costing system that highlights the cost of processes, products and clients.

Estrin *et al*, (1994) suggest that the implementation of ABC should only be considered after the following questions have been satisfactorily answered:

- a) Is ABC likely to produce cost information that is significantly different from that generated by conventional accounting and does it seem likely that these costs will be "better"?
- b) If the information generated by ABC is considered to be better, will the new information change the dependent decisions made by management?

Wessels and Shotter, (2000 p.219)) suggest that the key question that needs to be answered before implementing ABC is:

"How will it contribute to achieving the vision, strategy and objectives of the organisation and how will it play a part in achieving its success in the market?"

2.1.6.2 Top management support

Senior management support is the most crucial factor in the success of ABC implementation. A member of senior management should act as champion/project leader to illustrate management's commitment to the project's success

(Wessels and Shotter, 2000; Cohen *et al*, 2005 and Sartorius *et a* , 2007).

Atkinson *et al*, (2007) argue that senior management should focus resources, goals, and strategies on the implementation of ABC. They must demonstrate a commitment to ABC by using it as the basis for decision making.

The ABC initiative should also align with the company's strategic goals and objectives to ensure management support and ensure that ABC is being seen as a priority. (Wessels and Shotter, 2000).

2.1.6.3 *Model too complex*

Atkinson *et al*, (2007) point out that often the ABC model is too complex for managers to grasp and thus to act on. It also often increased their workload without providing corresponding benefits. The upkeep of the system, therefore, becomes too onerous and is soon abandoned.

Ryals, (2006) suggests that management should ensure that the cost of gathering the information should never exceed the benefit thereof. The system should therefore be kept simple but effective enough to achieve its objectives, without adding substantial additional costs or workload.

2.1.6.4 *Resistance to change due to perceived threat*

Staff and management will often resist change because they feel threatened by the suggestion that their work could be improved. For implementation to be successful, senior management should step in and convince staff and management of the benefits of ABC to ensure that they buy into the idea (Atkinson *et al*, 2007).

Sweeny and Mays, (1997) report that initially the management of First Tennessee National Corporation were cool towards the implementation of Activity Based Management (ABM). However, interest began to build after the initial successes were reported. The final outcome was a resounding successful; implementation of ABM, resulting in hugely increased profits for the bank.

It is essential that senior management overcome this initial resistance to change and convince the staff and major role-players of the benefits. Resistance and lack of cooperation may negatively effect the successful implementation of ABC.

2.1.6.5 Adequate employee resources

Limited resource allocation is seen as a major stumbling block in the successful implementation of ABC and can often prevent the project being started in the first instance (Wessels and Shotter, 2000).

The ABC project team should be drawn from all departments and disciplines in the organisation to ensure a variety of perspectives. A multidisciplinary team ensures that enthusiasm is maintained, since ABC is not seen as the pet project of the finance department (Wessels and Shotter, 2000 and Atkinson *et al*, 2007).

Wessels and Shotter, (2000) report that 53% of the respondents in their survey considered ABC to be too time consuming for operational managers. However, they conclude that this is not a major stumbling block, since their survey indicated that South African companies are willing to devote sufficient time to the project to ensure successful implementation.

However, despite these potential pitfalls and reservations, ABC has been successfully used in business decisions such as product costing (Cooper, 1989), process cost analysis (Sweeny and Mays, 1997; Brewer, 1998) and customer profitability analysis (Kaplan and Narayanan, 2001).

2.2 Customer Profitability Analysis

2.2.1 What is Customer Profitability Analysis (CPA)?

Van Raaij *et al*, (2003) note that it is good business practice to nurture profitable relationships with customers. To do this a company should know how

customers' relationships differ in profitability and which customer segments offer higher potential for profits to be realised.

Generally Accepted Accounting Practice (GAAP) defines (customer) profitability as gross profit being the difference between the sales revenue and the cost of products supplied (cost of sales). However, this approach ignores any overheads incurred to service customers. TMAS goes one step further by arbitrarily allocating overhead cost to customers or customer groups. This method has been found to be inaccurate due to the subjective nature of the allocation (Atkinson *et al*, 2007; van Raaij, 2003)

CPA is a methodology providing the accurate information needed to determine the profitability of specific customers or customer groups (Van Raaij *et al*, 2003; van Triest 2005; Foster, Gupta and Sjoblom, 1996; Shapiro *et al*, 1987; Kaplan and Narayanan, 2001).

Van Raaij, (2005 p. 373) defines Customer Profitability Analysis (CPA) as:

“...the process of allocating revenues and costs to customer segments or individual customer accounts, such that the profitability of those segments and / or accounts can be calculated.”

This process can be broken down as follows:

2.2.2 What determines customer profitability?

Foster, Gupta and Sjoblom, (1996), Shapiro *et al*, (1987) followed the traditional approach and identified (i) sales revenue generated and (ii) the cost of product supplied as the only variables in the calculation of customer profitability.

Kaplan, (1998), Braithwaite and Samakh, (1998), Kaplan and Narayanan, (2001) and Guerreiro *et al*, (2008) content that a third element being “cost to serve”, describing customer service related overheads, should also be taken into account.

2.2.2.1 Sales Revenue generated

Shapiro *et al*, (1987) identify three customer behaviour patterns impacting on pricing policy and thus on customer profitability. In the first instance, the customer's price sensitivity is influenced by cash flow and economics. Secondly, the customer's buying power and strategic importance will influence his ability to extract favourable trading terms from the supplier. Finally, the personal relationship between the buyer and seller is likely to influence pricing. Friends are less likely to pressurise each other for better trading terms.

This is supported by Foster, Gupta and Sjoblom, (1996) who suggest that sales revenue may vary from customer to customer as a result of variances in selling prices, sales volumes, sales mix, as well as, discounts and free items granted to customers. The direct nature of these income streams makes it easy to allocate to specific customers or customer groups.

2.2.2.2 The cost of product supplied

Shapiro *et al*, (1987) point out that the cost of product supplied is influenced by the following factors:

- a) *pre sale costs* such as sales and marketing,
- b) *production costs*, which are influenced by order size and delivery frequency and speed required,
- c) *distribution costs* which are influenced by mode of transport, distances covered, availability of back haul, and
- d) *post sale service costs* such as installation costs, returns, warranty claims, etc.

These costs are generally direct in nature and can be traced to the specific customer or customer group.

2.2.2.3 Cost to serve the customer

The term "cost to serve" has been used by several authors to describe customer service related cost (Kaplan, 1998; Braithwaite and Samakh, 1998; Kaplan and Narayanan, 2001; Guerreiro *et al*, 2008).

Guerreiro *et al*, (2008 p.392) define “cost to serve” as “ ...the cost of the administrative, commercial, and logistics activities related to customer-service delivery ”. The authors reason that only overheads directly related to customer service delivery should be taken into account in a CPA. This supports a recommendation by Lere, (2000) that facility sustaining costs should be excluded from the CPA, since these do not change in the short run and will be incurred even if no activity takes place. Facility sustaining costs are incurred in providing the capacity needed to undertake operations plus marketing and administration support. It includes costs such as property rental, depreciation, property taxes, etc.

Different customers have different business models demanding different service levels which, in turn, place unique demands on the supplier’s infrastructure. Kaplan and Narayanan, (2001) suggest that customers can be divided in two distinct groups based on the cost to serve them i.e. “high cost” and “low cost to serve” customers. The authors summarise the contributing factors as follows:

Table 2 IDENTIFYING DIVERSITY IN COST TO SERVE

High cost to serve customers	Low cost to serve customers
Order custom products	Order standard products
Order small quantities	Order large quantities
Unpredictable order arrivals	Predictable order arrivals
Frequent changes in delivery requirements	Infrequent changes in delivery requirements
Manual processing	Electronic processing
Large amount of pre-sales support	Little or no pre-sales support
Large amount of post-sales support	Little or no post-sales support
Require company to hold inventory	Replenish as produced
Pay slowly (High accounts receivable)	Pay on time

Customer size plays a significant role in profitability. Large customers are generally much more profitable than smaller customers (Kaplan and Narayanan, 2001; Van Triest, 2005). Van Triest, (2005) suggests that there is more to this phenomenon than just the fact that a larger customer, because of size, generates more sales revenue than smaller customers do. He suggests that variation in profit is caused by a combination of gross margin (sales revenue minus product costs) and efficient use of resources due to economy of scale. Large customers generally place larger, less frequent orders which reduce distribution and administration costs. They also generally require a lower level of marketing and post sale support. Similarly, often new and smaller customers require higher levels of support, but place smaller orders not even generating enough margin to cover the cost of servicing their accounts.

It is evident from the above research that costs consumed may vary widely from customer to customer depending on customer's size, business model and the way he interacts with the supplier. Foster et al, (1996) suggest that each customer or homogeneous group of customers has to be evaluated individually since each Rand of revenue does not contribute equally to net income. It is therefore clearly in the company's best interest to carefully manage both the revenue generated by customers as well as the resources consumed to service customers.

Cost to serve is generally indirect in nature and is traditionally classified as indirect costs or overheads which cannot be directly associated with any given customer. Sophisticated methods such as ABC are therefore required to accurately allocate these costs (Guerreiro *et al*, 2008).

2.2.3 Future economic value

The research outlined above focuses on the *historic* financial profitability of customers. Ryals, (2002) argues that one should also take into account the *future* value of the customer relationship. Smaller customers or new customers may be unprofitable in the short term. This may change over time as they grow in size, require less support and become more cost effective and increasingly

profitable to trade with. Certain customers may also have strategic value making it important to nurture the relationship despite the fact that the customer is historically unprofitable (Kaplan, 1992; Van Raaij, 2004)

Customers should be seen and managed as assets in order to extract the maximum economic value from them. Companies should therefore identify their most valuable customers and put measures into place to nurture that relationship and prevent competitors poaching these customers. Less valuable customers should be scrutinised to see how their value to the company can be improved (Andon *et al* 2001; Ryals, 2002).

2.3 The application of ABC in Customer Profitability Analysis

Under the traditional approach, companies use either the contribution margin or gross profit to calculate customer profitability. Both these approaches are aimed at product cost and do not take into account indirect costs incurred in serving any specific customer or customer group (Guerreiro, *et al*, 2008). Ryals, (2002 p.243) emphasises that:

“Where indirect costs are significant, an incorrect allocation may lead to a seriously misleading picture of customer profitability”

A wide body of literature supports the view that ABC can be used successfully in CPA to calculate accurately the cost of doing business with individual customers or customer groups and thus their relative profitability (Kaplan, 1992; Kaplan and Narayanan, 2001; Ryals, 2002; Manning, 1995; Everaert *et al*, 2008; Guerreiro *et al*, 2008; Van Raaij *et al*, 2003; Van Triest, 2005; Foster, Gupta and Sjoblom, 1996 and Shapiro *et al*, 1987)

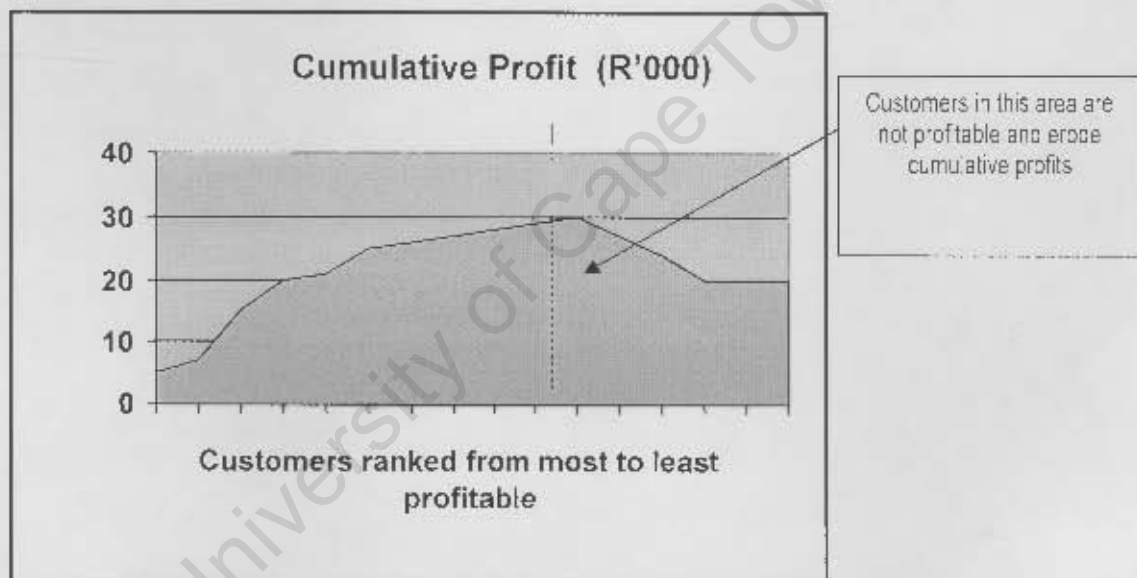
Kaplan, (1992 p.58) emphasises this advantage of ABC by stating that:

“A customer-based ABC model can help managers decide when a customer’s needs should not be satisfied, at least at the current price. Attempting to meet all customer needs, without regard to the economics of the customer transaction, can lead a company not to the promised land of “world-class” performance but to bankruptcy.”

