Analysing value-based management as decision-making tool in a petrochemical company

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ABSTRACT

The study aims to evaluate the understanding of value – based management (VBM) as a decision making tool, how it is embraced in all management levels and its impact on the performance of a petrochemical company.

The application of VBM links business strategy, finance, performance management and management processes all together to create value. VBM is a powerful management framework with the aim to focus all managerial processes on shareholder value creation. It encourages employees at all levels within an organisation to focus on value creation.

This study investigated VBM by means of literature study to formulate an understanding of how it can be used as a decision making tool in a petrochemical company. The VBM metrics were presented and some successes and failures of such metrics were considered to provide a better understanding of VBM implementation.

A quantitative study was conducted through the use of a standardised questionnaire to collect primary data. The questionnaire was distributed to managers (from junior managers to senior managers) at Sasol. The completed questionnaire was tested for reliability and validity before it was analysed and specific constructs were developed from the literature review together with the respondents' demographic profile.

Even though most respondents indicated that they have not received adequate training and education on VBM, the results of the study indicate that there is a general knowledge and understanding of VBM and its principles in Sasol. After analysis the study provided practical recommendations to ensure that VBM is sustainably used as a decision making tool in a petrochemical company.

Key Words: Value-based management, Economic Value Added, Value Creation, Stakeholder value add

DECLARATION

I, Zonwabele Zweli Tom, declare that this mini-dissertation is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Potchefstroom Business School, North-West University. It has not been submitted before for any degree or examination in any other University. I further declare that I obtained the necessary authorisation and consent to carry out this study.

Zonwabele Zweli Tom

_____ _____

Signature Date

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*What shall I render unto the **LORD** for all **H**is benefits toward me?*

Ps. 116:12

Table of Contents

ABSTRACT ..... **II**

DECLARATION ..... **III**

ACKNOWLEDGEMENTS ..... **IV**

LIST OF FIGURES ..... **VII**

LIST OF TABLES ..... **VIII**

LIST OF ACRONYMS ..... **IX**

CHAPTER 1: INTRODUCTION AND PROBLEM STATEMENT **10**

1.1 PURPOSE OF THE STUDY 10
1.2 CONTEXT OF THE STUDY 10
1.3 PROBLEM STATEMENT 13
1.4 RESEARCH OBJECTIVES 13
1.4.1 Primary Objective *14*
1.4.2 Secondary Objectives *14*
1.5 RESEARCH METHODOLOGY 14
1.5.1 Literature and Theoretical Review *15*
1.5.2 Empirical Research *15*
1.6 SCOPE OF THE STUDY 16
1.7 LIMITATIONS 16
1.8 LAYOUT OF THE STUDY 16

CHAPTER 2: THE REVIEW OF VALUE-BASED MANAGEMENT **18**

2.1. INTRODUCTION 18
2.2. THE HISTORY OF VALUE-BASED MANAGEMENT 18
2.3. VALUE-BASED MANAGEMENT DEFINED 19
2.4. VALUE CREATION 22
2.4.1. Value defined in the context of the research *22*
2.4.2. Managing for value creation *23*
2.4.3. Shareholder value versus stakeholder value *25*
2.5. VALUE-BASED MANAGEMENT MEASUREMENT TOOLS 30
2.5.1. Shareholder Value Added (SVA) *31*
2.5.2. Economic Value Added *33*
2.5.2.1. Calculation of EVA *34*
2.5.2.2. Advantages and disadvantages of EVA *35*
2.5.3. Rate of Return on Invested Capital (ROIC) *36*
2.5.4. Cash Flow Return on Investment (CFROI) *36*
2.6. BENEFITS AND PITFALLS OF VALUE-BASED MANAGEMENT 37
2.7. VALUE-BASED DECISIONS 39
2.7.1. Selecting strategies and strategic decisions *40*
2.7.2. Action planning and operational decisions *43*
2.8. SUMMARY 46

CHAPTER 3: VALUE-BASED MANAGEMENT IN PRACTICE 47

3.1. INTRODUCTION 47
3.2. VALUE-BASED MANAGEMENT IMPLEMENTATION 47
3.2.1 Value Creation Process 49
3.3. THE VBM IMPLEMENTATION PROCESS 51
3.3.1. Commitment to shareholder value creation from top management 53
3.3.2. Linking incentive compensation to value creation 55
3.3.3. Training, Education and Communication 56
3.3.4. Customised Value-Based Management 57
3.3.5. Making VBM a way of life 57
3.4. VBM APPLICATION IN A PETROCHEMICAL COMPANY 58
3.4.1. Company background 58
3.4.2. Key Performance Indicators (KPIs) 59
3.4.3. Value Added Statement 61
3.5. SUMMARY 63

CHAPTER 4: RESEARCH - A PETROCHEMICAL COMPANY 64

4.1. INTRODUCTION 64
4.2. RESEARCH METHODOLOGY 65
4.2.1. Study population 66
4.2.2. Data collection and recording 67
4.3. INTERPRETATION OF RESULTS 67
4.3.1. Construct Validity: Exploratory Factor Analyses 68
4.3.2. Reliability of Constructs: Cronbach's Alpha Coefficient 68
4.3.3. Section A: Demographic Information 71
4.3.3.1. Position within the organisation 71
4.3.3.2. Department of responsibility 72
4.3.3.3. Education level of respondents 73
4.3.3.4. Working experience in a petrochemical company 74
4.3.4. The effect of position on Knowledge and Application of VBM 74
4.3.5. The Effect of Departments on Application of VBM 78
4.3.6. Section D: Descriptive statistics of VBM tools 82
4.3.7. Section E: Company performance versus competitor's performance . 84
4.4. SUMMARY 85

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS 87

5.1. INTRODUCTION 87
5.2. CONCLUSION 88
5.3. RECOMMENDATIONS 91
5.4. LIMITATIONS AND RECOMMENDATIONS FOR FURTHER STUDY 92

REFERENCES 93

APPENDIX A: QUESTIONNAIRE 99

LIST OF FIGURES

FIGURE 1.1: LAYOUT OF THE CHAPTERS 16
FIGURE 2.1: INTEGRATED VALUE MANAGEMENT SYSTEM (THYSSENKRUPP, 2011:5) 21
FIGURE 2.2: RELATIONSHIP BETWEEN THE COMPANY, SHAREHOLDERS AND STAKEHOLDERS 26
FIGURE 2.3: HOLISTIC VALUE CREATION (STERN, ET AL., 2001) 27
FIGURE 2.4: SVA VALUE CREATION PROCESS (DTF, 1999:8) 32
FIGURE 2.5: OPERATING VALUE DRIVER TREE (THYSSENKRUPP, 2001:28) 44
FIGURE 3.1: INTERACTION BETWEEN STRATEGY AND VBM (WEAVER & WESTON, 2003:20) 48
FIGURE 3.2: VALUE CREATION PROCESS (MARTIN & PETTY, 2000) 49
FIGURE 3.3: SUSTAINABLE CYCLE OF VALUE CREATION (MARTIN & PETTY, 2000:6) 50
FIGURE 3.4: ELEMENTS OF VBM IMPLEMENTATION (MARTIN & PETTY, 2000:6) 52
FIGURE 4.1: RESEARCH DESIGN (TROCHIM, 2004) 66
FIGURE 4.2: POSITION WITHIN THE COMPANY 72
FIGURE 4.3: DEPARTMENTS WITHIN THE PETROCHEMICAL COMPANY 73
FIGURE 4.4: HIGHEST EDUCATION LEVEL OF RESPONDENTS 73
FIGURE 4.5: NUMBER OF YEARS WORKING EXPERIENCE 74
FIGURE 4.6: COMPANY PERFORMANCE VERSUS COMPETITOR PERFORMANCE 83
FIGURE 4.7: COMPANY PERFORMANCE VERSUS COMPETITOR PERFORMANCE 84

LIST OF TABLES

TABLE 2-1: TRADITIONAL AND VALUE-BASED INCOME STATEMENTS (INSTITUTE OF MANAGEMENT ACCOUNTANTS, 1997) 24
TABLE 2-2: STAKEHOLDER AND VALUE DRIVERS (TUNGARE & PILLAI, 2013) 28
TABLE 2-3: ADVANTAGES AND STRATEGIES OF EVA (NAGAN, 2008:8) 35
TABLE 2-4: ADVANTAGES AND DISADVANTAGES OF VBM (STAROVIC *ET AL*. 2004:23) .. 38
TABLE 3-1: FINANCIAL KEY PERFORMANCE INDICATORS (SASOL, 2012:29) 59
TABLE 3-2: NON-FINANCIAL KEY PERFORMANCE INDICATORS (SASOL, 2012:30) 60
TABLE 3-3: VALUE ADDED STATEMENT (SASOL, 2012:50) 62
TABLE 3-4: WEALTH CREATED FOR MAIN STAKEHOLDER GROUPS (SASOL, 2012:50) 62
TABLE 3-5: TURNOVER, VALUE ADDED AND WEALTH CREATED PER EMPLOYEE (SASOL, 2012:50) 63
TABLE 4-1: RESULTS OF FACTOR ANALYSES AND CRONBACH'S ALPHA COEFFICIENT ... 70
TABLE 4-2: POSITION WITHIN THE COMPANY 71
TABLE 4-3: DEPARTMENTS OF RESPONSIBILITY WITHIN THE COMPANY 72
TABLE 4-4: THE EFFECT OF RESPONDENT'S POSITION ON THE MEASURED FACTORS 75
TABLE 4-5: THE EFFECT OF RESPONDENT'S DEPARTMENT ON THE MEASURED CONSTRUCTS 79
TABLE 4-6: FAMILIARITY AND USAGE OF VBM METRICS 82

LIST OF ACRONYMS

BBBEE:	Broad-Based Black Economic Empowerment
CEO:	Chief Executive Officer
CF:	Cash Flow
CFROI:	Cash flow return on investment
CVA:	Cash value added
DCF:	Discounted cash flow
EBIT:	Earnings before interest and tax
EP:	Economic Profit
EPS:	Earnings per share
EVA:	Economic Value Added
FCF:	Free cash flow
FMCG:	Fast moving consumer goods
GAAP:	Generally Accepted Accounting Practice
IMA:	Institute of Management Accountants
KPA:	Key performance areas
KPI:	Key performance indicators
MSA:	Measure of sample adequacy
MVA:	Market value added
NOPAT:	Net operating profit after tax
NPV:	Net present value
RCR:	Recordable case rate
ROE:	Return on equity
ROI:	Return on investment
ROIC:	Return on invested capital
RTS:	Return to shareholders
SVA:	Shareholder value added
TQM:	Total quality management
VBM:	Value based management
VOC:	Volatile organic compounds
WACC:	Weighted average cost of capital

CHAPTER 1: INTRODUCTION AND PROBLEM STATEMENT

1.1 Purpose of the Study

This study aims to discuss and introduce to the reader some of the key concepts of value-based management. How these concepts can strengthen strategic and operational decision making, and how they can be applied to improve shareholder value in a petrochemical company.

1.2 Context of the Study

Over the last two decades, increased competition on the global capital markets in general and growing influence of institutional investors in particular has triggered the growing popularity of value-based management (VBM) concepts. They have also intensified the pressure on corporations to focus on value orientation. Creating value requires investments on which returns exceed the capital cost of investment (Bausch, Hunoldt and Matysiak, 2009:16).

While it is understood that most companies are aware of their financial position relative to industry performance, it can be said that fewer understand the drivers for operational excellence. The global competition forces companies to improve and optimise productivity in order to remain competitive (Huang *et al.*, 2003). VBM focuses on making good decisions based on accurate information within the company. Such information is attained by identifying variables that create value for the company.

On day-to-day basis people at all levels in an organisation make decisions that affect their organisation's value – yet the link between these decisions and change in company value is often not made. Without this link, companies cannot be certain that the decisions being made are increasing value which is a single measure of company's success (Mzera, 2012). Decision making is a fundamental activity for managers. It is described by Robbins (2005:120) as "the essence of manager's job" and "a critical element of organisational life".

VBM can provide the required link by providing amongst others the two things, (1) a philosophy that puts value creation at the centre of operational decision making, and (2) a process that links day-to-day management with strategic objectives. It provides management with tools and techniques supporting the development and implementation of value-creating strategies. It also offers incentives which encourage managers to realise only those strategies which create value (Bausch *et al*, 2009:15). It is the management philosophy and approach that enables and supports maximum value creation in the company, and it encompasses the processes for creating, managing and measuring value. Properly executed, VBM is an approach to management that aligns a company's overall aspirations, analytical techniques, and management processes to focus management decision making on the key drivers of value (Koller, 1994:87)

VBM is described by Koller (cited by Pienaar, 2009:12) as a marriage between a value creation mindset and the management processes and the systems that are necessary to translate that mindset into action.

According to Pienaar (2008:2), VBM is founded in evaluating choices, decisions and behaviours in order to obtain maximum economic value out of any business function.

South Africa's chemical industry, the largest of its kind in Africa, is highly complex and widely diverse, spanning fuel and plastic fabrication to pharmaceuticals. It is of substantial significance to the country's economy, contributing around 5% of gross domestic product (GDP) and about 23% of its manufacturing sales (Statistics South Africa, 2012). Petrochemical companies in South Africa play an important role in the country's economic development. However, this industry is faced with a lot of challenges. Some of these challenges include: increased global competition and compliance to competition laws, failure to address transformation and diversity issues, operational challenges such as insufficient management and technical skills, disruptive industrial actions, and safety, health and environmental issues.

To grow shareholder value sustainably and create wealth it may be vital for companies to incorporate VBM as it includes the alignment of corporate strategy, performance reporting, incentive compensation and helps to bring staff together to act like shareholders, making decisions that maximise share value. This can therefore imply that decision making leads ultimately to improved stock market performance.

The value creation process it is argued requires an understanding of the attractiveness of the market or industry where the company competes, coupled with the company's competitive position relative to other companies (Vargo, et al., 2008). Once this understanding is established and is linked with key operational and value chain drivers for profitability and cash flow, competitive strategy can be established or modified to maximise future returns.

The success of a company depends on the decisions made by key personnel in the organisation. However, these individuals can make poor decisions that will be detrimental to the organisation (Bass, n.d). It is therefore important to ensure that value creation happens at all levels of the business.

Every manager and employee can positively influence the value of the company through decisions. These decisions may have varying characteristics: At group level, it is mainly strategic aimed at positioning the company for future growth and improving effectiveness, and at operations level, the focus is mainly on efficiency and managing growth projects, it includes optimisation and projects to increase productivity.

Given the complex market and legal environment it has become essential for companies to operate effectively and efficiently. From the literature it seems that an integrated approach to management, as portrayed in the value based management concept, may assist companies to competitively add value to a variety of stakeholders. The question to be asked is whether company employees are aware of and / or understand the value based management (VBM) approach and to what extent VBM is implemented in petrochemical organisations.

1.3 Problem Statement

When a company is operating in a growing industry, shareholders and stakeholders expect it to deliver superior returns and create value.

The people likely to have the biggest value creation and ability to deal with the challenges are managers at all levels in charge of running the company. Yet, there is a risk that they may not always make decisions that have shareholder and stakeholder's interest at heart. The activity of the company is estimated not only by the results of its financial statements, but also by the price of its shares.

The problem is that managers often lack an understanding of the difference between decisions that lead to higher profits and those that create value. The question "To direct money to dividend pay-out or to investment projects?" is a stumbling block for many managers. It is not hard to find less spectacular examples of decisions that do not take long-term value into account. In many instances, value-destroying decisions are not driven by greed or dishonesty. They are a result of pursuing legitimate business objectives, such as growth, increased profits and increasing market share.

Although VBM is used in the petrochemical industry, it is argued that its concepts and usage when taking strategic and operational decisions is limited.

1.4 Research Objectives

Value-based management is not a single idea; it is more a framework for making consistent value-enhancing decisions.

Understanding the relationship between strategy, financing, corporate governance and the creation of value is the key to making consistent value-adding decisions through the proper allocation of resources, people, equipment and the financial assets in the organisation that will derive the most value.

1.4.1 Primary Objective

The primary objective of this study is to evaluate the level of understanding of VBM and its concepts, how it is embraced as a decision making tool at all management levels in a petrochemical company and its impact on the performance of the business.

1.4.2 Secondary Objectives

In order to fully practice value-based management, a suitable performance indicator must be available as an assessment criterion for all decisions. To ensure efficiency in all management processes, a value key performance indicator is essential.

In order to address the primary objective, the following are considered:

- To determine what literature study reveal about VBM, its application and benefits. This is done through the literature survey

- To evaluate the decisions made in the past and the impact it had on shareholder value and wealth creation in a petrochemical company. This is done through the analysis of historical data (including financial data) to provide an understanding of where the company stands.
- To examine the level of implementation of VBM concepts at a petrochemical company. This is done through survey questionnaires and company records.
- To formulate conclusions that can be drawn from the literature review and empirical study about the effectiveness of VBM in a petrochemical company.

1.5 Research Methodology

The study comprise of a literature study and an empirical study. The key assumption is that the literature study combined with the results of the empirical study will provide an insight and understating of the key concepts of VBM

1.5.1 Literature and Theoretical Review

The literature study is conducted in order to establish and determine the key concepts relating to VBM. The results of this literature survey are then expected to be used as a guideline to improve strategic and operational decision making in a petrochemical company.

According to Churchill (1999:215) secondary data must not be bypassed, the researcher must begin with secondary data, and only when the data is exhausted and shows diminishing returns that the researcher can proceed to primary data.

The existing theory relating to the above concepts is analysed from secondary sources and related sources such as: Internet research data bases and the web pages of different companies; books and other published material directly and indirectly related to the study; and academic and organisational journals and newsletters related to the problem.

1.5.2 Empirical Research

Empirical research implies measurements, and measurements are defined as rules for assessing numbers (or other numerals) to empirical properties. Thus, numbers are amenable to quantitative analysis, which may reveal new information about the items studied (Ghauri & Ghronhaug, 2002:64).The research design used will be survey design.

Questionnaires, observations and interviews are selected as the appropriate types of research instruments. Questionnaires were designed and distributed to employees at all levels in strategic and operational departments of the petrochemical company in Sasolburg, in the Free State province of South Africa. Validity of data was ensured by ensuring that the collected sample is representative of the population and the questions on the survey questionnaires were comprehensive and construct validity was guaranteed by ensuring that the questions asked were relevant to the construct under investigation.

1.6 Scope of the Study

The field of study for this research is financial management. The study evaluates the VBM processes and methods in a petrochemical company with the specific focus in a chemical company in Sasolburg.

1.7 Limitations

The scope of this study was limited to the petrochemical sector in the geographic region of Sasolburg in the Free State province of South Africa. The possible limitation is that though the study aimed to focus on the petrochemical giant Sasol as a whole, the sample only included employees in the Sasolburg complex of Sasol.

1.8 Layout of the Study

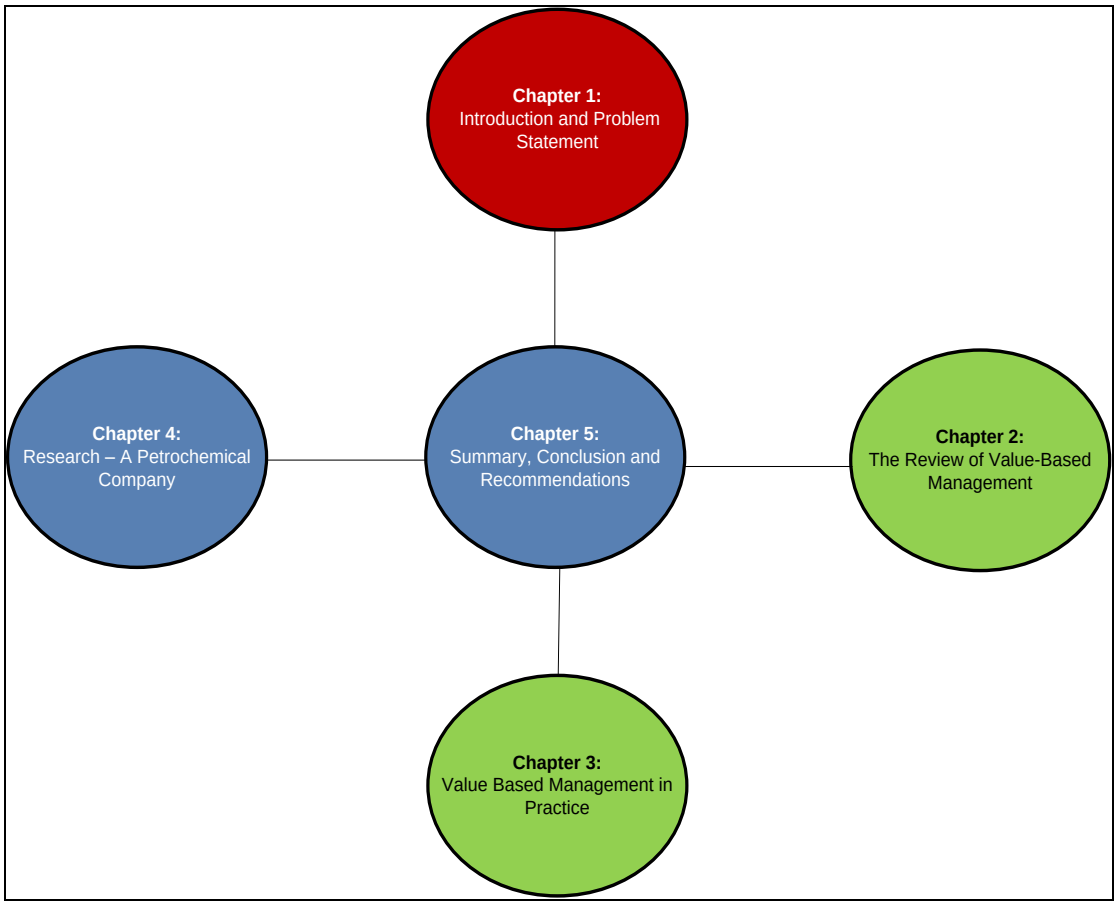

Figure 1.1: Layout of the Chapters

Chapter 1: Introduction and Problem Statement

This chapter introduces the research study by providing the background on the subject matter. The purpose and objectives of the study are discussed and the problem statement is formulated. The chapter concludes with the overview of all chapters of the dissertation.