Noone and Griffen, (1997) observe that, using TMAS, typically 80% of revenue is generated by 20% of the customer base. However, by using ABC methodology, it is often found that 60% of the customers generate two to three times the total profit. The remaining 40% are losing money. ABC assists the company to identify these unprofitable customers thereby increasing its bottom line profits either by turning these unprofitable customers into profitable ones, or by ceasing to do business with them.

This concept can be illustrated by the following whale graph (Kaplan and Narayanan, 2001):

Figure 1 Whale graph



The concept is supported by Guerreiro, *et al*, (2008) who suggest that the main function of ABC in Customer Profitability Analysis (CPA) is to correctly allocate the cost to serve customers to the individual customers or customer groups. These authors point out that to maximise profits, a company should be profitable over all customers, irrespective of cost or product differentiation.

Using ABC in CPA provides management with the necessary information to identify unprofitable customers, enabling them to focus on initiatives and strategies to enhance the profit generated from such customers without reducing the customers' satisfaction.

2.4 ABC and the formulation of an effective customer profitability strategy

Gering, (1999) and Kaplan (1992) point out that knowing the true cost and benefits of doing business with individual or groups of customers. enables management to (i) set priorities, (ii) make informed tradeoffs between price, quality and responsiveness, and (iii) periodically determine whether their actions increased profits.

This is illustrated by research done by Sweeny and May, (1997) on the implementation of ABC at First Tennessee National Corporation in the late 1980s. The bank attributed a US\$ 11 million improvement in profitability to the implementation of ABC. By adopting ABC, management could determine the true cost of the various products, identifying unprofitable products and client groups. This knowledge enabled the bank to embark on a programme to redesign product ranges and review pricing policies and eliminate costs which led to improved profitability of individual products and customer groups.

Freeman, (1998) discusses how Hewlett-Packard (HP), by using ABC, was able to determine the relative cost of each of its major customer segments and distribution channels. This knowledge enabled the company to realign and rationalise its product mix and product/distribution combinations to optimise profitability. HP also either “fired” or migrated customers, who could not be serviced profitably, to better-suited distribution channels.

Kaplan, (1992) reasons that the fact that a customer is unprofitable does not automatically mean that he or she should be eliminated or persuaded to accept less satisfactory trading terms. He describes the following three groups of potentially unprofitable customers that should be retained:

- a) New and growing customers who could be profitable in future.
- b) Those who provide qualitative learning benefits (rather than financial benefits).
- c) Those who are acknowledged leaders in their market of speciality area.

Van Raaij, (2004) argues that customers considered to be strategically important, by virtue of their influence in other business sectors and possible spin off business opportunities, can be added to the above short list. However, the strategic importance of a customer must be carefully analysed. Van Raaij, (2004) points out that a customer is only strategically valuable if he leads to demonstrable additional income from other customers, either now or in the future. This income can be from three indirect sources i.e. (i) attracting other profitable customers, (ii) adding value as co-development partner of new products or (iii) volume of trade that leads to economy of scale for the company as a whole.

The availability of the more accurate cost information provided by ABC therefore makes it possible to formulate appropriate strategies to improve customer profitability and therefore the profitability of the company as a whole.

2.5 ABC and the development of an effective pricing policy

Basic economics suggest that in a perfect world price is determined by supply and demand. However, in reality, price and trading terms usually reflect a company's view of market opportunities as well as the company's competitive positioning (Braithwaite and Samakh, 1998).

Lere, (2000) points out that business principles dictate that it is important to take the cost of a service or a product into consideration when entering into price negotiations or setting a sales price to customers. Traditionally, the sales price is determined by simply adding a fixed margin to the cost. This approach leads to anomalies given that the different cost to serve different customers is not taken into account.

By using ABC techniques, management can obtain an accurate assessment of product and service costs relating to specific orders thereby making effective price negotiations possible. Smith, (2006) suggests that ABC is particularly useful in providing reasonable estimates of how support costs (indirect or semi-fixed costs) change with increments in volume. ABC identifies the activities

giving rise to non- manufacturing costs. By managing these costs effectively and making the appropriate changes to operations, management can drive costs out of the value chain and allow more scope to negotiate attractive prices. Therefore, by using ABC in cost estimates, the supplier can suggest changes in distribution channels to reduce cost. This will allow more room to negotiate an attractive price for the customer and hence, secure the order (Lere, 2000).

Van Raaij, (2004) expands on the above by pointing out three important issues related to pricing: (i) discounts, (ii) the pricing of valued added services and (iii) discriminatory pricing. Discounts and discriminatory pricing are often based on volume and on the sales price. The monetary cost of these strategies could therefore exceed the profit realised by the relevant customer. Value added services are often provided free to the customer but often at an unquantified cost to the company. By using ABC the company can determine the true cost of these pricing strategies and help to formulate a more profitable discriminatory pricing strategy. ABC can also assist the company in developing a pricing strategy for value added services.

2.6 Summary

The literature review suggests that despite certain concerns, a wide body of researchers reason that ABC is an effective tool in customer profitability decisions. However, research investigating this issue in a South African context is limited. It is in the context of this gap that this research seeks to determine whether ABC lends itself to customer profitability analysis in the context of a South African SME environment. The approach to undertake this investigation is discussed in chapter 3.

Chapter 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with the method that was employed in the empirical study to collect and analyse the data in order to address the research question. It discusses the reasons for using the case study method and the case study methodology followed. This leads to the introduction of the research setting and XYZ Co, the typical SME on which the case study was based. Finally, the chapter closes with a discussion on how the data was collected and analysed, as well as, the quality assessment methods used.

3.2 Case study definition

A case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundary between the phenomenon and context is not clearly evident (Yin, 2003). By using XYZ Co's real day-to-day trading activities as a basis for the case study, a model was developed to explore whether ABC is a practical tool to use on an ongoing basis for the formulation and monitoring of customer profitability strategies and pricing policies in a typical SME environment.

3.3 Type of case study

An investigative single case study in a business to business setting (refer to section 3.5 below) based on detailed field work was performed. It was done via diachronic research aimed at determining the changes in the unit of measure over time (Yin, 2003).

3.4 Suitability

The case study approach was considered to be the most appropriate since the research question is a how and when type: *does ABC lend itself to customer*

profitability analysis in the context of a South African SME environment? The researcher also had no control over the events. The research was focused on a contemporary event, that being the influence of the current economic climate on the profitability of SMEs. This approach aligns with recommendations by Yin (2003).

A single case study approach was selected owing to XYZ Co being a typical representative example of SME's. Concentrating on XYZ Co made a longitudinal case study possible. Studying the same case over time and introducing new knowledge thereby enabling management to redefine strategy, made it possible to determine how certain conditions changed over time (Yin, 2003).

Criticisms of single case studies usually reflect fears about the uniqueness of or artificial conditions surrounding the case. This criticism may turn into scepticism of the integrity of the empirical work done in the case study (Yin, 2003). Terre Blance and Durrheim, (2002) content that single case study designs allow for rigorous observation and more careful control of extraneous variables. Yin's (2003) concerns regarding single case studies were overcome by meticulously recording, with careful attention to detail, the methods used, steps taken and results observed. The effect of extraneous variables, as well as, external variables (such as exchange rate variations) were also carefully monitored, recorded and, where appropriate, excluded from the research findings. Finally, collected data was carefully analysed to determine whether there was evidence of a causal relationship between the empirical evidence gathered.

3.5 Research setting

The case study was based on XYZ Co (pseudonym pertaining to an actual company). The permission of XYZ Co's Chief Executive Officer (CEO) was obtained to use the company in this study on the condition that the identities of the company and its customers were kept confidential.

The case study was set in a business to business context. Unlike the consumer market, business to business (B2B) involves sophisticated participants on both sides of the transaction. The buyer is not the end user of the product and is therefore vitally interested in the efficiency of the supplier in the order, manufacturing and supply process, as well as, in competitive pricing. The supplier on the other hand is interested in cost effective service and high-level marketing with very little focus on marketing directly to the consumer. There is very little, if any, emotion involved in the buying decision which suggests that emotions can be ruled out as a factor influencing customer profitability (Jacobs *et al*, 2001).

The site selected for this case study is a typical South African SME with customers mainly in the retail sector. These customers are the largest retailers in South Africa and each has its own business model, making unique demands on XYZ Co's infrastructure. This research setting was considered a viable research site since it made it possible to test the practical application of ABC in a SME environment for the following reasons:

- a) The inherent complexity of the industry caused traditional costing techniques to be ineffective. The company was looking for a suitable alternative.
- b) The customer base was large but with relatively few customer groups, each with an unique business model. This made it possible to test the practical application of ABC across a number of distinctly different customer groups.
- c) Senior management were highly skilled and trained business professionals who understood and appreciated the demands placed on the company and the benefits gained by the implementation of ABC. Furthermore, the company had a champion (the Financial Director) who led the programme.
- d) The company had an effective accounting system in place. It was therefore possible to triangulate the results achieved by ABC with that of the existing accounting system. This gave an indication of the accuracy of the information provided by ABC.

e) The company was a typical SME with a PC based IT system primarily using Pastel Accounting and Microsoft Excel for financial reporting. This made it possible to test the practicality of ABC in a SME environment with limited IT resources.

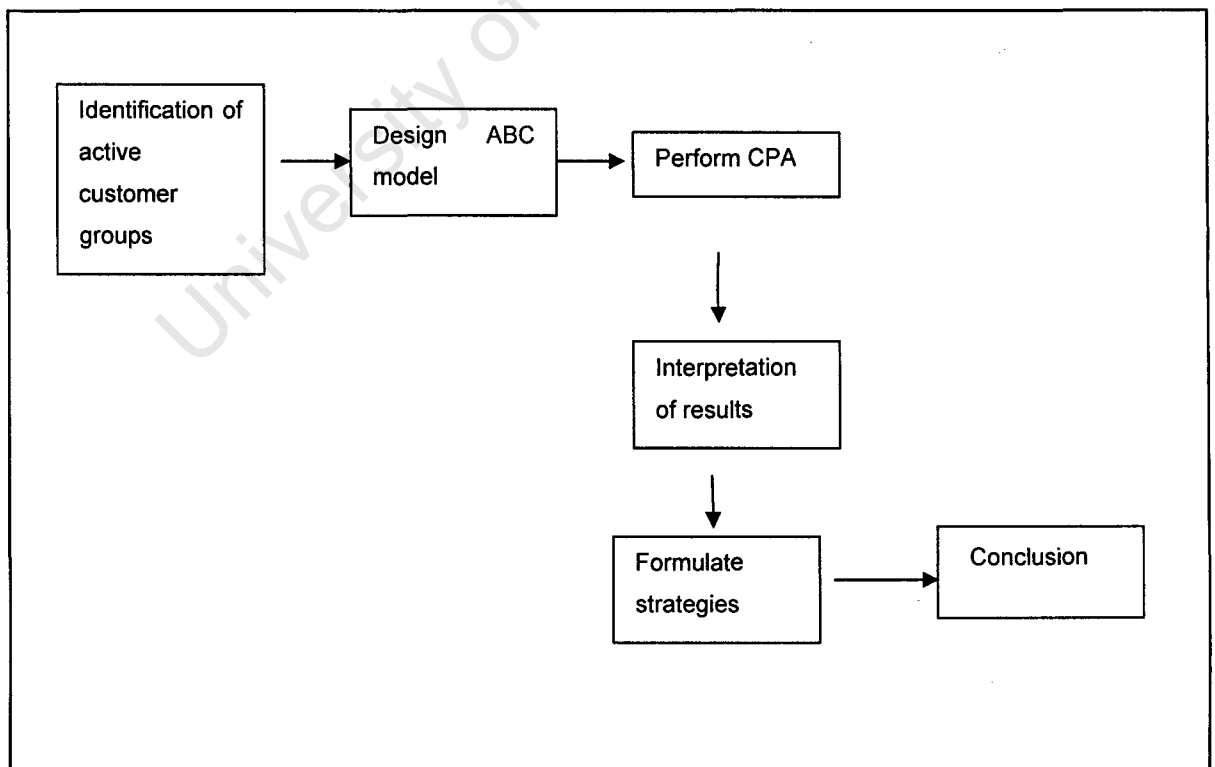
3.6 Unit of analysis

Case study research requires the unit of analysis (or subject matter) to be clearly specified (Yin, 2003). The units of analysis have an impact on sample selection, data collection and the types of conclusions that can be drawn from the research (Terre Blance and Durrheim, 2002). The unit of analysis of this case study was XYZ Co., as a participant in a supply chain.

3.7 Research periods and formulation of objectives

Each CPA performed in this research followed the following framework suggested by Van Raaij *et a* , (2003)(adapted):

Figure 2 **Research framework**



Research spanned a period of 20 months from November 2007 to June 2009. During this period three CPAs analysing the profitability of identified active customer groups were performed. Each CPA covered a specific period and had specific research objectives as discussed below.

CPA 1 : November 2007 to April 2008 (April 2008):

The main objectives were to introduce the concept to senior management and to do a preliminary assessment of the practical application of a ABC as a tool for CPA. Secondary objectives included the development of a simple ABC model using Excel spreadsheets, benchmarking the profitability of the various customers and comparing the ABC results with the TMAS's results. Finally, the results obtained were used to formulate a strategy to improve customer profitability.

CPA 2 : May 2008 to January 2009 (January 2009):

The strategies formulated after the April 2008 CPA were only fully effective from around August 2008. Therefore, CPA 2 was a preliminary assessment of whether the knowledge gained and actions taken based on the results of CPA 1 had had any effect on customer profitability and customer profitability strategies. It was also used to refresh senior management's interest in the project and to formulate improvements in customer profitability strategies. Secondary objectives included the re-assessment of whether ABC is a practical tool for CPA. During this CPA the models developed in CPA 1 were improved upon using knowledge and experience subsequently gained.

CPA 3 : November 2008 to April 2009 (April 2009) :

The main objective of this CPA was to do a final assessment on the benefit accruing to a SME from using CPA. This was done by comparing the April 2009 CPA with the benchmarks set in April 2008 (CPA 1). Improvements in profitability were traced back to changes in strategy as a result of information gained in the April 2008 CPA (CPA 1).

Secondary objectives included an assessment of the practical application of using ABC in a SME environment by evaluating the relevance and validity of

criticisms and limitations of ABC discussed in section 2.1.5 above. This was done by analysing the methods used and the time and expertise required to conduct a simple yet effective CPA in a SME environment using ABC techniques and readily available technology.

3.8 Quality assessment

Yin, (2003) suggests four ways to judge the quality of any empirical research including case studies:

- a) **Construct validity:** establishing correct operational measures for the concept being studied.
- b) **Internal validity:** establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships.
- c) **External validity:** establishing the domain to which a study's findings can be generalised.
- d) **Reliability:** demonstrating that the operations of a study can be repeated with the same results.

3.8.1 Construct validity

Yin, (2003) suggests that the following two steps have to be covered to meet construct validity:

1. Select specific types of changes that are to be studied (and relate them to the original objectives of the study) and,
2. Demonstrate that the selected measures of these changes do indeed reflect the specific types of changes that have been selected.

Fieldwork started during April 2008 with a pilot CPA benchmarking the various customers' profitability for the 6 months to April 2008 by using both the traditional method and ABC. Based on knowledge gained from this CPA, management made certain strategic policy changes as set out in chapter 4. This ABC model was refined and customer profitability was again measured using ABC for the periods May 2008 to January 2009 (CPA 2) and finally November 2008 to April 2009 (CPA 3).

Criterion 1- above was satisfied by studying the changes in customer profitability observed in CPAs 2 and 3 in relation to the benchmarks set by CPA 1. These changes were related to the objective to determine what will motivate a SME to implement ABC and what economic benefits were expected to accrue from the implementation of ABC.

Criterion 2 above was satisfied by measuring the changes in:

- a) The monetary increase in profitability in order to determine the financial benefit gained from changes in strategy resulting from the new information that became available using ABC and,
- b) Changes in gross profit, cost to serve and contribution relative to turnover in order to determine the financial benefit gained from changes in pricing policy and efficiencies implemented as a result of the implementation of ABC.

3.8.2 Internal validity

Yin, (2003) points out that internal validity is a concern in causal (or explanatory) case studies (such as this one). The concern is whether a conclusion that there is a causal relationship between x and y is correct without knowing whether other rival influences had an effect on the relationship.

Data was carefully analysed and triangulated to data generated by the accounting system, taking into account rival influences to ensure internal validity. This also ensured that the ratios had been correctly interpreted and that the model was capturing and linking the various cost drivers correctly.

Foreign exchange rate fluctuations were identified as the most important rival influence that may have affected the causal relationship. XYZ Co imports all its products. Exchange rate fluctuations therefore affect the cost of the product and therefore the contribution, if the sales price remains constant. It is not practical or commercially viable to adjust selling prices to compensate for each foreign exchange rate fluctuation. Therefore, a view was taken on the expected

exchange rate for a period of time and sales prices were set accordingly. A Rand that is stronger (or weaker) than the standard set may therefore have an impact on the cost of the product thereby affecting the contribution. The variance between the exchange rate used for pricing and the actual exchange rate was monitored on an ongoing basis and prices were renegotiated when margins were subject to ongoing pressure.

The effect of this influence was determined by comparing the relative movement in actual exchange rate of each shipment with the standard exchange rate used in determining the sales price. This was done in order to isolate the foreign exchange profits and losses absorbed in contribution. The effect of the relative movement in exchange rate was found to be immaterial.

Another rival influence was the delay in passing increased direct costs to the customer. The monetary effect of this delay was found to be negligible since the most significant costs were renegotiated on a regular basis and reflected in the next price lists. This finding was reinforced by pattern matching.

3.8.3 External validity

External validity refers to whether the results of the case study can be generalised beyond the immediate case study (Yin, 2003).

Yin (2003) suggests that in a single case study the theory that initially led to the case study, will be the same theory that will help to identify the other cases to which the results can be generalised.

Case study research is generally weak in external validity since by definition it focuses on one scenario. However, its relative strength in internal validity compensates for this weakness (Gerring, 2007).

External validity was assessed by applying the wide practical experience gained by the investigator in working with SMEs across various sectors over the past 24 years. Although the case study was based on the specific trading

circumstances at XYZ Co, it is believed that the methods and procedures applied can be successfully used at other SMEs to achieve similar results.

3.8.4 Reliability

Yin (2003) defines reliability as whether a later investigator, repeating the same procedures on the same case, will come to the same conclusions as the earlier investigator.

In case study research validity rather than reliability is the core issue. Cases and the circumstances of their analysis are unique and cases are often affected and changed after a case study has been performed (Scholz and Tietje, 2002)

Yin (2003) suggests that reliability should be addressed during the data collection stage by using case study protocol and the development of a case study database. Reliability was addressed in this research, by following case study protocol, setting out the procedures to be followed and the timing thereof. This was supported by the development of an extensive case study database, literary research and documenting the results of CPA analysis performed.

3.9 Data Collection

Evidence was gathered via documentation, interviews, direct observations and performing CPA and ABC procedures, as well as, scrutiny of financial and other records.

The researcher had, in his capacity as the financial director of XYZ Co, unrestricted access to, and an intimate knowledge of, financial and other relevant information pertaining to XYZ Co. He also had access to the major retail customers' operational manuals pertaining to inbound logistics as well as practical experience on how these policies were applied.

In addition to this, non-structured interviews were conducted on an ad hoc basis, as and when required, with selected senior staff members of XYZ Co. and certain customers.

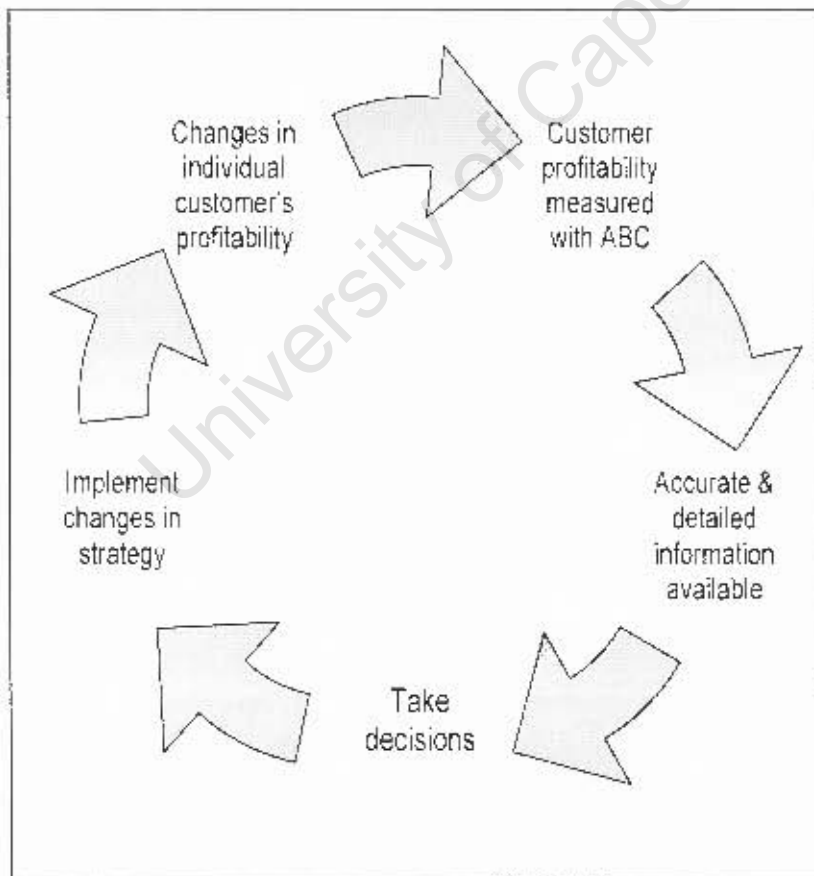
3.10 Data analysis

The data analysis was structured to show that:

- a) All the evidence had been attended to.
- b) It addressed rival interpretations.
- c) It addressed the most significant aspect of the case study.
- d) The researcher's own prior expert knowledge had been applied to the case study (Yin, 2003).

Data was analysed using visual analysis such as graphs, tables, diagrams etc. The aim of the analysis was to study the economic effect of the application of ABC techniques. It can be graphically illustrated as follows (author's own diagram):

Figure 3 CPA process flow



3.11 Conclusion

The methodology in the case study closely followed the guidelines laid down by Yin, (2003); Gerring, (2007); Terre Blance and Durrheim, (2002) and Scholz and Tietje, (2002). This empirical case study was conducted in an almost perfect environment and very few of the obstacles to the implementation of ABC (discussed in chapter 2) were experienced. The results, as presented in chapter 4, suggest that certain economic and strategic benefits are to be gained by the implementation of ABC and customer profitability analysis.

University of Cape Town

Chapter 4

RESULTS

4.1 Introduction

This chapter presents the results of the empirical case study investigating customer profitability using ABC in an SME environment. The chapter leads with an introduction to XYZ Co and the traditional approach followed by the company in determining customer profitability, explaining why it was deemed necessary to implement ABC. It then moves on to analyse the results of the three CPAs performed and discusses the operational challenges encountered and strategic management decisions taken based on the new information that became available. Finally, it closes with a comparison of the results of the April 2009 CPA with the benchmarks set in the April 2008 CPA. These results quantify the economic benefits that accrued to XYZ Co as a direct result of the implementation of ABC for the purposes of customer profitability analysis.

4.2 Background to XYZ Co

The case study was conducted at a South African importer and wholesaler nationally of cheese, biscuits and other food products to the major retail chains in South Africa.

The company is classified as a SME since it is an owner managed medium enterprise with a turnover below R 50 million and has less than 10 employees. Business is predominantly carried out in the food wholesale trade sub sector of the economy. These characteristics are typical of a SME in the South African environment (South Africa 1996)

The company was founded in June 1993 by the current owner and CEO. Until 2006 the company acted solely as a commission agent to a major retailer (W) by sourcing products on behalf of W on a commission basis. During 2006, W changed their business model and forced XYZ Co in turn to change its business

model or else go out of business. Under the new model XYZ Co had to import in its own right, carry stock and sell the product to W. This created new opportunities since XYZ Co was no longer an exclusive supplier to W. New markets were developed and the company started to supply other retail chains and the hospitality sector (HORECA) as well. Profit margins in the wholesale trade are very low and under constant pressure. This, combined with the nature of the products (perishable with a short shelf life), customer demands and exchange rate fluctuations, created new threats to the profitability and survival of the company.

The company imports perishable foodstuffs such as cheese, biscuits and cold meats from Europe, the United Kingdom and Australia. XYZ Co's sales are spread over more than 240 product lines supplied to 224 customers via 6 distinct distribution channels. The company has 9 employees and third party distribution agreements with 4 independent distributors.

The company targets the major retail chains in South Africa, as well as, the food services sector (HORECA). The current customer base consists of all the large retail groups in South Africa (referred to, for purposes of anonymity, as W, P, C, S and F), as well as, several smaller independents. The company is nationally represented in the Western Cape (WC), Gauteng (GT), Kwa-Zulu Natal (KZN) and the Eastern Cape (EC).