Chapter 2: The Review of Value-Based Management

This chapter contains a comprehensive review of value-based management, its concepts and tools. The history and origins of VBM, its advantages and disadvantages are also discussed. Value creation, shareholder value and value drivers also form part of this chapter.

Chapter 3: Value Based Management in Practice.

The chapter seeks to illuminate the nature of VBM by describing its implementation at all levels of the company. It describes in detail the key success factors of VBM and the elements of VBM implementation.

Chapter 4: Research – A Petrochemical Company

This chapter focuses on the research design, the field study, data gathering, analysis and reports on the results. It explains the research method in detail and provides data collection techniques.

Chapter 5: Summary, Conclusion and Recommendations

The chapter contains the final conclusion of the research and possible further work.

CHAPTER 2: THE REVIEW OF VALUE-BASED MANAGEMENT

2.1. Introduction

This chapter contains a comprehensive review of value-based management, its metrics, concepts and tools. The history and origins of VBM, its advantages and disadvantages are discussed. Decision making, value creation, shareholder value and value drivers also form part of this chapter.

2.2. The History of Value-Based Management

Before the industrial revolution, companies were relatively small and their complexity was low. Also the external environment of companies was relatively stable and clear, value creation was relatively straight forward, simple and obvious. Therefore, there was no need for VBM (Bausch, Hunoldt and Matysiak, 2009:15).

According to Bausch *et al*. (2009:15) the idea of value-based management can be traced back to the end of the 19th century (e.g., Marshall, 1890), when by mechanising and the industrial revolution, it became possible to achieve economies of scale through investing in machines and hiring production workers. The dislocation of facilities made direct supervision difficult, and insight in the efficiency and productivity became more important.

This concept, however, did not become widely recognised and popular until Alfred Rapport published his seminal book “Creating Shareholder Value” in 1986. Since then, numerous consulting firms have developed different value-based measures to enable corporations to make strategic and operational decisions in line with the goal of value creation. The most important metrics are the economic value added (EVA), which was popularised and trademarked by Stern Stewart & Co., the cash flow return on investment (CFROI), conceptualised by HOLT Planning Associates / Boston Consulting Group, and the return on invested capital (ROIC), developed by McKinsey & Co. The authors’ further state that all of the above measures concentrate on value creation and are mathematically linked to a series of value drivers (Bausch *et al.,* 2009:15).

According to Hill and Jones (2007:40) the ultimate goal of VBM is to maximise the value of a company to its shareholders – subject to the important constraint that this is done in a legal, ethical, and socially responsible manner. Hill *et al*. (2007:40) argue that the two main drivers of enterprise valuation are ROIC and the growth rate of profits (g).

VBM is defined by Obermatt (n.d) as an approach to performance management that evolved over the past twenty to thirty years. It is closely related to what is often called the shareholder revolution, and arose from the recognition that traditional measures of accounting profit, based of GAAP (Generally Accepted Accounting Principles), do not always accurately represent true economic profit. Thus traditional performance management may not always lead to the increases in shareholder value that it could and meant to do.

2.3. Value-Based Management Defined

Value-based management is a company's management approach to value creation, particularly by maximising shareholder value. It includes the following three elements (Robu & Ciora, 2010):

- Creating value – ways to maximise growth and future value. This includes defining both short and long term strategies for companies;
- Managing for value – governance, change management, organisational culture, communication and leadership; and
- Measuring value – valuation and assessment.

These elements are well outlined steps in the company's objectives and in the management of the company. The value-based management process proposes that the contributions of individuals and groups towards the creation of shareholder value be measured and, using performance measurement tools, rewards be structured accordingly (Sakunasingha, 2006:49).

Many researchers agree that the application of VBM is the linkage between strategy, finance, performance management and management processes to create value (Frykman & Tolleryd, 2003; Martin & Petty, 2000; Pettit, 2000). It

attempts to solve the agency problem which arises where the ownership and management control are different.

According to Strategic Innovation (n.d) VBM is both a philosophy and a methodology for managing businesses. As a philosophy, it focuses on the overriding objective of creating as much value as possible for the shareholders. The value mindset is clearly focused on long-term cash flow and risk considerations, consistent with investor thinking and the empirical evidence from capital markets. As a methodology, VBM provides an integrated framework for making strategic and operating decisions. This view is concurred by Athanassakos (2007:1397) who states that VBM is a management philosophy that uses analytical tools and processes to focus an organisation to the single objective of creating shareholder value.

The principle of VBM is that it is not a staff-driven exercise. It focuses on better decision making at all levels in an organisation. It recognises that top-down command and control structures cannot work well, especially in large multi business corporations. Instead, it calls on managers to use value-based performance metrics for making better decisions (Koller, 2004).

According to Sakunasingha (2006:9) VBM refers to a framework and a set of performance measurement tools for building and maximising long-term shareholder value. VBM is, in theory, all-compassing and includes corporate strategy, management compensation issues and detailed internal and reward systems, all designed to link employee performance to shareholder value and aid to bring all staff together to act like shareholders and take decisions that maximise value.

The above definitions provide a clear understanding that companies need to embrace and apply VBM concepts to maximise shareholder value and create wealth. From the definitions it is also clear that VBM is not only concerned with financial change, but more concerned about transforming the organisation culture. This view is supported by Sakunasingha (2006:49) who argues that, more often, VBM's failure was attributed to cultural resistance to change rather than complications in accounting and financial processes.

For the purpose of this study, the aim of value-based management is to systematically increase shareholder and stakeholder value through the efficient use of resources and profitable growth. The study adopts an integrated value management system as proposed by the ThyssenKrupp Group (2011:5) indicated in figure 2.1.

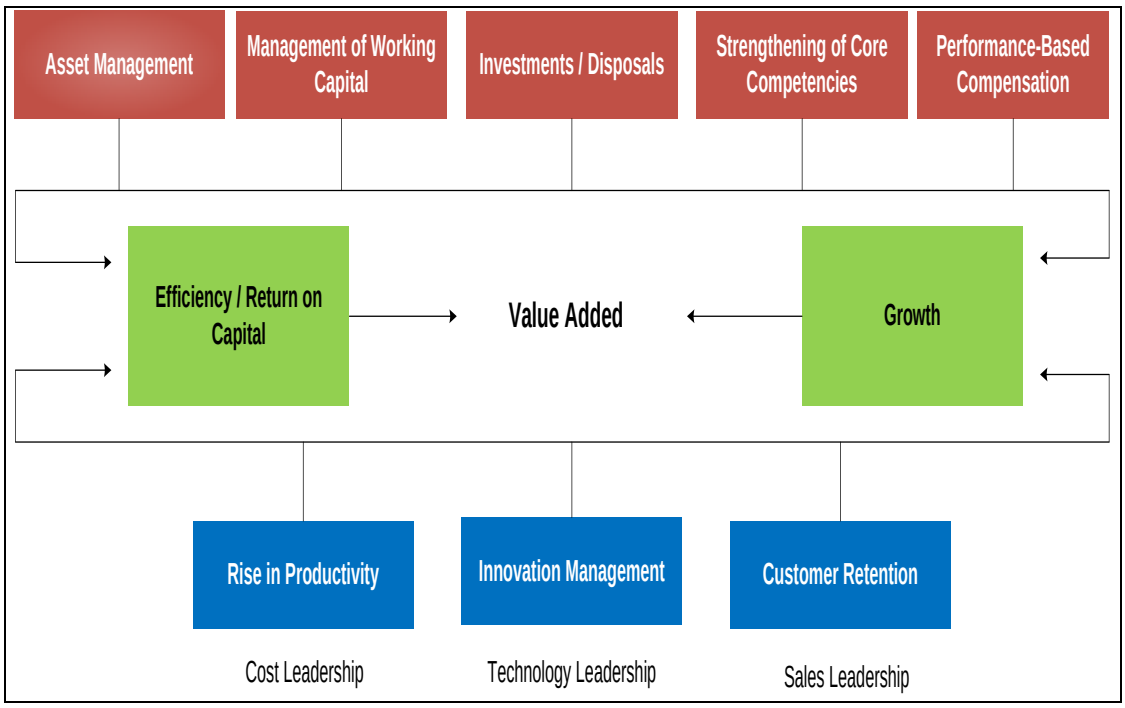

Figure 2.1: Integrated Value Management System (ThyssenKrupp, 2011:5)

The integrated value management system indicates that the company must focus on elements that will ultimately add value to the company. The focus should be on asset management, management of working capital, investments, strengthening of the company's core competencies, compensation and rewards that are linked to performance, productivity, innovation and creativity, and customer retention strategies. It is argued that the proper management of the above will lead to efficiency and growth which will result in economic value added.

Economic value added is defined by Taub (2003) as a practical method of estimating the economic profit that is earned, as opposed to the accounting profit.

2.4. Value Creation

Before understanding what value creation is and how it works, it is important to understand the meaning of value in the context of this research. “Value” is a complex and comprehensive topic and it is not in the interest of this paper to find out what value is, but rather on how it is created. It is, however, still important to define value in terms of decision-making before exploring the various value creation frameworks.

2.4.1. Value defined in the context of the research

Value can be explained in many different ways and is believed to be a combination of different factors that create value in an organisation. Some of these factors include:

- Market controls value: market factors range from efficient market theory, which means that the market has available information. In order to set fair market price for a stock, investors make rational judgements based on the available information (Knight, 1998:34).
- Market efficiency and the tyranny of investors: the efficient market, at any given time, represents the informed judgement of all investors and it is therefore impossible to beat it and deliver excess returns to investors using the available information. This implies that VBM application in any organisation will always reflect in the stock market price; and this is good news for those managers who implemented VBM in their organisations.
- The role of management in VBM: the primary objective of any company regardless of its background it to create long-term value and sustainability (John, 2009:1), and the role of managers is, therefore, to create value for the shareholders of the company. This is not measured in monetary terms but by the decisions that managers make.

2.4.2. Managing for value creation

Ernst & Young (as cited in Prinsloo, 2007:16) reported that recent trends identified non-financial considerations as increasingly important in the valuation of a company and its stock, specifically in terms of the perceived future potential. Prinsloo (2007:17) further stated that shareholders are increasingly placing value on the value of intangible measures. They list the most important non-financial metrics as: strategy execution, management credibility, quality of strategy, innovativeness, ability to attract talented people, market share, management experience, quality of executive compensation, quality of major processes, and research leadership.

This is the view agreed by Young and O'Byrne (2001) who found that shareholder's wealth culture became increasingly predominant during the past few decades and that investors are more likely to move capital to where it will be most productively employed. In today's globalised, liquid markets, investors don't just consider commercial performance but also consider a company's competitiveness in capital markets.

Pettit (2000:10) also argued that in today's liquid markets, where supply of capital is limited, companies need to maximise its value and hence return to shareholders, otherwise these investors will move capital to more attractive opportunities.

According to the Institute of Management Accountants (1997:7) the traditional income statement provides no indication as to whether the earnings generated by the firm's met investor's expectations based on the firms business risk and leverage risk. It simply provides an earnings number, popularly called the bottom line. Traditionally, if the bottom line is positive, the firm is said to have performed well. Yet, firms that show a positive bottom line in a traditional sense may in fact have destroyed value. For example, a large Canadian integrated oil and gas firm showed bottom line earnings of $514 million according to its published financial statements, however, its value-based view indicates that it destroyed $492 million of economic value.

The value-based view explicitly recognises the capital charge associated with the use of capital. The bottom line under this format is different from that of traditional view. A positive bottom line – economic value, signifies a superior performance because it accounts for all four types of costs including that associated with capital. Table 2-1 compares the traditional income statements and value-based formats.

Table 2-1: Traditional and Value-Based Income Statements (Institute of Management Accountants, 1997)

Traditional Income Statement	**Value-Based Income Statement**
Revenues	Revenues
Less: *Cost of Goods Sold*	Less: *Cost of Goods Sold*
Less: *Depreciation, Sales & Administration, and Other expenses*	Less: *Depreciation, Sales & Administration, and Other expenses*
Equals: Earnings Before Interest and Taxes (EBIT)	Equals: Earnings Before Interest and Taxes (EBIT)
Less: *Interest*	Less: *Interest*
Equals: Earnings Before Taxes (EBT)	Equals: Earnings Before Taxes (EBT)
Less: *Taxes*	Less: *Taxes*
Equals: Net Income	Less: Capital Charge
	Equals: Economic Value Added (EVA)

Capital charge equals weighted average cost of capital (WACC) times invested capital or capital base. This represents the opportunity cost of using the funds provided by shareholders and debt holders. In other words, it is the amount of profit investors require to compensate them for the riskiness of the business, given the amount of capital invested.

2.4.3. Shareholder value versus stakeholder value

It may be good public relations for management to declare that they run the business in the interest of all stakeholders, yet they cannot possibly make decisions that are best for all stakeholders (Madden, 2005:21). Customers, a key stakeholder, always want lower prices, other things being equal. How low should the company cut its prices? Is it to the point of incurring losses? Or to consider an extreme case, consider unemployment in South Africa and a government that wants a company to improve the situation by employing all the unemployed in the community. Can the company afford this, in the name of running the business in the interests of all stakeholders? This might be a difficult task to accomplish.

Madden (2005:21) is of the view that maximising shareholder value is the total market value of all the company's capital owners and is the most appropriate decision-making criterion for corporate management. The author further argues that without this criterion there are infinite stakeholder demands, which defy analysis in any fundamentally meaningful way relevant to maximising social well-being.

It should also be understood that maximising shareholder value does not imply disregarding the interests of stakeholders. This view is contained in a study by Young and O'Byrne (2001:13), which found that, the growing body of evidence in Europe and North America shows that companies with good reputations in terms of (1) product and service quality, (2) ability to attract, develop, and retain talented people in their employ, and (3) community and environmental responsibility, tend to outperform stock market averages. This evidence suggests that a company creates value for shareholders when it in parallel delivers value to other stakeholders.

Copeland, Koller and Murrin (1994:156) state that the pursuit of maximum shareholder wealth is a "virtuous cycle". It not only increase shareholder wealth, but also creates more corporate growth, improved returns for employees, and welfare and economic benefits for society at large. This

indicates that a company that maximises value for its shareholders also increases value for stakeholders.

The link between corporate performance, value for shareholders and stakeholders is synthesised by figure 2.2 as popularised by Stern, Shiely and Ross (2001:40)

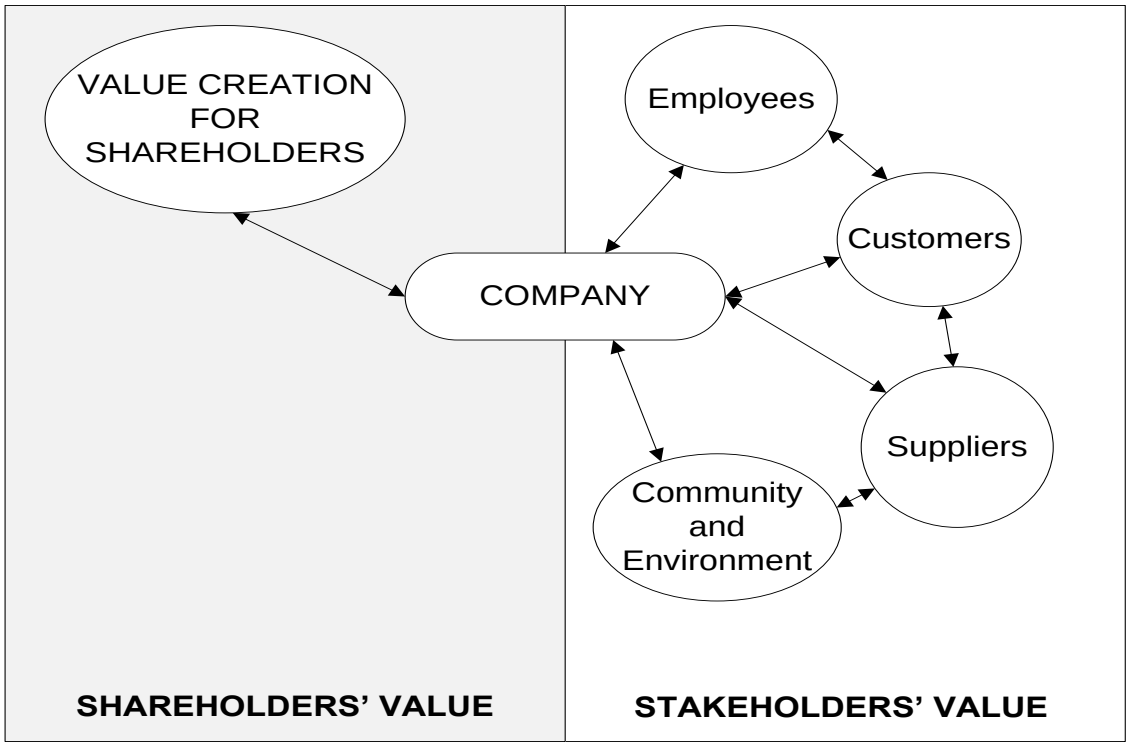

Figure 2.2: Relationship between the company, shareholders and stakeholders

According to Stern *et al*. (2001:55) a company will achieve the best value for shareholders, when the managers of the organisation and everybody within the organisation, are dedicated to create value for the organisation by creating value within the various relationships of the organisation. There are four main relationship groupings for an organisation:

The relationship with employees; the most important functions integrating the employees into the value creation process are product development, operations and support, and human resources. The challenge for management is to create an environment where employees will see it as beneficial for them to focus on value creation. The creation of value within the

relationship with customers is the sales and marketing function. It is important that the company understand the customer needs and always listen to the voice of the customer. The creation of value for the organisation with its suppliers is through the logistical and technical capabilities function. Value is created to communities when the company has programs that are aimed at community development.

Figure 2.3 summarises these relationships by providing a holistic view of value creation.

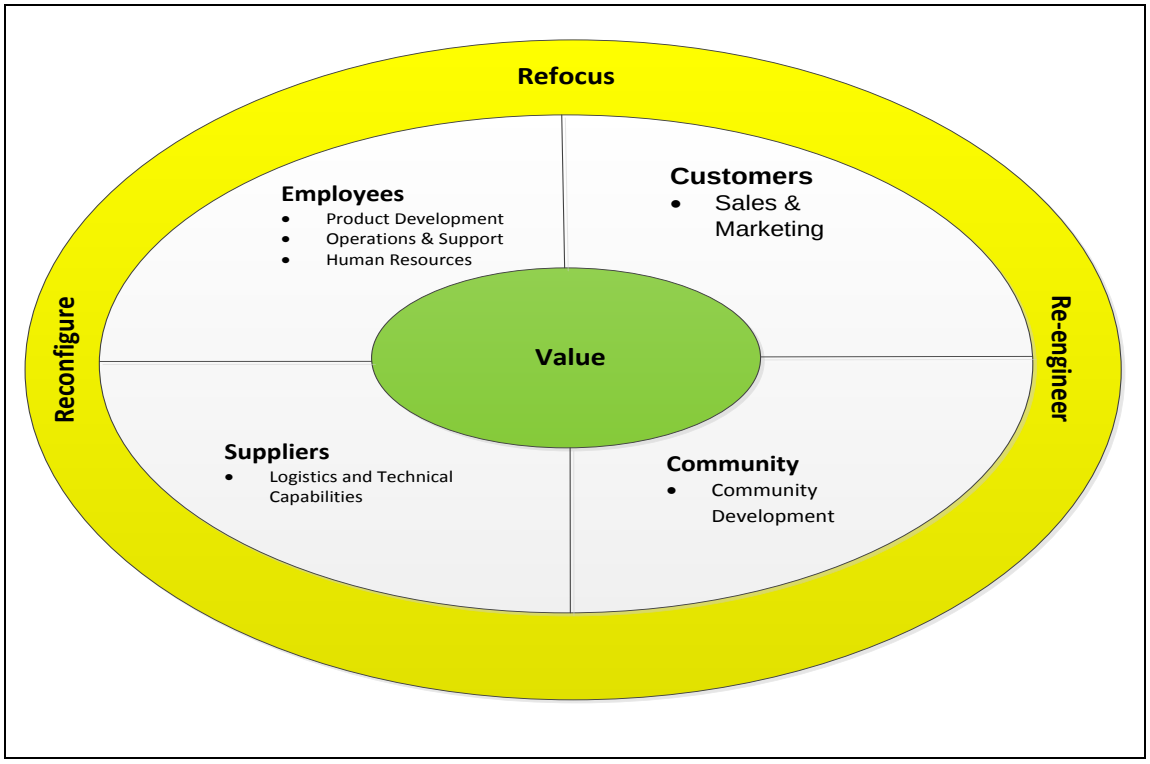

Figure 2.3: Holistic Value Creation (Stern, et al., 2001)

Shareholder value is described by (Rappaport, 1981) as a business term, which implies that the ultimate measure of a company's success it the extent to which it enriches its shareholders. This view is concurred by Kennerly (2010) who states that value-based management, as a management principle, states that management should first and foremost consider the interests of shareholders in its business decisions.

The major stakeholders and their value drivers for any corporate are summarised in table 2-2 (Tungare & Pillai, 2013:52).

Table 2-2: Stakeholder and Value Drivers (Tungare & Pillai, 2013)

Stakeholder	Value Drivers
1. Shareholder	I. Expects dividends and bonus shares. II. Increase in the market price of share through consistent growth and brand loyalty. III. Other benefits such as right shares, discount on company's products etc. IV. Protection and safeguarding of their interests.
2. Employees	I. Job security and basic compensation i.e. salary. II. Bonus and incentive to match their performance. III. Perquisites in the form of additional benefits. IV. Welfare measures including social security and superannuation benefits.
3. Customers	I. Prices to match their expectations II. Adequate quantity to fulfil their demand at desired quality III. Expected delivery time, after sale service and spares
4. Suppliers	I. Reasonable price for materials and services II. Receipt of payment for supplies on promised date III. Long term business assurance by company IV. Financial support by company as and when required
5. Community	I. Reasonable price of the products delivered II. Improving the standard on living of the community III. Employment generation
6. Lenders	I. Repayment of loan II. Long term business relationship III. Interest rates to match the risk
7. Government	I. Payment of taxes II. Earning foreign exchange revenues III. Contribution towards gross domestic product (GDP) IV. Fulfilment of regulatory norms.

According to Leepsa, Patnaik and Pradhan (2008:2) value based management can be simply stated as management system in which entire organisation is focused, measured, compensated for creating value for stakeholders. The value based management is managing and giving values to all stakeholders as follows (Leepsa *et al*., 2008:2):

Organisations:

- Encourage a working climate with innovation and free exchange of ideas.
- Demonstrating personal integrity and humanity.

Shareholders:

- Protecting and safeguarding shareholder's investments.
- Ensuring shareholders a fair return.

Employees:

- Understanding and acceptance of the rights and needs of employees.
- Providing adequate wages, good working condition, job security, effective machinery for speedy address of grievances.
- Providing suitable opportunities for promotion and self - development.
- Creating a sense of belongingness and team spirit through a close link between management and employees.

Customers:

- Products with proven quality at a fair price.
- Fulfilling its commitments impartially and courteously with sound business principles.

Community and social responsibility:

- Effective use of natural resources.
- Providing assistance in community affairs and during natural disasters.

Government:

- Ensure compliance to government legislation at all times.

The concept of maximising shareholder value is usually highlighted in opposition to alleged examples of Chief Executive Officer's and other management actions which enrich themselves at the expense of shareholders. Although the legal premise of a publicly traded company is that executives are obliged to maximise the company's profit, this does not imply that executives are legally obliged to maximise shareholder value.

Examples of this may include acquisitions which are dilutive to shareholders, that is, they may cause the combined company to have twice the profits for example but these might have to be split amongst three times the shareholders.

2.5. Value-Based Management Measurement tools

According to Sakunasingha (2006:50) several popularised performance measurement tools under VBM are:

1) Shareholder value approach (SVA) by LEK / Alcar Consulting Group and later developed into a popular use by McKinsey & Co.
2) Economic value added ($\mathrm{EVA}^{®}$) by Stern Stewart & Co.
3) Cash flow return on investment (CFROI) by Boston Consulting Group.
4) Return on invested capital (ROIC), which is widely used in many organisations as key financial value drivers that must be identified before one of the three VBM tools could apply.

Since there is no perfect performance measuring tool, the debate over which VBM tool to use depends on the different aspects of performance and the purpose fitting the tool with organisation strategies. Even though tools under VBM are not completely identical, they help managers to make value-creating decisions (Copeland, Koller & Murrin, 2000) and provide consistent answers to whether the organisation has created or destroyed value (Rapport, 1998).

Regardless of which tool under VBM is being applied, they are used to assess the success or failure of ongoing operations (Sakunasingha, 2006:54). In general, VBM tools provide management with a method for evaluating the

performance of a company's existing assets using the same standard that is used to evaluate the anticipated contribution to organisation value, which in turn, measures value being created for shareholder value. Further, VBM provides a structure for connecting performance with compensation that motivates managers to act in shareholder's interest (Sakunasingha, 2006:54).

The four popularised VBM measurement tools are summarised as follows:

2.5.1. Shareholder Value Added (SVA)

SVA represents the economic profits generated by a business above and beyond the minimum return required by all providers of capital. "Value" is added when the overall net economic cash flow of the business exceeds the economic cost of all the capital employed to produce the operating profit (Department of Treasury and Finance, 1999:3). The SVA approach is a methodology which recognises that equity holders as well as financiers need to be compensated for the bearing of investment risk in a business. The report further states that the SVA methodology is a highly flexible approach to assist management in the decision making process. Its implications include performance monitoring, capital budgeting, output pricing and market valuation of the equity.

SVA is a tool which measures the amount of value created, based on a forecast scenario. It addresses the change in shareholder value over the forecast period (Rapport, 1998). It is defined as a value-based performance measure of a company's worth to shareholders.

According to Sakunasingha (2006:54) SVA is obtained by subtracting the present value of the incremental investment from the present value of the capitalised NOPAT increase. The calculation is assessed as:

$$\mathbf{SVA} = \frac{\mathbf{Change\ in\ NOPAT}}{\mathbf{K}\,(\mathbf{1}+\mathbf{K})^{\mathbf{t-1}}} - \mathbf{Present\ Value\ of\ incremental\ investment}$$

The increase in net operating profit after taxes (NOPAT) is capitalised each year and discounted back to the present, at the discount rate (K).

As a decision making tool, the link between SVA and business strategy focuses on three main areas (Department of Treasury and Finance, 1999:8):

- Improvement in operating decisions such as production, procurement, pricing, promotion, customer service level to maintain and / or increase NOPAT;
- Investment decisions such as increasing inventory levels and capacity to expand the business could drive working capital and fixed capital investment; and
- Financing decisions, which involve the cost of capital also questions not only the business risk the company is about to participate in but also the proper proportion of debt and equity to fund the business. This helps reduce capital which does not earn an economic profit, for example, divesting loss making activities or economising on working capital / assets.

From a SVA perspective, the business value creation process can be summarised as indicated in figure 2.4.

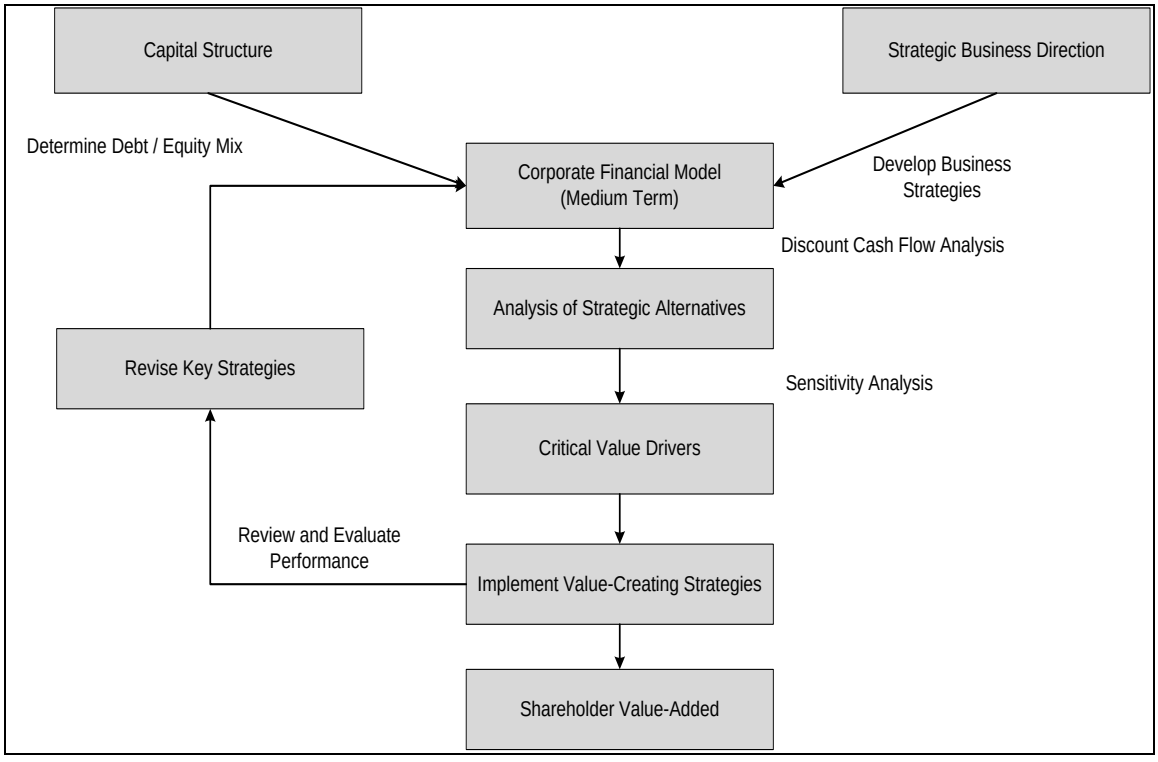

Figure 2.4: SVA Value Creation Process (DTF, 1999:8)

SVA is therefore a disciplined process to evaluate organisational activity. It is not only a financial numbers exercise; it is as good as the strategic thinking behind the numbers, but it does not guarantee that the strategy with greatest SVA number will be effectively and efficiently implemented.

2.5.2. Economic Value Added

Economic value added (EVA) is a value-based metric that has been trademarked by Stern Stewart & Company.

Ward and Price (Cited by Nagan, 2008:7) stated that the ultimate measure of business is whether it is creating or destroying wealth for shareholders. They defined value creation as an economic as opposed to an accounting concept, and it is for that reason that the stock exchange returns should be taken into account. This view is similar to that of Taub (Cited by Prinsloo, 2007:19) who states that EVA is a practical method of estimating the economic profit that is earned, as opposed to the accounting profit. This way of looking at financials enables companies to truly understand if they are profitable because they manage assets well or simply because they are owners of profitable assets.

According to Mohanty (2006) EVA primarily serves three purposes, firstly, it is widely used as a performance measurement tool, secondly, it is also used as a valuation tool and finally, it is used as a reporting tool. Young and O'Byrne (2001:85) are of the view that EVA is much more than a measurement. It is also an instrument for changing managerial behaviour. It is about changing mind-set, and getting everybody to think different about their work.

Desai (2006:1) argues that EVA helps managers to incorporate two basic principles of finance into their decision making. The first is that the primary financial objective of the company should be to maximise the shareholder's wealth, and the second is that the value of the company depends on the extent to which investors expect future returns to exceed or fall short of the cost of capital.

2.5.2.1. Calculation of EVA

Firer, Ross, Westerfield and Jordan (2004) state that EVA or Economic profit (EP) is calculated as "Net Operating Profit after Tax" less the "Cost of Capital", mathematically disclosed as follows:

$$\mathbf{EVA} = \mathbf{NOPAT} - (\mathbf{Capital} * \mathbf{Cost\ of\ Capital})$$

The Cost of Capital – a measure of the return that the market would expect - is further calculated as the "Cost Invested" multiplied by the "Weighted Average Cost of Capital", or:

$$\mathbf{Cost\ of\ Capital} = \mathbf{Capital} * \mathbf{WACC}$$

The WACC is actually the weighted average cost of equity and the after-tax cost of debt, or:

$$\mathbf{WACC} = [(\%\mathbf{Debt\ of\ TF} * \mathbf{Kd}) + (\%\mathbf{Equity\ of\ TF} * \mathbf{Ke})]$$

Alternatively Pettit (2000) expressed EVA as:

$$\mathbf{EVA} = (\mathbf{Rate\ of\ Return} - \mathbf{Cost\ of\ Capital})\ \mathbf{X\ Capital}$$

EVA or Economic Profit (EP) can also be expressed as:

$$\mathbf{EVA} = (\mathbf{ROIC} - \mathbf{WACC})\ \mathbf{X\ Capital}$$

Where: $\mathbf{ROIC} = \frac{\mathbf{NOPAT}}{\mathbf{Capital}}$

The result of EVA calculations states whether the company has a positive or a negative EVA, in other words, whether the company is creating or destroying value. It the EVA is positive, then the company has created more value than the shareholders expected and it the EVA is negative, the company has performed below shareholder expectations.

2.5.2.2. Advantages and disadvantages of EVA

Jalbert and Landry (cited by Nagan, 2008:7) highlight the following overall advantages and disadvantages of EVA:

Advantages:

- Explicitly considers the cost of capital;
- Allows projects to be viewed independently;
- Capitalises expenses that have multi-period benefits; and
- Provides detail of corporate performance beyond that obtained from market-determined measures.

Disadvantages:

- Computations are complex and difficult;
- Difficult to allocate EVA among divisions; and
- EVA is not market-determined.

Kudla and Arendt (2000) also highlight the following advantages and strategies for an EVA management system in table 2-3:

Table 2-3: Advantages and strategies of EVA (Nagan, 2008:8)

Advantages of an EVA Management system	Strategic decisions for increasing EVA
• Aligns the interests of managers and shareholders. • Increases the motivation of managers and employees by encouraging them to act like owners. • Links manager and employee performance evaluation with compensation. • Provides benefits to all stakeholders, including employees, customers, shareholders and suppliers.	• Increase the return on existing projects. • Invest in new projects that have a return greater than the cost of capital. • Use less capital to achieve the same return. • Reduce the cost of capital. • Liquidate capital or curtail further investment in sub-standard operations where inadequate returns are being earned.

2.5.3. Rate of Return on Invested Capital (ROIC)

ROIC is the key financial value driver. It is the ratio of net operating profit after tax (NOPAT) to its invested capital (Copeland, Koller & Murrin, 2000). RIOC considers the components that drive value in EVA model; in fact, it reorganises and breaks down accounting statements into components to gain greater analytical insight before calculation. Further, the value of the company cannot be created if the ROIC does not exceed the cost of capital over time (Frykman & Tolleryd, 2003).

As a consequence, the return on invested capital drives value of the company, in which investing in a project / activities yield a ROIC greater that WACC could potentially create value for a company.

2.5.4. Cash Flow Return on Investment (CFROI)

CFROI represents a cash-based measure, meaning it converts all accounting profits into cash flows. Starovic, Cooper and Davies (2004:13) state that CFROI is the real rate of return measure because it is adjusted for the effect of inflation. This measure identifies the relationship between cash generated by a business relative to the cash invested in it. The authors further argue that CFROI provides an accurate measure of the economic performance of a business, free from the potential accounting distortions related to issues such as inflation and variations in asset ages.

Martin and Petty (2000) and Frykman and Tolleryd (2003) agrees with the above by stating that CFROI represents the sustainable cash flow a business generates in a given period as a percentage of the rate of return on cash invested in the firm's assets where inflation is a significant factor.

CFROI is usually expressed as follows:

$$\mathbf{CFROI} = \frac{\mathbf{CF_1}}{(\mathbf{1}+\mathbf{CFROI})} + \frac{\mathbf{CF_2}}{(\mathbf{1}+\mathbf{CFROI})^{\mathbf{2}}} + \ldots + \frac{\mathbf{CF_n}}{(\mathbf{1}+\mathbf{CFROI})^{\mathbf{n}}} + \frac{\mathbf{TV}}{(\mathbf{1}+\mathbf{CFROI})^{\mathbf{n}}}$$

CFROI incorporates the principles of the internal rate of return (IRR) concept, which is associated with the appraisal of capital investment opportunities.

2.6. Benefits and Pitfalls of Value-Based Management

According to ThyssenKrupp (2011:4) the objective of value-based management is to identify and realise value potentials within the company in order to attract and retain long term investors. These investors include shareholders, financial institutes, banks, institutional investors as well as employees with their pension entitlements. The report further states successful value management increases stockholder satisfaction and improves the way the company is judged by analysts, banks and rating agencies. It satisfies the interests of both customers (through innovative, market-oriented products and services), suppliers (by securing liquidity and purchasing volumes), and it motivates employees by providing challenging tasks and safeguards jobs.

Haspeslagh (cited by Pienaar 2009:33) stated the benefits of VBM that the organisation will realise as follows:

- Organisations will make better and smarter decisions;
- Managers are dedicated to the long-term sustainability of the organisation in creating shareholder wealth; and
- There is alignment between the actions and decisions of employees and the strategy of the organisation.

Lew and Barnad (2004:20) state that one of the shortcomings of VBM is that it lacks connection with interventions that focuses mainly on people. This view is supported by Koller (1994:88) who argues that VBM can become a staff-captured exercise that has no effect on operating managers at the front line or on decisions that they make.

Martin and Petty (2000:101) found that recent studies of the long-term performance of firms that adopt VBM do not demonstrate significant differences compared to similar companies that do not use VBM. The authors are, however, quiet on what the results would have been had these companies not adopted VBM.

Starovic, Cooper and Davies (2004:23) summarised the benefits and critiques of VBM as follows:

Table 2-4: Advantages and Disadvantages of VBM (Starovic *et al*. 2004:23)

Advantages of VBM	Disadvantages of VBM
It provides a common language, that is usable internally and externally for shareholder value creation	The different definitions and metrics of VBM proposed complicate tasks
It is a powerful comparative tool for measurement and benchmarking competitive performance	Relatively disappointing at the subordinate level because of the difficulty of forecasting value
It is useful for resource allocation and provides a better distinction between value-creating and value-destroying decisions	It is a costly exercise that takes time, resources and commitment to implement
It a has a positive effect on financial performance and it is a powerful strategic tool	The metrics can become complex and difficult to understand and manage
It is regarded as a very useful tool to help management focus on value drivers	It is difficult to translate the financial measures into operating customer measure
Helps create more shareholder value by getting more accountability as employees act as if they are the owners of the business	Technical measurement difficulties such as the cost of capital

2.7. Value-Based Decisions

Decision making is a fundamental activity for managers. It is described by Robbins (2005:120) as “the essence of manager’s job” and “a critical element of organisational life”. The process of decision making depends on many factors, including the context in which a decision is made, the decision maker’s way of perceiving and understanding cues, and what the decision maker values or judges as important (Martinsons & Davison, 2005:285).

For the purpose of this research, decision-making is defined in the context of a highly decentralised organisation, where decision-making authority is pushed down to the lowest organisational level capable of making timely, informed, competent decisions. According to Thompson, Peteraf, Gamble and Strickland (2012:52) the ultimate goal of decentralised decision-making is to put authority in the hands of those persons or teams closest to and most knowledgeable about the situation. This helps to structure the decision – making process so that actions can be taken swiftly when needed.

To be effective, value-based management must add transparency to the decision-making process: it must show the impact of specific decisions on the value of the business – not just major strategic decisions like mergers and acquisitions, but also operational decisions. What will be the impact on shareholder value of, for example, reducing lead time, reconfiguring supply chain or rationalising the product range? By expressing the shareholder value in a way that everyone can understand, the company can forge a link from corporate strategy through to operations.

According to Anon (n.d) corporations take three types of decisions: investment, financing, and operational. To evaluate *investment* and *financing* decisions, most organisations use reasonably sophisticated discounted cash flow (DCF) techniques. But often, they are applied on an incremental basis and may cover only some of the value-drivers – and so fail to pick up the full impact of a decision on the business as a whole. The author further observed that when it comes to *operational* decisions, companies seldom look at them

in shareholder value terms. Yet establishing a value creating strategy – though clearly important – is not on its own enough to secure success in today's investment climate. Senior executives must keep in mind that value is created or destroyed at every point where decisions are made. To be certain that value creation can be sustained and improved operationally by front-line managers, an infrastructure including the appropriate information systems that will give managers at all levels a coherent understanding of how to take value-based decisions is needed. Decisions concerning the scope of a company's operations – which activities a firm will perform internally and which it will not – can also affect the strength of a company's market position (Thompson *et al.* 2012:245).

According to Bass (n.d) strategy and operational decisions address different aspects of the organisation. Strategy influences the overall direction of the organisation, whereas operational decisions affect its day to day operations.

2.7.1. Selecting strategies and strategic decisions

A company's financial performance measures are lagging indicators that reflect the results of past decisions and organisational activities. But a company's past or current financial performance is not a reliable indicator of its future prospects – poor financial performers often turn things around and do better, while good financial performers can fall upon hard times (Thompson *et al*. 2012:78). The best and most reliable leading indicators of a company's future financial performance and business prospects are strategic outcomes that indicate whether the company's competitiveness and market position are stronger or weaker.

Corporate strategy is defined by Andrews (Cited by Matshekga, 2009:8) as the pattern of decisions that determine and reveal the company's objectives, purposes, or goals, produces the principal policies and plans for achieving those goals, and defines the range of business the company is to pursue, the kind of economic and human organisation it is or intends to be, and the nature of the economic and non-economic contributions it intends to make to its shareholders and stakeholders.

A company's strategy consist of the competitive moves and business approaches that managers are employing to compete successfully, improve performance and grow the business (Thompson *et al*., 2012:52). The authors further argue that "strategy is about competing differently from rivals – doing what competitors ***don't*** do or, even better, doing what they ***can't*** do". Every strategy needs a distinctive element that attracts customers and produces a competitive edge (Thompson *et al*., 2012:54).

According to Rappaport (2006) managers must make strategic decisions that maximise expected value, even if these decisions mean lowering short - term earnings. The author further states that a sound strategic analysis should produce informed responses to three questions: First, how do alternative strategies affect value? Second, which strategy is most likely to create the greatest value? Third, for the selected strategy, how sensitive is the value of the most likely scenario to potential shifts in competitive dynamics and assumptions about technology life cycles, the regulatory environment, and other relevant variables?

Morin and Jarrel (2001:219) argue that "the specific objective of the strategic analysis module of the VBM framework is to formulate appropriate value-creating strategies across all the business units of the company. Their view is supported by Bass (n.d) who states that strategic decisions consider the entire organisation and represent a complex aspect of business planning. Strategy entails making major changes for the organisation and recognising that the business environment is not static and will continue to evolve. The goal of making strategic decisions is to implement policy that aims to move the organisation toward its long-term goals (Hill & Jones, 2007:29).

Strategy takes into account an organisation's resources, threats to it and available opportunities. It also helps in proactively searching for opportunities to do new things or to do existing things in new or better ways.

According to Management study guide (2012) strategic decisions are concerned with the entire environment in which the organisation operates. The characteristics and features of strategic decisions are:

a) Strategic decisions have major resource proposition for an organisation. These decisions may be concerned with possessing new resources, organising others or reallocating others.
b) Strategic decisions deal with harmonising organisational resource capabilities with threats and opportunities.
c) They deal with the range of organisational activities. It is all about what they want the organisation to be like and to be about.
d) They involve a change of major kind since an organisation operates in ever-changing environment.
e) Strategic decisions are complex in nature.
f) They are taken at the top most level, are uncertain and deal with the future, and involve a lot of risk.