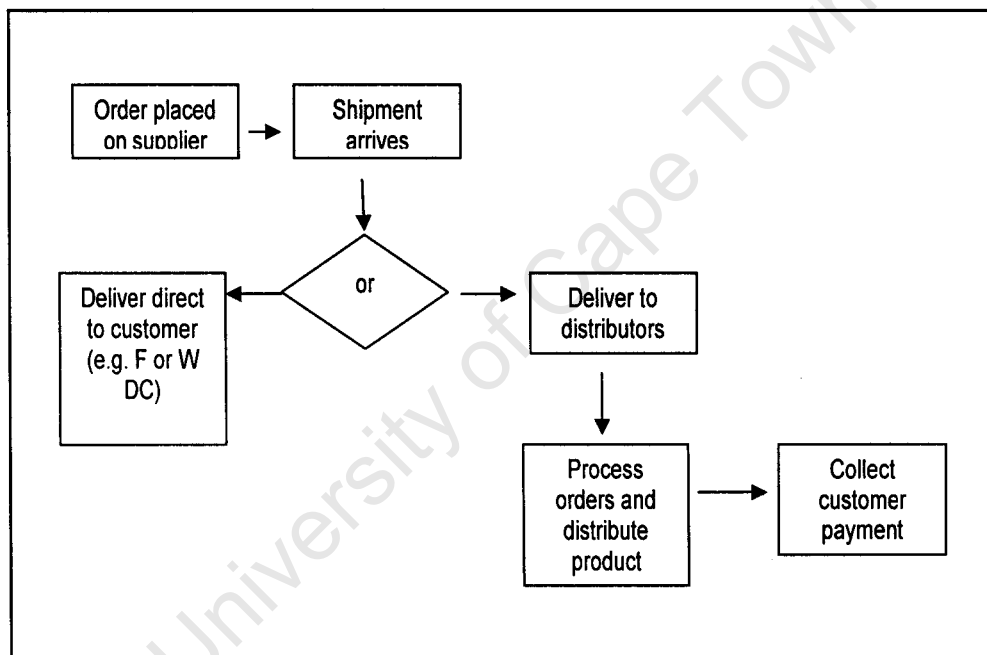
These customers have diverse business models and supply chain requirements which impact differently on the resources required to service them. Certain customer groups (P and C) insist that suppliers (including XYZ Co) merchandise their products at store level. This requirement increases the cost associated with these customers. S, F and the independents do not require merchandising, but do require sales support. W does not require merchandising and generates their own orders (based on their in-house sales forecasts) posting it electronically on their portal. The cost to serve W is therefore relatively low compared with the other retailers. Sales and merchandising is done via the company's own in-house sales and merchandising team based in the WC

region servicing WC and GT. Third party sales and merchandising companies service the EC and KZN regions.

Distribution is done via two distinct channels; namely drop shipments and bulk orders. Drop shipments are distributed via third party distributors located in the four regions specialising in drop shipments directly to stores and W's Distribution Centre (DC). Bulk orders are delivered directly from Cape Town or Durban harbour to F's DC in Cape Town and P and W's DCs in Gauteng.

XYZ Co's value chain can be illustrated as follows:

Figure 4 XYZ Co's value chain



(Own diagram)

XYZ Co also still acts as a commission agent on a limited number of W's product lines.

The case study used ABC to explore how these different customers' business models impact on XYZ Co by determining their true cost to XYZ Co. Knowing the correct cost attributable to each customer enables management to structure XYZ Co's business model to maximise profits earned from each individual customer increasing the profitability of the company as a whole.

4.3 Customer Profitability Analysis (CPA) using the Traditional Approach

XYZ Co initially measured customer profitability using gross margin: sales revenue net of product cost (cost of sales). This approach was quickly refined also to take into account direct sales expenses such as transport costs to the various DCs, distribution cost to customers, rebates and allowances claimed by retail customers, sales and merchandising expenses and provisions for expired stock. Indirect cost and overheads incurred in serving customers were ignored for customer profitability purposes.

The following graph depicts the customer segmentation for the 6 months ended April 2008 using the traditional approach:

Table 3 Customer segmentation – April 2008 Traditional approach

Customer	Profit (R'000)	% of total
W	1 195	83%
F	148	10%
P	144	10%
S	1	0%
C	-18	-1%
Independents	-25	-2%

The traditional approach reported only C and the independents as marginally unprofitable. W, P and F contributed to 103% of the profit while only 3% was lost on C and the independents.

However, the accounting net profits reported suggested that gross margins should be increased significantly across the board to achieve breakeven. Closer scrutiny suggested that the customer profitability calculations were critically flawed, since these did not take into account the substantial indirect costs attributable to, and hence profits lost by, certain customer groups. This included extended annual trips to Europe and England when XYZ Co's C.E.O. and F's manager visited suppliers to source new products. A substantial amount of

senior management's time spent on introducing new products to P, C and F was not allocated to these customers. Price increases were also often delayed since senior management focussed on the generation of new business rather than on maintaining existing business. These delays eroded margins since the sales price did not increase in line with cost prices.

It became clear that management focused mainly on four dimensions of customer profitability analysis: recency of last sale, frequency, amount purchased and gross profit generated. The main disadvantage of this approach was that it focused on revenue rather than costs and therefore did not give a true indication of any specific customer's profitability (Ryals, 2002).

Clearly, the existing traditional management accounting method did not provide the detailed and accurate cost information vital to survive in the low margin and highly competitive retail sector. Management therefore decided to experiment with ABC since it is a proven method to accurately allocate these costs to the specific customers to which it relates (Cohen *et al*, 2005; Kaplan, 1998; Braithwaite and Samakh, 1998; Kaplan and Narayanan, 2001; Guerreiro *et al*, 2008). Management realised the potential of ABC to correctly reflect the profitability of individual customers, as well as, the potential economic benefits of this information.

4.4 CPA using ABC

4.4.1 Introduction

The main concerns about the application of ABC in a South African SME, (i.e. (i) too expensive to implement and maintain, (ii) difficulty with data collection, (iii) difficulty defining cost drivers and (iv) lack of support by senior management (Sartorius *et al*, 2007)) were overcome by *not* using consultants to implement and drive the project. The company's financial director championed the initiative which resulted in no additional cost being incurred, since it was done in-house using existing infrastructure (Microsoft Excel). The financial director also had intimate, detailed knowledge of both operational and financial aspects of the

company. This not only saved time, but also made the accessibility of relevant data and the identification of cost pools and activities easier.

4.4.2 Identification and formulation of key concepts

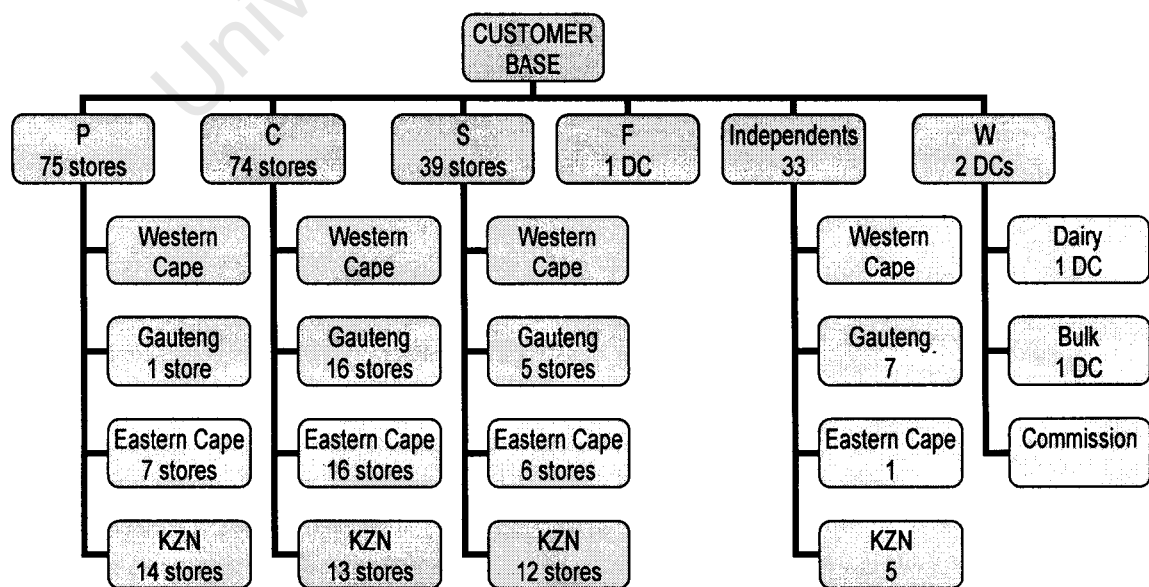
Prior research suggested that the following key concepts had to be defined prior to performing a CPA using ABC:

4.4.2.1 Identification of customer groups

Distribution, sales and marketing and other costs to serve customers vary from customer to customer, as well as, region to region. Customers were therefore grouped by major retail chains and sub-divided by region or significant business units. The objective was to group homogeneous customers, with similar cost structures, together by region (Foster *et al*, 1996).

Van Raaij, (2004), points out the importance of excluding inactive customers to ensure that costs are only allocated to “active” customers. He suggests that an active customer should be defined as a customer with whom the company has interacted either via sales calls or by providing products during the past 12 months. The following groups of homogeneous active customers were identified by following the above authors’ suggestions:

Figure 5 Active customer groups



4.4.2.2 Characteristics of customer's business models

Smith and Dikolli, (1995) identified four factors that affect individual customer's profitability.

- a) Purchase behaviour i.e. the order frequency and order method.
- b) Delivery policy and distribution channel used
- c) Accounting procedures (volume of transactions).
- d) Inventory levels required to be held.

XYZ Co's trading terms suggested that the following could also be added:

- e) Whether or not a sale or return policy is in place.
- f) The efficiency of customers' accounting system which dictates the amount of administrative support required.
- g) Payment terms, as well as, adherence to payment terms which affects the cost to finance the account.

Table 4 depicts the differentiating characteristics of the XYZ Co's customers' business models identified using the above methodology:

Table 4 Differentiating characteristics of XYZ Co's customers

CUSTOMER	ORDER METHOD	PMT TERMS (DAYS)	DISTRIBUTION CHANNEL	ORDER FREQUENCY	REQUIRED INVENTORY LEVELS	% OF TOTAL TRANSACTION VOLUME – APRIL 2008	EFFICIENCY OF CUSTOMER'S ACCOUNTING SYSTEM	RETURNS POLICY
P	SM/Fax	30	Drop shipment	Daily	45 days	19%	Poor	Yes
C	SM/FDI	30	Drop shipment	Daily	45 days	43%	Excellent	No
W	EDI	14	DC & Direct to DC	3 times p.w.	Nil to 45 days	21%	Excellent	No
F	SM	21	Direct to DC	Ad hoc	Nil	1%	Good	No
S	SM/Fax	30	Drop shipment	Daily	45 days	8%	Average	No
Independents	SM	30	Drop shipment	Ad Hoc	Nil to 45 days	8%	Variable	No

Key :

Drop shipment = deliveries by designated distributors to individual stores.

DC = deliveries by designated distributors to central distribution centre.

Direct to DC = Direct deliveries from vessel to distribution centre.

SM = salesman intervention required.

The above table suggest that customers P and C display the typical characteristics (being high transaction volume, daily orders, extended payment terms, large stock holding required) of a “high cost to serve” customer as suggested in table 2. Customers W and F on the other hand display the typical characteristics of a “low cost to serve” customer.

4.4.2.3 Formulation of “cost to serve” and “contribution”

The “cost to serve” concept has been coined by several authors including Guerreiro *et al* (2008); Braithwaite and Samakh, (1998) and Kaplan and Narayanan (2001) to describe customers’ service costs in a customer profitability context.

Lere, (2000) points out that some costs do not change in the short run and should be excluded from an ABC model. This view is supported by Guerreiro *et al* (2008); Braithwaite and Samakh (1998) and Kaplan and Narayanan (2001) who emphasise that *joint fixed costs* should not be taken into account in calculating the cost to serve customers. Joint fixed costs include expenses such as premises rent, depreciation and general administrative and marketing expenses. These costs are related to facility-sustaining activities which are necessary for a business to continue operations and are not related to serving any specific customer or groups of customers. The only way to eliminate facility-sustaining expenses is to shut down (permanently close) the business.

In line with these suggestions, XYZ Co’s management decided to adopt the following generally accepted conventions:

	<i>Sales / Turnover</i>
<i>Minus</i>	<i>Cost of Sales</i>
<i>Equals</i>	<i>Gross Profit</i>

Minus Cost to serve
 Equals Contribution

- **Contribution Margin** = contribution divided by sales
- **Cost to serve (CTS)** = Total fixed and indirect expenses, excluding joint fixed costs, incurred to serve customers
- **Relative Customer profitability** is measured by comparing the contribution and contribution margin of individual customers.

4.4.2.4 *The identification of cost drivers*

ABC methodology is based on the concept that activities cause cost. The main activities required to serve the customers were therefore identified. The fixed cost to perform these activities was extracted from the accounting system and facility sustaining cost was eliminated. As a final step, a thorough analysis was done to determine the root cause or cost driver of the cost (Cooper, 1990; Cooper and Kaplan 1992; Guerreiro *et al*, 2008).

The following table (5) shows the identified activities and cost drivers:

Table 5 Identified activities and cost drivers

Activity	Cost Driver
Shipping and transport of goods to DC	Volume (Kg or cases)
Sales & merchandising	Sales value of customers served
Visit of overseas suppliers	Cost of sales of affected customers
Travel cost – local customer visits	Sales value of affected customers
Courier of documents	Quantity transactions generated by affected customers
Provision of samples	Quantity transactions generated by affected customers

Interest paid	Month end balance on customer account
Marketing	Time spent on customer account
Import logistics	Cost of sales
Debtors' function	Quantity transactions
Inventory control	Cost of sales of affected customers
Bank charges	Cost of sales
Foreign exchange gains and losses	Cost of sales
Losses on expired stock	Cost of sales of affected customers

4.5 CPA Findings

4.5.1 Interpretation of results : April 2008's benchmarking exercise

4.5.1.1 – Financial results

The primary financial objectives of this CPA were to benchmark the various customers' and distribution channels' profitability and to use this information as a foundation to review the effect of changes on customer profitability strategies based on this CPA.

A secondary objective was to compare the information furnished by the ABC approach with that of the traditional approach and to evaluate whether the ABC information is more accurate.

Profitability by distribution channel: drop shipment vs. direct to DC

The following table (6) highlights the diversity in relative profitability of the two distribution channels:

Table 6 Profitability by distribution channel

November 2007 to April 2008				
Percentage of Total				
Channel	Turnover	Gross Profit	Cost to Serve	Contribution
Drop shipment	27%	7%	47%	-38%
DC	73%	93%	53%	138%
Total	100%	100%	100%	100%

From the above it is clear that drop shipments are relatively expensive since these only contribute 7% to the gross profit yet consume 47% of the cost to serve. This causes drop shipments to have a negative contribution. Drop shipments are also a relatively small portion of the business since it these only contribute 27% to turnover.

Profitability by customer group

The following table (7) depicts the customer segmentation found in the April 2008 CPA:

Table 7 Profitability by customer group

	W	F	P	S	C	Independents
	CONTRIBUTION TO TOTAL (100 %)					
Distribution channel	DC	DC	Drop	Drop	Drop	Drop
Turnover	54%	19%	11%	3%	7%	6%
Gross Profit	83%	10%	10%	0%	-1%	-2%
Cost to Serve	31%	22%	19%	7%	13%	8%
Contribution	141%	-3%	-1%	-8%	-17%	-12%

There is a wide body of literature that addresses the well known 80/20 rule. That is: 80% of a company's profits are derived from 20% of the customers

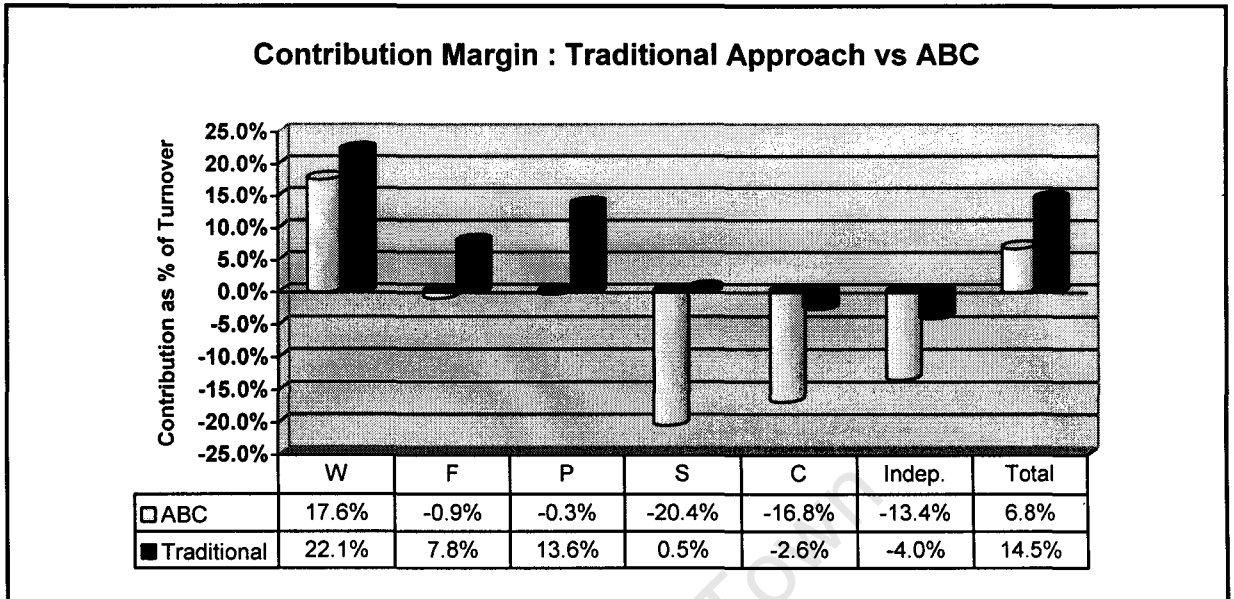
(Noone and Griffen, 1997; Guerreiro *et al*, 2008). The same disparity was observed in this case study. The findings depicted in table 7 highlights W and F as being not only the largest customers, but also as having the largest effect (positive or negative) on net profit. Large retailers (W, F, and P) are responsible for 84% of turnover and 103% of the gross profit. A large portion (73%) of the turnover was contributed by two of the customers and one customer contributed 141% of the contribution.

The results show an asymmetrical distribution of profits in relation to the number of customers. W contributed 141% of the contribution for the period while the other customers combined lost 41% due to the high cost to serve these customers. XYZ Co would therefore be better off trading only with W.

ABC also pointed out the disparity between gross profit generated and cost to serve consumer. For instance, C and P each contributed 10% to gross profit, yet they consumed 13% and 19% respectively of the cost to serve. F contributed 10% to gross profit but consumed 22% of the cost to serve. Compared to that, W contributed 83% but only consumed 31% of the cost to serve.

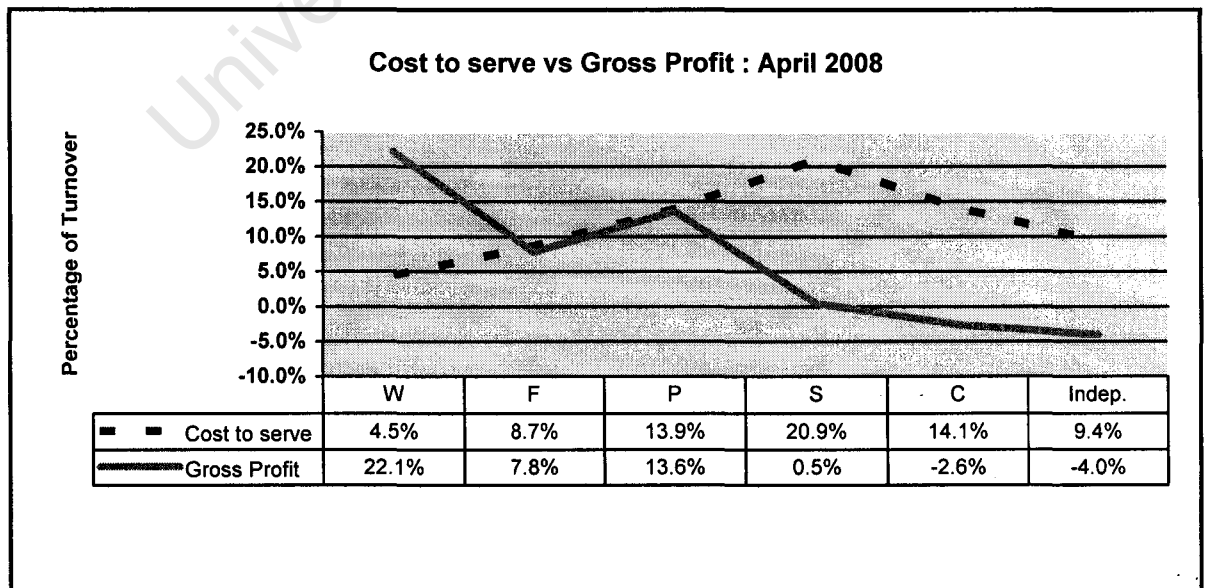
The following figure (6) compares the contribution margin (Gross Profit minus Cost to serve) per the traditional method to that calculated using ABC. Customers who appeared to be profitable under the traditional approach (F, P, S) are now proved unprofitable due to the substantial cost to serve attributable to them.

Figure 6



The average cost to serve as a percentage of sales for the period to April 2008 under review was 7.7% (Refer table 7) . This disguises a range of 20.9% (S) to 4.5% (W). In almost all instances the cost to serve attributable to individual customer groups exceeded the gross profit generated by these customers. This relationship can be illustrated as per figure 7 below:

Figure 7



4.5.1.2 Operational outcomes

The main operational objective of this CPA was to introduce ABC and CPA to senior management by doing a preliminary assessment of the practical application thereof.

Practical implementation

The practical implementation of ABC proved to be time consuming due to the time invested in identifying cost pools, customer groups, activities, gathering data, as well as, the building of spreadsheets. This was deemed to be an initial once off investment to form the foundation of future CPA's. Only the existing staff complement was utilised and no significant overtime was required. This greatly reduced the implementation cost but placed a significant burden on staff. Input by senior management was limited to time invested by the financial director. Minimal input was required from the rest of senior management and such input was mainly consultative in nature.

Existing technology and software (Microsoft Excel running on a stand alone personal computer) was used. This negated the necessity of incurring extra costs by investing in new technology.

Formulation of strategy

The results of the CPA were reported to the board of directors by way of a formal report with certain recommendations on 6 June 2008.

The initial reaction of the XYZ Co's board of directors was neutral to the findings of the CPA. However, the directors soon realised the importance of the findings. The "customer is king" syndrome started to make way for a more balanced customer profit focused approach. The following remark made by the managing director underpinned the paradigm shift in mindset:

"We already make a loss on them (referring to a major customer), and now they demand further discounts ..."

A follow up board meeting was called and the following key strategies were formulated and implemented as a direct result of this new information on customer profitability:

- a) Increased focus on core competencies. Prahalad and Hamel, (1990) suggest that three tests can be applied to identify core competencies i.e.: (i) it provides access to a wide variety of markets, (ii) it should make a significant contribution to the perceived customer benefits of the product and (iii), it should be difficult for competitors to imitate. Following this suggestion, management identified XYZ Co's core competency as the sourcing and importing of fine foods. This was done under exclusive distributor agreements with the largest overseas suppliers. The company trades mainly in a niche market with unique products aimed at the upper income groups. In future, the company will focus on this competitive advantage and follow a differentiation strategy focusing on the less price sensitive upper end of the market. Resources were therefore refocused to expand XYZ's market share in this market segment.
- b) Previous pricing policies were based on a predetermined and fixed margin of 10%. This was increased to a minimum of 12% to 18+% based on the demands placed on XYZ Co by the customer's business model, order sizes and perceived risk associated with both the product and customer. Margins on all customers were increased over a period of time to market related levels.
- c) The company's vulnerability to exchange rate fluctuations and fluctuations in shipping cost were recognised. A policy of regular and ongoing margin reviews and price changes (when required) on product level were implemented.
- d) Trading terms and product ranges were reviewed and renegotiated in respect of customers with persistent negative contributions. Certain customers were "fired" due to severe price resistance and the perceived inability of XYZ Co to trade profitably with them.
- e) The profitability (on gross margin level) of all customers would be monitored on a monthly basis. The customer's account and trading terms would be

- investigated and corrective action taken if it drops below an individual target level set for said customer.
- f) The internal value chain would be restructured to focus resources (mainly senior management time) on larger profitable customers switching the allocation of these resources from unprofitable customers to profitable customers.
 - g) Senior management time will be focused on the sourcing and development of bulk lines for shipment directly to DCs.

These policy changes took effect from around the end of August 2008.

4.5.2 Interpretation of results: January 2009

4.5.2.1 – Financial results

The main objective of this CPA was to do a preliminary assessment as to whether the knowledge gained and actions taken, based on the April 2008 CPA, had any effect on customer profitability. This assessment was made by comparing the results of this CPA with the benchmarks set in the April 2008 CPA.

Profitability by distribution channel: drop shipment vs direct to DC

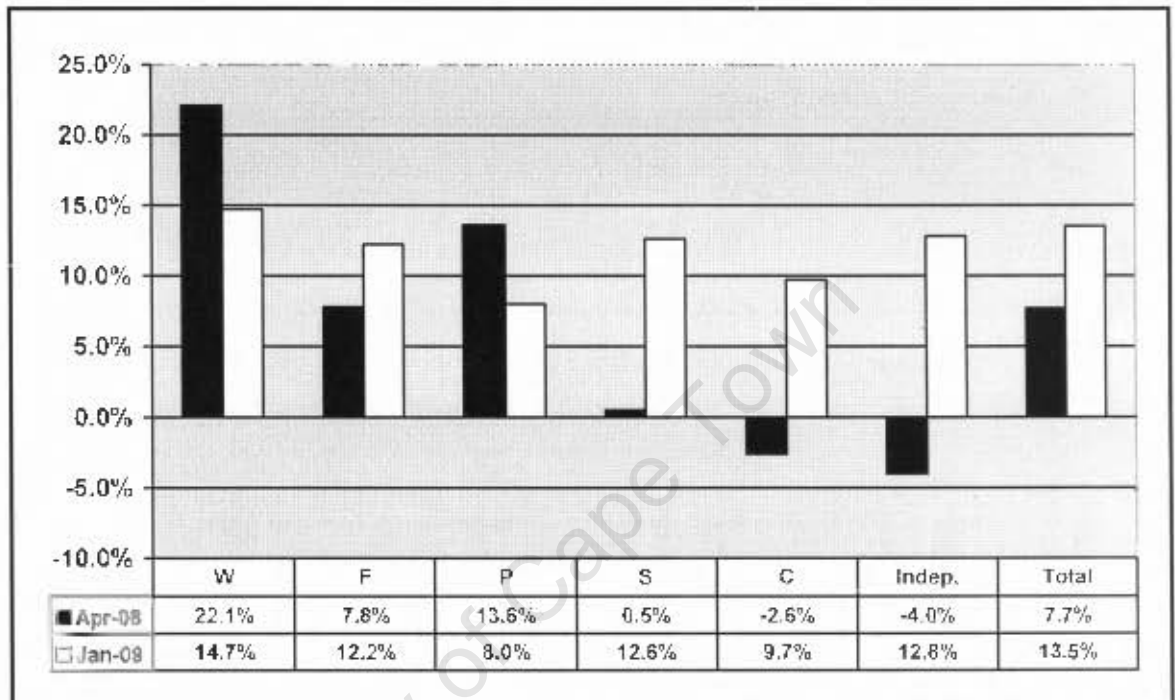
The refocusing of resources led to a substantial improvement in the relative profitability of the distribution channels. Management focused on the more profitable shipments direct to DCs. This led to a substantial monetary increase in turnover and contribution despite causing a reduction in contribution margin.

Profitability by customer group

Large retailers (W, F, P and C) were still responsible for 93% (April 2008: 91%) of the sales and 95% (April 2008: 102%) of the total gross profit generated. A large portion (81% vs April 2008: 73%) of the turnover was contributed by two customers who also contributed 50% (April 2008: 53%) of the contribution. These results show that there is still an asymmetrical distribution of profits in relation to number of customers. However, there were some improvements as a result of actions taken on the April 2008 CPA.

The following graph (Figure 7) illustrates the improvement in gross margins (gross profit divided by sales) generated by the various customer groups as the changes in the pricing policy started to take effect:

Figure 8 Gross margin April 2008 vs January 2009



The reduced contribution margins for W were caused by bulk shipments directly to DC at lower contribution margins but higher monetary profit. The reduced gross margin for P was caused by substantial stock losses of goods expiring in the company's warehouses as a result of delayed product listings by P.

4.5.2.2 Operational results

The main operational objective of this CPA was to renew management's interest in ABC and CPA then secondly, to reassess the practical application thereof. It also gave management the opportunity to fine-tune its strategy.

Practical implementation

The practical implementation of ABC proved to be less time consuming due to the learning curve and previous investment in intellectual capital developing the CPA models. This CPA required less than fifty percent of the time invested in

the April 2008 CPA as the foundation had already been laid. No investment in infrastructure or technology was required.

Formulation of strategy

This time the board of directors were decidedly more interested in the results of the CPA. A full board meeting focusing on analysing the results of the CPA was convened. After careful analysis, the board came to the conclusion that these results indicated a definite shift in profitability. This was largely as a result of the strategic decisions taken, based on the information gained from the April 2008 CPA. ABC was therefore entrenched as the preferred method to analyse and monitor customer profitability.

Strategies were reviewed and the following decisions were taken:

- a) **Strategic positioning:** The board concurred that it is important to be represented in the “drop shipment” retail chains, despite the high cost to serve *provided that the gross margin is positive*. Appropriate steps were therefore taken to streamline the value chain and reassign resources to reduce these customers’ cost to serve and hence their profitability.
- b) **Disinvestment from consistently unprofitable customers:** The KZN region continuously reported losses and both P and C operated at consistent negative gross margins. This was largely due to XYZ Co’s inefficient infrastructure in the area hampering sales volumes. These customers also resisted any price increases. It was therefore decided that there was no further strategic advantage in a continued presence in the region. XYZ Co therefore withdrew from KZN .
- c) **Refocusing of product lines:** The introduction of new product lines into C and P did not only consume a large amount of senior management’s time, but also added additional costs such as inventory, storage and stock losses due to expired stock. It was decided to reduce the development of new “drop shipment” product lines since the relative low return did not warrant the low sales volumes, complexity of numerous inventory items and risk of stock expiring in XYZ Co’s warehouses. It was considered more cost effective to refocus existing proven lines and offer these products to a larger selection of stores.

- d) **Refocusing of resources:** A review of senior management's time utilisation still showed a disproportionate amount of time spent on P and C performing relative routine tasks. Routine tasks such as price reviews were therefore delegated to the National Sales Manager who could fulfil the same functions more cost effectively.
- e) **Refocusing of income generating activities:** The above actions will free senior management's time and other resources to concentrate on more profitable ventures such as bulk shipments directly to DCs.

4.5.3 Interpretation of results: April 2009

4.5.3.1 – Financial results

The financial objective of this CPA was to do a final assessment of the financial and strategic benefits accruing to a SME by using ABC in a CPA. This was done by comparing the April 2009 results with the benchmarks set in April 2008. Improvements in profitability were traced back to changes in strategy as a result of information gained in the April 2008 and January 2009 CPAs

Profitability by distribution channel: drop shipment vs direct to DC

The following table (8) compares the April 2008 and April 2009 results, highlighting the increased profitability as a result of the changes in strategy:

Table 8 Profitability by distribution channel April 2008 vs April 2009

R'000	DC APRIL 2008	DC APRIL 2009	DROP 2008	DROP 2009	TOTAL 2008	TOTAL 2009
SALES	7 326	12 618	2 651	3 643	9 977	16 261
GROSS PROFIT	1 343	1 945	102	290	1 455	2 235
COST TO SERVE	407	887	361	402	768	1 289
CONTRIBUTION	936	1 058	-259	-112	677	946
CONTRIBUTION %	12.8%	8.4%	-9.8%	-3.1%	6.8%	5.8%

The refocusing of resources, subsequent to the April 2008 CPA, led to a substantial improvement in the relative profitability of the distribution channels. Management focused on the more profitable bulk shipments direct in DCs which led to a substantial monetary increase in turnover and net contribution, but which caused a 1% reduction in contribution margin. This strategy resulted in the company's overall contribution increasing by 39.6% or R 268 000 for the periods under review year on year.

Profitability by customer group

The results per distribution channel disguise the true effect the revised strategy had on individual customers. The customer segmentation can be summarised as follows (Table 9) :

Table 9 Customer segmentation – April 2009

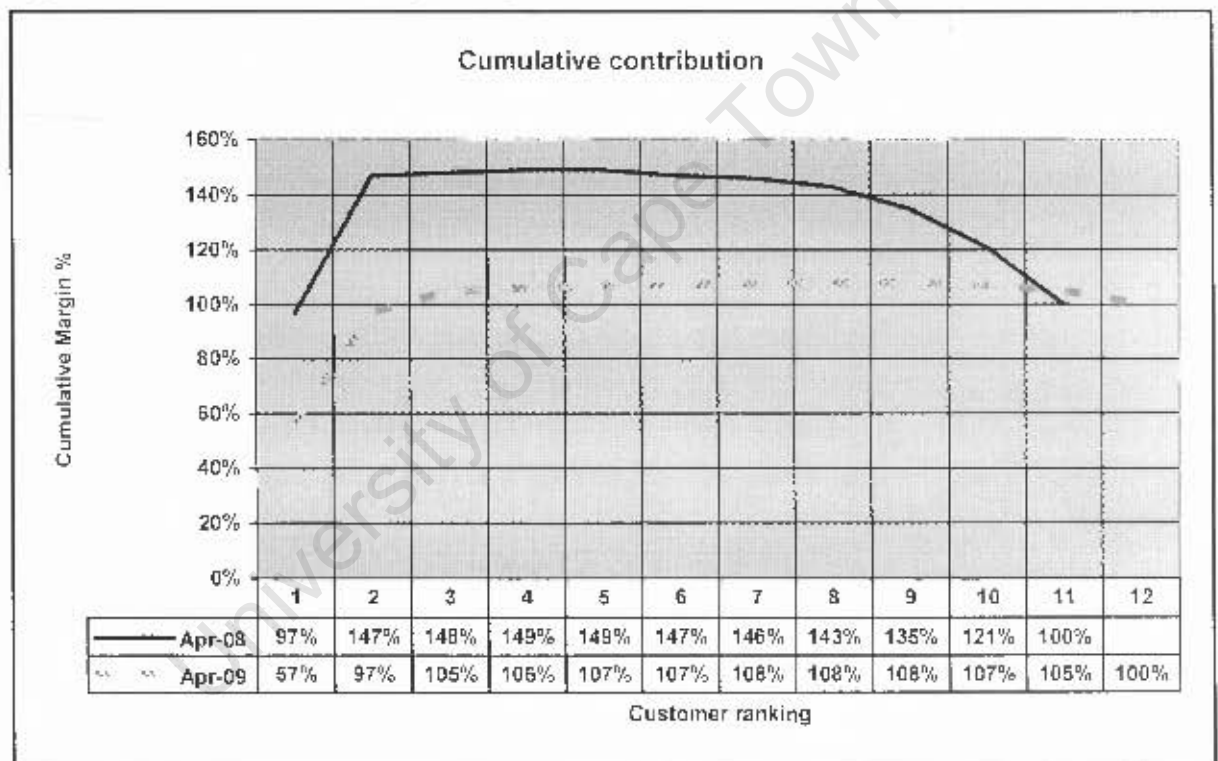
R '000	Total	W	F	P	S	C	Independents
Turnover April 2008	9977	5409	1916	1057	269	702	624
Contribution April 2008	677	954	-18	-3	-55	-118	-83
Contribution margin (%)	6.8	17.6	(0.9)	(0.3)	(20.4)	(16.8)	(13.4)
Turnover April 2009	16261	9745	2873	814	358	1307	1164
Contribution April 2009	946	856	133	-27	14	-47	17
Contribution margin (%)	5.8	8.8	4.6	(3.3)	3.8	(3.6)	1.5
Increase / (Decrease) in Contribution	269	(98)	151	(24)	69	7	100

From the above table (9) it is evident that the profitability of all customers improved with the exception of P and W. The overall profitability improved by 39.6% or R 269 000. The reduced contribution margin in respect of W was traced back to an increase in cost to serve as a result of resources being shifted from other customers and allocated to W in order to negotiate and procure the bulk shipments. This initial investment is expected to generate substantial

profits in years to come. The large improvement in the contribution of F can be directly attributed to a more aggressive pricing policy.

Large retailers (W and F) are still responsible for 78% (April 2008 73 %) of the sales and 105% (April 2008 138%) of the contribution. This relationship can be illustrated as follows using the so-called "whale curve" (Kaplan and Narayanan, 2001) which shows that 108% (April 2008:148%) of the profit came from 50% of the customers . The company only lost 8% (April 2008 : 48%) on the remaining customers.

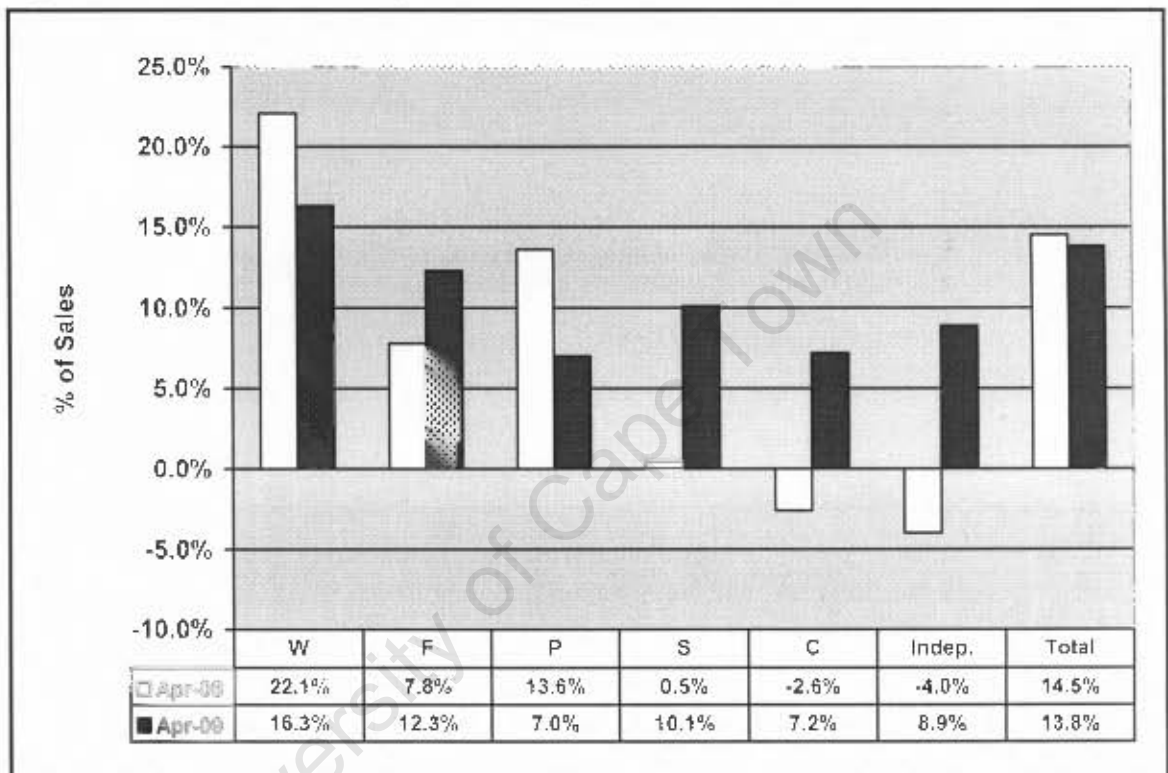
Figure 9 Whale Curve depicting cumulative contribution



The results (figure 9) show that the asymmetrical distribution of contribution earned, smoothed out since April 2008. This can be directly attributed to actions taken and policy changes following the April 2008 CPA. These changes reduced the risk profile of the company and increased overall profitability. The per capita loss incurred on servicing unprofitable customers has also been reduced.

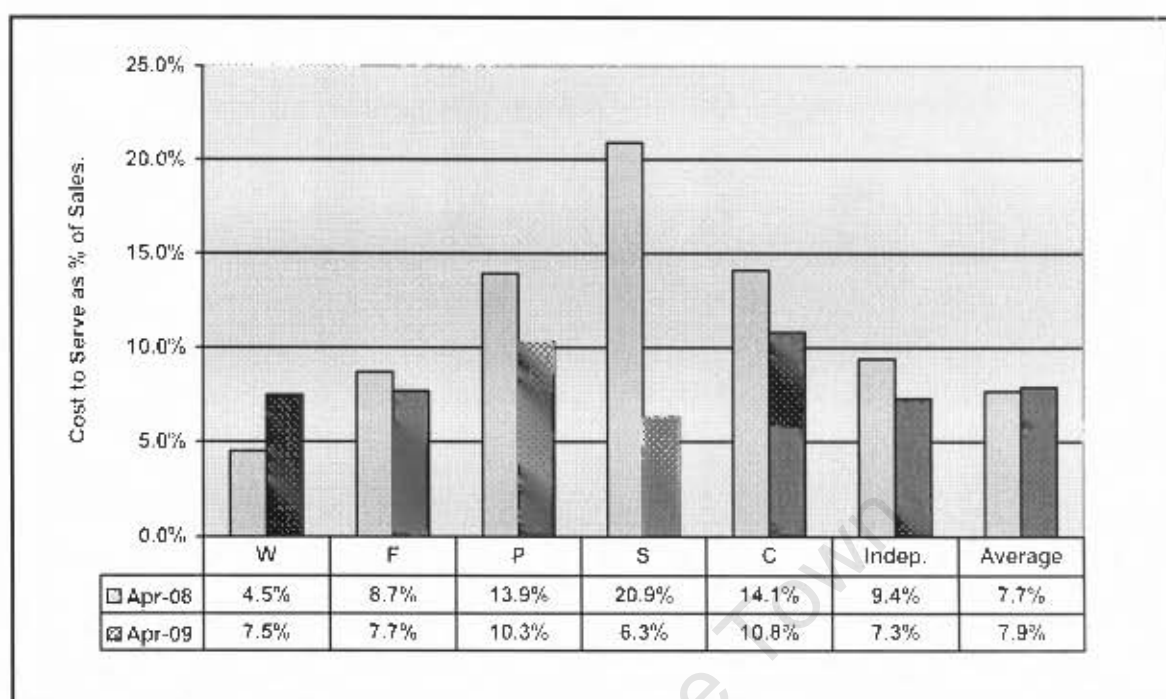
The company's total gross profit increased from R 1,445 million (14.5%) for the six months ended April 2008 to R 2,229 million (13.8%) for the six months ended April 2009. The following graph (figure 10) illustrates the improvement in gross margins as a direct result of changes in the pricing policy implemented following the April 2008 CPA:

Figure 10 Gross Profit April 2008 vs April 2009



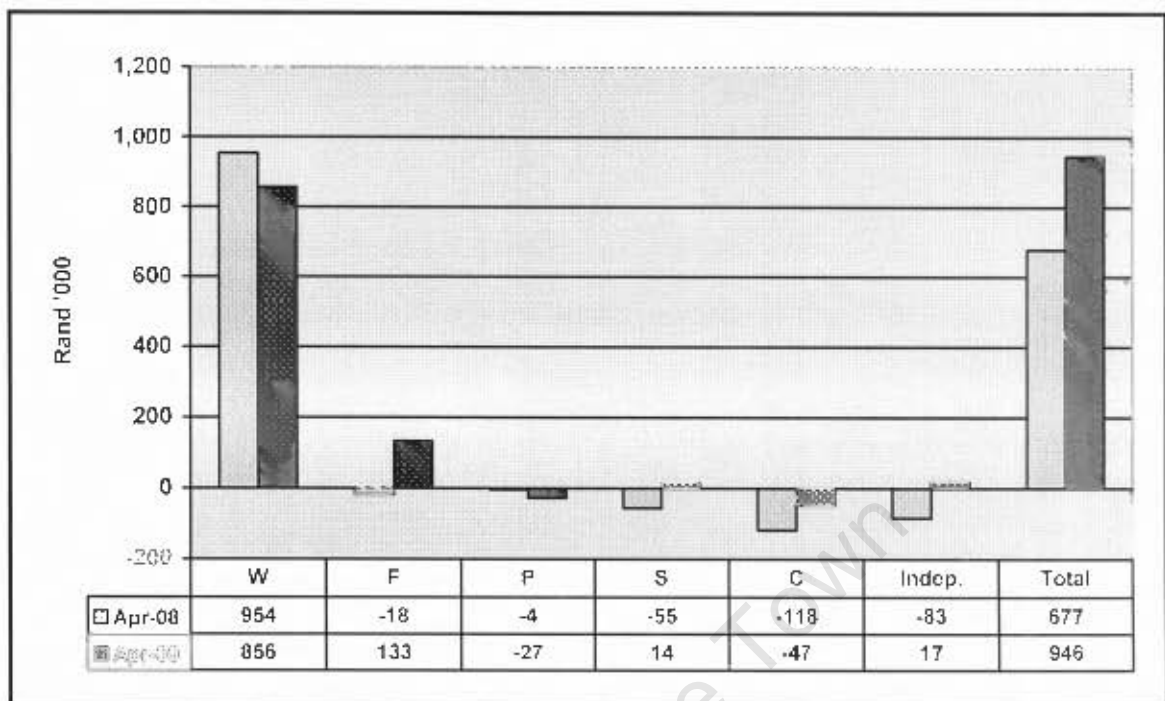
The following graph (figure 11) compares the cost to serve as percentage of sales recorded for the period ending April 2008 to January 2009 showing the effect of reallocating overhead cost:

Figure 11 Cost to Serve : April 2008 vs April 2009



The company's average cost to serve as percentage of sales increased marginally from 7.7% to 7.9% as a direct result of increased capacity necessitated by the growth in turnover. However, the spread evened out from 10.8% to 6.3% (April 2008: 20.9% to 4.5%) which suggests that an improved relationship between resources consumed and turnover generated by individual customers. The increased turnover value combined with an increased gross margin resulted in an overall increase in contribution of R 236 000 (39.6%) since April 2008. The segmentation over the customer groups is illustrated as follows:

Figure 12 Contribution April 2008 vs April 2009



4.6 Conclusion

The information made available by ABC prompted management to rethink strategies and refocus resource deployment. The results of the three CPA's suggest that the interventions necessitated by more accurate ABC information led to a marked improvement in overall profitability. In this study, the improved profitability was achieved due to a direct increase in turnover and improved gross margins. While the cost to serve also increased, this was just a marginal increase, which did not negate the additional profits realised.

The following improvements can be traced back to changes in strategy following the first two CPA's:

- a) The increased turnover can largely be attributed to the refocusing of management attention away from the unprofitable drop shipment business to develop new product lines including highly profitable bulk shipments.
- b) The increased gross margins are a direct result of actively managing customers' profit margins by renegotiating prices and driving down costs within the value chain.

It would be naïve to ignore natural growth and attribute the total growth in profitability to ABC. However, ABC focused management's attention on customer profitability and all subsets thereof. This shift in focus caused the development of new strategies which accelerated the company's growth exponentially, while other companies suffered significant profit reductions due to recession. As such, it is plausible and certainly defensible to claim that much of the economic benefits realised were the direct result of strategic changes made following the implementation of ABC used in CPA.

The study also confirmed that it is both practical and economically viable for a typical South African SME to successfully implement ABC using existing limited infrastructure, human and financial resources. The final conclusions, traced back to the research question, are presented in Chapter 5.

University of Cape Town

Chapter 5

CONCLUSION

5.1 Introduction

This chapter outlines the conclusions drawn from the study. It begins by recalling the problem statement and moves from there, highlighting the methodology used to collect the empirical evidence in response to the research question. The major insights are then presented using the identified sub questions as a guideline. This is finally followed by the conclusions and a suggestion for further research.

5.2 Problem statement

It was argued that despite adverse economic conditions, many South African SMEs do not monitor the cost to serve specific customers and customer groups. Customer profitability is therefore not managed since these companies do not have a cost effective way of doing this. As such, this research was aimed at investigating ABC as a practical tool to use in the formulation and measuring of outcomes in customer profitability strategies in a South African SME environment. More specifically, this research addressed the question: *Does ABC lend itself to customer profitability analysis in the context of a South African SME environment?*

An investigative empirical case study, implementing ABC, was performed on a typical South African SME. Three CPAs were conducted over a period of 18 months using ABC to allocate overhead costs. Based on the new information made available by the first two CPAs, new strategies were formulated and implemented by management. The effect of the implementation of ABC on the profitability of the company was then analysed in a final CPA and triangulated against the results reported by the accounting system to test the integrity of the research findings.

5.3 Research findings

The literature review outlined in chapter 2 suggested that, in order to successfully implement ABC, it has to (i) supplement (not disrupt) existing procedures and systems, (ii) be cost effective and (iii) should render an economic benefit to the company.

Therefore, in order to facilitate the research investigation into the overall research question, the following sub questions were investigated :

Sub question (a)

Given the lack of adoption of customer profitability analysis tools by SMEs, what can motivate an SME to adopt ABC for the purpose of undertaking customer profitability analysis?

Smith, (2006) points out that low-margin companies should be especially vigilant about managing costs, because even a fractional increase in costs can consume the already modest gross margins. The CPA provided an assessment of the relative capacity utilisation of, and contribution margins realised by, the different customer groups. Thereby, it identified a number of customers who, despite the fact that they realise a modest gross profit, were in fact unprofitable due to the disproportionate amount of resources consumed servicing them.

Initially management reaction to the information provided by the CPA was lukewarm. However, over time, management realised the business potential of this information and embraced the concept as an essential business tool. The insight provided by ABC was found to be crucial in the development of marketing, pricing, sales and customer support strategies. More specifically, it assisted management to maximise income by identifying areas in the value chain to which resources should be channelled for maximum profit, while still maximising customer satisfaction. This assisted management in turning the company from barely breaking even at the outset of the investigation to growing exponentially and realising substantial net profits in a time of recession.

Sub question (b)

How does ABC support an SMEs in undertaking customer profitability analysis?

ABC highlighted where in the value chain specific costs are incurred relating to specific customers/customer groups. Finally, it exposed the drivers of those costs making it possible to manage these costs. By using ABC in the CPA it was possible to correctly allocate the cost to serve to the relevant customers based on the activities required to service them. ABC therefore highlighted the customers considered profitable under the traditional system, but who are, in fact, unprofitable to serve due to the resources consumed by them.

Sub question (c)

Is it practical to use ABC in an SME environment?

In this case study, no additional investment in resources was required. A standard desktop computer was used running Microsoft Excel software. Existing staff was used with minimal overtime required. Ryals, (2002) points out that the benefit of having information must not exceed the cost of acquiring it. The practicality of ABC should therefore be measured taking into account the resources invested versus the benefit of insights gained and the expertise required to successfully implement ABC.

It is, however, unlikely that the level of ABC expertise enjoyed by XYZ Co will be available in-house to the majority of other SMEs. This will necessitate the outsourcing of such expertise which, in turn, will increase implementation costs. However, the financial gain realised by XYZ Co confirms a prior finding by Braithwaite and Samakh, (1998) who conclude that although ABC could be costly and difficult to implement, the payback is dramatic in terms of enhanced profitability. Practical implementation should therefore be within the realm of possibilities for most SMEs.

Sub question (d)

What specific benefits accrue to an SME when ABC is adopted for the purpose of undertaking customer profitability analysis?

The case study indicates that the main benefit derived from the implementation of ABC was not the knowledge gained in respect of the absolute profitability of the various customer groups. The fundamental benefit was rather the clarity of vision regarding where and how costs (including management time) are consumed. Management was able to refocus their attention and resources on profitable ventures and either discontinue or delegate less profitable business. In this study, this knowledge gave management the insight to make the strategic decision to divert focus from the unprofitable (yet strategically important) drop shipment business to very profitable bulk shipments. This led to a 39% improvement in the profitability of the company over a 12 month period.

The most important benefit accruing from the implementation of ABC is therefore the ability it gives management to make better informed strategic business decisions. The implementation of these strategies led to accelerated growth and vastly improved profitability in a time of recession while competitors were suffering losses.

5.4 Conclusion

The findings of this study corroborate the findings published by Guerreiro *et al*, (2008), Everaert *et al*, (2008) and Cohen *et al*, (2005). Although the findings are of a single case study and cannot be generalised, the combination of this empirical study and the literature review findings presented in this study, strongly suggest that ABC's ability to accurately report cost allocations makes it an ideal tool in formulating and measuring the outcomes of customer profitability strategies. It is also practical and can be cost effective to implement, which makes it ideal for an SME environment. Therefore, it can be concluded that ABC does lend itself to customer profitability analysis in the context of an SME environment.

5.5 Suggested areas for further research

The results of this case study were generated from one SME only, which happened to be in a growth phase and deals mainly with large blue chip customers. The company also had the advantage of a financial director who was well versed in ABC and the application thereof in customer profitability analysis. The rest of senior management also had a strong financial background, which made it easy for them to understand and act appropriately on the information generated by ABC. These advantages created an almost ideal environment for the successful application of ABC.

More case studies should therefore be done to understand the practical implementation of ABC in a wider spectrum of SMEs trading under less favourable conditions.

University of Cape Town

REFERENCES

- Andon, P., Baxter, J. and Bradley, G., (2001). "Calculating the economic value of customers to an organisation", *Australian Accounting Review*, pp.1 -16
- Atkinson, A.A., Kaplan, R. S., Matsumura, E. M. and Young, S. M., (2007). *Management Accounting, 5th edition*, New York : Pearson International Edition pp. 132 –165
- Beaver, G., (2007). "The strategy payoff for smaller enterprises", *Journal of Business Strategy*, vol. 28, no. 1, 207, pp. 11 - 17.
- Braithwaite, A. and Samakh, E., (1998)., "The cost to serve method", *International Journal of Logistics Management*, vol. 9, no. 1, pp. 69-84.
- Brewer, P.C., (1998). "Developing a Data Centre chargeback system using ABC" *Journal of Cost Management*, May/June pp 4-11
- Car, L.P., (1993). "Unbundling the costs of hospitalisation", *Management Accounting*, November, pp. 43 - 48
- Cohen, S., Venieris, G. and Kaimenaki, E., (2005). "ABC: adopters, supporters, deniers and unawares", *Managerial Auditing Journal*, vol. 20, no 9., pp. 981 – 1000.
- Cokins, G., (2001). "Are all your customers profitable to you?", *APICS – The Performance Advantage*, August, vol. 11, no. 8, pp. 43 – 46
- Cooper, R., Kaplan, S., Maisel, L.S., Morrissey, E. and Oehm, R.M., (1992). "From ABC to ABM", *Management Accounting (USA)*", vol. 74, no. 5. (Nov) pp. 54 -58
- Cooper, R., (1989). "The rise of Activity Based Costing – Part 4 What do ABC systems look like ?" *Journal of Cost Management*", Spring , pp. 38 - 49.
- Cooper, R., (1990). "Cost classification in Unit based and Activity based manufacturing Cost systems", *Journal of Cost Management*", Fall, pp. 4 -14.

- Cooper, R. and Kaplan, R.S., (1992). "Activity based systems: measuring the cost of resource usage", *Accounting Horizons*, September, pp 1 - 13
- Cooper, R. and Kaplan, R.S., (1988). "How cost accounting distorts product costs", *Management Accounting*, April, pp. 20 - 27
- De Klerk, G., (2009). "How serious is the credit crunch", Moneyweb. Accessed from: <http://www.moneyweb.co.za>. on:17 May 2009.
- Domingo, T.M., (2007). "The application of Activity based cost and management to support competitive strategy in the banking sector: a South African Case study", unpublished PhD thesis, University of Cape Town.
- Emsblemvag, J., (2006). "From hindsight to foresight in strategic cost management", *Handbook of Business Strategy*, pp. 179 - 186
- Estrin, T.L., Kantor, J. and Albers, D., (1994). "Is ABC suitable for your company?", *Management Accounting*, April, pp. 40 - 45
- Everaert, P., Bruggeman, W., Sarens, G., Anderson, S. R. and Levant, Y., (2008). "Cost modelling in logistics using time-driven ABC, Experiences from a wholesaler", *International Journal of Physical Distribution & Logistics Management*, vol. 38, no. 3 pp. 172 - 191.
- Foster, G., Gupta, M. and Sjoblom, L., (1996). "Customer profitability Analysis: Challenges and new Directions", *Journal of Cost Management*, Spring, pp. 5 - 17
- Freeman, T., (1998). "Transforming cost management into a strategic weapon", The Consortium for Advanced Manufacturing – International (CAM-I) (Unpublished) pp. 1 - 13
- Gering, M., (1999). "Activity based costing and performance improvement" *Management Accounting (UK)*, pp. 28 - 30
- Gering, M., (1999). "Activity based costing and the customer", *Management Accounting (UK)*, pp. 26 - 27
- Gerring, J., (2007). "Case Study Research, principles and Practices", Cambridge University Press

- Guerreiro, R., Bio, S.R. and Merschman, E.V.V. (2008). "Cost to serve measurement and customer profitability analysis", *The International Journal of Logistics Management*, vol. 19, no. 3, pp. 349 - 407
- Hughes, A., (2005). "ABC/ABM – a Profitability model for SMEs manufacturing clothing and textiles in the UK", *Journal of Fashion Marketing and Management*, vol. 9, no. 1, pp. 8 - 19.
- Jacobs, F.A., Johnston, W. and Kotchetova, N., (2001). "Customer profitability: Prospective vs Retrospective Approaches in a businesses to business setting", *Industrial marketing Management*", vol. 30, pp. 353 – 363.
- Kaplan, R. S., (2005). "A Balanced Scorecard approach to measure customer profitability", *Working Knowledge, Harvard Business School* August 8, pp. 13 - 15
- Kaplan, R. S. and Narayanan, V.G., (2001). "Measuring and Managing Customer Profitability", *Journal of Cost Management*, September/October, pp. 5 - 15
- Kaplan, R.S. and Anderson, S.R., (2004). "Time Driven Activity Based Costing" *Harvard Business Review*, November, pp. 131 - 138.
- Kaplan, R.S., (1992). "In defence of activity based cost management", *Management Accounting (USA)*, vol. 74, no. 5 pp. 58 - 64
- Lere, J. C., (2000). "Activity based costing: a powerful tool for pricing", *Journal of Business & Industrial Marketing*, vol. 15, no.1 pp. 23 - 33
- Manning, K. H., (1995). "Distribution channel profitability", *Management Accounting (USA)*, vol. 76, no. 7, pp 44 - 49
- Max, M., (2004). "ABC trends in the banking sector – A Practitioners perspective" *Journal of Performance Management*, pp 23 - 40
- Noone, B. and Griffin, P., (1997). "Enhancing yield management with customer profitability analysis", *International Journal of Contemporary Hospitality Management*, vol. 9, no. 2, pp. 75 - 79
- Prahalad, C.K. and Hamel, G., (1990). "The Core Competence of the Corporation", *Harvard Business Review*, May-June pp. 79 – 91.

- Rotch, W., (1990). "Activity Based Costing in service industries", *Journal of Cost Management*, Summer , pp. 4 - 14
- Ryals, L., (2005). "Making Customer Relationship Management work: The measurement and profitable management of customer relationships", *Journal of Marketing*, vol. 69, October, pp. 252 - 261
- Ryals, L., (2006). "Profitable relationships with key customers: how suppliers manage pricing and customer risk", *Journal of Strategic Marketing*, vol. 14, June, pp 101 - 113.
- Ryals, L., (2002). "Are your customers worth more than money?", *Journal of Retailing and Consumer Services*, vol. 9 pp. 241 – 251.
- Sartorius, K., Eitzen, C. and Kamala, P., (2007). "The design and implementation of Activity Based Costing (ABC): a South African survey.", *Meditari Accountancy Research*, vol. 15, no. 2, pp. 1 - 21
- Scholz, R.W. and Tietje, O., (2002). "Embedded case Study methods – Integrating Quantative and Qualitative Knowledge", *Sage Publications*.
- Shapiro, BP, Rangan VK, Moriarty RT and Ross EB, (1987) "Manage customers for profits (not just sales)", *Harvard Business Review*, Sept – Oct, pp 101 - 108
- Smith G. E., (2006) "Leveraging Profitability in low-margin markets", *Journal of Product & Brand management* 15/6 pp 358 - 366.
- Smith M and Dikolli S, (1995) "Customer profitability analysis : an activity-based costing approach", *Managerial Auditing Journal* Vol 10, pp 3 - 7.
- South Africa (1996) National Small Business Act, Act 102 of 1996. Pretoria: Government Printer.
- South African Chamber of Commerce and Industry (SACCI), (2009) *Business Confidence Index* - January [Online] Accessed from: www.sacci.org.za on: 25 March 2009
- South African Chamber of Commerce and Industry (SACCI), (2009) *Business Confidence Index* - May [Online] Accessed from: www.sacci.org.za on: 25 June

- Sweeny, R.B. and Mays, J.W., (1997). "ABM lifts Bank's bottom line", *Management Accounting*, March, pp. 21 - 26
- Swenson, D., (1997). "Best Practices in activity-based management" ,*Journal of Cost Management*, November/December , pp. 6-14
- Terre Blance, M. and Durrheim, K., (2002). *Research in Practice, Applied methods for Social Sciences*,. University of Cape Town Press.
- Van Damme, D.A. and Van der Zon, F.L.A, (1999). "Activity based costing and decision support", *The Journal of International Logistics Management*, pp. 71 - 82
- Van Raaij, E.M., Vernooij, M.J.A. and Van Triest, S., (2003). " The implementation of customer profitability analysis : A case study", *Industrial Marketing Management*, vol. 32, pp. 573 – 583
- Van Raaij, E.M., (2005). "The strategic value of customer profitability analysis", *Marketing Intelligence & Planning*, vol. 23, no 4, pp. 372 - 381
- Van Triest, S., (2005). "Customer size and Customer profitability in Non – Contractual relationships", *Journal of Business & Industrial Marketing*, vol. 20, no.3, pp. 148 - 155.
- Wessels, S. and Shotter, M., (2000). "Organisational problems in respect of the implementation of activity based costing in South Africa" *Meditari Accountancy Research*, vol. 8, pp. 215 – 227
- Yin, R. K., (2003). "*Case study Research : design and methods*" , Third edition, Sage Publications

o-o-o