It is important to also note that strategic decisions always represent a risk because they deal with the future. While a company can make strategic decisions based on relevant information, the organisation can never predict the future with certainty.

It is therefore in this context that the company should follow the five stage process of crafting and executing strategy as proposed by Thompson *et al*. (2012:69):

1. *Developing a strategic vision* of the company's long-term direction, a mission that describes the company's purpose, and a set of values to guide the pursuit of the vision and mission.
2. *Setting objectives* and using them as yardsticks for measuring the company's performance and progress.
3. *Crafting a strategy* to achieve the objectives and move the company along the strategic course that management has charted.
4. *Executing the chosen strategy* efficiently and effectively.
5. *Monitoring developments, evaluating performance, and initiating corrective adjustments* in the company's vision and mission, objectives, strategy, or execution in light of actual experience and changing conditions.

2.7.2. Action planning and operational decisions

Operational decisions relate to the daily operations of an organisation, they concern the relatively narrow strategic initiatives and approaches for managing key operating units (e.g., plants, distributing centres) and specific operating activities with strategic significance (e.g., quality control, material purchasing, maintenance strategies, brand management) (Thompson *et al.* 2012:84).

These decisions are often administrative in nature and can be implemented quickly and tend to carry little risk. Though they may be smaller-scale, they are important choices that people have to make to fulfil their roles.

The countless interactions that take place on a daily basis represent the result of operational decisions and consider the risk of the business. These decisions, therefore, can bog down an organisation and make it ineffective. To prevent this, operational decisions should be consistent with strategic decisions. Good operational decisions will have measurable results such as higher revenues, increased profits, increased productivity and customer satisfaction (Bass, n.d).

A business does not make frequent decisions regarding operations because of constraints of time, resources, and the workforce. Instead, a business should make operational decisions after key personnel agree on an overall strategic plan for the organisation. In many organisations, operational decisions result from strategy related to production and growth. The operational decisions then help the organisation to bring about changes that move the business toward its strategic goals.

Figure 2.5 displays the operating value driver tree as adopted by ThyssenKrupp.

Value drivers are those inputs in the value map of an organisation that will have an impact on the value of the organisation. According to Knight (cited by Jordaan, 2005:88) value drivers are the operating factors with the biggest

influence on operational and financial results. De Waal (Cited by Jordaan 2005:88) states that values drivers play a critical role in the understanding of the impact of management's current actions on the current and future EVA of the organisation.

By understanding the value drivers of an organisation, managers can develop a forward-looking managerial tool that will predict the outcome of decisions based on the core value drivers of the business (Jordaan, 2005:92).

Jordaan further states that both financial and non-financial drivers can be used in the performance contract with managers or executives. The analysis of the impact or sensitivity of a specific measure on the overall firm value can be used as a weighing basis to ensure that managers focus on those drivers that have the greatest impact on the overall value of the organisation.

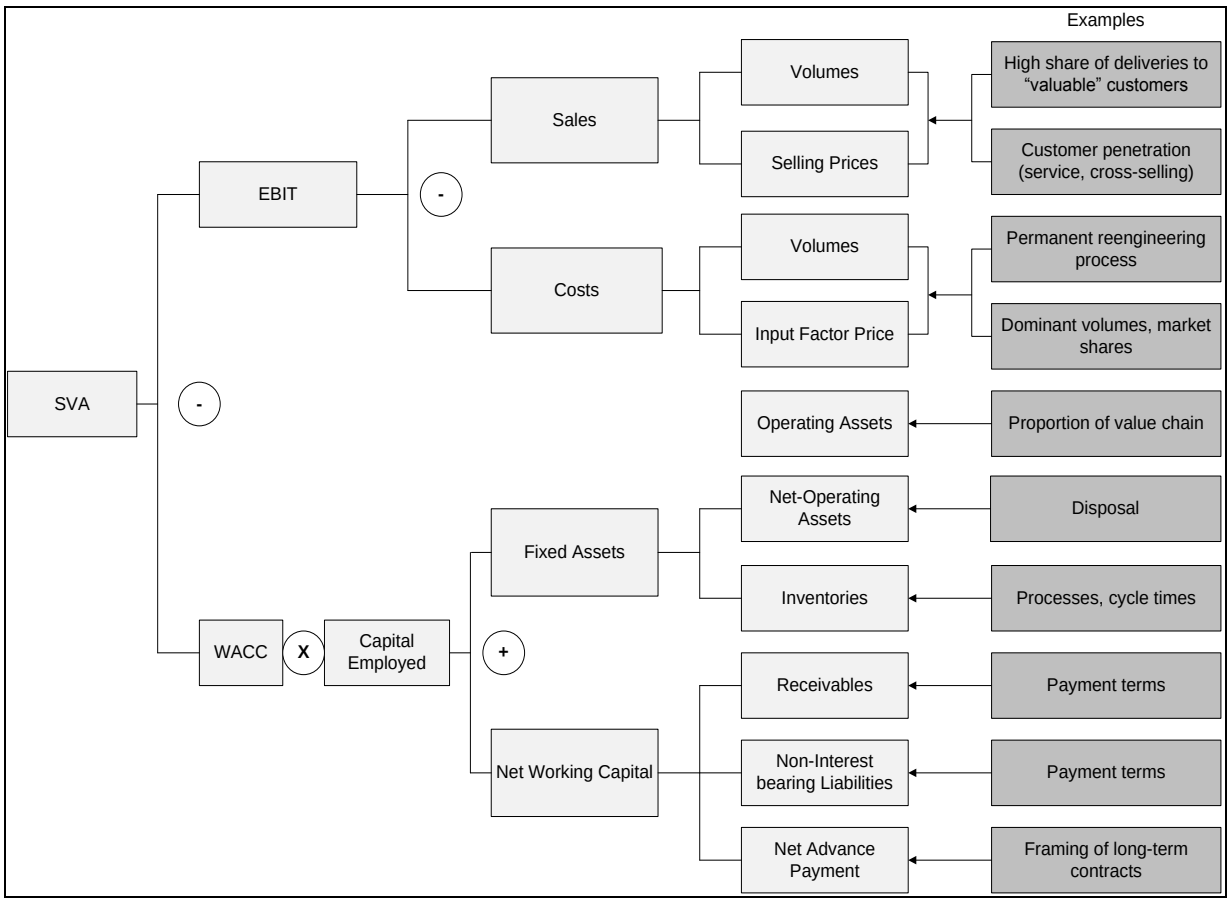

Figure 2.5: Operating Value Driver Tree (ThyssenKrupp, 2001:28)

ThyssenKrupp (2011:27) further makes the following statements with regards to operating decisions:

- All operating decisions have to be reviewed in terms of their long-term contribution to value growth.
- Decisions aimed at increasing operating efficiency make a significant contribution to overall value growth. Potential for this is provided, for example, by programs to reduce net working capital, productivity increases and cost reductions.
- The individual performance indicators at operating level have to be analysed in terms of cause and effect to ensure a consistent focus on value growth.
- The financial indicators have to be linked directly to the central performance indicator.
- The qualitative levers have only an indirect effect on shareholder value added, while improvements in customer focus, employee development and internal processes can be measured immediately.

At the operational level, VBM should lead to “big changes” in working-capital management and capital appropriations, since managers will automatically take into account the balance-sheet impact of their decisions (Malmi & Ikaheimo, 2003:239).

According to Thompson et al. (2012:423) there are three potent process management tools that many companies have relied on in striving for operating excellence. These tools are business process reengineering; total quality management (TQM); and Six Sigma quality control techniques. The authors further conclude that these three tools have become globally persuasive techniques for implementing strategies keyed to cost reduction, defect – free manufacture, superior product quality, superior customer service, and total customer satisfaction.

The purpose of these tools can therefore be summarised as to improve the performance of strategy – critical activities and thereby enhance strategy execution.

2.8. Summary

Adding economic value is imperative for business success. “Value added” products and services ensure that the organisation remains ahead of the competition, satisfying external customer demands and internal shareholder expectations. Chapter 2 provided the definitions of value-based management, described its measurement tools as shareholder value approach, economic value added, cash flow return on investment, and return on invested capital and provided a detailed explanation of each measurement tool. The chapter demonstrated through literature that it is possible for a company to create both shareholder value and stakeholder value. It found that a company creates value for its shareholders when it delivers value for its stakeholders.

CHAPTER 3: VALUE-BASED MANAGEMENT IN PRACTICE

3.1. Introduction

Value creation is a continuous cycle. It begins with modelling business operations, prioritising areas for more detailed investigation, identifying opportunities for improvement, implementing the changes required to maximise success and the measurement and revision that starts the process over again and allows management to stay abreast of company and market changes (Fuller, 2001:3).

This chapter seeks to illuminate the nature of value based management by describing its implementation at the level of the company. In this chapter the following are investigated:

- The success factors for a VBM implementation: from literature sources there are common set of success factors that will enhance the probability for a successful implementation of value-based management.
- Value-based management at lower levels: Value creation should be everyone's responsibility within an organisation, the challenge is to ensure that everyone understands VBM and its principles, and the major challenge is to take VBM to everyone within the organisation.
- To determine if the petrochemical company created value: the financial data of the company (Value Added Statement) is presented and analysed.

3.2. Value-Based Management Implementation

The overview of relationships presented in figure 3.1 demonstrates that VBM is a continuous process. It begins with strategic planning to achieve competitive advantages which produce superior growth in economic profits and returns to shareholders (Weaver & Weston, 2003:2). The authors' further state that strategic planning guides the company's choice of a product-market scope and its resource requirements and the economic nature of the industry

or industries in which the firm operates determine the patterns of its financial statements reflected in traditional financial ratio analysis. Based on a business economics analysis of the industry and the firm's competitive position, projections of financial relationships provide a basis for valuation estimates. Since these are subject to error and change, further analysis based on identification of key drivers of value are made (Weaver & Weston, 2003:3). This facilitates study of the impact of operating performance on the value driver levels and the resulting valuations. Periodic reviews lead to strategy revisions as well as to changes in policies and operations.

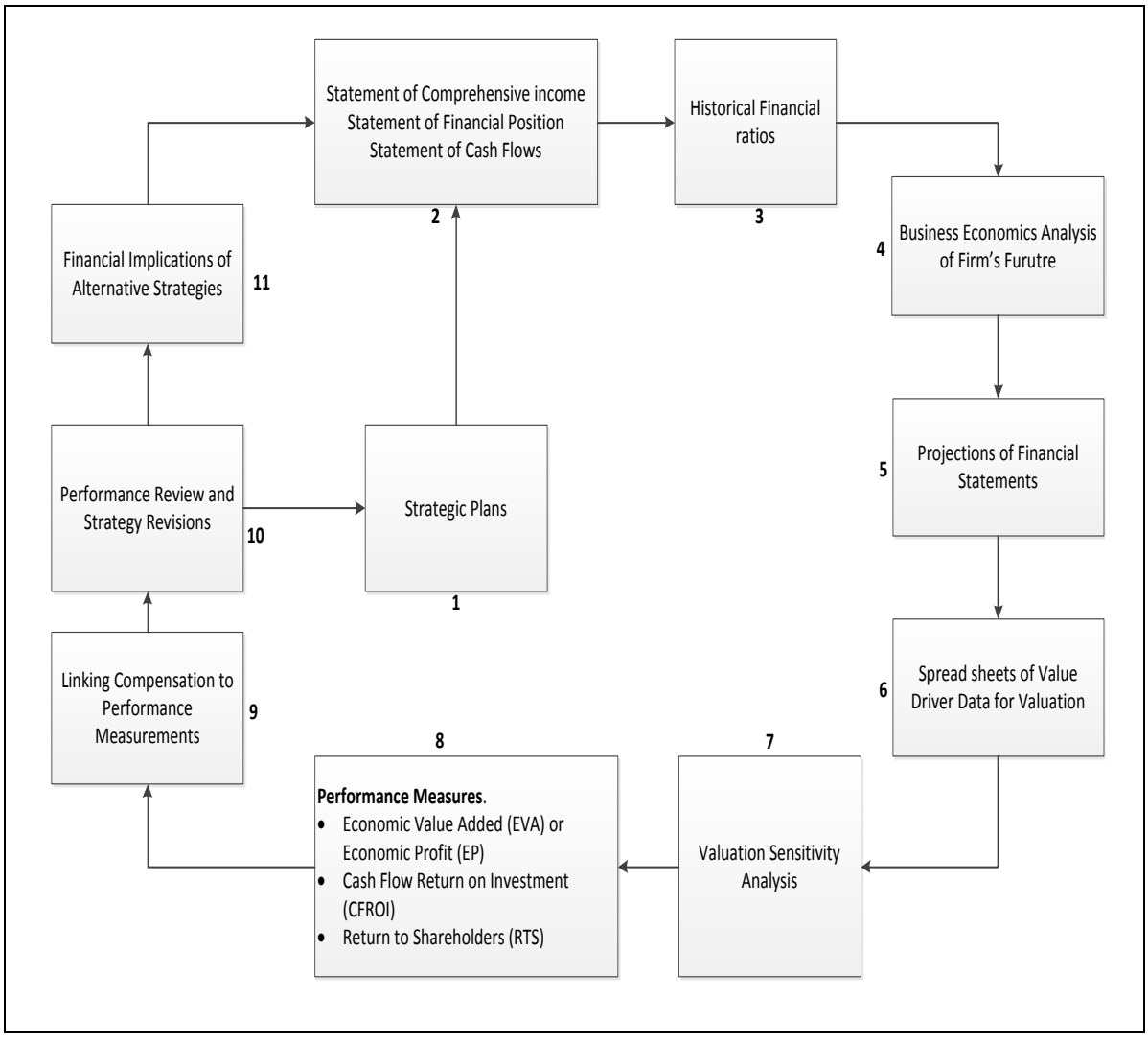

Figure 3.1: Interaction between strategy and VBM (Weaver & Weston, 2003:20)

Martin and Petty (2006:6) state that value is created over time as a result of a continuing cycle of strategic and operating decisions. They argued that the

heart of value-based management is not only to create value, measure and then offer rewards to individuals or groups who contribute to enhance the wealth of shareholders, but also to maintain the sustainable cycle of value creation as a whole.

3.2.1 Value Creation Process

The value creation process as indicated in figure 3.2 starts with identifying the organisations objectives, developing strategies, identification of value drivers, development of action plans and setting of targets, evaluation of performance, and leads to increased shareholder value.

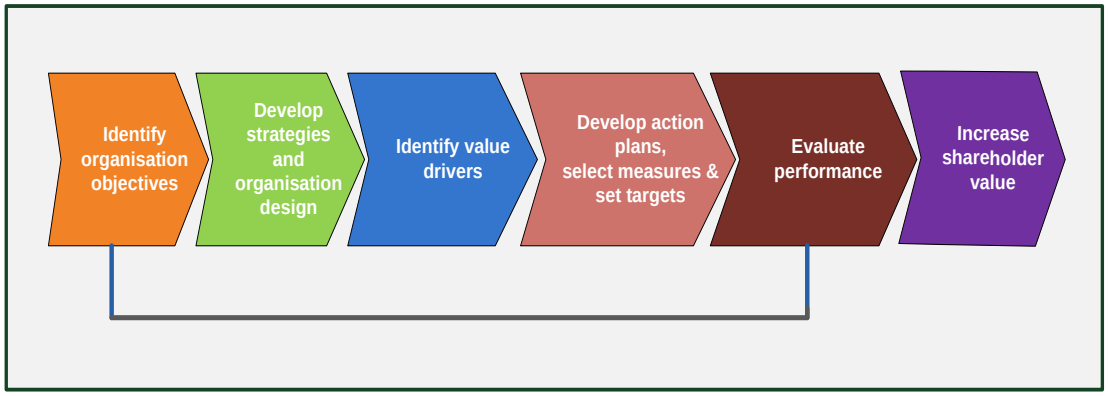

Figure 3.2: Value Creation Process (Martin & Petty, 2000)

VBM systems are based on the fundamental premise that in order to sustain the wealth creation process, managerial performance must be measured and rewarded using metrics that can be linked directly to the creation of shareholder value (Martin & Petty, 2000:6). This is supported by Athanassakos (2007:1397) who suggests that VBM includes an alignment of corporate strategy, performance reporting and incentive compensation to make decisions that maximise value.

Warranted value increases when the company makes investments expected to generate return on investment (ROI) greater than the company's cost of capital. The value creation process requires an understanding of the attractiveness of the market or industry where a company competes, coupled with its competitive position.

Figure 3.3 indicates that for sustainable value creation, opportunities that are identified and strategically formulated for implementation and operations need to be measured for effectiveness of value created by means of free cash flow valuation (FCF), economic value added (EVA) or cash flow return on investment (CFROI). Rewards in the form of total compensation or variable compensation to management should then be coupled with the outcome of the opportunity.

The outcome of a successful value based management implementation requires changes in management behaviour. Friedl (2012:23) states that EVA is an instrument for changing management behaviour and corporate culture.

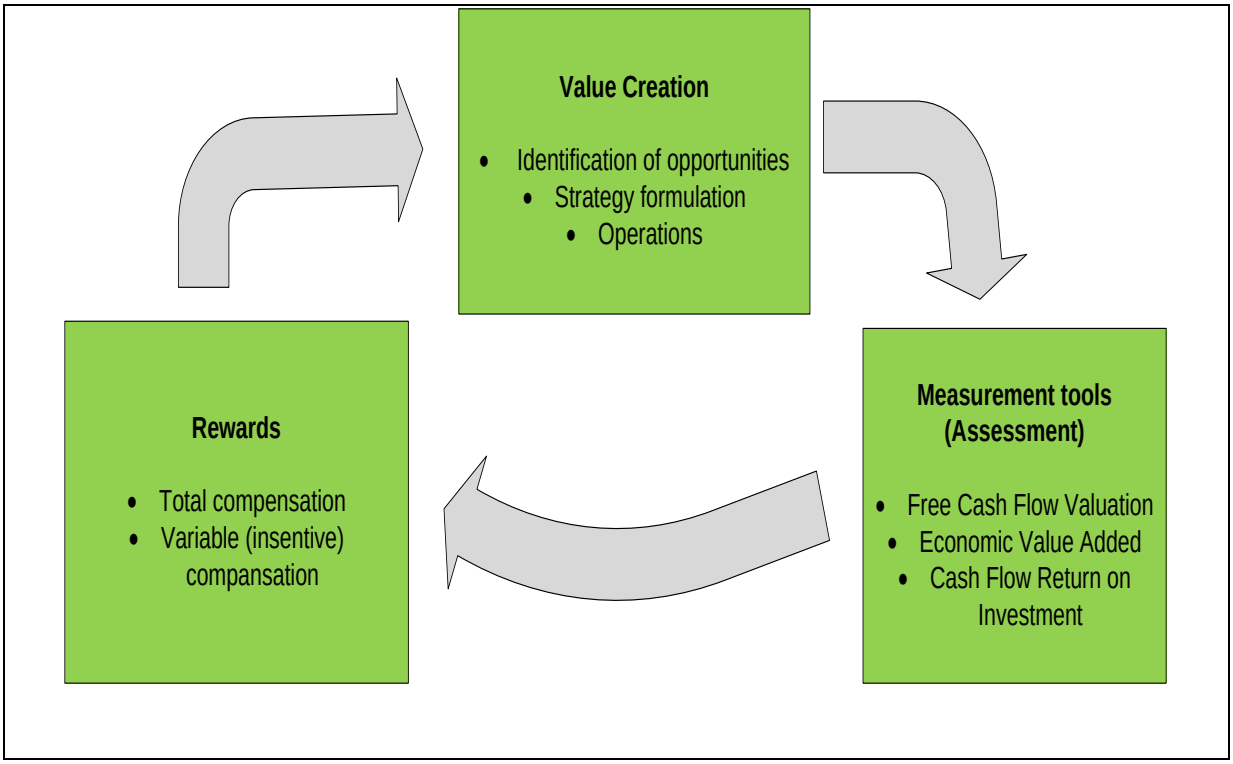

Figure 3.3: Sustainable cycle of value creation (Martin & Petty, 2000:6)

The key elements of a VBM system are value creation, measurement and rewards. Figure 3.3 highlights that value is created over time through a continuous cycle of strategic and operating decision-making. This ensures that sustainable value is created for the organisation. To achieve this it is critical that managerial performance must be measured using metrics that can be directly linked to shareholder value creation (Jordaan, 2005:43).

3.3. The VBM Implementation Process

Haspeslagh, Noda and Boulos (quoted by Sakunasingha, 2006:49) stated that achieving the desired cultural transformation, VBM requires five elements:

1) A clear commitment to shareholder value, which can serve as a communicating channel to the public that the organisation is about to change its culture and to motivate its employees to change behaviour.
2) Providing intensive training programs, so that everyone is convinced and acknowledges that managing for value is the right thing to do. This could begin with the executives at corporate level and then go down to operation level.
3) Pay for performance, which is a new practice for incentive or compensation systems that are closely tied to VBM performance to provide employees throughout the firm with a sense of ownership.
4) Willingness to make major changes in an organisation that allows employees to make value-creating decisions.
5) Allowing broad changes rather than narrow-focus on financial reports and compensation. VBM requires each business unit to identify the operational factors, or value drivers that have the greatest influence on creating economic profit, so that this focuses employees' activities toward value creation.

Martin and Petty (2000) further stated that there are four primary elements to make VBM successful. First, VBM must have full and complete support of the top executive before transforming into the operating culture of the firm. Second, for VBM to affect individual managers' behaviour there must be some link between performance and compensation. Third, skilful employees, who are able to spot problems, understand and be able to interpret the results when implementing the VBM, play significant roles in greasing the wheel of VBM implementation. Fourth, employees at all levels must understand the VBM system if it is to be effective in transforming behaviour. In implementing VBM, it should be simplified as much as possible so that employees understand the VBM. Further, employees need to understand what they are

being asked to do, why it is important and how their own personal well-being will be affected.

According to Friedl (2012:23) implementation of VBM requires acceptance and understanding of sound financial theory and value-based principles by all managers. Value creation is everyone's responsibility in the company, and finance department should provide transparency in the finance and accounting functions in order to help the operating departments understand and achieve their financial goals; and communicate clear goals to the employees and achieve their "buy-in" because the real value creators are the operating divisions.

Figure 3.4 summarises the elements of VBM implementation as proposed by Haspeslagh, Noda and Boulos (quoted by Sakunasingha, 2006:49) and Martin and Petty (2000).

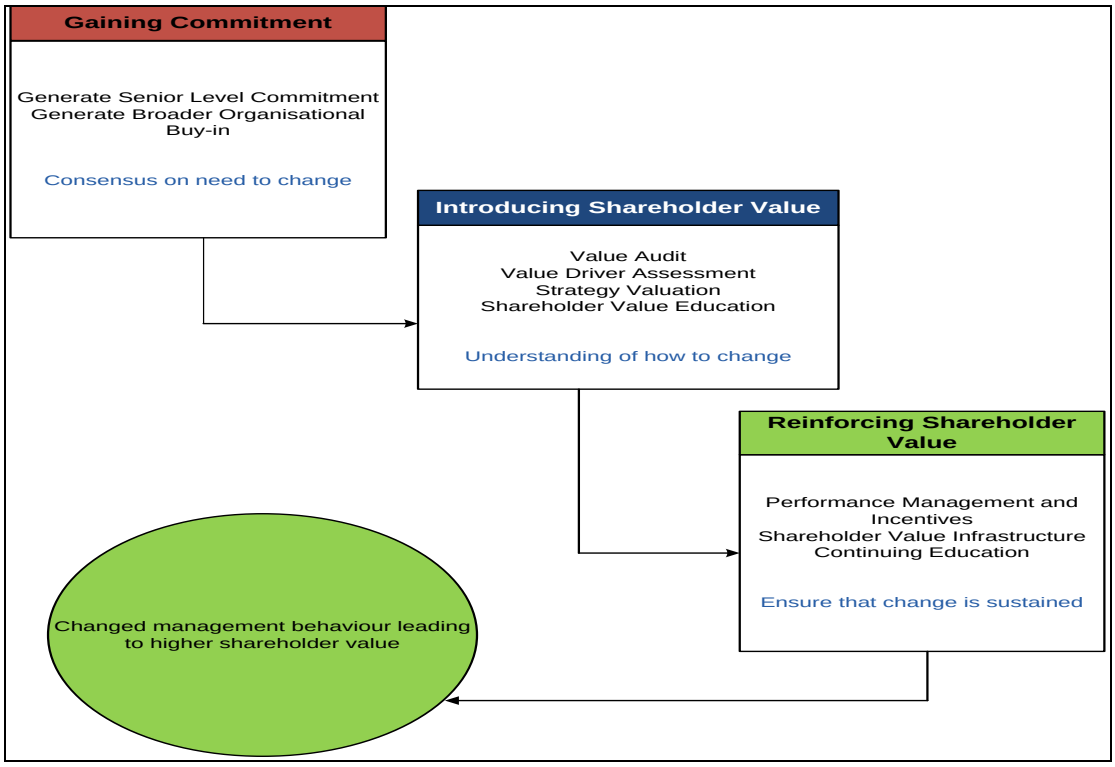

Figure 3.4: Elements of VBM Implementation (Martin & Petty, 2000:6)

It is important to note that motivating employees to create corporate value involves changing their behaviour, which is part of the process for

organisational change. To make it happen, compensation systems that affect human behaviour play an important role in motivating employees to create value for organisations (Sakunasingha, 2006:50).

Value drivers are identified and applied to derive a set of strong shared beliefs about what creates success in each business unit and across all levels. Managerial performance, as well as other employees' performance must be measured and rewarded using objectives that can be directly linked to creating shareholder value.

The implementation of VBM requires regular reporting on business activities in all areas of the company. Regular communication about targets, strategy and actions between corporate centre, business units, operating units, operating sub-units and subsidiaries must take place.

The proponents of VBM are not disillusioned about the difficulty to succeed and the effort it will take within the organisation to make a success of such an implementation. The factors that should be present to ensure a greater chance of success can be grouped into the following (Starovic *et al*., 2004:19; Haspeslagh *et al*, 2001:8):

- Commitment to shareholder value creation from top management and the organisation at large;
- Linking incentive compensation to value creation;
- Training, education and communication;
- Customised value based management framework; and
- Making value based management a way of life.

These factors are discussed as adopted from Jordaan (2005:74) as follows:

3.3.1. Commitment to shareholder value creation from top management

The commitment to devote substantial organisational resources should be preceded by a confident understanding of shareholder value implementation objective and expected outcomes (Rappaport, 1998:164). The author further stated that a successful implementation means that management and the

remainder of the organisation have embraced the following shareholder value principles:

- Value is driven by long-term, risk-adjusted cash flow performance, not short-term earnings.
- Not all growth is value-creating.
- “Value-creating projects” embedded in value-destroying strategies are poor investments.

The CEO’s commitment is in most cases the single most important factor is successfully implementing shareholder value throughout the company. This view is concurred by the Institute of Management Accountants (1997:20) which states that before VBM is introduced to the rest of the organisation, senior managers, including the CEO and the board of directors, must understand, accept, and be prepared to encourage the technical, behavioural, and administrative changes that VBM requires.

For commitment at the highest level to be obtained, senior management and the board of directors should feel confident that the following key benefits will pertain to their organisation (Institute of Management Accountants, 1997:20):

- a VBM framework will be able to create clear accountable linkages between strategies, investments, operations, and stakeholder and shareholder values in the firm;
- incentive compensation can be tied to value creation rather than accounting results or budget negotiations;
- a VBM framework will permit value-based performance comparisons to be made between internal business units and departments; and
- superior VBM performance will be demonstrably linked to maximising shareholder wealth.

It can, therefore, be concluded that an organisation will only gain the maximum value from their VBM implementation if VBM is instilled as the way of life within the organisation, requiring the buy-in of both top management

and the organisation at large. The organisation must therefore embrace VBM as a management framework.

3.3.2. Linking incentive compensation to value creation

Compensation is a very emotional subject for executives, and it is a personal subject, sometimes inspiring competition, greed, or even wrongdoing (Leblanc, 2012:43). Employees must feel internally committed to the VBM program and be willing to take personal responsibility for making VBM happen, and there must be an incentive-compensation that rewards such behaviour (IMA, 1997:23).

This is also a view by Harris (as cited by Jordaan, 2005: 75) who states that compensation is a critical success factor within a VBM program. Management and employees must be rewarded for the good results achieved through their decisions and actions. The main objective of this is to compensate employees for acting like shareholders, thereby overcoming the agency problem. The company needs to align its strategic goals to value creation indicators, set proper targets, identify plan and actions to achieve value targets, monitor and finally reward the value creation.

According to Harris (2005:5) the following are the key principles to ensure effective compensation for value creation:

- VMB incentives should reward long-term sustainable value creation;
- Managers should not just be rewarded for their negotiation skills during budget times, or penalised for stretched targets, but should be measured on what shareholders expect of them;
- The rewards for ownership should be unlimited; and
- VBM incentives should include the downside risk, but also the upside opportunity – it is critical to penalise when value is destroyed, and to reward when value is created, otherwise there will be no ownership mentality.

3.3.3. Training, Education and Communication

For employees to be able to act like managers and to make decisions that will create value, they need to understand how their decisions and actions will impact the value creation process of the company. If employees are compensated based on the value they create, it is important that they understand the value creation process (Jordaan, 2005:78).

According to Knight (1998:266) any change within the organisation requires communication and sometimes training and communication. It is in this context that it can be said that VBM is no exception. The success of the VBM implementation depends on the quality and effectiveness of education, communication and training. Knight further believes that organisations need to commit time and resources in the development and conducting of training and education.

To be effective, training and education programs need to be customised for various roles of the organisation; they should not be treated as a once off exercise, but must be ongoing (Jordaan, 2005:78). A successful communication plan includes the following R's (Knight, 1998:269):

- Repetition – once-off messages are ineffective and to be successful the message needs to be delivered repeatedly.
- Reinforcement – there must be a periodic reinforcement from management of the importance and the buy-in into VBM. This will continue to build the usage of VBM within the daily decision-making process and also reinforce the focus on value creation.
- Reception – the success of the VBM program depends on how well it is received by employees. Without the necessary training, education and communication, employees will not understand VBM.
- Redundancy – the concept of value must be implemented in as many activities of the organisation as possible. This will increase the amount of time that employees will be exposed to VBM within their daily activities.

3.3.4. Customised Value-Based Management

Just like many programs, the implementation and application of the VBM program will not be the same for different organisations. VBM works well in areas conducive for it. It does not benefit all firms equally but ones which stand conducive for it (Khanka, 2012:130). It is, therefore, important that the VBM framework needs to be developed to take cognisance of the specific characteristics of the organisation.

According to Martin and Petty (2000:215) most of the successful VBM organisations learned from consultancies, but then adapted their VBM program to meet the needs of their specific organisation. VBM adopters review the VBM tools of different adopters and customise their own application (Khanka, 2012:130). Based on their survey of VBM practices across companies, Martin and Petty (2000:216) reported: "*Finally, we found that many managers do not accept what the vendors say at face value. They learn from the consultants but then adapt the methods to fit their own situation. In fact, in most cases, firms develop their systems in-house rather than hiring a consulting firm".*

3.3.5. Making VBM a way of life

According to Leepsa et al. (2008:4) companies must integrate VBM into their culture. VBM cannot be thought as just an initiative but rather as a way of life. The company must turn its efforts to ensure that each employee understands their role in creating value in the organisation. This begins at the top of the organisation and needs to be cascaded down the entire organisation so each individual understands the big question, "*how does our company create value?"* – And the even more relevant question, *"how does my role and the daily decisions that I make impact value?"*

To reach this level, the organisation will need to devote a significant amount of resources to provide the necessary learning, tools and feedback required so all individuals can understand their role in value creation.

3.4. VBM Application in a Petrochemical Company

3.4.1. Company background

Sasol started its first plant in 1955 in Sasolburg (a whole town was created for this company), benefiting from cheap land, labour and government incentives. The township called Zamdela was created to house workers drawn to the growing industrial area. The oil crisis in the 1970's led to the company's big expansion project in Secunda (Dubey, n.d).

Sasol Limited, the holding company of the group, is incorporated and domiciled in the Republic of South Africa and was listed in the Johannesburg Stock Exchange (JSE) on 30 October 1979 and in the New York Stock Exchange (NYSE) on 9 April 2003.

Sasol is a global company with operations across 30 countries, employing some 34 000 people. As well as Sasol's coal to liquid operations, the company has moved into gas-to-liquids and heavy chemicals. It operates a conventional refinery, owned in partnership with Total, at its original home in Sasolburg, and has retail outlets, selling liquid fuels. In 2012 the company reported a 23% increase in operating profits, 24% increase in cash generated by operations, and 35% increase in total dividends paid (Sasol, 2012).

Sasol mines coal in South Africa and through Sasol Synfuels, this coal, along with gas produced in Mozambique, is converted into fuels and chemical feedstock using proprietary Fischer-Tropsch technology. Sasol also produces condensate in Mozambique, oil in Gabon and has chemical manufacturing and marketing operations in South Africa, Europe, Asia, the Middle East and the Americas (Sasol, 2012).

Sasol's larger chemical portfolios include monomers, polymers, solvents, olefins, surfactants, surfactants intermediates, co-monomers, waxes, phenolics and nitrogenous products. It produces crude oil offshore Gabon and intends to increase its oil and gas production in selected regions around the world.

3.4.2. Key Performance Indicators (KPIs)

The company has defined a number of targets to measure performance. The company performance is continually measured against these targets and, when necessary, the targets are revised to take into account changes in the group's strategy outlook. These KPI's are aligned to the group's key objectives and are employed across the group; they encompass both financial and non-financial indicators as well as quantitative and qualitative factors.

While these KPI's are helpful in measuring the group's performance, it is recognised that they are not exhaustive and other performance measures are also used to monitor performance (Sasol, 2012).

Table 3-1 indicates the company's financial key performance indicators:

Table 3-1: Financial Key Performance Indicators (Sasol, 2012:29)

Financial KPIs	Description	Target	Actual 2012	Actual 2011	Actual 2010
Earnings Growth	US Dollar earnings of 10% per annum on a 3 year moving average basis.	10%	24%	10%	26%
ROIC	Return to exceed required rates of return as determined by WACC. The target is 1.3 times WACC	16.8%	20.1%	19.4%	18.0%
Gearing	Gearing is defined as net borrowings to total shareholder's equity.	20% to 40%	2.7%	1.4%	1.0%

The company's earnings growth since 2010 has exceeded the target every year, but the company aims for improved consistency and more stable and predictable performance.

In general, approximately 80% of all new capital investment projects are required to provide a target return of at least 1.3 times WACC, which is 12.95% in South African rand terms and 8% in Europe and the United States in US dollar terms (Sasol, 2012).

The company aims to maintain a gearing rate (debt to equity) within the range of 20% to 40%. The gearing level takes cognisance of the company's substantial capital investments and susceptibility to external market factors such as crude oil prices, commodity chemical prices and exchange rates.

The company's gearing level in 2012 increased slightly compared with 2011. However, it remains low as a result of healthy cash flow generation, which reduces debt after funding capital expenditure.

Table 3-2 shows the company's non-financial key performance indicators.

Table 3-2: Non-Financial Key Performance Indicators (Sasol, 2012:30)

Non-Financial KPIs	Description	Target	Actual 2012	Actual 2011	Actual 2010
Broad-Based Black Economic Empowerment (BBBEE)	To achieve level 4 enterprise status by 2013	Level 4	Level 4	Level 4	Level 4
Volatile Organic Compounds (VOCs)	To achieve at least an 80% reduction in emissions to 9.4 kilotons (kt)	9.4kt	47kt	46kt	47kt
Safety	To achieve a year-on-year reduction in recordable case rate (RCR) per 200 000 hours worked so that the company reaches 0.35 (including injuries and illnesses for employees, hired labour and service providers)	0.35	0.39	0.42	0.51
Greenhouse gas emission intensity	To reduce emission intensity by 15% in all operations, measured as tons of carbon dioxide (CO_2)	2.69	3.02	2.99	3.05

One of the company's top priority focus areas is to further reduce the release of volatile organic compound (VOC) emissions into the atmosphere. The aim

is to achieve at least 80% reduction in emissions of defined VOCs (benzene, toluene, xylene, ethylbenzene, 1.3-butadiene and acetaldehyde).

Meeting this target is dependent on all VOC reduction projects being successfully executed, resulting in an anticipated absolute reduction in VOC emissions of approximately 30 000 tons annually from 2015 onwards.

The company's total environmental expenditure for 2012 was R1.4 billion compared to R1.5 billion in 2011 (Sasol, 2012).

The recordable case rate (RCR) for employees and service providers, including injuries and illnesses, improved to a record low of 0.39 at 30 June 2012 from 0.42 at 30 June 2011.

3.4.3. Value Added Statement

Value added is defined as the value created by the activities of a business and its employees and, in the case of Sasol, is determined as turnover less cost of purchased material and services.

The value added statement reports on the calculation of value added and its application among the stakeholders in the group. This statement shows the total wealth created and how it was distributed, taking into account the amounts retained and re-invested in the group for the replacement of assets and development of operations.

Value added indicates the wealth that Sasol creates through its activities for its main stakeholder groups, being shareholders, employees, financial institutions (providers of debt capital) and government. It also shows how much capital the company re-invested in the business to ensure sustainable growth.

Table 3-3 indicates the company's value added statement from 2008 to the financial year ended 30 June 2012.

Table 3-3: Value added statement (Sasol, 2012:50)

	2012 Rm	2011 Rm	2010 Rm	2009 Rm	2008 Rm
Turnover	169 466	142 436	122 256	137 836	129 943
Less: Purchased Material and Services	(103 116)	(86 330)	(74 061)	(89 393)	(76 472)
Value Added	66 330	56 106	48 195	48 443	53 471
Finance Income	1 275	1 283	1 549	2 060	989
Wealth Created	67 605	57 389	49 744	50 503	54 460

The value added statement in table 3-3 indicates that the company showed a positive economic value added for the past 5 years, meaning the company created value. The statement also shows that the company created wealth for its stakeholders.

Table 3-4: Wealth created for main stakeholder groups (Sasol, 2012:50)

	%	**2012 Rm**	**%**	**2011 Rm**	**%**	**2010 Rm**	**%**	**2009 Rm**	**%**	**2008 Rm**
Employees	29.5	19 921	32.7	18 756	35.3	17 546	34.7	17 532	26.5	14 443
Providers of Equity Capital	15.2	10 274	12.3	7 040	11.6	5 806	14.4	7 260	12.6	6 877
Providers of debt	2.3	1 565	2.4	1 392	3.6	1 799	4.3	2 191	4.5	2 472
Government – direct taxes	15.2	1 0267	12.5	7 198	11.3	5 602	18.7	9 413	17.5	9 521
Re-Invested in the Group	37.8	25 578	40.1	23 003	38.2	18 991	27.9	14 107	38.9	21 192
Wealth Distribution	100	67 605	100	57 389	100	49 744	100	50 403	100	54 460
Employee Statistics: *Number of employees*	34 916		33 708		33 054		33 164		33 928	

it is interesting to note that over the 5 year period from 2008 to 2012 the most wealth (an average of 36.6%) was re-invested in the group, an average of 31.7% was distributed to employees, 17.6% went to government through

direct taxes, 13.2% was distributed to shareholders (providers of equity capital, and an average of only 3.4% was distributed to providers of debt. Table 3-5 indicates the turnover, value added and wealth created per employee at year end for the 5 year period 2008 to 2012.

Table 3-5: Turnover, value added and wealth created per employee (Sasol, 2012:50)

	2012 Rand	2011 Rand	2010 Rand	2009 Rand	2008 Rand
Turnover per employee at year end	4 582 961	4 225 584	3 698 675	4 156 193	3 829 963
Value added per employee at year end	1 899 702	1 664 471	1 458 069	1 460 710	1 605 164
Wealth created per employee at year end	1 936 218	1 702 534	1 504 931	1 522 826	1 605 164

3.5. Summary

Chapter 3 provided practical guidelines for the implementation of a VBM program. The value creation process and the key success factors for VBM were discussed. The key lessons learnt in this chapter, for a successful VBM program, are that (1) top management support and involvement is essential, (2) a good incentive plan is necessary, (3) employees should be properly educated and trained, (4) VBM works well in areas conducive for it, and (5) there is a need for a customised VBM system.

The application of VBM in a petrochemical company was discussed, where the case study of the company, Sasol, was presented together with its financial and non-financial key performance indicators (KPIs) as adopted from the company's 2012 integrated annual report. The company's value added statement indicates that the company has been creating positive value for the past five years from 2008 to 2012 and the wealth created by the company and how it was distributed was indicated in Chapter 3.

CHAPTER 4: RESEARCH - A PETROCHEMICAL COMPANY

4.1. Introduction

To become a value creating organisation it is imperative that all employees in an organisation understand and are committed to create value through their decisions and actions on daily basis. The various proponents of VBM proclaim that VBM will assist the organisation to achieve the following goals (Starovic *et al.* 2004:22):

- It creates goal congruence internally through the alignment and externally through the single objective of creating shareholder wealth.
- It overcomes the agency theory through the alignment of the actions and decisions of employees and the strategy of the organisation.
- Employees are dedicated to the long – term sustainability of the organisation in creating shareholder wealth.
- It assists in focusing management on the core value drivers.
- The metrics are powerful tools to use for measurement and comparatives for benchmarking.
- It assists in allocating resources to what matters most – value creating activities.

The purpose of the study was to evaluate the level of understanding of VBM and its concepts, how VBM is embraced at all levels in a petrochemical company and the impact it has on the performance of the business. The results from the research conducted within a petrochemical company established the level of knowledge, understanding and use of VBM within a petrochemical company. The second purpose of the research – to discuss and introduce to the reader some key concepts of VBM and how they can be used to strengthen strategic and operational decision making and improve shareholder value in a petrochemical company - was addressed in chapter 2 and chapter 3.

To determine if the company created value, the financial data of the company (Value added statement) is presented and analysed in chapter 3.

4.2. Research Methodology

There are various methodologies available. According to Wisker (quoted by Jordaan, 2005:127) the research conducted dictates which methodology to be used and the methodology chosen must strengthen the work and methods used to collect data. The author further states that quantitative research approach is normally used when the researcher measures variables and verifies existing theories or questions those theories, whilst qualitative research answers the understanding of meanings, beliefs and experience.

According to Trochim (2004) research design can be viewed as the structure of the research that holds the elements in the research project together. The author further states that there are three broad types of research design:

- Randomised or true experimental design is the strongest design and is used especially when cause – and – effect relationships are tested within the research, for example, the experimental research.
- Quasi – experimental design is typically used when comparative research is done on two groups, who are perceived but not proven to be similar. In this design it is assumed that there is an underlying knowledge of the research problem. In quasi – experimental research averaging is made possible through the use of a representative sample of the population.
- Non-experimental design or exploratory research is used when little or no information is available regarding the research problem.

The differences between the three designs are based on two questions. Figure 4.1 depicts this.

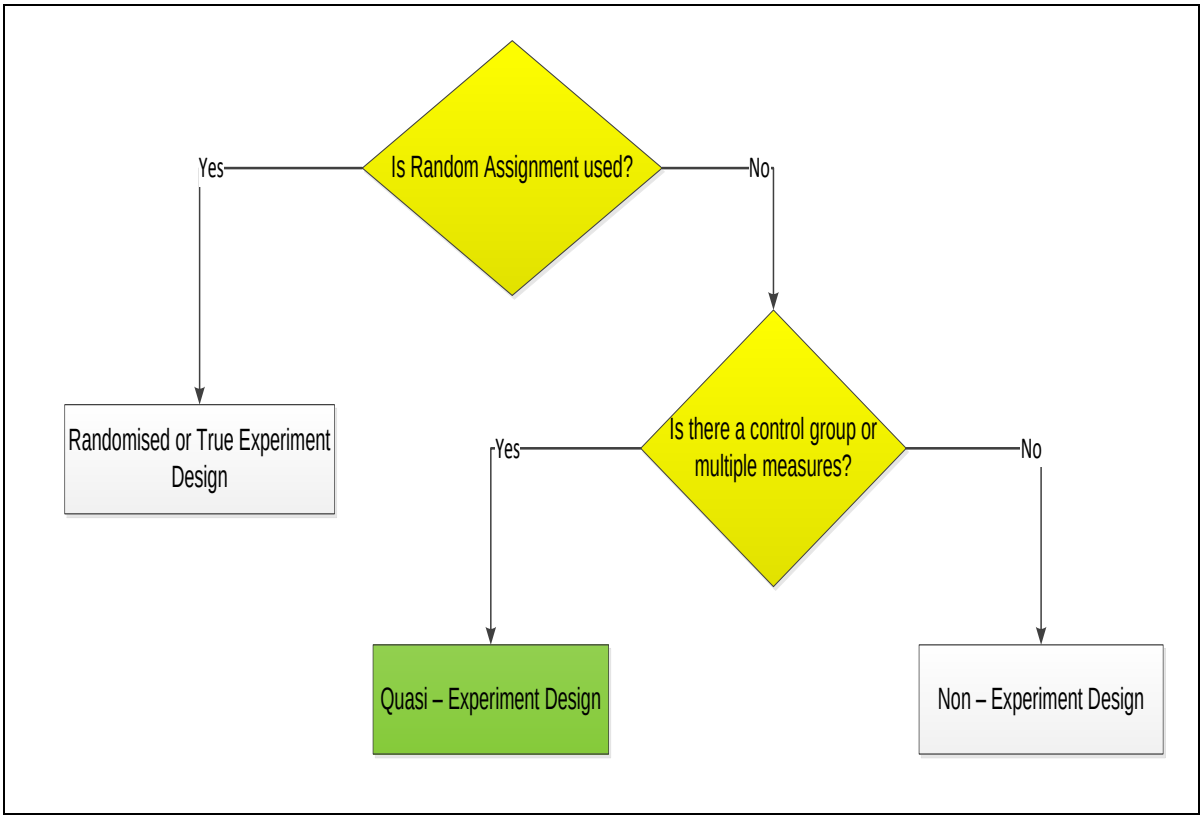

Figure 4.1: Research Design (Trochim, 2004)

The type of research for this questionnaire is the quasi-experiment design. A quantitative research approach was followed in order to evaluate the level of knowledge and understanding of VBM and its metrics and how they are used in all levels in a petrochemical company.

The quantitative research was conducted to collect primary data through the use of standardised questionnaires that were distributed to respondents at Sasol, Sasolburg. The researcher made use of the North – West University's Statistical Consultation Services to interpret the results. For each question, graphs were drawn to indicate the distribution of the answers received.

4.2.1. Study population

The target population comprised of all managers, from junior management to senior management in all departments of the petrochemical company. A total of 120 individuals were identified.

The questionnaire was sent out to 120 individuals within Sasol and a total of 69 questionnaires were received back and were used as the study population.

4.2.2. Data collection and recording

The empirical research was conducted through the use of a questionnaire (attached as Annexure A) that was sent to various respondents in a hardcopy format by hand delivery and electronically by email. The responses were subjected to statistical analyses to examine the system as it appeared and was gathered from the literature review in chapter two and chapter three, following the research objectives in chapter one. The information obtained was processed by the Statistical Consultation Services of the North-West University (Potchefstroom Campus).

The questionnaire was divided into five sections: Section A: demographic information; Section B: knowledge and understanding of value-based management; Section C: VBM embraced and used, the implementation of VBM; Section D: familiarity and usage of VBM metrics; and Section E: the impact of VBM on performance of the organisation.

4.3. Interpretation of Results

The data collected from the research was tested for reliability using Cronbach's Alpha Coefficient before it was further processed.

The other part of the analysis (section D and section E) was testing the understanding of the value based management metrics and impact of VBM on performance of the company, and in both these regards, only frequencies were reported.

Because no random sampling was done, the interpretation of the comparison between group means was done according to Cohen's effect size guidelines (Field, 2005:32; Ellis & Steyn, 2003:52; and Cohen 1988:155). Effect size indicates practical significance, thus no inferential statistics were interpreted, although *p*-values are reported as if random sampling is was assumed.

The following guidelines as adopted in a study conducted by Cohen (1988:155) were used for d-values regarding differences between means small effect d=|0.2|; medium effect (noticeable with the naked eye) d=|0.5|; and large effect (practical significant) d=|0.8|.

4.3.1. Construct Validity: Exploratory Factor Analyses

Exploratory factor analyses were done as a data reduction method to define the underlying constructs of the value based management program. The validity of a test concerns what the test measures and how well it does so (Anastasi & Urbina, 1997:113).

Kaiser's measure of sample adequacy (MSA) was used to determine whether a factor analysis may be appropriate because it gives an indication of the inter correlations among variables.

To determine whether a factor analysis may be appropriate, Kaiser's measure of sample adequacy (MSA), which gives an indication of the inter correlations among variables, should be computed (Tabachnick & Fidell, 2001). This index ranges from 0 to 1, reaching 1 when each variable is perfectly predicted by the other variables.

The measure can be interpreted with the following guidelines (Hair, et al., 1998):

≥	0.80:	meritorious
	0.70:	middling
	0.60:	mediocre
	0 50:	miserable
<	0.50:	unacceptable

4.3.2. Reliability of Constructs: Cronbach's Alpha Coefficient

In order to calculate the internal consistency between the items of the measuring instrument and therefore, the reliability of the construct (factors) retained in the exploratory factor analyses, it is necessary to calculate the Cronbach's Alpha Coefficient (Reynaldo & Santos, 1999:3).

According to SAS Institute (2005) the Cronbach's Alpha coefficient is based on the average correlation of variables within the test. The greater the Cronbach's Alpha coefficient, the more reliable the scale is.

According to Nunnally and Bernstein (1994:295) the overall score for each participant can be obtained by summing interrelated items. The reliability of this type of scale can be estimated through Cronbach's Alpha coefficient by determining the internal consistency of the test or through the average correlation of items within the test (in other words, how closely related a set of items are as a group).

Field (2005:675) explains that for cognitive tests such as intelligence tests, a Cronbach Alpha coefficient of 0.8 is generally appropriate and for ability tests, the cut-off point of 0.7 is more suitable. This is agreed by Nunnally *et al*. (1994:265) who suggest the Cronbach's Alpha value above the customary cut-off value of 0.70 for internal consistency. Field (2005:675), however, indicates that a Cronbach Alpha value as low as 0.60 can be acceptable when attitudes are measured.

For the purpose of this study, and given that the nature of this study is attitude oriented, it was concluded that a Cronbach Alpha value of 0.6 would be acceptable.

The Cronbach's Alpha coefficients as presented in table 4.1 were determined through statistical analysis of the constructs measuring the overall understanding and usage of value based management in a petrochemical company.

Table 4-1: Results of Factor Analyses and Cronbach's Alpha Coefficient

Factor	Item (s)	MSA	Percentage of variation explained by factors	Cronbach's Alpha Values
Section B				
B1: VBM leads to employee performance	B-13; B-12; B-15; B-11	0.64	68.02%	0.79
B2: VBM leads to better decision making	B-3; B-2; B1			0.70
B3: Impact on company performance	B-4; B-8; B-17; B-11			0.65
B4: Knowledge of VBM	B-7; B-6; B-5			0.64
B5: Value drivers and financial performance	B-14; B-16; B17			0.71
B6: Effect of VBM on human capital	B-10; B-9; B-11; B-17			0.66
Section C				
C1: VBM and focus on stakeholders	CC-8; C-9; C-15; C-6; C-7; C-1	0.76	68.02%	0.85
C2: Top Management support	C-11; C-3; C-5; C-16			0.72
C3: Training, education and communication	C-13; C-22B; C-22A; C-10			0.73
C4: Employee empowerment and rewards	C-14; C-20; C-17; C-16; C-21; C-12			0.80
C5: VBM lead to productivity and company performance	C-18; C-2; C22A			0.73
C6: Top management support	C-4; C-10; C-1			0.68

It is interesting to note that all constructs yielded Cronbach Alpha coefficients above 0.6. Field (2005:668) stated that it is not necessary to ignore constructs if the Cronbach Alpha coefficient is smaller than 0.7 if attitudes rather than ability is measured. Because this was measuring the attitude towards value-based management, all the Cronbach values above 0.6 were regarded as reliable.

4.3.3. Section A: Demographic Information

Section A of the questionnaire measured the demographic information of the respondents within the company and it was divided into 4 parts:

- Part A1 – the position of respondents within the company;
- Part A2 – the department in which the respondent belongs;
- Part A3 – the highest education level of the respondents; and
- Part A4 – the number of years working experience within the petrochemical industry.

For the purpose of this study, on the demographics, it was decided that only the position within an organisation (A1) and the department of respondents (A2) will be used as independent variables and the analysis will discard the education level and the number of years working experience.

4.3.3.1. Position within the organisation

The questionnaire determines the position occupied by the respondents within the organisation. The aim of this was to determine if the different positions within the petrochemical company have different view and understanding of VBM and its principles. Middle management was merged into senior management because is falls in the manage managers or manage function category.

Table 4-2: Position within the company

Sequence	Position	Frequency	Percentage
1	Manage Managers	22	31.88%
2	Manage Others	14	20.29%
3	Manage Self (i.e. Project Manager)	33	47.83%

Of the 69 participants who completed the questionnaire, 31.9%% were senior managers - senior managers fall in the category of “manage managers and manage function” level; 20.3% were first line managers who fall in the category of “manage others”; and 47.8% of the respondents were project

managers, engineers, technologists, technicians, and consultants who fall in the “manage self” category.

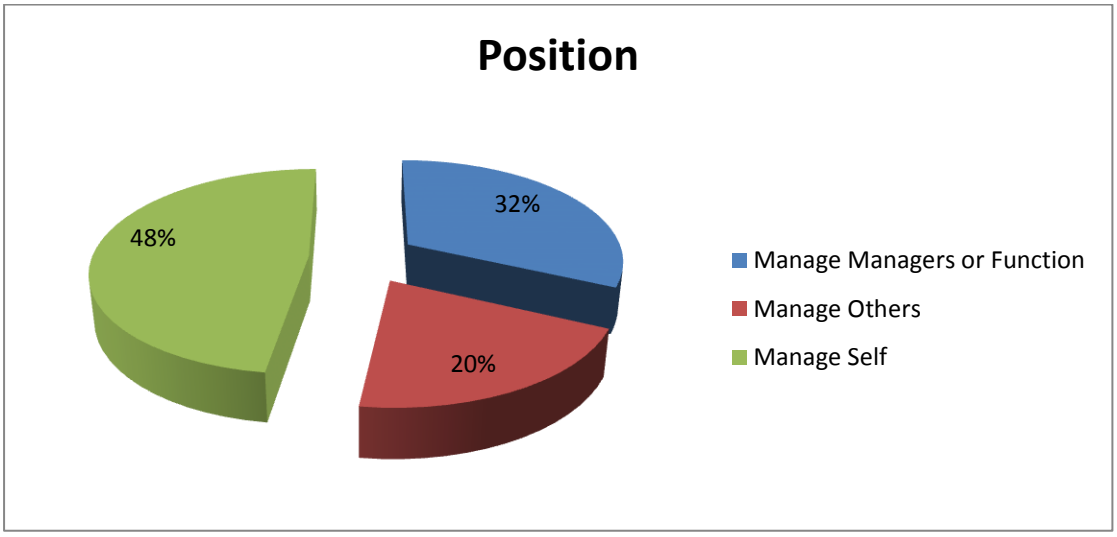

Figure 4.2: Position within the company

4.3.3.2. Department of responsibility

This question determines the department occupied by the respondents within the company. The aim was to determine of the different departments have different views on VBM.

Table 4-3: Departments of responsibility within the company

Sequence	Department	Frequency	Percentage
1	Corporate Affairs	8	11.76%
2	Operations	44	63.74%
3	Finance or Marketing	3	4.41%
4	Support Services (HR, IM, SCM)	10	14.71%
5	Other	4	5.88%

The questionnaire were distributed to all departments of a petrochemical company, namely corporate affairs, operations (which include production, engineering, and maintenance departments), finance, marketing, and support services (Human resource, information management, supply chain management).

For analysis purposes it was decided that all non - operations departments will be grouped into Support Services function, and Operations was left to be analysed independently. Figure 4.3 indicates this arrangement.

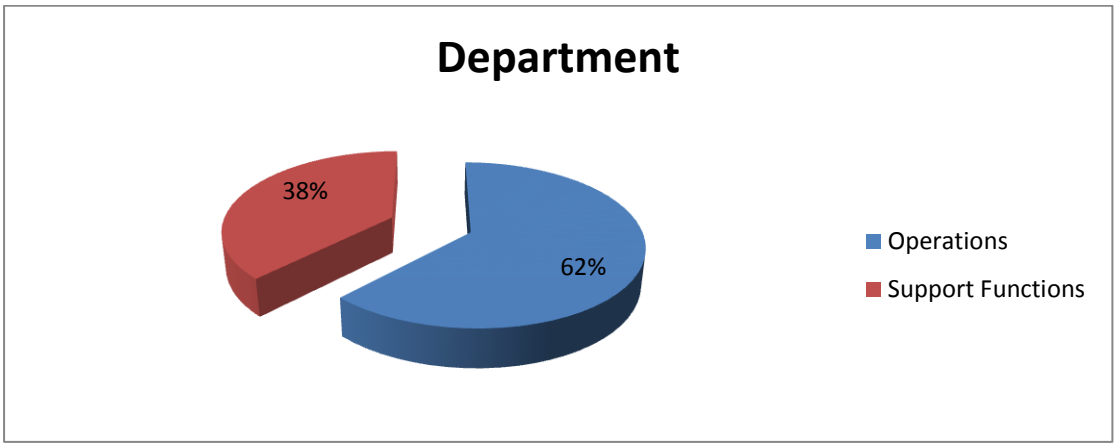

Figure 4.3: Departments within the petrochemical company

Figure 4.3 indicates that 62% of the respondents were from operations department; and 38% were from support function, which is made up of 15% from group services; 12% from corporate affairs; 4% from finance and marketing; and 6% from other departments.

4.3.3.3. Education level of respondents

Part A3 of the questionnaire asked respondents their highest level of education, the aim of this question was to determine if the is a correlation between the level of education and knowledge of VBM.

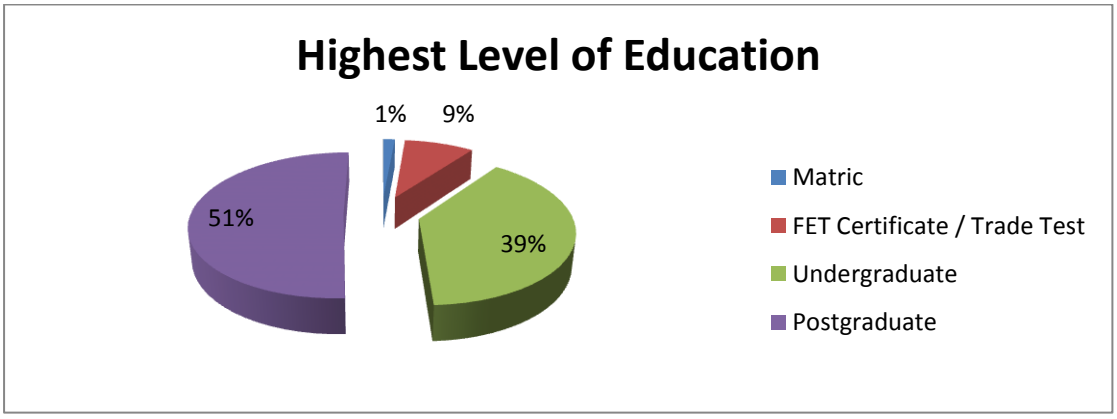

Figure 4.4: Highest education level of respondents

Figure 4.4 indicates that the majority of respondents had a tertiary qualification, with 51% having a postgraduate degree and 39% an undergraduate degree. 9% of the respondents had further education training or trade test and only 1% had only matric as the highest qualification.

4.3.3.4. Working experience in a petrochemical company

The intention of this question was to determine if there is a correlation between the number of years working experience and the understanding and application of VBM.

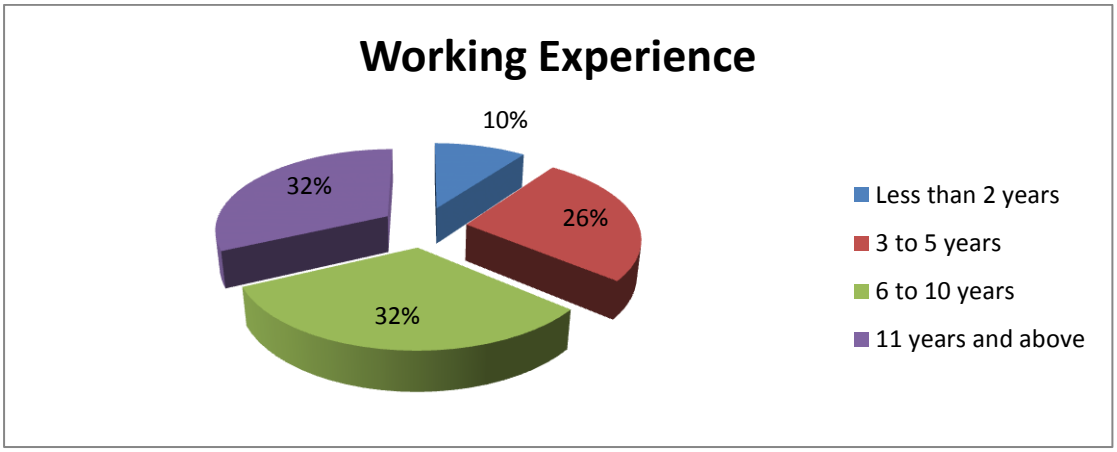

Figure 4.5: Number of years working experience

Figure 4.5 indicates that 32% of the respondents had more than 11 years working experience in the petrochemical industry, another 32% had between 6 to 10 years working experience, 26% had between 3 and 5 years working experience, and only 10% had less than 2 years working experience in the petrochemical company.

4.3.4. The effect of position on Knowledge and Application of VBM

In this section the tables are presented to summarise and outline the *p*-values and the d-values. These values are then tested for statistical and practical significant differences respectively for the demographic variables for the position occupied by the respondents and the departments of the respondents.

Table 4-4: The effect of respondent's position on the measured factors

Factors	Position	Mean	Std. Dev.	N	Tukey's Comparisons Significant at the 0.05 level***	d-value		
						1	2	3
Factor B1: VBM leads to employee performance	1-Manage Managers	3.05	0.45	22	None	-	0.4	0.09
	2-Manage Others	3.21	0.44	14		0.4	-	0.22
	3-Manage Self	3.09	0.52	32		0.09	0.22	
Factor B2: VBM leads to better decision making	1-Manage Managers	3.41	0.46	22	None		0.21	0.40
	2-Manage Others	3.31	0.48	14		0.21		0.18
	3-Manage Self	3.22	0.33	32		0.40	0.18	
Factor B3: Definition and understanding of VBM	1-Manage Managers	3.26	0.43	22	None		0.09	0.4
	2-Manage Others	3.21	0.53	14		0.09		0.31
	3-Manage Self	3.10	0.34	32		0.4	0.31	
Factor B4: Knowledge of VBM	1-Manage Managers	1.74	0.48	22	3 – 1		0.5^	0.7^
	2-Manage Others	2.00	0.55	14		0.5^		0.35
	3-Manage Self	2.27	0.78	33		0.7^	0.35	
Factor B5: Value drivers and financial performance	1-Manage Managers	3.30	0.46	22	None		0.02	0.17
	2-Manage Others	3.29	0.40	14		0.02		0.17
	3-Manage Self	3.22	0.36	32		0.17	0.17	
Factor C1: VBM and focus on stakeholders	1-Manage Managers	2.97	0.57	22	1 – 2 1 – 3		0.85Δ	0.8Δ
	2-Manage Others	2.49	0.45	14		0.85Δ		0.05
	3-Manage Self	2.52	0.62	33		0.8Δ	0.05	

Factors	Position	Mean	Std. Dev.	N	Tukey's Comparisons Significant at the 0.05 level***	d-value		
						1	2	3
Factor C2: Top management support	1-Manage Managers	3.51	0.47	22	1 – 3		0.40	0.82∆
	2-Manage Others	3.31	0.49	14		0.40		0.39
	3-Manage Self	3.12	0.45	33		0.82∆	0.39	
Factor C3: Training, education and communication	1-Manage Managers	2.95	0.41	22	None		0.23	0.53^
	2-Manage Others	2.84	0.48	14		0.23		0.34
	3-Manage Self	2.64	0.58	33		0.53^	0.34	
Factor C4: Employee empowerment and rewards	1-Manage Managers	3.16	0.34	22	None		0.20	0.41
	2-Manage Others	3.09	0.31	14		0.20		0.25
	3-Manage Self	2.99	0.41	33		0.41	0.25	

(a): Tukey's comparison significance on a 0.05 level
1-Manage managers: Middle and top management
2-Manage others: First line managers
3-Manage self: Consultants, engineers, technologists, technicians and project managers
***: Statistically significant on a 0.05 level
^: Medium effect size
∆: Practical significant

Factor B1: VBM leads to employee performance

Based on data presented in table 4-4, there was no difference in practice between all groups. Managers of managers agreed more ($\tilde{x}$ = 3.05) followed by respondents in the "manage self" category with a mean ($\tilde{x}$ = 3.07); and managers of managers agreed least with a mean ($\tilde{x}$ = 3.21). It is, however, important to note that all employees agreed to some extent that VBM leads to employee performance because all the means are above 3.

Factor B2: VBM leads to better decision making

No difference in practice is seen for all groups for the construct (factor B2) which states that VBM leads to better decision making. Managers of managers seemed to agree more ($\tilde{x}$ = 3.41) that VBM leads to better decision making in a company, compared to managers of others ($\tilde{x}$ = 3.31) and managers of self ($\tilde{x}$ = 3.22).

Factor B3: Impact on company performance

In this section the following statements were made: VBM is a tool for measurement and benchmarking competitive performance; VBM is defined as measuring value; VBM makes employees act like shareholders and owners of the company; and VBM has a positive impact on financial performance. Managers of managers agreed more with the statements above ($\tilde{x}$ = 3.26), followed by managers of others ($\tilde{x}$ = 3.21) and then managers of others ($\tilde{x}$ = 3.10).

Factor B4: Knowledge of VBM

In this section reverse questions were asked to test understanding and perceptions about VBM. There was a medium effect for groups 1 and 3, and group 1 and 2. Managers of managers demonstrated understanding and knowledge of VBM more ($\tilde{x}$ = 1.74) followed by managers of others ($\tilde{x}$ = 2.00) and then managers of self ($\tilde{x}$ = 2.27).

Factor C1: VBM and focus on stakeholders

Only managers of managers and managers of self showed a medium effect for the construct (Factor C1) which states that the company focuses on stakeholders to deliver value. A practical significant difference was seen between group 1 and 2, managers of managers and managers of self. There was a general disagreement to some extent with this construct amongst all groups because the means are below 3. Managers of managers, however,

seemed to disagree less with this construct ($\tilde{x}$ = 2.97) as compared to managers of self ($\tilde{x}$ = 2.52) and managers of others ($\tilde{x}$ = 2.49).

Factor C2: Top management support

In this construct respondents were asked if top management supports the value-based management initiative in the company. Table 4-4 indicates a practical significant difference between group 1 and 3, managers of managers and managers of self. Managers of managers agreed more ($\tilde{x}$ = 3.51) as compared to managers of others ($\tilde{x}$ = 3.31) and managers of self ($\tilde{x}$ = 3.12).

Factor C3: Training, education and communication

This construct tested if the company provided training and education on VBM. Only group 1 and 3, managers of managers and managers of self indicated a medium effect. Though there was a general disagreement that the company provided training and education on VBM, because all the means are below 3, managers of managers seemed to agree more that there was training, education and training provided ($\tilde{x}$ = 2.95), followed by managers of others ($\tilde{x}$ = 2.84), and then managers of self ($\tilde{x}$ = 2.64).

Factor C4: Employee empowerment and rewards

No practical difference was seen in all groups for this construct. Managers of managers agreed more ($\tilde{x}$ = 3.16) that employees are empowered and rewarded for adding or creating value in the company compared to managers of others ($\tilde{x}$ = 3.09) and managers of self ($\tilde{x}$ = 2.99).

4.3.5. The Effect of Departments on Application of VBM

In this section the application of VBM is tested against the departments within the petrochemical company. The departments are divided between the primary functions of the value chain, which is “operations”, and the support functions, called “support services” which includes all the departments of the company which are not directly involved in the production line.

Table 4-5: The effect of respondent's department on the measured constructs

Factors	Department	Mean	Std. Dev.	N	*p*-values yielded by t-test for independent groups	d-value	
						1	2
Factor B1: VBM leads to employee performance	1-Support Services	3.38	0.46	21	0.89		0.03
	2-Operations	3.27	0.39	42		0.03	
Factor B2: VBM leads to better decision making	1-Support Services	3.38	0.46	21	0.33		0.25
	2-Operations	3.26	0.39	42		0.25	
Factor B3: Definition and understanding of VBM	1-Support Services	3.24	0.46	21	0.43		0.21
	2-Operations	3.14	0.40	42		0.21	
Factor B4: Knowledge of VBM	1-Support Services	1.75	0.43	21	0.07		0.55
	2-Operations	2.17	0.78	43		0.55	
Factor B5: Value drivers and financial performance	1-Support Services	3.28	0.44	21	0.79		0.07
	2-Operations	3.26	0.40	42		0.07	
Factor C1: VBM and focus on stakeholders	1- Support Services	2.92	0.51	21	0.02		0.6^
	2- Operations	2.56	0.61	43		0.6^	
Factor C2: Top management support	1-Support Function	3.57	0.40	21	0.002		0.80∆
	2-Operations	3.18	0.48	43		0.80∆	
Factor C3: Training, education and communication	1-Support Function	2.92	0.35	21	0.12		0.32
	2-Operations	2.74	0.57	43		0.32	
Factor C4: Employee empowerment and rewards	1-Support Function	3.20	0.30	21	0.06		0.44
	2-Operations	3.02	0.39	43		0.44	

(a): *p*-value yielded by t-test for independent groups in case of random sampling
1-Support functions: HR, finance, marketing, corporate, SHE, other support services
2-Operations: Production, maintenance, engineering etc.
^: Medium effect size
∆: Practical significant

Factor B1: VBM leads to employee performance

Table 4-5 indicates that this construct yielded a p-value of 0.89. Respondents from the support functions seemed to agree more ($\tilde{x}$ = 3.38) compared to respondents from the operations department ($\tilde{x}$ = 3.27) with the construct that say employees lead to employee performance. It is important to note that both groups agreed to some extent with this construct because both the means were above 3.

Factor B2: VBM leads to better decision making

Employees in the support functions seemed to agree more ($\tilde{x}$ = 3.38) with the construct that says VBM leads to better decision making compared to employees from the operations department ($\tilde{x}$ = 3.26).

Factor B3: Impact of company performance

In this section the following statements were made: VBM is a tool for measurement and benchmarking competitive performance; VBM is defined as measuring value; VBM makes employees act like shareholders and owners of the company; and VBM has a positive impact on financial performance. Respondents from the support functions seemed to agree more ($\tilde{x}$ = 3.24) with the statements above compared to respondents from operations department ($\tilde{x}$ = 3.14)

Factor B4: Knowledge of VBM

In this section reverse questions were asked to test understanding and perceptions about VBM. Employees from the support functions seemed to demonstrate more knowledge of VBM compared to employees from the operations department.

Factor B5: Value drivers and financial performance

Respondents from the support functions seemed to agree more ($\tilde{x}$ = 3.28) with the construct that states that VBM value drivers lead to financial

performance compared to respondents in the operations department ($\tilde{x}$ = 3.26)

Factor C1: Focus on stakeholders

From the results appearing in table 4-5, is can be seen that there was a medium effect shown by employees in the support functions and operations department. Respondents from the support functions department agreed more ($\tilde{x}$ = 2.92) that the company focuses on stakeholders when taking decisions compared to employees from the operations department ($\tilde{x}$ = 2.56).

Factor C2: Top management support

It can be seen that there was a practical significant difference shown by support functions and operations departments for the construct which states that top management supports the VBM programme in the petrochemical company. Employees from support functions tend to agree more that top management shows support for VBM, with mean ($\tilde{x}$ = 3.57) compared to employees from the operations department ($\tilde{x}$ = 3.18).

Factor C3: Training, education and communication

Employees from the support functions and operations department showed no practical difference for the construct which states that employees are trained, and received education and communication on value-based management. There was a general disagreement with regards to this construct, with employees from operations department disagreeing more ($\tilde{x}$ = 2.74) compared to employees in the support functions ($\tilde{x}$ = 2.92).

Factor C4: Employee empowerment and rewards

This construct states that employees are empowered and rewarded for adding and creating value. Employees in the support functions tend to agree more with this construct ($\tilde{x}$ = 3.20) compared to employees in the operations department ($\tilde{x}$ = 3.02).

4.3.6. Section D: Descriptive statistics of VBM tools

This section tested the familiarity of VBM metrics by respondents, tested if the respondents have used the metrics before and for what purpose. In this section only frequencies were reported. This research did not observe how frequent was the selection and use of such tools during a particular year, since this may depend on other factors such as the number of projects that may vary per years. However, this research observed that if VBM metrics were selected and used, to what extent was the metrics used to assess the company's performance.

Table 4-6: Familiarity and usage of VBM metrics

VBM Metrics	EVA		CFROI		ROIC		DCF		NPV		WACC	
	N	%	N	%	N	%	N	%	N	%	N	%
I am familiar with	$^{47}/_{69}$	**68**	$^{49}/_{69}$	**71**	$^{53}/_{69}$	**77**	$^{35}/_{68}$	**52**	$^{58}/_{69}$	**84**	$^{36}/_{68}$	**53**
I have used the method before	$^{37}/_{66}$	**56**	$^{39}/_{65}$	**60**	$^{45}/_{64}$	**70**	$^{25}/_{63}$	**40**	$^{49}/_{64}$	**77**	$^{26}/_{64}$	**41**
We use it for long term planning	$^{29}/_{61}$	**48**	$^{27}/_{60}$	**45**	$^{35}/_{59}$	**59**	$^{19}/_{57}$	**33**	$^{32}/_{59}$	**54**	$^{20}/_{59}$	**34**
We use it for capital budgeting	$^{33}/_{64}$	**52**	$^{36}/_{65}$	**55**	$^{41}/_{62}$	**66**	$^{18}/_{59}$	**31**	$^{34}/_{60}$	**57**	$^{23}/_{61}$	**38**
We use it for investment decisions	$^{34}/_{64}$	**53**	$^{36}/_{64}$	**56**	$^{41}/_{62}$	**66**	$^{23}/_{59}$	**39**	$^{38}/_{59}$	**64**	$^{25}/_{65}$	**40**
We use it for performance measurement	$^{32}/_{64}$	**50**	$^{21}/_{65}$	**32**	$^{22}/_{58}$	**38**	$^{13}/_{58}$	**22**	$^{23}/_{63}$	**37**	$^{11}/_{62}$	**18**
We use it for strategic planning	$^{33}/_{64}$	**52**	$^{26}/_{66}$	**41**	$^{31}/_{61}$	**51**	$^{18}/_{59}$	**31**	$^{32}/_{62}$	**52**	$^{25}/_{62}$	**40**

The respondents were presented with a statement regarding their familiarity and use of value-based management metrics. They were asked to indicate in terms of all tools to which the statement applied, whether they agreed (with a yes) or did not agree (with a no).The metrics were explained in the questionnaire as follows: EVA (Economic Value Added); CFROI (Cash Flow Return on Investment); ROIC (Return on Invested Capital); DCF (Discounted Cash Flow); NPV (Net Present Value); and WACC (Weighted Average Cost of Capital).

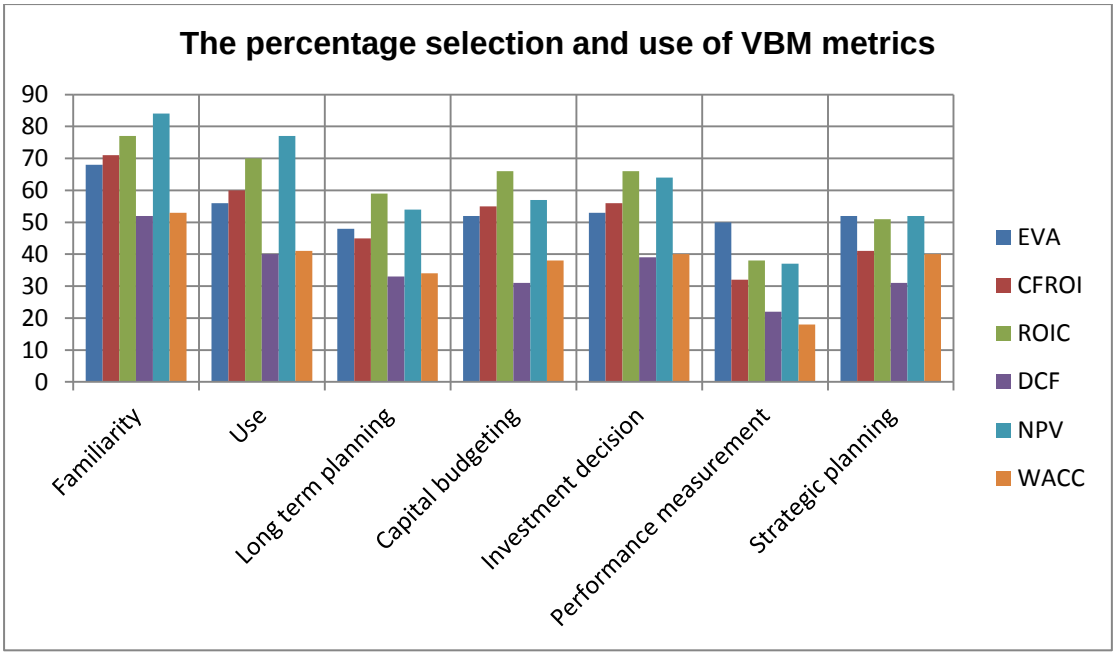

Figure 4.6: Company performance versus competitor performance

The first question asked if the respondents were familiar with the metrics, the response ranged from the high of 84% and the low 52%, with 84% of the respondents indicating that they are familiar with NPV, 77% said they are familiar with ROIC, 71% are familiar with CFROIC, 68% know EVA, 53% are familiar with WACC, and only 52% were familiar with DCF.

The second question asked if the respondents have used the metric before, and 77% said they have used NPV, 70% have used ROIC, 60% have used CFROI, 56% have used EVA, and only 41% and 40% of the respondents have used WACC and DCF respectively.

On the usage of the VBM metrics in questions 3 to 7, it was observed that ROIC was used by most respondents for long term planning (59%), capital budgeting (66%), and investment decisions (66%). The metric used by most respondents for performance measurement is EVA (50%) and the least used is WACC (18%). Most respondents used EVA (52%); NPV (52%); and ROIC (51%) for strategic planning.

4.3.7. Section E: Company performance versus competitor's performance

In this section, respondents were asked to rate their company's performance against that of their company's main competitor.

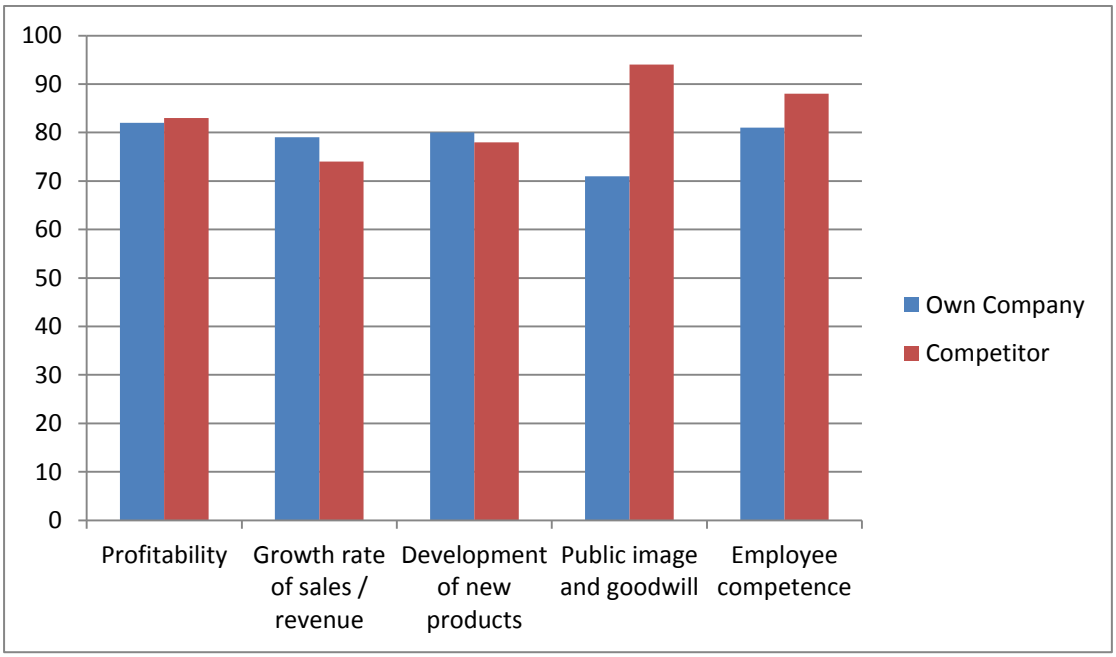

Figure 4.7: Company performance versus competitor performance

Figure 4.7 indicates that the respondents believed their company had higher growth rate or revenue compared to its major competitors, it is also interesting to note that the company also ranked higher with 80% as opposed to 78% on the development of new products. On profitability the respondents believed the company's performance was on par with that of its major competitors.

A worrying trend, however, is that respondents rated their competitors higher (94%) on public image and goodwill and only gave their company 71%. The company is also rated lower than its competitors when it comes to employee competence.

4.4. Summary

The aim of this study, as outlined in chapter one, was to evaluate the understanding of VBM and its concepts, determine how VBM is embraced in all levels within a petrochemical company, and establish the impact of VBM on the company performance. To accomplish this, a literature review on VBM was conducted in chapters 2 and 3, the company's financial performance was analysed in chapter 3, and an empirical study through a questionnaire was conducted in chapter 4.

In chapter 4 the assessment of the construct made in the study was conducted through the analysis of the arithmetic mean and standard deviation values obtained. The *p*-value was used to identify the differences within the groups used in the study. The reliability and validity of the constructs measured were examined using Cronbach Alpha coefficients for reliability. Because the study was measuring attitudes, all Cronbach Alpha values above 0.6 were regarded as reliable. It is, therefore, important to note that all constructs measured yielded a Cronbach Alpha value of more than 0.6, indicating that the constructs were reliable.

For the purpose of this study, only the positions and departments of respondents were analysed as independent variables. The positions were broken into the following three groupings: managers of managers; managers of others; and managers of self. The following two departments were also used: support functions, and operations department.

Managers of managers demonstrated better understanding and knowledge of VBM and its concepts compared to the other two groups, managers of others and managers of self. Managers of others tend to agree more ($\tilde{x}$ = 3.21) that VBM leads to employee performance, compared to managers of managers and managers of self, with means $\tilde{x}$ = 3.05 and $\tilde{x}$ = 3.09 respectively. This can be attributed to the fact that managers of others have a better understanding of employees as employees directly report to them. Managers of managers agreed more that VBM leads to better decision making, this may

be attributed to the fact that most decisions are taken at top and middle management levels and cascaded down to other lower levels of the organisation. Managers of self agreed the least with the construct stating that the company focuses on all stakeholders in decision making, and it was also observed that this group also agreed the least that top management supports the VBM initiative in the company. It was also noted that managers of managers agreed more compared with other groups that the company offers training and education on VBM and that the company empowers and rewards employees for creating and adding value in the organisation.

On the effects of respondents department on the measured constructs, it was observed that respondents from the support functions agreed more compared with respondents from operations department on all the constructs which were measured, namely: focus on stakeholders; top management support; training, education and communication; and employee empowerment and rewards.

The respondents were also tested for familiarity and usage of the VBM metrics. More respondents indicated that they are familiar with NPV and ROIC and have used it before. ROIC was used by most respondents for long term planning, capital budgeting and investment decisions. EVA was mostly used for performance measurement. For strategic planning most respondents indicated that they use EVA, ROIC and NPV. Most respondents indicated that they were not familiar and have not used WACC and DCF.

In section E of the questionnaire respondents were asked to rate the performance of their company against their competitor. Respondents believed that their company's profitability performance was similar to that of its competitor. The company performance on growth rate of sales, and development of new products was rated higher than its competitors. It was also observed that respondents believed that the competitor was outperforming their company on public image and goodwill, and most believed that the competitor's employees are more competent than the company's employees.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

Value – based management is a comprehensive approach to management based on the principle that managers at all levels of the organisation must manage the company resources with the ultimate objective of maximising shareholder value.

The primary objective of this study was to evaluate the level of knowledge and understanding of VBM and its concepts; how VBM is embraced as a decision making tool in the petrochemical company and the impact it has on the performance of the company.

In order to address the primary objective, the following sub-objectives were examined:

- To determine what literature study reveal about VBM, its application and benefits. This was done through the literature survey;
- To evaluate the decisions made in the past and the impact it had on shareholder value and wealth creation in a petrochemical company. This was done through the analysis of historical data (including financial data);
- To examine the level of implementation of VBM concepts. This was achieved through survey questionnaires and company records; and
- To formulate conclusions that can be drawn from the literature review and empirical study about the effectiveness of VBM as a decision making tool in a petrochemical company.

Chapter 5 concludes the study through exploring and interpreting research findings in relation to the proposition of the study and the evaluation of the findings are correlated to the literature study.

5.2. Conclusion

Literature study revealed that value-based management can be simply stated as a management system in which the entire organisation is focused, measured, and compensated for creating value for stakeholders and ensuring the long term viability of the company. As a decision making tool, VBM combines financial and strategic management techniques to create sustainable competitive advantage at all levels of the company, and by aligning internal business processes, strategies, and corporate governance, it provides a common discipline, a consistent culture, and a singular focus on value addition for all business activities.

The literature study concluded that VBM requires the following five elements to be successfully implemented and maintained in a petrochemical company: a clear commitment to shareholder value creation from top management and the organisation at large; linking incentive compensation to value creation; training, education and communication; a customised VBM framework; and making VBM a way of life.

The financial results presented in chapter 3 of this study indicated that the petrochemical company showed a positive economic value added for the past 5 years starting from 2008 to 2012, meaning the company added value. These results also demonstrated how the company distributed the value added to stakeholders for the previous 5 years. In 2012, 29.5% of wealth created was distributed to employees, 15.2% to providers of equity capital (shareholders), 2.3% to providers of debt, 15.2% to government through direct taxes and 37.6% was re-invested in the company.

The empirical study was conducted using two groups differentiated by demographic classifications. The first group consisted of top management (managers of managers or functions), middle managers (managers of others), and specialists (managers of self, i.e. project managers, engineers, technologists, consultants etc.). The second demographic classification was grouped according to departments, which were classified into primary activities and support functions. The primary activities (operations

department), includes production, technical and engineering, and maintenance departments. The support functions include finance and marketing, human resources, corporate affairs, Sasol group services and other departments which are not directly involved in the primary activities of the company.

In the first group, 32% of respondents were managers of managers, 20% managers of others, and 48% consisted of managers of self. There was a general expectation that top managers and middle managers will demonstrate a better understanding and knowledge of VBM and its principles, and this was confirmed by the results of the empirical study. This can be attributed to the fact that respondents from this group are more involved in strategy development and decision making. This can be the same reason why managers of managers agreed more ($\tilde{x}$ = 3.41) with the construct that states that VBM leads to better decision making compared to managers of others ($\tilde{x}$ = 3.31) and managers of self ($\tilde{x}$ = 3.22). Managers of others were second, with a mean ($\tilde{x}$ = 3.21), to demonstrate understanding and knowledge of VBM. This implies that the company embraces and implemented VBM properly.

Managers of others agreed more with a construct, VBM leads to employee performance followed by managers of self. This can be attributed to the fact that managers of others are responsible for employee's key performance areas and they are the first in line to measure employee performance. It was also seen that respondents from the manage self and manage others groups agreed less that the company is offering adequate training, education and communication on VBM, and these groups also agreed less that top management is supporting the VBM program in the company.

Literature reveals that for VBM to work, it should be understood and embraced at all levels of the organisation. Though there is much still to be done to ensure all employees are trained, it can be concluded that there is a general understanding of VBM and its principles at all levels sampled for the purpose of this study.

In the second group, which was divided into two departments, 62% of the respondents were from the operations department and 38% were from the support functions. It was observed that respondents from the support functions agreed more compared to respondents from the operations department on all the constructs, namely: that the company's decisions are focused on stakeholders; there is adequate top management support for VBM program; that the company offers training, education and communication on VBM and its principles; and that employees are adequately rewarded and compensated for adding value to the company.

It was expected that the results might favour respondents from the support functions, because these group consists mostly of top and middle managers, employees from corporate affairs, and consultants who are mostly responsible for strategy formulation and high level decision making. This can be a worrying factor considering that operating decisions are taken at operational level, and employees at this department should embrace VBM and be equally convinced that the VBM program is supported from the top, and that they receive adequate training and are rewarded for adding value.

The respondents were also tested for familiarity and usage of the VBM metrics. More respondents indicated that they are familiar with NPV and ROIC and have used it before. ROIC was used by most respondents for long term planning, capital budgeting and investment decisions. EVA was mostly used for performance measurement. For strategic planning most respondents indicated that they use EVA, ROIC and NPV. Most respondents indicated that they were not familiar and have not used WACC and DCF.

Respondents were also asked to rate the performance of their company against performance of their competitor. Respondents believed that their company's profitability performance was similar to that of its competitor. The company performance on growth rate of sales, and development of new products was rated higher than its competitors. It was also observed that respondents believed that the competitor was outperforming their company on

public image and goodwill, and most believed that the competitor's employees are more competent than the company's employees.

5.3. Recommendations

From the results in chapter 4, it is important for the company to take note that most respondents indicated that there is no adequate training, education and communication on value-based management and its principles. Respondents from lower positions of the company and from operations department seemed not to fully agree that there is adequate top management support for the VBM program and roll out in the business. It was also observed that respondents from all positions and departments agreed less that the company's decisions are focused on creating value for all stakeholders; this response is not in line with the company's financial results presented in chapter 3. Respondents from lower positions and operations department indicated that they are not adequately rewarded and compensated for adding value to the organisation.

This dissertation, therefore, recommends that the following steps should be taken to ensure that VBM is used as a decision making tool in a petrochemical company:

- Decision making must be de-centralised and all managers should be empowered to make value adding decisions.
- Training and education programmes on value-based management should be intensified and rolled out mainly to first line managers (managers of others) and specialist (managers of self) and employees in the operations department.
- Top management should be visible and committed in its support for the VBM programme.
- The company should have a reward scheme for value adding decisions.
- Decision making should be focused on all stakeholders of the company.

Even though the results indicate that the company embraces and uses VBM, it is recommended that the company should provide programmes required to sustain VBM. This can be achieved if the company develops and encourages a culture of decentralising decision making, and making VBM a way of life.

5.4. Limitations and Recommendations for Further Study

A number of limitations can be mentioned to be addressed in future research. These limitations can be classified into theoretical and empirical limitations.

At the theoretical level, because of the complexity of the theoretical model in the current study, different organisational factors related to VBM success, such as management style, organisational cultures, and the level of innovation and creativity, were not considered. Further study can explicitly address the effects of these factors as moderators of the relationships between VBM and organisational performance.

At empirical level, the sample of this study is limited to one petrochemical company, which may result in the findings being applicable only to this company. Future study can benefit from conducting comparative studies in different companies within the petrochemical industry, to develop a better understanding of the impact of VBM in company performance.

Further recommendations for future studies can take place as follows:

- The replication of this study in other manufacturing industries like steel industry, fast moving consumer goods industry (FMCG) and textile industry. Research in these industries could further improve understanding and use of VBM.
- The researcher might attempt to select and investigate a specific VBM tool (e.g. EVA, CFROI, NPV, DCF or WACC), and conduct a comparison study between the particular VBM tool and other performance measurement tools.

REFERENCES

Anastasi, A. W. & Urbina, S., 1997. Psychological testing. 7th ed. New York: Prentice Hall, Inc.

Anon., 2012. Management Study Guide: Pave your way to success. [Online] [Accessed 17 January 2013].

Athanassakos, G., 2007. Value-based management, EVA and stock price performance in Canada. Waterloo, Ontario Canada: Wilfrid Laurier University

Bass, B., n.d. Difference Between Strategy & Operational Decisions. [Online] [Accessed 17 January 2013].

Bausch, A., Hunoldt, M. & Matysiak, L., 2009. Superior performance through value-based managenement: Handbook Utility Management. Berlin Heidelberg: Springer-Verlag.

Bender, R., 2008. Corporate Financial Strategy. 3rd edition ed. s.l.:Keith Ward.

Churchill, G. A., 1999. Marketing Research: Methodological Foundations. 6th ed. Fortworth: Dryden Press.

Cohen, J., 1988. Statistical power analysis for the behavioural sciences. 2nd ed. Hillsdale, N.J(Erlbaum): s.n.

Copeland, T., Koller, T. & Murrin, J., 1994. Measuring and managing the value of companies. New York: John Wiley & Sons.

Copeland, T., Koller, T. & Murrin, J., 2000. Valuation: Measuring and Managing the Value of Companies. 3rd ed. New York: John Wiley & Sons..

Department of Treasury and Finance, 1999. Shareholder Value Added: A discussion paper for government business enterprises and state-owned companies, Tasmania, Australia: Tasmanian Government.

Dubey, S., n.d. Coal-to-Liquids (CTL): Misplaced solution for oil starved world, Boston. http://www.kosid.org. Date accessed 01 May 2003

Ellis, S. M. & Steyn, H. S., 2003. Proactical significance (effect sizes) versus or in combination with statistical significance (p-values). Management Dynamics, 12(4), pp. 51-53.

Field, A., 2005. Discovering Statistics Using SPSS. London, s.n., p. 779.

Firer, C., Ross, S. A., Westerfield, R. W. & Jordan, B. D., 2004. Fundamentals of Corporate Finance. 3rd ed. Berhshire: McGraw Hill.

Friedl, G., 2012. Implementing Value-Based Management: Identifying the Drivers of Value Creation, s.l.: s.n.

Frykman, D. & Tolleryd, J., 2003. Corporate Valuation: An Easy Guide to Measuring Value. London, UK: Pearson Education.

Fuller, D. N., 2001. Value Creation: Theory and Practice, s.l.: VALUE Incorporated.

Ghauri, P. & Ghronhaug, K., 2002. Research methods in business studies: A practical guide. s.l.:Prentice Hall.

Group, P. C., 2007. Increasing Operational Effectiveness through Performance Management Systems. s.l., s.n.

Hair, J. R., Anderson, R. E., Tathama, R. L. & Black, W. C., 1998. Multivariate data analysis. New Jersey: Prentice-Hall, Inc.

Haung, S. H. et al., 2003. Manufacturing productivity improvement using effectiveness metrics and simulation analysis. International Journal of Production Research, 42(3), pp. pp.513-527.

Hill, C. W. & Jones, G. R., 2007. Strategic Management: An Integrated Approach. Seventh ed. New York: Houghton Mifflin Company.

Institute of Management Accountants, 1997. Measuring and Managing Shareholder Value Creation, Montvale, NJ: Institute of Management Accountants.

Jacobs, F. R., Chase, R. B. & Lummus, R. R., 2011. Operations and Supply Chain Management. Global Edition ed. s.l.:McGraw-Hill: Irwin.

John, P., 2009. Economic Value Added: The relationship with the share value, Potchefstroom: s.n.

Jordaan, P. F., 2005. Value-Based Management at the Customer- and Product Level, Potchefstroom: NWU (Dissertation - MCom)

Kennerly, M. S., 2010. Corporations are legally required to maximixe profits, s.l.: s.n.

Khanka, S. S., 2012. Value-Based Management for Valuing Values in Organisations. The Chartered Accountant, October.pp. 124-130.

Knight, J. A., 1998. Value-based management: Developing systematic approach to creating shareholder value. s.l.:McGraw Hill.

Koller, T., 2004. What is value-based management?. McKinsey & Company, Inc., Volume 3, pp. 87-101.

Kudla, R. J. & Arendt, D. A., 2000. Making EVA Work. AFP Exchange, 20(4), pp. 98-103.

Leblanc, R., 2012. Aligning Pay to Value Creation and Performance. s.l., York University, pp. 43-45.

Leepsa, N. M., Patnaik, S. & Pradhan, P. K., 2008. Value Based Management: "Valuing The Values" The mechanics, dynamics and Indian insights, s.l.: s.n.

Lew, C. & Barnard, M., 2004. Overcoming the problem of value-based management. Management today: yearbook, November / December, 20(10), pp. 20-21.

Luburic, N., 2011. Competitiveness criteria and possible recovery strategies for petrochemical business. Business Intelligence Journal, January, 4(1), pp. 87-88.

Madden, B. J., 2005. Maximising Shareholder Value and The Greater Good. Naperville, Illinois: LearningWhatWorks.

Malmi, T. & Ikaheima, S., 2003. Value Based Management practices - some evidence from the field. Management Accounting Research, 14(2003), pp. 235-254.

Martin, J. D. & Petty, J. W., 2000. Value-Based Management: The Corporate Response to the Shareholder Revolution. Boston, Massachusett: Harvard Business School Press.

Martinsons, M. G. & Davison, R. M., 2005. Strategic decision making and support systems: Comparing American, Japanese and Chinese management. Decision Support Systems, 13 May, 43(2007), pp. 284-300.

Mathe, T. C., 2012. Implementation of value-based management systems in a petrochemical company. Potchefstroom: NWU (Dissertation - MBA)

Matshekga, L., 2009. A Study of the Relationship between Leadership Style and Performance - A focus on South African listed and non-listed companies, Pretoria: UP (Dissertation - MBA)

Mohanty, P., 2006. Modified TVA - Based Performance Evaluation. IIMB Management Review, September.pp. 265-273.

Morin, R. A. & Jarrell, S. C., 2001. Driving Shareholder Value: Value-Building Techniques for Creating Shareholder Wealth. New York: McGraw Hill.

Mzera, U. J., 2012. The effects of strategic Value-Based Management on the performance of organisations in Coast Province, Kenya. International Journal of Business and Social Science, 3(16), pp. 262-270.

Nagan, R., 2008. A Comparative Analysis of Economic Value Added (EVA) by South African Banking and Retail Companies Listed on the Johannesburg Securities Exchange, Pretoria: s.n.

Nunnally, J. & Bernstein, I. H., 1994. Psychometric theory. New York: McGraw-Hill Inc.

Obermatt, n.d. Value-Based Management. [Online] [Accessed 29 November 2012].

Panorama Consulting group, 2007. Increasing Operational Effectiveness through performance measurement systems, s.l.: s.n.

Pettit, J., 2000. "EVA and Strategy", EVAluation Research Report. Stern Steward & Co., pp. 1-17.

Pienaar, A. P., 2008. Value-based management: An assessment of the application in a mining company, Potchefstroom: NWU (Dissertation - MBA)

Pienaar, T. R., 2009. Value-based management and productivity: The mining situation, Potchefstroom: NWU (Dissertation - MBA)

Prinsloo, J. J., 2007. A comparative analysis of economic value created by South African mining companies in a growing platinum industry. Pretoria: UP (Dissertation - MBA)

Rappaport, A., 1981. Selecting strategies that create shareholder value. Harvard Business Review, 59(3), pp. 138-149.

Rapport, A., 1998. Creating Shareholder Value: A Guide for Managers and Investors. 2nd ed. New York: The Free Press.

Reynaldo, A. & Santos, J., 1999. Cronbach's alpha: A tool for assessing the reliability of scales. Journal of Extension, 37(4), pp. 1-4.

Robbins, S. P., 2005. Organisational Behaviour. Eleventh ed. s.l.:Pearson Prentice Hall.

Robu, V. & Ciora, C., 2010. Measuring performance, value creation and value-based management in the context of competitiveness and globalisation. Bucharest Academy of Economic Studies

Sakunasingha, B., 2006. An empirical study into factors influencing the use of value-based management tools, Lismore, NSW: Southers Cross University (Thesis - DBA)

SAS In Institute Inc., 2011. The SAS system for windows , s.l.: s.n.

Sasol, 2012. Sasol Annual Intergrated Report. Retrieved 20 March 2013 from http://www.sasol.com

Starovic, D., Cooper, S. & Davies, M., 2004. Maximising Shareholder Value: Achieving clarity in decision-making, Britain: The Chartered Institute of Management Accountants.

Statistics South Africa, 2012. South African Statistics. [Online] Available at: http://www.statssa.gov.za

Stern, J. M., Shiely, J. S. & Ross, I., 2001. The EVA challenge - implementing value-added change in an organisation. s.l.:Wiley Publishing.

Strategic Innovation, n.d. Value Based Management & Shareholder Value Added (SVA), s.l.: s.n.

Tabachnick, B. G. & Fidell, L. S., 2001. Using Multivariate Statistics. Boston: Allyn & Bacon.

Taub, S., 2003. MPV's of MVA - Measuring how much market value companies created. CFO, July, 19(9), p. 59p.

Thompson, A. A., Peteraf, M. A., Gamble, J. E. & Strickland, A. J., 2012. Crafting and Executing Strategy: Concepts and Cases. 18th ed. s.l.:McGraw-Hill Irwin.

ThyssenKrupp, 2011. Value-based management in the ThyssenKrupp Group, s.l.: s.n.

Trochim, W. M., 2004. Research methods knowledge base, s.l.: s.n.

Tungare, P. & Pillai, D., 2013. Balanced Scorecard for Value Based Management. Internal Journal of Marketing, Financial Services & Management Research, 2(3), pp. 51-64.

Vargo, S. L., Maglio, P. P. & Akaka, M. A., 2008. On value and value co-creation: A service system and service logic perspective. European Management Journal, Volume 26, pp. 145-152.

Weaver, S. C. & Weston, J. F., 2003. Implementing Value Based Management. Los Angeles, s.n., p. 28.

Young, S. & O'Byrne, S. F., 2001. EVA and Value-Based Management: a practical guide to implementation. New York: McGraw-Hill.

APPENDIX A: QUESTIONNAIRE

Direct Telephone: +27 16 960 6883
Direct Facsimile: +27 11 522 5340
Email: zweli.tomo@sasol.com

Dear Colleague

RE: Request to participate in an academic research study by completing the attached questionnaire.

NB: Permission was granted by Kaas de Boer (General Manager – Sasol Wax) to carry out this study and distribute questionnaires to Sasol Wax employees.

As part of an MBA research study, I am conducting research on the understanding and application of Value-Based Management for strategic and operational decision making in a petrochemical company. As an employee of Sasol, you have been selected to participate in the study by completing the attached questionnaire. Completing the questionnaire should take approximately 15 minutes.

The results of this questionnaire will be used for academic purposes only. A concerted and conscious effort will be made to keep the results confidential and the anonymity of the respondents is also guaranteed.
The completed questionnaire can be emailed or faxed back to me.

Thank you for giving your valuable time to assist me in this research.

Zweli Tom
MBA Student – North-West University

Tel: 016 960 6883
Cel: 082 404 5211
Fax: 011 522 5340
Email: Zweli.tomo@sasol.com

SECTION A: Demographic Information

(Please place a cross (X) in the appropriate box)

A1: Position within an organisation

Senior Management	1
Middle Management	2
First Line Management	3
Manage Self (e.g. project manager, engineer, technologist, consultant etc.)	4

A2: Department

Corporate Affairs		1
Operations (Maintenance, Production, SHE, Technical)		2
Finance and Marketing		3
Support Services (HR, IM, SCM, Learning etc.)		4
Other (Specify)		5

A3: Highest Education Level

Matric	1
FET Certificate or Trade Test	2
Undergraduate	3
Postgraduate	4

A4: Working Experience in a Petrochemical Industry

Less than 2 years	1
3 to 5 years	2
6 to 10 years	3
11 years and above	4

If you would like to receive feedback from the research, please fill in your details:

Name	
E-mail	

SECTION B

1	*2*	*3*	*4*
Strongly Disagree	***Disagree***	***Agree***	***Strongly Agree***

If you don't know, please place a cross (X) on the "Don't know" column.

	STATEMENT	**DON'T KNOW**	**SCALE**			
B1	Value-Based Management (VBM) can best be defined as creating value		1	2	3	4
B2	VBM helps to attract and retail long term investors		1	2	3	4
B3	VBM is a management tool used for decision making		1	2	3	4
B4	VBM is a tool used for measurement and benchmarking competitive performance		1	2	3	4
B5	VBM is a top management exercise that has no effect on operations level		1	2	3	4
B6	VBM is only concerned about shareholders wealth		1	2	3	4
B7	The aim of our company is only to maximise profit		1	2	3	4
B8	VBM can be defined as measuring value		1	2	3	4
B9	VBM leads to long term sustainability of the company		1	2	3	4
B10	All employees should be trained on VBM principles		1	2	3	4
B11	VBM makes employees act like shareholders and owners of the company		1	2	3	4
B12	VBM leads to better decision making among all employees		1	2	3	4
B13	VBM leads to structured training among operational employees		1	2	3	4
B14	VBM involves identifying performing variables that drive company's value		1	2	3	4
B15	Actual performance is measured against a set target on the identified value drivers		1	2	3	4
B16	To successfully implement VBM, value drivers should be efficiently identified		1	2	3	4
B17	VBM has a positive effect on financial performance of the company		1	2	3	4
B18	VBM is useful for resource allocation and provides a better distinction between value creating and value destroying decisions		1	2	3	4
B19	VBM is a costly exercise that takes time, resources and commitment to implement		1	2	3	4

SECTION C

1	*2*	*3*	*4*
Strongly Disagree	***Disagree***	***Agree***	***Strongly Agree***

If you don't know, please place a cross (X) on the "Don't know" column.

STATEMENT		**DON'T KNOW**	**SCALE**			
C1	Top management supports the VBM processes in my company		1	2	3	4
C2	Incentive bonus or rewards are linked to production volumes		1	2	3	4
C3	Top management views value creation as more important than profit		1	2	3	4
C4	The company provides adequate wages and good working conditions to its employees		1	2	3	4
C5	I understand how my work affects the company's ability to create value		1	2	3	4
C6	Management's words and actions are consistent		1	2	3	4
C7	The company incentive bonus is tied to value addition		1	2	3	4
C8	We take quality of our products seriously		1	2	3	4
C9	Incentive bonus or rewards are linked to compliance to legislation (employment equity, competition laws etc.)		1	2	3	4
C10	Value creation is driven from top management down to all levels		1	2	3	4
C11	Incentive bonus or rewards are linked to profit only		1	2	3	4
C12	Managing for value or value addition is emphasised in all work assignments and projects		1	2	3	4
C13	We are trained on value based management and its principles		1	2	3	4
C14	There are suitable opportunities for promotion and self-development in my company		1	2	3	4
C15	I understand my roles and responsibilities for creating value in the company		1	2	3	4
C16	Management is willing to make major changes to allow us to make value-creating decisions		1	2	3	4
C17	Top management encourages a working climate with innovation and free exchange of ideas		1	2	3	4
C18	Investments on projects are based on improving productivity, safety and compliance to environmental laws		1	2	3	4
C19	Incentive bonus or rewards are linked to company safety performance		1	2	3	4
C20	The company complies to all government legislation		1	2	3	4
C21	We use customer feedback as a basis to measure our performance		1	2	3	4
C22	The company provides intensive training so that we are convinced and acknowledges that managing for value is the right thing to do		1	2	3	4
C23	Human resource requests are justified based on value creation		1	2	3	4

SECTION D

Instructions: *Please place a cross (X) to mark yes or no, in the appropriate box.*

Reference: Elements of Value Based Management

EVA:	Economic Value Added
CFROI:	Cash flow Return on Investment
ROIC:	Return On Invested Capital
DCF:	Discounted Cash Flow
NPV:	Net Present Value
WACC:	Weighted Average Cost of Capital

	VBM Metrics	EVA		CFROI		ROIC		DCF		NPV		WACC	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
D1	**I am familiar with**												
D2	**I have used the method before**												
D3	**We use it for long term planning**												
D4	**We use it for capital budgeting**												
D5	**We use it for investment decisions**												
D6	**We use it for performance measurement**												
D7	**We use it for strategic planning**												

SECTION E

1	*2*	*3*	*4*
Very Low	***Low***	***High***	***Very High***

***Instruction**: Please mark with a cross (X) in each of the own company and the competitors columns*

Regarding the variables listed in the middle column how do you rate your own company and the company's main competitor?										
	Don't Know	**Own Company**					**Competitor**			
E1		1	2	3	4	**Profitability (measured by ROI for e.g.)**	1	2	3	4
E2		1	2	3	4	**Growth rate of sales or revenue**	1	2	3	4
E3		1	2	3	4	**Development of new products**	1	2	3	4
E4		1	2	3	4	**Customer satisfaction**	1	2	3	4
E5		1	2	3	4	**Public image and goodwill**	1	2	3	4
E6		1	2	3	4	**Employee competence**	1	2	3	4

Additional Comments:
