RESEARCH REPORT

CREATING HIGH PERFORMANCE VALUE CHAIN ORGANISATIONS (HPVCO)

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Submitted in partial fulfilment of the requirements for the degree

MASTER OF BUSINESS ADMINISTRATION

in the

FACULTY OF ECONOMICS AND MANAGEMENT SCIENCES

at the

UNIVERSITY OF PRETORIA, PRETORIA

STUDY LEADER: PROF P.W.C de Wit

DATE OF SUBMISSION: 21 OCTOBER 2005
("RESEARCH COLLABORATIVE")

ACKNOWLEDGEMENTS

I would like to convey my sincere appreciation to the people who generously gave their time and expertise to assist me in completing this study. They have enriched my learning experience and greatly contributed in making this study possible.

Special thanks to the following people:

FCJ (Chris) Morkel

Qualifications : B Com Hon MBL (UNISA)
Occupation : Superintendent-Management Accounting BHP Billiton, Aluminium industry group, commonly referred to as the Aluminium Customer Sector Group (ACSG)

Chris was seconded to the Mozambique Aluminium (MOZAL) project on a three year contract basis. The objective was to train and develop local Mozambique people to take over from Chris at the end of the three year contract term. This did not realise, forcing the company to extent his contract with a further two years to a total of five years. The MOZAL project started from scratch in 1999 and closed off in 2004. Chris was the project leader for the implementation of ERP systems (SAP R/3) which included the following systems:

- Strategic Enterprise Management System (SEM)
- Business Warehouse (BW)
- E-Commerce
- Planning and scheduling systems as part of SEM

Above system implementation also included the automation of the Balance Scorecard (BSC). Chris made a presentation to BHP Billiton's top management at their corporate head office in Australia and The Hague Netherlands to convince management that the system solution is the best route to follow. Consequently a top management decision was made to role the MOZAL project out to all businesses within the BHP Billiton group worldwide.

R J Bezuidenhout (Bez)

~~Occupation~~ ~~Group IT Man~~ager, Sasol Polymer Cluster

Bez was instrumental in my earlier personal development and served as a mentor during the time I was reporting to him. Bez is a person who loves to share his knowledge and experiences with others and has an exceptional ability to communicate, using practical examples, pictures, analogies and metaphors. He has a keen interest in the development of people. He promotes a culture of mutual respect and trust and is open, honest and transparent. He is the best example of effective leadership that I have encountered during my 25 years working career which includes the military and a short political career. What makes it more remarkable is the fact that my working experiences include experiences at world class companies like the Kimberley Clark Group (USA), the Gilette Group (UK), the South African Altron and Altech Groups and since 1990 Sasol South Africa. Bez is an exceptional leader, one that corporate companies in South Africa and abroad would love to have on their boards.

Sasol Group Management

For the opportunity afforded to me to develop myself by providing the financial support and resources for completing my MBA studies. It was a great privilege and an experience of a live time.

John Barnes

Occupation : General Manager-Sasol Polymer, PP Business (Turnover +- R 1.5 billion business)

John is my line manager who has supported me wholeheartedly during these difficult times in a flexible manner. Without his continued support this study would simply not be possible.

Johannesburg Stock Exchange (JSE): Statistical Department

For providing me promptly with the share data of Sasol Limited from 1980 to 2004 and that of BHP Billiton from 1997, the date that the company BHP Billiton has been listed on the JSE

Ziets Botha of the South African Reserve Bank

Zietz established contacts within the Reserve Bank and provided me with important economic information intended for use in the research study. Unfortunately the chapter dealing with the South African economy had to be excluded from the research report due to the page limitation

on the report. However, in some instances are referred to the United Nations statistics and the United Nations Human Development Index (HDI) for 2004 attached as Appendix 3 to the report.

Professor de Wit, study leader

Thanks to Professor de Wit for his encouragement and guidance. I perceived him as a person with a wealth of experience who understands the reality of business today. He entrusted me with the necessary confidence to complete the task at hand successfully.

Brian Mckinnon

Thanks to Brian who provided me promptly with the last 15 years dividend statistics of Sasol.

DECLARATION

I, Salidor Christoffel Coetzee, herewith declare that the language of this research report has been edited by Dalene Reyburn (Cell nr. 083 637 0151)

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Students Signature

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EXECUTIVE SUMMARY

South Africa is experiencing difficult times on the economic front after the political transition in 1994. The country's average annual economic growth rate (GDP) declined from more than 5% in the 1960's to less than 3% per year during seven years ending. The population growth increased at a relatively high rate with the result that per capita income decreased with unemployment increasing sharply. South Africa requires a GDP growth rate of at least 6 % to close the gap. It is pleasing to hear that the Reserve Bank is now starting to predict growth rates of up to 6 % in the year to come.

The country cannot afford low economic growth given the implications for unemployment, poverty and political and social stability. A fundamental restructuring of the South African economy with the view to increase the growth capacity and actual growth performance of the economy is necessary. Considerable emphasis will have to be placed on the promotion of employment creation. The country's economic problems cannot be alleviated without sustained economic growth. Employment – creating growth to the advantage of all South Africans.

Productive investment, higher exports and increased productivity hold the key to the resolution of the country's economic problems. Coherent and viable strategies are necessary, capable of ensuring sustainable growth and an improvement in the quality of life of all South Africans. The crafting and implementation of these strategies is mainly the responsibility of government and business. The focus of this study is mainly on the role of business.

Management experts and corporate executives world-wide talk with greater insight about business concepts and goals achieving world-class status and best-in-class performance.

The changes that overtook South Africa in 1994 with political transition, allowed a flood of new competition into the South African market whilst the opening of international opportunities took place at the same time. Competition is more intense with less protective barriers, import duties for instance, were dramatically reduced. At the core of the challenges facing South African businesses is the need for exceptional leadership, leaders that can meet the challenges of this new highly competitive environment, leaders to steer a company towards world-class performances.

Events in the global business environment have lately turned the spotlight of management attention onto business optimisation. These events have been superimposed onto broad global

change drivers to create a far more challenging business environment than we have seen in the history of the world. These change drivers include globalisation of competition, dis-intermediation and fragmentation along the value chain, commoditisation of products and services, digitisation of products and services, the rapid emergence of the knowledge economy and concentration of capacity in the search for economies of scale. With business optimisation occupying centre stage in many companies, it became appropriate to research the concepts and definitions of a High Performance Value Chain Organisation (HPVCO).

The following elements were investigated in order to get further insight into the concepts and definitions of High Performance Value Chain Organisations (HPVCO):

- Strategy formulation and implementation as the backbone of High Performance Value Chain organisations (HPVCO), discussed as part of the literature study.
- Organisational renewal and what it takes to become a successful organisation. The General Electric (GE) model serves as an example with the focus on boundaryless behaviour which became one of Jack Welch's core strategies during his time at GE.
- How companies explore growth opportunities and their funding capabilities with the focus on shareholder value and assessment of company performance.
- Shareholder value was defined, calculated and analysed.
- Economic Value Added (EVA) was explored as a more progressive measure to assess performance of a listed company and link EVA to the financial perspective of the Balanced Scorecard (BSC).
- Value chain concepts and definitions were explored before focussing on the individual value chain elements itself. The research focuses on vertical integration strategies, but more specifically backward and forward integration.
- The important value chain elements were identified with the focus mainly on the human element and Information Technology (IT) with a limited focus on processes.
- Human talent and how to energise and mobilise this resourceful capacity to the best.
- Process re-engineering and supply chain management.
- Information Technology and Communication (ITC) with emphasis on Enterprise Resource Planning (ERP) systems and the ERP building blocks.
- Value chain performance measures
- The Balanced Scorecard as a management control system, an enabler to communicate and implement strategy throughout all the levels of the organisation.

The essence of the research was to obtain clarity on above issues, which was accomplished by revealing the concepts of strategy and value chain, defining strategy and value chain and

determining what is needed to create High Performance Value Chain Organisations (HPVCO) in order to improve shareholder value.

As part of the literature study a theoretical context was used to explain the concepts of the strategy and value chains, which comprise the definitions, and complexity of the various elements involved in creating High Performance Value Chain Organisations (HPVCO).

Share price data before and after the political transition in 1994 both in rand and dollar terms was obtained from the statistical department of the JSE Securities Exchange for Sasol and BHP Billiton, South Africa. Annual Reports and company analyst reports were studied. The format of a typical analyst report is discussed in broad terms. Both Sasol and BHP Billiton share price data and financial data were used for empirical data for signature testing to determine the influence of increased competition, political change and growth in shareholders' value demonstrating how these South African corporate giants performed since the political transition in 1994.

During the research, attention was focused on Jack Welch's Battle Plan for Corporate Revolution, The GE way Fieldbook written by Robert Slater and published by McGraw – Hill in 1999. Welch built GE into the most successful American corporation of the late twentieth century by forging and then implementing a series of business strategies that have become his trademark: Business is simple. Don't make business overly complicated. Face reality. Don't be afraid of change. Fight bureaucracy. Get boundaryless. Use the brains of your workers. Find the best ideas, inside or outside your company, and then put those ideas into practice. These strategies and others have formed the building blocks of Jack Welch's battle for corporate revolution.

The GE Way fieldbook contains four learning modules which focus on the initiatives and programs that have helped GE to create a learning organisation that is boundaryless with the highest levels of quality:

- The leadership module.
- The empowerment module.
- The organisation module.
- The customer module.

The research was concluded by summarising the research findings with regard to the key business issues identified during the research, followed by the research recommendations.

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CHAPTER 1
INTRODUCTION AND PROBLEM STATEMENT

1.1 Introduction

Survival and evolution are concepts as old as the world we live and function in. In order for any living being to survive and prosper it has to evolve and change. No one expressed this concept better then Charles Darwin: "It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to the change".

Creating and then maintaining organisational success is more problematic today than it was ten years ago. The world has grown increasingly complex, resulting from the greater interdependence amongst world economies, that is, the connected economy. At the same time, the world has become increasingly dynamic, as a result of the information explosion and worldwide communications (Zeffane, 1995:45).

Organisations need to have good strategists who understand the way in which the market forces, the organisational capability, and the energy levels amongst employees need to integrate.

1.2 Problem statement

Before one focuses on the problems, all South African political leaders who were instrumental in the writing of the first democratic constitution for South Africa should be applauded. The political transition in 1994/1995 went smoothly, thanks to the good will and political willpower manifested in politicians, willing to steer the country in a new direction. Indeed, this was a momentous achievement. However, transformation brought with it new challenges, for both government and business in South Africa. Unfortunately many companies were caught flat-footed, not realising the impacts of globalisation.

Due to the status of the economic situation in South Africa and many other developing nations elsewhere, it was decided not to confine the research to a single problem. Most organisations in South Africa and elsewhere in the world are faced with several problems that prevent them from becoming High Performance Value Chain Organisations (HPVCO).

Many organisations are suffering from the effects of:

- outdated management approaches;
- uncompetitive organisational designs;
- ineffective leadership not adapting to the new environment;
- impotent strategic thinking;
- organisational instability; and
- outdated labour practices and policies.

The following are stumbling-blocks that have made South African businesses far less competitive than they would otherwise have been:

- operating in corporate chimneys;
- excessive clutter;
- fixed decision boundaries; and
- disfunctionality of vertical organisational design .

South African business leaders require the ability to energise people and the ability to mobilise capacity to achieve long term organisational success. Organisations need to have good strategists who understand the way in which the market forces, the organisational capability, and the energy levels amongst employees need to integrate. These managers are particularly good at providing the necessary strategic emphasis that makes for value-added performance. The leaders of renewal organisations develop integrated strategies that ensure the implementation of effective renewal processes for their businesses. They understand stakeholder needs and know how to respond to these needs with the ability to view this dynamic interplay from a holistic perspective (helicopter view).

However, strategy formulation, implementation and articulation throughout an organisation pose their own problems. Formulating and crafting strategies seems to be the easy part while strategy implementation and articulation seems to be more difficult.

Tearle (2001) provides some of the common reasons for failure from an article called "why strategy implementation fails". These reasons include:

- Ineffective change management.
- People do not want to make the strategy work.
- Ineffective communication.
- Failure to analyse the implications of the strategy for the organisation.
- Changing too much at once. Lack of 80/20 focus.

- Mixed messages.
- Lack of role clarity - who must do what by when.
- Lack of action. Focus on knowing rather than doing.
- Being 'put off' by resistance to change.
- Failing to remove or step around barriers to implementation.
- Lack of perseverance. Things get worse before they get better.

Strategic planning is sometimes conducted by a small number of people who do not obtain the support from the people who need to put the plan into action. Lack of participative leadership is one of the reasons why strategic planning fails. Failure is not necessarily due to a poor plan.

Lack of integration exists. The strategic layers of the organisation are tasked with developing corporate, business, and functional strategies. The challenge is to effectively integrate the various levels of strategic focus with organisational structure, culture and the business environment. The plan must be synchronised in order to best achieve a synergy in the aggregation of the various levels of strategic planning. Business alignment is important for the organisation. The organisation will be as good as the sum of its parts.

In a case study conducted by Heide, Gronhaug and Johannessen (2002:217-231), the barriers to the successful implementation of activities as part of a planned strategy were identified. The reported implementation barriers included the following (with the percentage of the barriers indicated in brackets):

- Communication barriers (70%).
- Organisational structure barriers (11%).
- Learning barriers (7%).
- Personnel management barriers (5%).
- Cultural barriers (5%).
- Political barriers (2%).
- Resource barriers (0%).

In the case study the results indicate communication problems to be the main class of implementation barrier.

Lorange (1998:18-29) stated that the reality of strategic planning and strategy implementation today has changed and so has the job of the strategic planner, but for different reasons than

those traditionally put forward. Nowadays, the strategic planner, as chief implementation officer, needs a different focus, and so do the management processes of which he makes use.

Despite the potential of internal, growth-driven strategy, the strategic planner will, nevertheless, have to face a number of possibly serious obstacles to implementation. These include:

- Lack of a true growth culture in the organisation, from top to bottom.
- Too much organisational complexity.
- Strong organisational kingdoms.
- Lack of speed and urgency.
- Lack of tradition-breaking.
- Lack of cost competitiveness.

Management spends a fair amount of its time on the analysis, research and formulation of its business strategies. Yet the performance improvements that these "well thought through plans" are supposed to bring, seem constantly to elude them.

The common problem is the inability to communicate and implement the strategy throughout the organisation. The best laid plans remain exactly that. Management and employee behaviour rarely changes to reflect the new strategy, and neither do the performance measurement and performance management systems. Strategy is rarely properly communicated to levels lower down. The "game plan" sits in the heads of the coach, team manager and captain (executive committee). The "players" go onto the field not knowing the game plan.

The objectives are rarely reviewed and realigned when strategy changes. Incentive programmes more often than not reward behaviour that is not in line with the most recent strategic intent.

The strategy is "normally" expressed in "business school language", which very few employees understand or relate to. Therefore, it is not generally understood on the shop floor nor is it "actionable". Organisations must strive to achieve sustainable results by becoming a strategy focused organisation. Without a process to execute strategy, one could become a statistic. Most organisations do not have adequate processes to manage strategy.

Balanced Scorecard (BSC) organisations beat the odds, achieve organisational alignment and successfully execute their strategies. The Scorecard puts strategy at the centre of the management process. Organisations using the Balanced Scorecard (BSC) are led and managed by strategy, and they are focused on the key drivers of strategy.

Apart from the barriers to successful strategy implementation, another problem that listed companies are facing today is how a company's performance is assessed. Most analysts in the USA rely primarily on cash flow to assess performance of a company's share price. However, some attention is still paid to traditional accounting measures, for instance Return on Equity (R.O.E.) and Earnings per Share (E.P.S.). Disappointingly, managers and analysts in South Africa rely primarily on traditional financial ratios to assess a company's performance, as opposed to more progressive measures such as Economic Value Added (EVA) and Market Value Added (MVA).

It does not matter from which angle the performance of an organisation is looked at, at the end of the day it is people who implement strategy and eventually make the difference. Energising the people in order to move capacity into the right direction becomes one of the hallmarks of a High Performance Value Chain Organisation (HPVCO).

However, the question is: How should the people be energised? According to Jean-Claude Latter (2004: 34-35) an increasing number of South African companies are setting up variable compensation schemes, asking their employees to behave in a certain way or, as motivation, many of their incentive programmes are actually set up to reward different, and often opposing, behaviours. The results are:

- Employee confusion of what is expected from them.
- Mixed messages due to lack of communication or misinterpretation due to the complexity of the scheme.
- An incentive programme that pays scant attention to the development of a strong values culture.
- De-motivation and incentive schemes becoming irrelevant to the majority of employees.

Addressing the human element in an organisation's pursuit to become a High Performance Value Chain Organisation (HPVCO) is simply not enough.

The lack of proper supporting systems and infrastructure further contributes to the problem. Organisations do not exploit the full benefits from an ERP system implementation. They do not change the way they conduct business and carry on with outdated practices and structures. SAP ERP system implementation requires a re-think of the organisation as a whole, putting re-engineering and restructuring of the organisation high on the change agenda of the organisation.

What further complicates the problem is that in some companies like Sasol South Africa SAP is organised into various clusters and in some cases SAP is set up into a multi-client mode as opposed to a single client mode. The Polymer businesses within the Sasol Polymer Division and Infrachem, a service division that provides the essential service support to Sasol Polymers, operate for example on one SAP production box (server) and form one of several IT clusters within the Sasol group. The current cluster model implemented and maintained by Sasol and/or the multiple client setups in some cases (every business within Sasol on a server or box) has many shortcomings as will be elaborated on in Chapter 6. Many of the business issues experienced by organisations are due to the lack of proper IT support systems.

The research revealed the following more detailed list of business issues relating to ERP systems that will exclusively be dealt with in Chapter 6 and Chapter 9 of this report:

- Lack of one central assumptions database.
- Lack of integrated strategic and tactical planning.
- Business information not transparent and accessible to management.
- Inadequate working capital management (cash management and materials management).
- Lack of common business processes across divisions.
- Lack of transparency throughout the supply chain.
- Lack of standardisation. Moving average versus standard costing. No standard Chart of Accounts (C.O.A.).
- Lack of business restructuring/re-engineering after initial ERP implementation.
- Lack of measurement systems (Balanced Scorecard) and the automation thereof.
- Lack of strategic alignment, communication and articulation of strategy on all levels in the organisation.
- Lack of proper forecasting and budgeting systems.
- Lack of using more progressive measures to assess performance throughout the value chain and the automation thereof.
- Lack of a common data warehouse.
- Lack of a proper consolidation system.
- Lack of proper Management Information Systems (MIS) in general.

People, information and information system infrastructure were identified as some of the main elements of value chain design. Many organisational transformation efforts fail to consider process as the main driver of organisation design.

Most successful organisation transformation efforts include process design in the scope:

- Roles and responsibilities associated with each value chain process help determine the appropriate level of organisational centralisation/decentralisation.
- Process design determines the capabilities and skills needed in the new organisation.
- Although value chain improvements are enabled by the new organisation, the actual benefits are achieved by improving processes.

An issue faced by most companies is whether to design value chain organisations around each business or to create a single organisation to serve all businesses.

1.3 Research objectives

The following are the objectives of the research study:

- To provide management with the necessary tools and techniques to assist in enhancing the organisation's ability to become a High Performance Value Chain Organisation (HPVCO).
- To describe a renewal organisation and why a "winning mindset" is needed.
- To describe the concepts of boundarylessness as capsulated in the General Electric (GE) business model and to asses the extent to which the organisation applies these principles.
- To describe the impact and challenges of globalisation.
- To describe shareholder value, which lies at the core of a High Performance Value Chain Organisation (HPVCO).
- To illustrate how shareholder value can be maximised.
- To illustrate the differences between traditional financial ratios and how more progressive measures such as EVA and MVA are used to assess financial performance.
- To describe value chain concepts and definitions.
- To identify value chain elements and explain why they became the hallmark of a High Performance Value Chain Organisation (HPVCO).
- To identify the best ERP system solution for many of the organisation's problems.
- To describe value chain performance measures and the importance thereof.
- To describe how the organisation can achieve organisational alignment and successfully execute its strategy, putting strategy at the centre of the management process with the focus on the key drivers of strategy to enhance the concept of a High Performance Value Chain Organisation (HPVCO).

1.4 Research benefits

The following are the benefits of the research:

- Present management with the tools and techniques that can be utilised to convert the company into a High Performance Value Chain Organisation (HPVO).
- Present management in general with a sound understanding of what a renewal organisation and a winning mindset entail.
- Present management with findings and recommendations regarding the GE questionnaire that deals with boundaryless behaviour.
- Provide an understanding of the impacts of globalisation and how to deal with the new challenges that globalisation offers.
- Present management with a model to assess the performance of a listed company with analyst reports as background.
- Provide guiding principles to management of how to maximise shareholder value which lies at the core of a High Performance Value Chain Organisation (HPVCO).
- Create an understanding of value chain concepts.
- Present management with an understanding of the interplay between the various value chain elements, exclusively focusing on the human element and information technology infrastructural support.
- Present management with a permanent ERP system solution that will solve most of the problems identified during the initial research.
- Present management with a strategic framework to assist it in achieving organisational alignment and successful execution of its strategy, putting strategy at the centre of the management process with the focus on the key drivers of strategy to enhance the concept of a High Performance Value Chain Organisation (HPVCO).

1.5 Design and methodology

The intention was to cover a much broader field of study at the initial stages of the investigation. Due to time and budget constraints, the scope of the research had to be narrowed by focusing on those solutions that will deliver the best long term sustainable results.

Quick fixes were ignored and attention was focused on permanent solutions, taking world best practices into account. It requires a futuristic view to ensure that implementation plans are aligned to the long term strategy of the organisation.

The research commenced by describing a renewal organisation and discovering why a winning mindset is important. In the process a hard copy of the GE Way Fieldbook, Jack Welch's battle plan for corporate revolution, was obtained from GE's head office in Midrand, South Africa. The book makes for very interesting reading and some of the learning points have been appropriately included in the research studies.

The GE Way Fieldbook explains how leaders can implement the same programmes that helped turn GE into a $100 billion juggernaut. GE's top-level corridors of power – including a never–before–published full-length interview with Jack Welch's veteran business author Robert Slater, pack innovative strategies, easy-to-use diagnostic exercises, detailed questionnaires, and more into the most hands on, applications-orientated book ever written on General Electric.

In time, Jack Welch, former CEO of GE came to view boundaryless behaviour as his most important business strategy. How boundaryless is the organisation? A GE developed questionnaire (Appendix 1) was electronically distributed to employees of Sasol in order to test the extent of boundarylessness within the organisation. Respondents had to complete an exercise to assess the extent to which each statement characterises the company. The results of the responses to the GE questionnaire are attached to Appendix 1 and formed the background towards the research study.

Share price statistics of Sasol (1980-2004) and BHP Billiton (1997–2004) were obtained from the Statistics Department of the Johannesburg Stock Exchange (JSE). Sasol's dividend payments for the period 1995 to 2004 were obtained from Brian McKinnon of Sasol Corporate Finance after a meeting held with him at Sasol's Head Office in Rosebank, South Africa. Sasol's annual reports for the periods 1995 to 2004 were also obtained. Sasol's key financial information was summarised and the main trends highlighted. The 2004 annual report of BHP Billiton was accessed via BHP Billiton's website.

Shareholder value lies at the core of High Performance Value Chain Organisations (HPVCO), and this requires special attention and emphasis.

Human Development statistics were obtained from the United Nation's websites. This was done, firstly, to compare South Africa with a country like Chile who also has a large agricultural sector; Secondly, to demonstrate the gap between the Human Development Index (HDI) rank and the GDP rank; and thirdly, to highlight the challenges for business leaders in South Africa and their responsibility to assist with the narrowing of the gap between the rich and the poor.

Various textbook readings were conducted in order to assist with the formalisation of an informed opinion. Various articles in magazines and newspapers were explored or used as background for the research study, for example newspaper articles covering the UK Barclays Bank takeover of the South African ABSA bank.

Most importantly, BHP Billiton at Richards Bay was visited where an interview with Chris Morkel, Superintendent Management Accounting, was conducted at the Bayside smelter. The main purpose of the visit was to create an understanding about BHP Billiton's organisational structures and ERP systems, which are regarded as world class.

The research opted for a combination of qualitative and quantitative analysis. Qualitative data collection included research, interviews and group discussions.

To summarise, a combination of the following research methods were used:

- The historical method that provides a means through which problems that arose from events that happened in times past can be dealt with.
- The descriptive method where data that comes through observation can be performed.
- The analytical survey method as pointed out earlier where data can be probed by means of statistics and certain meanings which lie hidden in the data can be inferred.
- The experimental method where in certain instances the entire research situation can be controlled.

1.6 Chapter layout

A logical approach was followed starting with the formulation of the problem statements in Chapter 1 in order to ensure a clear understanding of the problems currently facing the organisation. Only those problems with high impact, limiting the organisation's ability to convert itself into a High Performance Value Chain Organisation (HPVCO), were identified.

Chapter 2 describes the concepts of strategy and outlines the strategic management process, which forms the backbone of successful organisations. Some of the strategic planning tools and techniques that are available to assist with proper strategy execution are explored. The importance of value chain analysis and the means to achieve a cost advantage for the organisation, for instance by revamping the total value chain, are highlighted.

Once the problems were identified, the new challenges facing business today were outlined in order to gain understanding of what is required in becoming a world class organisation. The challenges globalisation poses to leadership are explained. Chapter 3 outlines the business model of General Electric (GE) and highlights boundarylessnes as an important GE strategy.

Chapter 4 explores shareholder value and explains why shareholder value lies at the core of a High Performance Value Chain Organisation (HPVCO). Different financial ratios that can assist management with the assessment of the performance of a listed company are outlined. The way management can maximise value for their shareholders is also illustrated.

Value chain concepts and definitions are explained in Chapter 5. This chapter outlines the basic business value chain activities in order to obtain a holistic view of a business value chain. The requirements in designing a value chain organisation are determined. Vertical integration strategies, more specifically backward and forward integration, are explored and the importance of value chain support systems assessed/considered.

Four value chain elements are identified, namely: people, processes, technology and information technology (IT). The research in Chapter 6 is limited to the human element and Information Technology (IT). High Performance Work System (HPWS) is defined and HPWS concepts are explained. On the IT front, ERP systems and systems exploitation were explored. The research envisaged how important the rollout of a global SAP system will become (Global SAP).

To measure is to know. It is important to measure performance before and after transformation of the value chain to determine how successful one is ("as is" and "to be"). Chapter 7 provides an understanding of value chain activities and outlines some guidelines for controlling the cost drivers that sit behind these activities. It also provides examples of high level enterprise and functional measures.

Strategy formulation is one part, implementation and articulation of the strategy throughout the organisation is the more difficult part. Chapter 8 attempts to present management with a strategic framework to assist it in achieving organisational alignment and successful execution of its strategy, putting strategy at the centre of the management process with the focus on the key drivers of strategy to enhance the concept of a High Performance Value Chain Organisation (HPVCO). Balanced Scorecard (BSC) is extensively explored as the most advanced tool that can be utilised by management to assist it with the successful implementation of its strategies.

Chapter 9 provides a summary of the research results and contains several recommendations on key business issues that were identified during the research.

1.7 Conclusion

There is a saying: "Incremental improvement is better than delayed perfection". This study does not attempt to provide all the answers to the problems mentioned earlier, but is rather a comprehensive framework to guide the organisation in its pursuit to become a High Performance Value Chain driven organisation.

During the research several case studies were developed that provide the reader with practical insight into many of the problems that organisations are facing today. Bound copies of these case studies are available on request.

"Research Collaborative" finds it rewarding to utilise opportunities like these to contribute to the wealth of nations through continuous research and learning collaboration.

CHAPTER 2
REVIEW OF RELATED LITERATURE

2.1 Introduction

An important indicator of the lack of competitiveness in South African organisations is typified by the cumbersome, inflexible manner in which they conduct their strategy formulating processes. These processes often appear to be sophisticated and practical. However, closer examination reveals that they have become paper chase exercises – entwined with formality, clutter and routine documentation that is not pertinent to strategy. Research found that the majority of managers in South African organisations rated between 35% and 45% of the routine activities in their strategy planning and review cycles as unproductive. Activities such as meetings, reviews and documentation were regarded as wasteful and failed to create any significant value for the customer base.

The phrase "structures follow strategy" is often heard. Before one can effectively deal with concepts related to High Performance Value Chain Organisations (HPVCO), it is important to first understand the concepts of strategy and how the strategic management process plays out. Effective strategy formulation and implementation is imperative for the creation of High Performance Value Chain Organisations (HPVCO). Organisational success is highly dependent on a very well thought through strategic planning process.

The word "Strategy" is a military term, from the Greek word meaning "generalship". It means the deployment of forces to meet the enemy under advantageous conditions. Just as strategy is developed at the highest military and political levels, strategic planning is a top management function (Firer, 2002: 17).

As an introduction and background to the research study, it is important to cover the following concepts of strategy separately, as part of the literature review:

- Advantages of strategic planning.
- Strategic management process.
- The strategy pyramid – diversified companies.
- Strategy and competitive advantage.
- Strategic planning: tools and techniques.
- Strategy implementation.

2.2 Advantages of strategic planning

The four elements of management are planning, organising, leading and control. It can be assumed that all managers plan. However, strategic planning is essentially a top management activity that involves the whole pattern of decisions that sets the long-term direction of an organisation. Planning becomes more conventional as one moves down the managerial hierarchy and mainly involves short time horizons. Organisations experience constant change and need to adjust to these changes on an ongoing basis. Changes in the business environment are almost the only stable aspect of the environment that businesses face today (Firer, 2002: 17).

The major advantages of strategic planning include (Thompson & Strickland, 2002: 34):

- Providing better guidance to the entire organisation on the crucial point of "what we are trying to do and how to achieve it".
- Making managers more alert to the winds of change, new opportunities, and threatening developments.
- Providing managers with rationale for evaluating competing budget requests for investment capital and new staff.
- Helping to unify the numerous strategy-related decisions by managers across the organisation.
- Creating a more proactive management posture and counteracting tendencies for decisions to be more reactive and defensive.

Firer (2002: 17) explains that the advantage of being proactive is that trailblazing activities can be the key to better long-term performance. Business history shows that high-performing enterprises often initiate and lead, not just react and defend. Firer further concludes that these enterprises launch strategic offensives to out-innovate and out-manoeuvre rivals and secure sustainable competitive advantage, then use their market edge to achieve superior financial performance. It follows that corporate strategy is particularly concerned with identifying business opportunities for which the organisation has or can develop a competitive advantage and then moving to exploit and enhance that advantage.

"Strategy is grounded in the array of competitive moves and business approaches management depends on to produce successful performance. Without a strategy, a manager has no thought-out course to follow, no road map to manage by, no unified action programme to produce the intended results" (Firer 2002 : 19).

2.3 The strategic management process

There are five essential tasks of strategic management (Thompson & Strickland, 2004: 6):

- Deciding what business the company will be in and forming a strategic vision of where the organisation needs to be headed – in effect, infusing the organisation with a sense of purpose, providing long-term direction, and establishing a clear mission to be accomplished.
- Converting the strategic vision/mission into measurable objectives and performance targets.
- Crafting a strategy to achieve the desired results.
- Implementing and executing the chosen strategy efficiently and effectively.
- Evaluating performance, reviewing new developments, and initiating corrective adjustments in long-term direction, objectives strategy, or implementation in the light of actual experience, changing conditions, new ideas, and new opportunities.

The strategic management process is outlined in Figure 2.1 below.

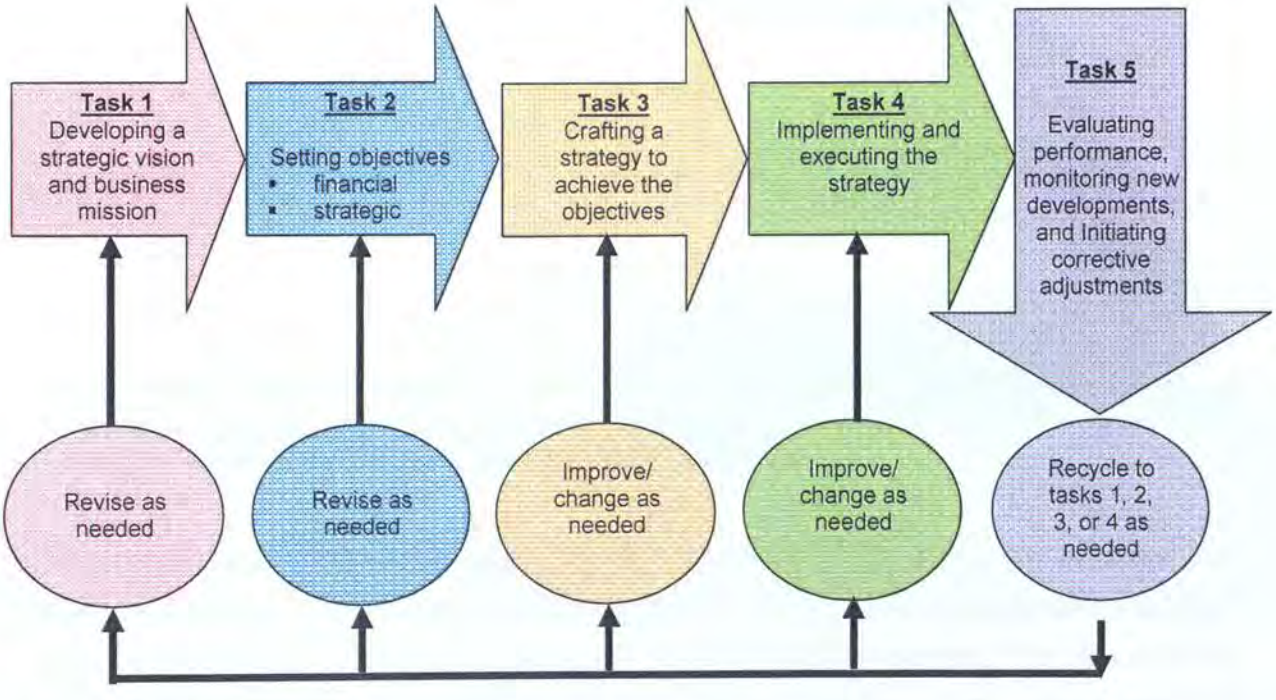


Figure 2.1 -The five tasks of strategic management

Source: Thompson & Strickland, (2004: 7)

2.4 Strategy pyramid - diversified company

There are a number of levels of strategic input that all address important components of visioning, setting of objectives, crafting, executing and monitoring a strategy. Figure 2.2 below outlines the four strategy layers of a diversified company.

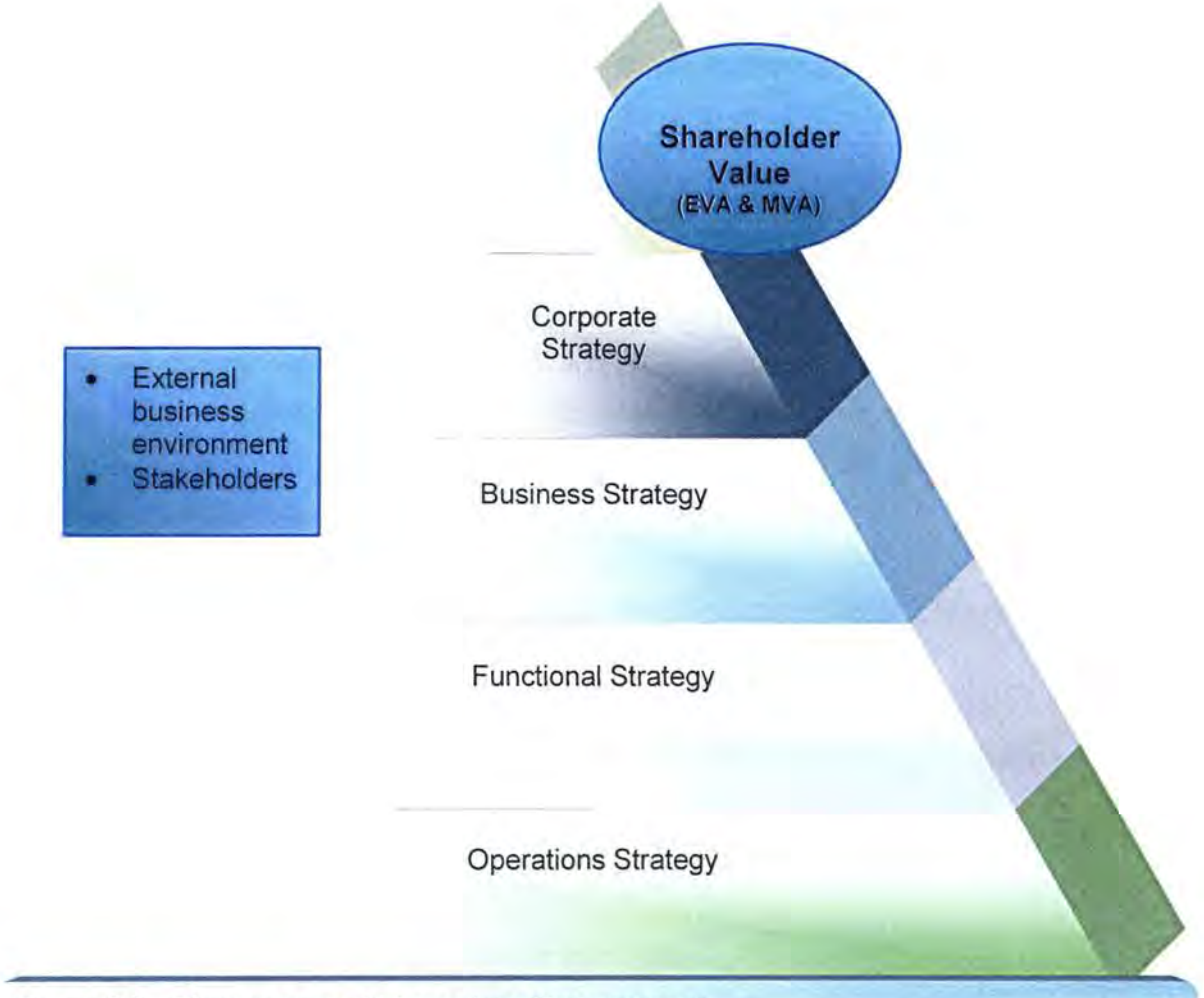


Figure 2.2 - Strategy pyramid for a diversified company
Source: Adapted from Thompson and Strickland, (2004:52).

The strategic layers of the organisation are tasked with developing corporate, business, and functional strategies. The next challenge is to integrate effectively the various levels of strategic focus with organisational structure, culture and the business environment. The plan must be synchronised in order to best achieve synergy in the aggregation of the various levels of strategic planning. Below follows a discussion of the various strategic layers in a diversified company.

Corporate Strategy

"The control of a large force is the same in principle as the control of a few men: it is merely a question of dividing up their numbers" (Sun Tzu, The Art of War, Hodder and Stoughton, 1995:31). This represents the overall strategic plan for the entire corporation. This is the action plan for a diversified company on "how a diversified company intends to establish business positions in the different industries and the actions and approaches employed to improve a group of businesses" (Thompson and Strickland, Strategic Management, Concepts and Cases, 13th edition, 2004:50).

Corporate level strategy is the vehicle for allocating resources among all its business parts. It should, however, be more than the sum of the parts; otherwise, the contingent parts could do just as well on their own without the burden of corporate structure. Strategic value is also added by initiatives throughout the organisation and business units to increase the company's performance as a whole. Corporate leaders must also add value to strategies created at business unit level, for example sharing strategic initiatives and growing the corporate intellectual understanding.

The following are some typical strategies that a diversified corporate will pursue to gain market share or drive to a sustainable competitive advantage:

- Vertical Integration.
- Forward Integration - Gaining ownership or control over distributors or retailers.
- Backward Integration - Seeking ownership or control of suppliers.
- Horizontal Integration - Seeking ownership or control over competitors.
- Diversification.
- Concentric - Adding new or related product lines.
- Conglomerate- Adding new, but unrelated product lines.
- Joint Venture- Two or more sponsoring firms forming a separate organisation for cooperative purposes.
- Retrenchment - Regrouping through cost and asset reduction to reverse declining sales and profits.
- Divestiture - Selling a division or part of an organisation.
- Liquidation - Selling off tangible assets, in parts, for their tangible worth.

Proper integration strategies are critical for the enhancement of high performance value to the

organisation. Integration strategies are practically discussed in Chapter 5, which deals with value chain concepts and definitions.

Business Strategy

"A contemporary business plan must be an actionable business plan that leaders can rely on to reach their business objectives" (Execution: the discipline of getting things done, Random House Business Books, Bossidy and Charan, 2002:33). A business strategy represents "Actions and approaches crafted by management to produce successful performance in one specific line of business" (Thompson and Strickland, 2004:54).

There are a number of techniques and tools used to gain insight into the aspects of the strategy formulation exercise. Value chain analysis (Figure 2.3), for example, allows managers the ability to analyse the activities in the business and ascertain which of these activities could be explored to potentially create a sustainable competitive advantage.

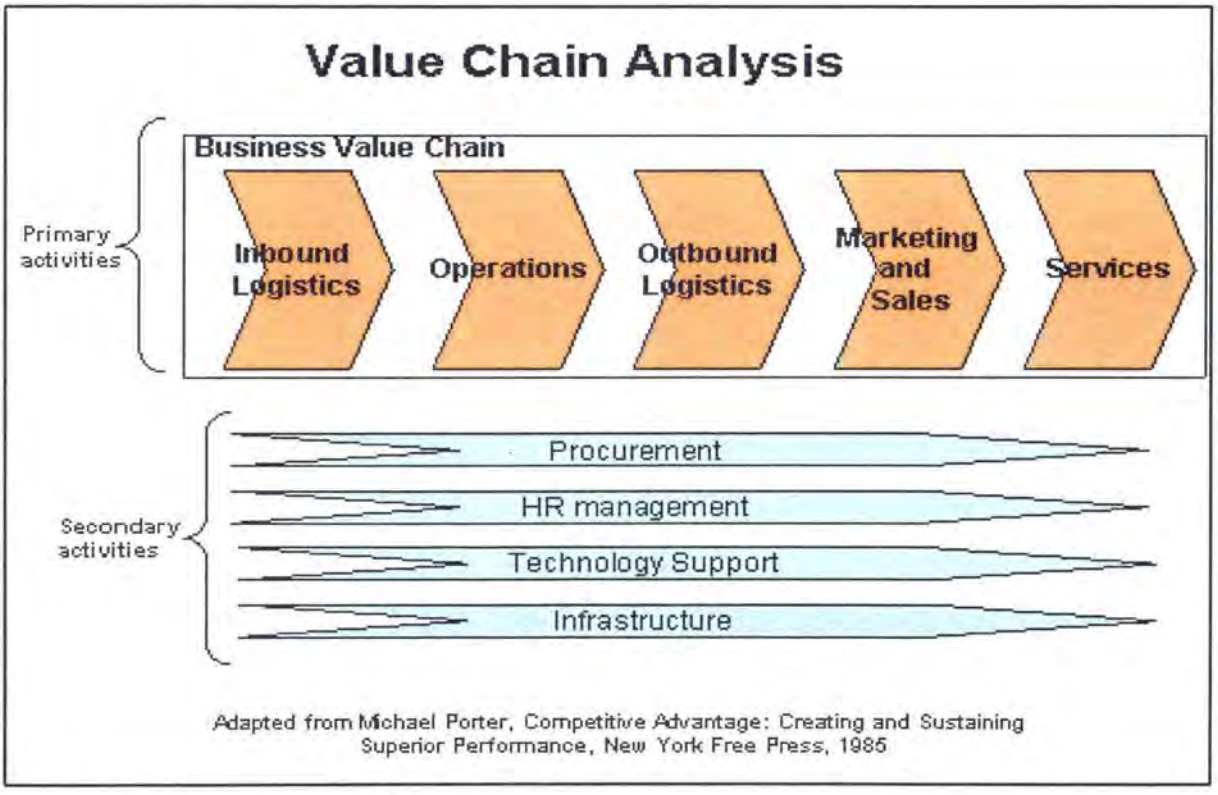


Figure 2.3 - Value Chain Analysis

Source: Adapted from Michael Porter, Competitive Advantage: Creating and Sustaining Superior Performance, New York Free Press, 1985.

These activities could be broken down further into discrete activities unique to particular companies. The sources of sustainable competitive advantage are all buried in the value chain.

Functional strategy

A functional strategy concerns the plan for running a major functional activity within a business (Thompson and Strickland, 2004:56). Functional strategies are goal-directed decisions and actions of the organisation's functional units, such as accounting, finance, production, marketing and others. These strategies add detail to business strategy and also steer how key activities will be managed. A business needs as many functional strategies as it has major functional activities.

Typical functional strategies will for instance address the following types of issues:

- **Human resource strategies:**

  Development, motivation, reward and placement of employees so that behaviour and performance are directed towards a competitive strategy.

- **Operations strategies:**

  How do we design our processes to meet customer requirements and support strategy?

It is important that an organisation periodically reviews all functional strategies to assure that they are consistent with the business strategy and other functional strategies.

Operations strategy

The operations strategy concerns an even narrower slice of the business and explains how to manage front line organisational units and how to perform strategically significant operating tasks. This will further support the chosen functional, business and ultimately corporate strategy that has been crafted and deployed.

2.5 Strategy and competitive advantage – a high performance value chain drive

A company's competitive strategy consists of the business approaches and initiatives it

undertakes to attract customers and fulfil their expectations, to withstand competitive pressures, and to strengthen its market position. Competitive strategy has a narrower scope than business strategy (Thompson and Strickland, 2004: 150).

According to Thomson and Strickland, competitive strategy deals exclusively with management's action plan for competing successfully and providing superior value to customers, whereas business strategy concerns not only how to compete but also how management intends to address all of the other strategic issues confronting the business.

There are five generic competitiveness strategies that can be considered by management (Thompson and Strickland, 2004: 150):

- A low-cost leadership strategy:
  Appeal to a broad spectrum of customers based on being the overall low-cost provider of a product or service.
- A broad differentiation strategy:
  Differentiate the company's product offering from rivals in ways that will appeal to a broad spectrum of buyers.
- A best-cost provider strategy:
  Give customers more value for money, with the emphasis on low cost and upscale differentiation.
- A focused or market niche strategy based on lower cost:
  Concentrate on a narrow buyer segment and out-compete rivals by serving niche members at lower cost than rivals.
- A focused or market niche strategy based on differentiation:
  Concentrate on a narrow buyer segment and out-compete rivals by offering niche members a customised product or service that meets their taste and requirements better than rivals' offerings.

To achieve a cost advantage, the cumulative costs across a company's value chain must be lower than competitors' cumulative costs.

Two ways to accomplish this:

- Do a better job than rivals of performing internal value chain activities efficiently and managing the factors that drive the costs of value chain activities.
- Revamp the value chain to permit some cost producing activities to be bypassed altogether.

Michael Porter, on the other hand, identifies three basic types of competitive advantage:

- cost advantage;
- differentiation advantage; and
- focus

Thompson and Strickland's five generic competitive strategies were used in this research.

A competitive advantage exists when a firm is able to deliver products and services that are the same as or equivalent to the firm's competitors, but at a lower cost (cost advantage), or deliver benefits that exceed those of competing products or services (differentiation advantage). Therefore, a competitive advantage enables the firm to create a superior value for its customers and superior profits for itself (QuickMBA 2004). The latter consequently constitutes a High Performance Value Chain Organisation (HPVCO) that provides superior value to shareholders or to the owners of the organisation.

2.6 Strategic planning: tools and techniques

One of the most challenging aspects of the strategic planning process is the assessment of the organisation's environment. In today's competitive environment techniques such as environmental scanning, forecasting, and competitor analyses are used with great effect. Some of the techniques are discussed by Firer (2002: 17 – 19). This study is focused only on benchmarking, a tool to measure how well the organisation is performing against competitors.

Benchmarking

Benchmarking is a continuous, systematic process for evaluating the product, services and work processes of organisations that are recognised as representing best practices for the purpose of organisational improvement.

The objectives of benchmarking are to understand the best practices in performing an activity, to learn how lower costs are actually achieved, and to take action to improve a company's cost and competitiveness whenever benchmarking reveals that the costs of performing an activity are out of line with those of other companies.

Tools are available to assist management of organisations with the costing and benchmarking of the various activities applicable to their businesses. An example of this is the Activity Based

Costing sub module within the SAP R/3 Enterprise Resource Planning (ERP) environment. SAP R/3 is one of several ERP systems that can be utilised to enhance the process of benchmarking and as a result help to create high performance value to the organisation.

Benchmarking is distinguished by a number of activities:

- Internal.
- Competitive.
- Process.

Internal benchmarking assumes there are differences in the work processes of a company as a result of differences among business units, geographical differences, local organisational history, customs, different relationships among managers and employees and different business processes. These differences need to be acknowledged when benchmarking results are analysed and interpreted. The nature of two business unit processes may differ or the technologies might be different. One may be more sophisticated than the other or more automated than the other due to the use of more advanced technology. One should always consider the cost implications.

The objective of competitive benchmarking, on the other hand, is for an organisation to identify specific information about competitors' processes, products and business results and then make comparisons to those of its own. When a company embarks on a low cost provider strategy, it makes sense to obtain the cash cost per unit produced or sold of its main competitors ($ or Rand terms), calculate the company's own cost converted into dollar terms and compare the results with those of its competitors.

An in-depth analysis is necessary to understand the differences. The reason for these differences can be attributed to different advancement in technologies, processes, currency fluctuations or organisational structures.

Process or activity benchmarking involves the identification of state-of-the-art products, services or processes of an organisation that may or may not be a company's direct competitor. The objective of this type of benchmarking is to identify practices in any type of organisation that has established a reputation for excellence in specific business activities such as manufacturing, marketing, engineering, warehousing, fleet management, or human resources.

The utilisation of benchmarking tools, together with tools and techniques such as environmental

scanning and forecasting, are critical for the enhancement of a high performance value chain organisation. To measure is to know.

2.7 Strategy implementation for the enhancement of a High Performance Value Chain Organisation (HPVCO)

According to Thompson & Strickland (2003) implementing strategy is primarily an operations-driven activity revolving around the management of people and business processes. Successful strategy implementation depends on doing a good job of leading, working with and through others, allocating resources, building and strengthening competitive capabilities, installing strategy supportive policies and shaping how the organisation performs its core business activities.

Thompson & Strickland (2003) view the execution of strategy as an action-orientated, make-things-happen task that tests a manager's ability to direct organisational change, motivate people, develop core competencies, build valuable organisational capabilities, achieve continuous improvement in business processes, create a strategy supportive corporate culture and meet or beat performance targets.

According to Thompson & Strickland (2003) "Companies don't implement and execute strategies, people do", which brings across a strong message that the focus of implementing strategy should be on the people and change aspect.

Porter, Thomas, Harper & Stephen (2003:53-60) believe that implementation does not involve pure execution of prior decisions, but requires cascading of additional decisions to put the strategy into place, involving specific "who, what, when, where, why and how" questions, not considered when the strategy was developed.

It seems that one of the keys to successful strategy implementation is for management to communicate the case for organisational change so clearly and persuasively to organisational members that there is determined commitment throughout the ranks to carry out the strategy and meet performance targets. The ideal situation is for managers to arouse enough enthusiasm for the strategy to turn the implementation process into a company wide crusade.

Chapter 8 explored the BSC as a strategic tool to communicate and articulate strategy through all levels of the organisation. The BSC provides management with a strategic framework.

2.8 Enhancing a high performance value chain culture: strategic choices and operating decisions

Leaders need to fully understand the value-creating differentiation options and the activities that drive uniqueness to devise a sound differentiation strategy and evaluate various differentiation approaches (Michael Porter, 1985: 124).

While managers' approaches should be tailor-made for the situation, implementing a strategy to build or enhance resource capabilities and the structuring of an organisation requires a certain basis that has to be covered no matter what the company's circumstances. This includes (Thompson and Strickland, 2004: 19):

- Building an organisation with the competencies, capabilities and resource strengths to carry out the strategy successfully.
- Developing budgets to steer ample resources into those value chain activities critical to strategic success.
- Establishing strategy – supportive policies and procedures.
- Instituting best practices and pushing for continuous improvement in how value chain activities are performed.
- Installing information, communication and operating systems that enable company personnel to carry out their strategic roles successfully day in and day out.
- Tying rewards and incentives to the achievement of performance objectives and good strategy execution.
- Creating a strategy – supportive work environment and corporate culture.
- Exerting the internal leadership needed to drive implementation forward and to keep improving on how the strategy is being executed.

Building core competencies, resource strengths and organisational capabilities that rivals cannot match is a sound foundation for sustainable competitive advantage.

Organisational competencies and capabilities emerge from establishing and nurturing collaborative working relationships between individuals and groups in different departments and between a company and its external allies.

2.9 Summary

When a firm sustains profits that exceed the average for its industry, the firm is said to possess a

competitive advantage over its rivals. The goal of much of business strategy is to achieve a sustainable competitive advantage (Quick MBA 2004).

Competitive advantage is created by using resources and capabilities to achieve either a lower cost structure or a differentiated product line-up. An organization positions itself in its industry through its choice of low cost or differentiation, and this decision is a central component of the firm's competitive strategy (Quick MBA 2004).

A competitive advantage exists when a firm is able to deliver products and services that are of the same as or equivalent to the firm's competitors, but at a lower cost (cost advantage), or deliver benefits that exceed those of competing products or services (differentiation advantage). Therefore, a competitive advantage enables the firm to create a superior value for its customers and superior profits for itself (Quick MBA 2004).

According to the resource-based view, in order to develop a competitive advantage, the firm must have an excess or superior resources and capabilities to those of its competitors. If there is no superiority, the competitors would simply replicate what the organisation is doing and the advantage would dissipate (Quick MBA 2004).

The organisation's effective use of its resources and capabilities forms its distinctive competences. These competences enable innovation, efficiency, and quality (Quick MBA 2004).

In the end, it is people who will make the difference, people with a mindset of winning. Organisations of today have to re-invent and renew themselves continuously to meet the challenges business is facing today. The status quo is not acceptable. In the next chapter we discuss organisational renewal and what a winning mindset entails.

CHAPTER 3
ORGANISATIONAL RENEWAL – A WINNING MINDSET

3.1 Introduction

The world's leading organisations' successes are mainly attributed to a mindset of total commitment to winning. The unquestionable power of a winning mindset starts from innovative leadership intent on making these organisations economically successful through large-scale organisational renewal. These organisations have competed in the global arena for some time now and have learnt what it takes to survive. Executives of these companies are more concerned with meeting new challenges than with maintaining the status quo.

Since the political transition in 1994, South African companies have had to face fierce international competition, which requires a prompt shift in the mindset of leaders. South Africans quickly realised that they had to reinvent themselves and that they were primarily responsible for unlocking the enormous economic potential of their country in order to compete successfully in the global market. South African companies, like their international counterparts, are constantly faced with a high degree of turbulence. The world economy has been characterised by a high degree of turbulence. Turbulence will continue into the foreseeable future with differing intensity. The challenge for leadership is to develop organisations that have the capabilities and resources to be managed for success through turbulent times.

South Africa needs organisations with renewal thinking that develops the mindset, attitudes, behaviours and best practices with the ability to create value for all stakeholders. It requires organisations with competitive fitness that can excel in an ever increasing competitive environment.

The best recipe for survival is a partnership between government and business, the two major players in the economy, integrating national priorities for business and government to achieve a unified policy of global intent. Set priorities that will stimulate growth, are desperately needed to alleviate poverty and unemployment in South Africa and thus to create national wealth. While organisational renewal and consequent rationalisation take place, a business model that enhances growth should be developed. Government has for too long been viewed as the body that creates regulations and red-tape that ties the hands of business. Business on the other hand is viewed by government as being concerned only with corporate wealth creation and the best possible return on capital employed (ROCE) to the benefit of its shareholders only – often

at the expense of the larger national picture. Social responsibility must be incorporated in all organisational models as a national priority.

The research in this chapter focuses on the role of business and the concepts of renewal organisations. The organisation as a living being, and what drives organisational renewal, is investigated. Corporate success and how success driven behaviours contribute to corporate success is also a focal point. Organisational structures and value chain design structures are explored. The research also focuses on McKinsey's ten-point blueprint for a horizontal organisation. Towards the end of the chapter the challenges of globalisation receive attention.

In time, Jack Welch, former CEO of GE came to view boundaryless behaviour as his most important business strategy (Robert Slater, 1999: 77). We search for answers to the following questions:

- How boundaryless is an organisation?
- How healthy is an organisation's hierarchy?

In order to get answers to the first set of questions, GE questionnaires were distributed electronically to employees of Sasol (Appendix 1 and 2). Responses to the first questionnaire (Appendix 1) are summarised, were used as background for the research, and are attached to Appendix 1.

The challenges of globalisation and its impacts receive attention. The South African ABSA Bank merger with UK's Barclay Bank illustrates the importance of addressing the challenges of globalisation, but also highlights the impacts that collaboration has on shareholders and South African society as a whole.

3.2 Renewal organisation concepts

Renewal is described by the Cambridge International Dictionary of English as "to increase life of or to replace something old". Organisation is described as "a group of people who work together in a structured way for shared purpose". A company can be classified as an organisation. The term renewal organisation describes those organisations that defy the old or traditional way of conducting business and replace it with renewal thinking. This is done through the exploration of new practices and through discovering new ways of value creation in a structured way as a group of people for shared purpose, in particular for a shared purpose of organisations, the nation and the world in general.

Renewal organisations exhibit above average levels of economic performance and do away with traditional thinking. They demonstrate renewed thinking through best practices, behaviours, ideas and values. They still perform exceptionally well despite turbulence, which will always be there yet with differing intensity. They have the ability to adopt towards change and different external environmental circumstances. For them it becomes purely a matter of "adapt or die". They have a strong belief in their own ability to make things happen in order to create their own destiny. They are characterised by a high degree of psychological stamina and a high degree of entrepreneurial spirit. They are willing to take calculated risks and overcome a sense of failure. They use their high degree of innovation and creative insight to achieve frame breaking results.

3.3 Corporate success

Measuring Corporate Success depends on the different viewpoints of the stakeholders of an organisation. Primary stakeholders of a company are, for instance, more interested in their return on investment or Return on Capital Employed (ROCE), the dividends that are paid to them and the growth of their share value, while government will view successful business as a protector of the environment, a contributor to taxation or a job creator. Employees will experience the company's success by sharing in the well-being of the company through special incentives or as life long employment. Companies are challenged to align strategy with the expectations of stakeholders. This may take the shape of rewards strategies in the form of special dividend payments to shareholders for achieving "windfall profits" due to exchange rate variations, or special incentive bonuses to reward employees for exceptional efforts. Expectations have to be balanced and managed by leaders.

South Africans are more familiar with financial ratios used in financial statements of companies and, in almost every analyst report, used to report on corporate success. These reports will include ratios like Return on Equity (ROE) and Earnings per Share (EPS) as measures of corporate performance, concepts and definitions that are discussed in Chapter 4. The people that prepare financial statements and analyst reports even compare these ratios with previous financial periods. Insightful leaders will recognise that nothing can change the past, but more can be done to create your own future. Past success is no guarantee for future success.

A more aggressive assessment of corporate performance can be done through calculating and interpreting a company's Market Value Added (MVA) and Economic Value Added (EVA) results. The MVA and EVA criteria were developed by Joel Stern and are comprehensively discussed in Chapter 4 and Chapter 8.

It is important to focus on practices that are essential for long-term sustainable growth and survival. Avoid the short-term quick fix approach and invest energy into value-driven activities for long-term gains. Anticipate the future.

3.4 Success driven behaviours

It is important to change or influence the way people behave. People are an organisation's most valuable resource. It is people who make things happen or not. The capability of an organisation cannot be mobilised without the incitement of the workforce. People must be willing and able to succeed. In this section we look at the behaviours that drive success.

3.4.1 Organisational incitement

This section describes how organisations can create and utilise competitive energy to ensure that their people have long-term endurance. It demonstrates how to create a high performance value chain organisation without stagnation. Psychological stamina forms the basic make up of a renewal organisation. This translates into people with the willpower to succeed and be persistent in everything they do, never giving up, not even during times of extreme turbulence.

Effective leadership plays an important role. Organisational transformation asks for renewed intellectual, inspirational and motivational leadership. People are inspired by team leadership, which is particularly effective in allowing opposite viewpoints and encouraging strong contenders to emerge from the team. In this way knowledge is shared and the influence sphere broadens. It helps with succession planning as the economy grows and more leaders are required.

Organisations should promote creative thinking and stimulate an enquiring mind, challenging the old but at the same time coming up with ideas and initiatives that will replace the old with the new. Create healthy debate and a culture where knowledge is shared. Allow for contending viewpoints and creative conflict. Constructive conflict is always good to get the best ideas out of people. Sometimes change cannot take place without constructive conflict.

3.4.2. Mobilising capacity

Capacity can only be mobilised if people are energised, moving the organisation purposefully beyond the conventional reach of its existing resources. A different mindset is created by following a different approach.

Develop new paradigm thinking, learning from previous experiences and replace the old with the new. Enhance operational excellence by focusing on speed, simplicity and self-confidence. The concept of operational excellence is discussed in Chapter 8. Underlying the renewal at General Electric (GE), Jack Welch used his famous cry of "speed, simplicity and self-confidence" to rally the organisation around the challenges facing a dominant player. He wanted GE to be the best and not second best, which illustrates the winning mindset created in GE. "You will become what you think you will become".

Speed is the essence in the response to market situations, provision of correct information where and when it is required, ease of decision-making and the elimination of obsolete practices and policies.

Simplicity is reflected in clarity of strategic intent, formal and informal communication, organisational structure and management process, as well as products and services.

Self-confidence is reflected in the willingness to challenge traditional conventions and to move away from an inward focus towards a more externally orientated approach.

Speed, simplicity and self confidence represent the major ingredients necessary to create High Performance Value Chain Organisations (HPVCO).

3.5 Organisational learning

Continuous benchmarking and the evaluation of best practices in terms of competitors, suppliers, distributors, customer organisations and other industry leaders has become one of the norms for organisational learning. One should, however, always think outside the box with the realisation that the "best" is not necessarily the best. Do not always follow the stream but rather critically evaluate better alternatives through creative insight, anticipating future needs. Learning must proceed at the same pace as the changing environmental and competitive landscape.

According to E. Nasser and Frank J. Vivier (1995: 49), many industry events have forced organisations to take notice, adapt or die. These include new technology breakthroughs such as interactive multimedia television through CD-ROM. Other significant events include the formation of mega-corporations through the forces of globalisation and the economies of scale achieved via global electronic highways. Sadly, few South African organisations truly understand

the future impact of technological changes on their industries and the impacts on organisational learning.

Competence Based Learning (CBL) has become the hallmark of renewal organisations of today. Everybody in the business has to be at least computer literate, able to use new electronic technology such as the internet. In years to come paper money and coins will be replaced by electronic transaction.

3.6 Organisational structure

Organisations are constantly seeking effective ways to utilise their resources (money, machines, materials and people), assets and know-how in their quest to optimise organisational structures. They seek to address factors of capability such as the role of the head office, organisational structure and value chain activities, and integrate through strategic planning.

A common objective of renewal organisations is to structure with the purpose of creating value. The renewal concept of introducing the horizontal organisation in the configuration of organisations was introduced by the McKinsey & Co organisation performance group. The concept of horizontal structures differs dramatically from the conventional steep hierarchical structures. The horizontal structure is an integrated organisational structure built around business processes with the main focus on emphasising the primary work output requirements as determined by stakeholders of the company's perception of wealth. Stakeholders include for instance shareholders, suppliers and customers.

Work should be driven by the expectations of the downstream business areas and not by the perceived expectations of the department manager. The horizontal organisation and value-chain concepts are clearly areas for concern and rapid action in South African companies. Organisations will be benchmarked on value chain activity within each process.

A blueprint for a horizontal company was prepared by Frank Ostroff and Doug Smith, consultants in McKinsey & Co organisation-performance group:

- Organise primarily around process, not task. Base performance objectives on customer needs, such as low cost or fast service. Identify the processes that meet (or do not meet) those needs – order generation and fulfillment or new-product development. These processes – not departments, such as sales or manufacturing – become the company's main components.

- Flatten the hierarchy by minimising subdivision of processes. It is better to arrange a team in parallel, with each doing lots of steps in a process, than to have a series of teams, each doing fewer steps. Give senior leaders charge of processes and process performance.
- Link performance objectives and evaluation of all activities to customer satisfaction.
- Make teams, not individuals, the focus of organisational performance and design.
- Combine managerial and non-managerial activities as often as possible. Let workers' teams take on hiring, evaluating and scheduling.
- Emphasise that each employee should develop several competencies. Only a few specialists are needed.
- Inform and train people on a just-in-time, need-to-perform basis. Raw numbers go straight to those who need them in their jobs, with no managerial spin, because you have trained frontline workers - salesmen, machinists – how to use them.
- Maximise supplier and customer contact with everyone in the organisation. That means field trips and slots on joint problem-solving teams for all employees all the time.
- Reward individual skill development and team performance instead of individual performance alone.

3.7 Challenges of globalisation

A significant number of multinational firms have entered the South African market since the political transition in 1994. A most recent example is the approved takeover of ABSA by the international British Bank, Barclays. Many, but not all South African organisations, understand the importance of addressing the challenges of globalisation and what a global mindset really entails. Business leaders do not always understand what is involved in such an endeavour.

Many South African organisations have followed the Sasol example by showing considerable foresight in recent years in developing off-shore interests and examining the underlying issues related to business practices in foreign environments. In the Sasol case the Joint Venture (JV) formed between Sasol and Petranos Malaysia, with the head office in the famous Petranos building in Malaysia is a more prominent example of successful collaboration. Petranos was not long ago rated as number 376 in the Fortune global 500 rankings. In contrast to companies like Sasol, an alarmingly high number of organisations appear to have been caught unprepared by the accelerating pace of South Africa's re-entry into the international markets. These organisations will have a shortage of internationally experienced managers who can "think local

and act global". They will lack a venturing approach, especially on foreign soil. They will not be able to develop the know-how for establishing sound international strategic alliances.

Access to and the exchange of technology is another form of collaboration. The first Sasol Polymers Polypropylene (PP) plant is based on the Targor Novelon technology (German). The new plant will be based on BP technology (British). Sasol, on the other hand, explores the opportunity of expanding its Fisher Tropch technology into China. Negotiations are already in progress and are at a sensitive stage.

According to Martin E. Nasser and Frank J. Vivier the relationship enterprise is a network of strategic alliances amongst big businesses, spanning different industries and countries with the same priorities and goals. Big businesses are encouraged to form partnerships. Current examples are the extended alliance that developed in the airline industry between SAA and British airways. They share the same infrastructural facilities such as buildings, terminals, maintenance and luggage facilities, yet they are competing against each other in the same industry. They share proportionally in the infrastructural costs and both become more cost competitive. It is referred to this type of collaboration as partnering. Asset sharing is common in the airline industry.

Emerging trends suggest that future global organisations will form strategic alliances around specific market opportunities which lie beyond the technological, organisational, political or financial reach of any one of the alliance partners. Again, this is demonstrated in the takeover of the South African ABSA Bank by British Barclays Bank.

3.8 Summary

International competition brought with it new challenges. To increase the strength of competitive pressure and to earn above-average profits requires renewal thinking and a mindset of winning. Globalising competition and expanding the geographic arena in which the organisation establishes a market presence becomes a high management priority.

The challenge is to unlock shareholder value. For too long shareholder value was locked up in the hands of a few institutional investors in South Africa, limiting the financial sources so desperately needed for growth. It is a well known fact that more than 70 % of the companies listed on the JSE are controlled by a few parents. An urgent quest exists to dramatically improve

the effectiveness of shareholders and enhance the stakeholder approach to the governing of the business sector.

Some principles were outlined that are at the core of renewal organisation thinking. These principles lead to a level of competency and competitiveness that has become the hallmark of renewal organisation thinking.

One of these principles of renewal thinking is the development of a horizontal organisation, as opposed to the traditional vertical organisation. A blueprint for a horizontal company, prepared by Frank Ostroff and Doug Smith, consultants in McKinsey & Co organisation performance group, was discussed.

In preceding chapters and sections shareholder value was mentioned several times. The next chapter provides an in-depth discussion of shareholder value, which lies at the core of High Performance Value Chain Organisations (HPVCO).

CHAPTER 4
SHAREHOLDER VALUE

4.1 Introduction

According to a Fortune magazine survey, some of the USA companies that are greatly admired are Microsoft, Dell Computer, General Electric (GE), Cisco Systems, Wal-Mart Stores and Southwest Airlines.

These companies have the following attributes, which separate them from the rest:

- Values driven.
- Sound financials.
- Long - term investment value (long term sustainable).
- Employee talent.
- Quality of management and effective leadership.
- Innovation and entrepreneurial spirit.
- Social responsible.
- Quality of products and services.
- Effective utilisation of assets.
- Sound corporate governance in general.

Many of these successful companies are changing the way business is conducted by utilising electronic networks at an amazing pace. South African companies are making several attempts to catch up.

Successful companies put incredible focus on using technology to reduce costs and inventory and speed up reliable product delivery to enhance shareholder value. These companies put strategies in place that reduce costs through innovative production and logistical processes (operational processes). They post above average annual stock returns, more than double the S&P 500's average annual return, due to their ability to generate cash through excellent innovations. A company can only generate cash flow if it also creates value for its employees, customers, and their suppliers, of which all are primary stakeholders of the company.

Shareholder value is the single most important aspect of a company that needs devoted management attention in striving to create a High Performance Value Chain Organisation (HPVCO).

Business interacts with society as a whole and has a social responsibility towards all stakeholders. What are the purpose and goals of a listed company? Stakeholder groups are outlined and the importance of stakeholder relationships is discussed. Shareholder value is defined and the maximisation of shareholder value is discussed. The study is focused mainly on the assessment of performance of companies by comparing traditional measurements with more progressive measurements such as the Economic Value Added (EVA) and Market Value Added (MVA) measures.

The value of a company is determined by the stream of cash flows that the operations will generate now and into the future. The value of operations depends on all the future expected free cash flows (FCF).

4.2 The purpose and goals of a listed company

The purpose of a company is not only to make profits. Companies are conducting business for the purpose of creating sustainable growth and value for all their stakeholders into the future over the long term. Companies do not create value for their owners only. Other stakeholders also benefit from the value created by an organisation. For this purpose, two stakeholder groups, primary and secondary stakeholders, are mentioned.

Business interacts with society in a variety of different ways, and a company's relations differ with different stakeholders. Business is interacting with groups that affect its ability to carry out its primary purpose of providing society with goods and services. Investors (stockholders) and creditors provide financial resources to the company; employees contribute their work skills and knowledge; suppliers provide raw materials, energy, and other supplies; and wholesalers, distributors, and retailers help move the product from plant to sales offices to customers. All businesses need customers who are willing to pay for the products or services being produced, and most companies compete against others offering similar products and services in the marketplace. These are the fundamental interactions every business has with society, and they help to define the primary economic mission of the company (James Post, Anne Lawrence and James Weber, 2002: 10-11).

A business's primary involvement with society includes all the direct relationships necessary for it to perform its major mission of producing goods and services for customers. These interactions normally occur in the marketplace and involve processes of buying and selling.

These primary involvements shape a company's strategy and the policy decisions of its managers and reveal the importance of its primary stakeholders.

These stakeholders, who are critical to the company's existence and activities, include: owners of the company or shareholders in the case of listed companies, employees of the organisation, including the unions, customers, suppliers, creditors and wholesalers, and retailers.

Shareholders are the owners and primary stakeholders of a listed company. They purchase stocks to earn a reasonable return on their investment without being exposed to unnecessary risks. Shareholder capital (equity) is normally the main source of funding for the company, while other sources of funding may be debt. Shareholders elect the directors of a company, who in turn appoint managers to run the company on a day-to-day basis. Managers mainly work on behalf of the shareholders (owners) of the company and are responsible to implement and maintain structures and policies that enhance shareholder value. Managers are obviously not acting on behalf of the shareholders alone, but are also responsible for people (employee) and customer satisfaction. Directors and management of a company also act in good faith of the community and society at large.

Management's primary goal is the maximisation of shareholder wealth, which implies the maximisation of the value of common shares held by shareholders in the company. Shareholders expect cash in the form of dividends to be paid to them at least twice in a financial year, on an ongoing basis. Dividend policy formulation is the responsibility of the directors and management of the company. Dividend payments are based on the after tax earnings and availability of cash generated through operations. Share price maximisation and dividend payment are the two most important goals for most companies.

4.3 Share price value and social responsibility

Maximisation of the share price and dividend payment in a capitalist environment is good for the society in general, even if the shares are held by institutional investors like pension funds, insurance companies and banks. Society at large invests in insurance policies and in pension funds for retirement purposes to earn a reasonable return the day they retire. Insurance companies and pension funds re-invest most of these funds. Employees have different investment choices in the case of pension funds, for instance investment in either a high risk, low risk or a more moderate or balanced risk portfolio. The portfolio will normally include investments in company shares, the property market or investment in shares of foreign

companies. In turn any return that an investor gets will be re-invested in the economy in some form, even if he just banks it.

To maximise the stock price and to be a successful enterprise, companies have to generate income growth through their operations in the form of sales of their products and/or services called revenue, by creating value for customers in the form of efficient service delivery, properly situated business infrastructures and sufficient stock levels, where applicable, in order to maintain a high level of service delivery. Stock price maximisation requires efficient, low-cost businesses that produce high quality goods and services at the lowest possible cost and which benefit the company's stakeholders and the consumer. In the case of oil and other commodities, as South African companies were exposed to international competition, they became more and more aware of how the international pricing mechanisms are operated. They understand that prices are purely based on the scarcity principle of world wide supply and demand. World supply and demand information can be obtained through widely published sources.

The benefits to consumers are huge. South Africa now has access to international capital sources and new technologically advanced products and services. This will deliver enormous benefits to consumers in the long term.

The actions of management to maximise share price performance and dividend payments have enormous potential to improve the quality of life of millions of ordinary citizens. South Africa is far lacking, with institutional investors and top management enjoying the cream of the South African economy.

The United Nations (UN) report on human development points out the gaps between the rich and the poor, hence posing huge challenges to governments and business leaders in South Africa. The Human Development Index (HDI) summarises important aspects of human development and provides a way of looking beyond income in assessing the welfare of nations. GDP per capita cannot be used to measure human development. GDP only reflects average national income. It tells nothing of how that income is distributed or how that income is spent - whether on universal health, education or military expenditure. Comparing rankings on GDP per capita and the HDI reveals much about the results of national policy choices. Attached is Appendix 3 with the latest HDI ranking by country extracted from the 2004 Human Development Report (HDR). South Africa is ranked number 119 compared for instance with a Latin American country such as Chile which is ranked number 43. The gap between GDP per capita rank and HDI rank for South Africa is 66 places, emphasising the gap between the rich and the poor. The

HDI focuses on life expectancy at birth, adult literacy rates and the combined gross enrolment ratio for primary, secondary and tertiary schools. All of the latter are prerequisites for the unleashing of growth in South Africa (United Nations.2004. Human Development Report (HDR). http://hdr.undp.org/statistics/data).

4.4 Maximisation of shareholder value

In 1996, Jim Collins and his research team set out to answer one simple question: "Can a good company become a great company?" Most great companies grew up with superb parents – founders like George Merck, David Packard, and Walt Disney – who planted the seed of greatness early on. But what about the vast majority of companies that wake up part way through life and realise that they are good, but not great (Jim Collins, 2001: 38)?

How does a company move from an average performer to a High Performance Value Chain Organisation? For now the research is focused on the share price, dividends payable to shareholders and several financial ratios used to assess the performance of a listed company.

Share price is determined by a company's ability to generate positive cash flows now and into the future. Shareholders are generally averse to risk, thus they will pay more for a share whose cash flows are relatively certain, rather than buy shares whose cash flows are not reasonably certain. Any asset, including shares of a company, is valuable to the extent that it generates net positive cash flows. Today, this principle also applies to the employees of the company. It is, however, not an easy task to place a value on employees in terms of the net cash they generate for the company.

The timing of the cash flows is important. The sooner cash is received, the quicker a company can serve its debt where applicable or reinvest the net positive cash flows back into the company to expand business to produce additional income. Most of the cash will be retained within the business in order to finance current operating activities and expansion projects to generate growth. The key purpose of the company is to grow in the long term. Some of the net cash can be returned to investors in the form of dividend payments or share buy-back schemes. The extent to which cash is paid back to shareholders will depend on the financial situation of the company and in which stage of the life cycle the company is. Mature companies will return a higher portion of their cash to shareholders than a company that is still in a growth phase. A company still in a growth phase will prefer to retain a big portion of the cash to finance existing operational activity and for reinvestment in growth projects.

Share price value will be enhanced by increasing the size of the expected cash flows of the company. The size of the net cash flows will increase by speeding up their receipt and reducing the effect of cash payments on the total net cash of the company. Effective payment can, for instance, be achieved through negotiated group contracts for common materials which gives the company the power to negotiate cheaper prices and a longer creditor payment term.

Cash flow optimisations require management to manage the total value chain, from material and supplier sourcing, to delivery of the right product to the right customer at the right location at the right time, and to the stage when payment is timeously received from the customer. A sale is not a sale if the money is not cleared by the bank. The cash cycle measurement is one way of measuring cash flow. The cash cycle measurement is determined in days and calculated by taking the debtor's days outstanding and adding the stock holding days to that, and then subtracting from this the creditor's payment days to eventually arrive at the measure commonly known as cash cycle. There are many other ways to calculate cash flow performance that will be discussed in this chapter.

The primary determinants of cash flows are unit sales (revenue), before and after tax margins, and capital requirements, working/operating and fixed capital included, all of which are key drivers of Economic Value Added (EVA), a term that will be discussed in much more detail later in this chapter and in other chapters that will follow. The EVA calculation is the most important measure to determine how effectively the business is managed from a cash flow perspective. It tells the shareholders of the company whether management has destroyed their wealth or the extent to which management has created wealth for its shareholders. It will also tell the shareholders of a company how the cash was utilised by management. Is the cash locked up in a bank or does management pursue a growth strategy by reinvesting cash in new growth projects with the main purpose of increasing future cash, thereby enhancing the shareholder value of a company.

It is not only management actions that affect share price. The value of shares is also influenced by external factors such as legal constraints, tax laws, labour laws, interest rates, inflation, exchange rates and exchange rate policies, the level of economic activity in a country and elsewhere in the world, the level of corruption in government, business and society in general, the safety and security situation in a country, health epidemics in a country or region (e.g. AIDS and bird flue) and many more.

Today, most analysts in the USA rely primarily on cash flow to assess the performance of a

company's share price. However, some attention is still paid to traditional accounting measures, for instance the Return on Equity (ROE) and Earnings per Share (EPS) ratios. Disappointingly, management of South African companies and company analysts primarily rely on traditional financial ratios to assess a company's performance.

4.5 Traditional financial ratios used to assess performance of companies

Most analysts are still using the traditional financial ratios to asses the performance of companies in South Africa. To illustrate this, the analyst reports of Impala Platinum and Anglo Platinum, both companies listed on the JSE under resource sector (platinum section), were researched. Analyst reports are not widely published and are extremely confidential. In this sub-section of the chapter, the purpose and contents of analyst reports and the financial ratios used by analysts are discussed. The most important ratios are then individually discussed in more detail.

The next section focuses on the more progressive methods used to determine the value of a company:

- Market Value Added (MVA).
- Economic Value Added (EVA).

4.5.1. The purpose of analyst reports

Analyst reports are based on research and are designed to reflect views about the subject securities and issuers, and are issued for a specific company. The information contained in analyst reports is confidential.

The following clause appears on the front page of the two analyst reports that were reviewed:
"Access to the reports by anyone other than the intended recipient is unauthorised. The reports are in their entirety specifically intended for use by institutional clients, and are not intended for use and should accordingly not be relied upon by private individuals whether clients or otherwise".

The analyst report starts off by providing the reason for the issuing of the report, for instance earnings revisions and results review, and end off by providing an opinion key. An opinion key includes a Volatility Risk Rating, an Investment Rating and an Income Rating. Volatility Risk Ratings are indicators of potential price fluctuations rated low, medium or high.

Investment Ratings are indicators of expected total return (price appreciation plus yield) within the 12 month period from the date of the initial rating, and are (1) Buy (10% or more for Low and Medium Volatility Risk Securities - 20% or more for High Volatility Risk Securities); (2) Neutral (0-10% for Low and Medium Volatility Risk Securities - 0-20% for High Volatility Risk Securities); (3) Sell (negative return/0; and 6 - No Rating).

Income Ratings are indicators of potential cash dividends and are rated: (7) same/higher (dividend considered to be secure); (8) same/lower (dividend not considered to be secure); and (9) pays no cash dividend.

The analyst reports issued by Barnard Jacobs Mellet and Merrill Lynch with regard to Anglo Platinum for the financial year ended December 2003 and Impala Platinum mines for the financial year ended June 2003 were researched.

4.5.2 Contents of analyst reports

The following are some of the ratios that are calculated and highlighted in analyst reports:

- Share Price (SA cents per share).
- Market Capitalisation (Rand Million).
- Free Float (%).
- Shares in Issue (Million).
- Monthly Trade (Rand Million).
- FTSE/JSE ALSI.
- Headline Income.
- Headline EPS ZAR/share.
- Earnings per Share (SA cents per share and US cents per share).
- Price Earnings Ratio (P/E)(times).
- Cash Flow per Share (CFPS).
- Price/Cash Flow (times).
- EBITDA.
- EBITDA Margin.
- EV/EBITDA Multiple (times).
- Dividend ZAR/Share (DPS)(SA cents per share).
- Yield (%).
- ADR Headline EPS (US cents per share).
- ADR Cash Flow per Share (ADR CFPS).

- ADR Ordinary Dividend (US cents per share).

An evaluation of the company is done and reported as follows:

- PE and EV/EBITDA
  - PE Multiple (times)
  - EV/EBITDA Multiple
- Return on Equity (ROE)
  - Price to Book
  - Return on Average Equity
  - Book Value/Share
  - Price to Book
- Free Cash Flow Method
  - Free Cash Flow
  - Free Cash Flow before Expansion
  - Free Cash Flow Yield
- Net Present Value (NPV) Method
  - NPV/Share
  - Price/NPV
  - WACC

After thorough analysis a summary opinion with key financial data is issued, for example the Merrill Lynch report issued for Anglo American Platinum on its results for the financial year ended December 2003:

- Investment Opinion – Local : C-3-8 to C-3-7
- Investment Opinion – ADR : C-3-8 to C-3-7
- Market Value (ZAR million/Shares Outstanding (million) : 65,109/217.03
- Book Value/Share : 58,434
- Price/Book Ratio : 5.13
- ROE : 17%
- Net Debt/Net Equity : 52,4%
- Estimated 5 Year EPS Growth : 8.9%
- P/E Relative to Home Market : 242%

The analyst's report focuses on the key ratios and the financial highlights of the company. Next follows a more detailed discussion of the most important financial ratios covered in the analyst reports.

4.5.3 Key ratios and financial highlights covered by analyst reports

Research of the analyst reports revealed the following as some of the traditional ratios covered in the reports:

- Earnings before Interest, Tax, Depreciation and Amortisation (EBITDA).
- Earnings per Share (EPS).
- Return on Equity (ROE).
- Free Cash Flow (FCF).

The following ratios, which are also useful, are briefly discussed in this section:

- WACC.
- Dividends per Share (DPS).
- Price Earnings Ratio (P/E).
- Earnings Yield.

The analysis and the interpretation of the data are more important than the calculation of the ratios.

4.5.3.1 Earnings before Interest, Depreciation, Amortisation and Tax (EBITDA)

Extracts from the analysis reports indicate that EBITDA is often calculated by security analysts. EBITDA is defined as earnings before interest, depreciation, amortisation and tax.

Depreciation and amortisation are similar in that both represent allocations of the costs of assets over their useful lives. Depreciation is an annual charge against income that reflects the estimated rand cost of the capital equipment used up in the production process. Depreciation applies to tangible assets such as plant and equipment, whereas amortisation applies to intangible assets such as patents and copyrights. Because depreciation and amortisation are similar, these two terms are often placed together on the income statement.

4.5.3.2 Earnings per Share (EPS)

Managers should strive to maximise the company's stock price by increasing cash flows both now and in the future. Managers should also strive to maximise profits or Earnings per Share (EPS) of a company.

According to Brigham and Ehrhardt (2002: 13) attention is still paid to accounting measures, especially EPS. The accounting performance measures are appealing (1) because they are easy to use and understand; (2) because they are calculated on the basis of (more or less) standardised accounting principles, which reflect the accounting profession's efforts to measure financial performance on a consistent basis both across firms and over time; and (3) because net income is supposed to reflect the firm's potential for producing cash flows over time.

According to Brigham and Ehrhardt management cannot ignore EPS, because earnings announcements send messages to investors. Say, for example, a manager makes a decision that will greatly improve future cash flows and thus raise the stock price, yet the short-run effect will be a reduction in this year's EPS. Such a decision might mean a change in inventory accounting policy that increases the reported cost of goods sold, hence lowers profits, but also increases cash flow because it reduces taxes. In this case, it makes sense for the manager to make the change because it increases cash flow, even though it reduces profits for that year. Note, though, that management must communicate the reason for the earnings decline. Otherwise the company's stock price would probably fall after the earnings announcement.

4.5.3.3 Return on Equity (ROE)

The ratio of net income to common equity is the most important accounting ratio. This ratio measures the return on common equity (ROE).

Return on Common Equity (ROE) = Net Income available to common shareholders ÷ Common Equity

Shareholders invest to get a reasonable return on their invested money, and this ratio indicates how well they are doing in an accounting sense. It is important to benchmark a company's ROE to that of the industry.

4.5.3.4 Free Cash Flow (FCF)

Net cash flow is defined as net income plus non cash adjustments, thus net income plus depreciation and/or provisions, for instance the provision for doubtful debtors. Cash flows cannot be maintained over time unless depreciated fixed assets are replaced. Management can therefore not freely use a company's cash flows the way it chooses. The analysts used the Free Cash Flow method to evaluate Impala Platinum and Anglo Platinum. Free Cash Flow (CFC) is

the cash flow actually available for distribution to investors, including both shareholders and debt holders, after the company has made all the investments in fixed assets and working capital necessary to sustain ongoing operations.

In accounting, emphasis is placed on the company's net income in the Income Statement, called its accounting profit. The value of a company's operations is determined by the stream of cash flows that the operations will generate now and in the future. The statement of cash flows and the Income Statement can differ substantially. Thus, accounting profit and cash flow can be quite different.

According to Brigham and Ehrhardt (2002: 46) the value of operations depends on all the future expected free cash flows (FCF), defined as after-tax operating profit minus the amount of new investment in working capital and fixed assets necessary to sustain the business. Free cash flow represents the cash that is actually available for distribution to investors.

Therefore, the way for managers to make their companies more valuable is to increase their free cash flow (Brigham and Ehrhardt, 2002: 47).

Free Cash Flow (CFC) can be used to:

- Pay interest to debt holders. The net cost to the company is the after-tax interest expense.
- Repay debt holders, that is, pay off some of the debt.
- Pay dividends to shareholders.
- Repurchase stock from shareholders.
- Buy marketable securities or other non operating assets.

The company does not have to use FCF to acquire operating assets, since by definition FCF already takes into account the purchase of all operating assets needed to support growth. Unfortunately, there is evidence to suggest that some companies with a high FCF tend to make unnecessary investments that do not add value, such as paying too much to acquire some other company. Thus, high FCF can lead to agency costs, if managers fail to act in the best interests of shareholders.

As mentioned before, FCF is the amount of cash available for distribution to investors. As a result, the value of a company primarily depends on its expected future FCF's. A case study that outlines how to calculate FCF of a small listed company has been developed.

4.5.3.5 Weighted Average Cost of Capital (WACC)

The required rate of return investors require is found as the Weighted Average Cost of Capital (WACC). A company's WACC depends jointly on its risk and the overall level of interest rates in the economy. The higher its risk, and the higher the general level of interest rate, the higher the WACC (Brigham and Ehrhardt, 2002: 48).

When investors provide a corporation with funding, they expect the company to generate an appropriate return on those funds. From the company's perspective, the investors' expected return is a cost of using the funds, and it is called the cost of capital. A variety of factors influence a company's cost of capital, for instance the level of interest rates, state and federal tax policies, and the regulatory environment, all outside the company's control. However, the degree of risk in the projects it undertakes and the types of funds it raises are under the company's control, and both have a profound effect on its cost of capital (Brigham and Ehrhardt, 2002: 436 – 437).

The cost of capital is a critical element in business decisions. When the decision involves a single project, it is called a "capital budgeting decision." Companies that consistently make wise capital budgeting choices create value for their investors, hence it is important for managers to understand the capital budgeting process. The cost of capital is also necessary to estimate the value of an entire company. When evaluating potential acquisition, it is vital to have a reliable estimate of the company's value. It is also important for a company to develop a corporate valuation model for itself. Such a model provides insights into the sources of the company's value, and it can be used to guide managers when they evaluate alternative courses of action.

Survey evidence indicates that almost half of all large companies use compensation plans based on the concept of Economic Value Added (EVA). EVA is the difference between net operating profit after-taxes (NOPAT) and a charge for capital, where the capital charge is calculated by multiplying the amount of capital by the cost of capital. Thus, the cost of capital is an increasingly important component of compensation plans.

What precisely do the terms "cost of capital" and "weighted average cost of capital" mean? To begin, note that it is possible to finance a company entirely with common equity. However, most companies employ several types of capital. These are called capital components, with common and preferred stock, along with debt, being the most frequently used types. All capital

components have one feature in common: the investors who provided the funds expect to receive a return on their investment (Brigham and Ehrhardt, 2002: 420 – 421).

If a firm's only investors were common stockholders, then the cost of capital used in capital budgeting would be the required rate of return on equity. However, most companies employ different types of capital, and, due to the differences in risk, these different securities have different required rates of return. The required rate of return on each capital component is called its component cost, and the cost of capital used to analyse capital budgeting decisions should be a weighted average of the various components' costs. This is called weighted average, the Weighted Average Cost of Capital, or WACC.

4.5.3.6 Dividend per Share (DPS)

Companies that are successful will strive to earn income. Income generates cash flow, which in turn can be used to pay off debt or reinvested into productive capital, or it can be distributed to shareholders. The cash that stays in the company can be utilised to partly or fully finance growth projects that will deliver a return higher than the invested capital. The following should be considered if the company decides to distribute income to its shareholders:

- How much of the income should be distributed and how much stays in the company?
- Should the distribution be in the form of cash dividends?
- Should the cash be passed on to shareholders by buying back some of the shares they hold?
- How constant should the distribution be? Should the funds paid out from year to year be stable or dependable, for instance based on the after tax earnings on a year to year basis or maybe dependable on the stage of the company life cycle the company finds itself in? A high growth company will prefer to hold back as much cash as possible in order to finance growth projects with cash.

One should keep in mind that the company's objective is always to maximise shareholder value. The percentage of net income to be paid out as cash dividends is called the target payout ratio. The target payout ratio should be based in large part on investors' preferences for dividends versus capital gains. The question is: do investors prefer to have the company distribute income as cash dividends or do they prefer to have it either as repurchased stock or as capital plowed back into the business, both of which should result in capital gains?

A company's operations can be financed with either debt or equity capital. If it uses debt, it must pay interest on this debt, whereas if it uses equity, it is expected to pay dividends.

Dividends per Share (DPS) = Dividends paid to ordinary shareholders/ordinary shares outstanding.

4.5.3.7 Price/Earnings Ratio (P/E)

The Price/Earnings (P/E) ratio shows how much investors are willing to pay per rand of reported profits. The P/E ratios are higher for companies with strong growth prospects (other things being held constant), but they are lower for riskier companies.

Price/Earnings (P/E) ratio = Price per share ÷ Earnings per Share.

It is again important to benchmark a company's P/E ratio with the industry ratio.

4.5.3.8 Earnings yield

Earnings yield = Earnings per Share ÷ Price per Share x 100 ÷ 1.

For research purposes the share prices and earnings yields for Sasol South Africa from 1980 were obtained from the statistical department of the Johannesburg Stock Exchange (JSE). Similar information was obtained for BHP Billiton, which has been listed on the JSE since 1997.

Share prices, earnings yields and the distribution of income to shareholders in the form of dividends are outlined in section 4.7 of this chapter. Sasol and BHP Billiton are used as case studies. Sasol is listed on both the JSE and the New York Stock Exchange (NYSE) whereas BHP Billiton is listed on the JSE and on the London stock exchange.

4.6 More progressive measurements to assess financial performance

Neither traditional accounting data nor the modified data discussed in the preceding section bring in stock prices, even though the primary goal of management is to maximise the firm's stock price. Financial analysts have therefore developed two new performance measures, MVA, or Market Value Added, and EVA, Economic Value Added. Next follows a discussion of EVA and MVA.

4.6.1 Economic Value Added (EVA)

Economic Value Added (EVA) is defined as net income from operations, less the cost of capital needed to produce that income. Related to Market Value Added (MVA), EVA measures the wealth a company creates each year. Generating a big positive EVA year after year is the key to enriching investors.

Capital is a measure of all cash that has been deposited into a company over its life without regard to the financing source, accounting or non-business purpose. Companies like Coca – Cola uses EVA to guide management decisions, such as whether to build a new plant or buy a competitor or sell off a division. The key to increasing EVA is to invest consistently in projects that earn more than their cost of capital. One only gets richer if one invests money at a higher return than the cost of that money to oneself. Projects that raise a return greater than the cost of capital will increase EVA and MVA.

A number of financial scenarios can be based on EVA:

- EVA can be calculated based on actual data by a major Strategic Business Unit (SBU) or major business within a company.
- Through an EVA scenario the sensitivities of losses in market share can be identified.
- EVA can be used to analyse the effects of losing market share on a company.
- EVA can be used to assist in estimating cost improvements required to recuperate market share losses.
- EVA can be used to calculate the returns that new projects or business will deliver to the company. Use a long-term scenario.
- An EVA scenario can be used to identify those business drivers that deliver the most value to the company. Is the main driver for instance price for a premium product or is it volumes?
- EVA can be used to measure performance and can be linked to performance rewards.

EVA is a surrogate for the value created or destroyed by a company. A positive EVA indicates that investors have made a good decision to invest in a company. A negative EVA indicates that they could get a better return for the same risk by investing their money elsewhere.

EVA is calculated by comparing the return on capital to the cost of capital. Firstly, one calculates the WACC for the company. The WACC differs by industry and country. The WACC for the banking industry differs for instance from that of the energy, oil and gas industry.

Figure 4.1 below provides a conceptual view of EVA. It is all about margins and cash flows. How do a company maximise cash and how is the cash utilised?

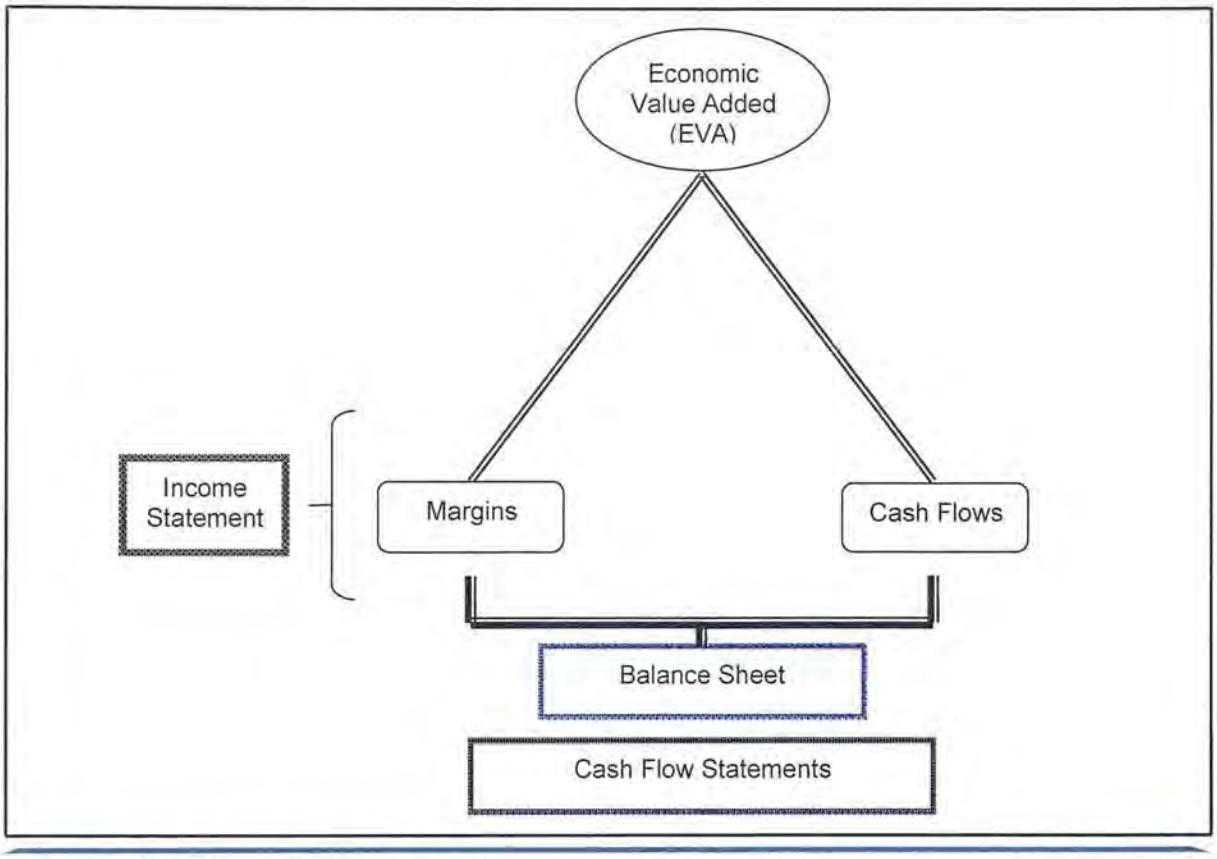


Figure 4.1 – A conceptual view of EVA
Source: Own source

Secondly the EVA can be calculated as follows (Example Figure 4.2):

(1) Revenue – Expenses (including tax) = Net Operating Profit after Tax (NOPAT)
(2) Fixed operating assets + Net Working Capital = Capital Employed
(3) NOPAT/Capital Employed x 100 = Return on Capital Employed (ROCE) (%)
(4) ROCE % – WACC % x Employment of Capital = EVA

The key drivers of EVA can be linked directly to operational measures. From the above EVA formulae it follows that the key business drivers are:

- Revenue.
- Operating expenses, including taxes.
- Fixed operating capital.
- Working capital.

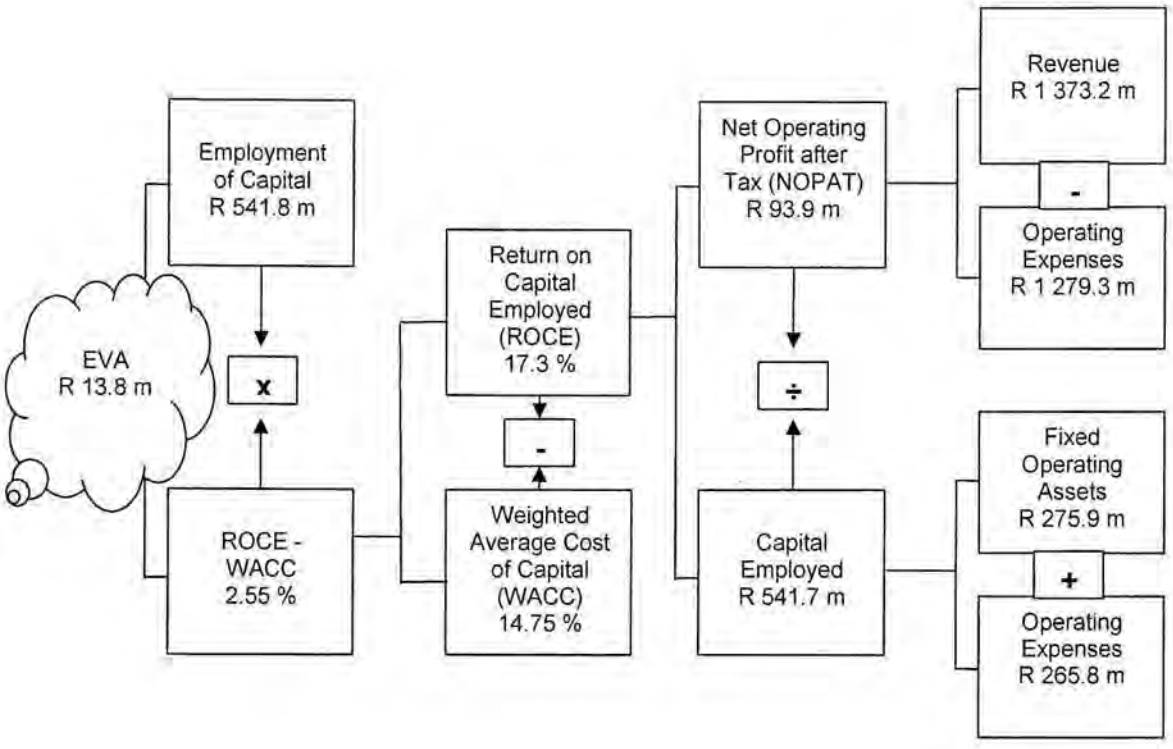


Figure 4.2 – Example of an EVA model
Source: Own source

Related performance measures can be identified for each driver, e.g. for the revenue driver pricing against international market related prices (import parity pricing) or in the case of operational expenditure benchmark cash fixed cost rand per ton against the world's best. These performance indicators can in turn be cascaded down the organisation and linked to the performance contracts of employees.

The EVA model allows analysis based on market share changes. One can calculate the EVA without any changes and then incorporate the key variable, in this scenario the market share change.

Whereas MVA measures the effects of managerial actions since the very inception of a company, Economic Value Added (EVA) focuses on managerial effectiveness in a given year.

4.6.2 Market Value Added (MVA)

MVA measure was devised by New York Consulting firm Stern Stewart. MVA gauges managers

by asking the most basic question in capitalism: How much have they increased or diminished the value of capital provided to them by lenders and shareholders?

Traditional questions asked:

- Who has the fastest growing Earnings per Share (EPS)?
- Who has the greatest market capitalisation?
- Who has the highest Return on Equity (ROE)?

Market capitalisation is the total value of all a company's outstanding shares. An increasing number of managers and investors worldwide are endorsing a different yardstick, called MVA. MVA looks like the best way yet for evaluating how well a company performs its basic mission of creating wealth for shareholders of a company.

To calculate MVA, Stern Stewart applied the following steps:

- Add up all the capital a company has collected from equity and debt offerings, bank loans and retained earnings over its life.
- Make further adjustments, capitalising Research and Development (R&D) spending, for example, as an investment in future earnings.
- Then examine the market's verdict on how well the company has employed its capital by checking the value of the company's stock and debt.

The difference between total market value (the amount investors can take out) and invested capital (the money they put in) is called MVA.

If MVA is greater than zero, the company has created wealth for its shareholders. If MVA is negative the company has committed business's inexcusable sin of destroying investors' capital and consequently their wealth.

The primary goal of most companies is to maximise shareholders' wealth. This goal obviously benefits shareholders, but it also helps to ensure that scarce resources are allocated efficiently, which benefits the economy. Shareholder wealth is maximised by maximising the difference between the market value of the firm's stock and the amount of equity capital that was supplied by shareholders. As mentioned, this difference is called the Market Value Added (MVA).

MVA = Market value of stock – Equity capital supplied by shareholders
= (Shares outstanding) (Stock price) – Total common equity

To illustrate, consider Coca-Cola. Early in 2000, its total market equity value was $139 billion, while its balance sheet showed that stockholders had put up only $9.5 billion. Thus, Coca-Cola's MVA was $139 - $9.5 = $129.5 billion. This $129.5 billion represents the difference between the money that Coca-Cola's stockholders have invested in the corporation since it was founded – including retained earnings – versus the cash they could get if they sold the business. The higher its MVA, the better the job management is doing for the company's shareholders.

MVA is sometimes defined as the total market value of the company minus the total amount of investor-supplied capital. For most companies, the total amount of investor-supplied capital is the sum of equity, debt, and preferred stock. The total amount of investor-supplied capital can be calculated directly from their reported values in the financial statements. The total market value of a company is the sum of the market values of common equity, debt, and preferred stock. It is easy to find the market value of equity, since stock prices are readily available, but it is not always easy to find the market value of debt.

4.7 Shareholder value and distribution of income to shareholders

4.7.1 Share price performance, Earnings Yield and dividend payments: Sasol, South Africa

Figure 4.3 capsulate shareholder value in the form of share price performance and Earnings Yield (%) for Sasol. Share price information was obtained from the statistics department of the JSE for the period 1980 to 2004. The trends from 1995 to 2004 were highlighted, the period after political transition in South Africa, which provides a better picture of the performance of the company in a global context.

The earnings yield (%) as calculated for Sasol is different from the earnings yields obtained from the statistics department of the JSE.

The earnings yield (Table 4.1) is calculated from the information gathered from the annual reports of Sasol using the following formulae:

Earnings yield	=	EPS ÷ Share price
EPS	=	Earnings ÷ Weighted number of average shares issued

The annual reports of Sasol for the previous ten years were researched and the key performance indicators are summarised in Table 4.1.

The record operating profit set in 1997 was exceeded in 2000 with an increase in headline EPS from 409 cents to 620 cents and an increase in the earnings yield for shareholders from 9.5 % to 13.6 %, despite a relative small change in the share price from 4 305 cents in 1999 to 4 550 cents per share in 2000. These increases were mainly due to a pleasing growth of 65.2 % in profits attributable to shareholders, up from 1999's R 2 479 million to R 4 096 million in 2000. Operating profit increased in 2000 with 70.0 % from R 3 701 million to R 6 262 million.

An all high record in operating profit of R 14 783 million was set in 2002, exceeding the previous record of R 10 619 million set in 2001 with 39.2 %. Earnings attributable to shareholders increased from R 7 125 million in 2001 to R 9 817 million in 2002, an increase of 37.8 %. The headline EPS reached an all high record of 1 603 cents per share. The earnings yield dropped, however, from 15.4 % in 2001 to 14.6 % in 2002, attributable mainly to the relative increase in the share price from 7 360 cents in 2001 to 11 000 cents in 2002 and also due to the relative increase in earnings and the headline EPS. If the shareholders expected the same yield of 15.4 % achieved in 2001, in 2002, the headline EPS should have been 1 698 cents per share (1 136 cents per share ÷ 7 360 cents per share × 11 000 cents per share) instead of 1 603 cents, a small difference in the EPS of 95 cents per share (1 698 cents - 1 603 cents).

Operating profit of R 11 911 million in 2003 dropped by 19.4 % from the all time record operating profit set in 2002 of R 14 783 million. One of the main reasons for the reduction in operating profit and attributable earnings to shareholders was the substantial appreciation of the rand against the US dollar. Higher average international crude oil prices, increasing by 20 % from US$23.4/bbl to US$27.83/bbl contributed partly to offset the adverse impact the appreciation of the rand caused. In the previous financial year 2002 the rand weakened against the US dollar by an average of 32 %, moving from an average exchange rate of 7.65 to 10.13 %. In 2003 the rand appreciated by 11 % against the US dollar, moving from an average of 10.13 to 9.03, which impacted on the profit for the 2003 financial year. It is pleasing to note that the earnings yield for shareholders remained more or less consistent at 15.4 %.

Operating profit dropped further by 21.8 % from R 11 911 million in 2003 to R 9 314 million in 2004. One of the main reasons for the reduction in operating profit and attributable earnings to shareholders was again the substantial appreciation of the rand against the US dollar.

Disappointingly though, the earnings yield dropped from 15.4 % in 2003 to 10.1 %, close to the average yields achieved in 1995, 1998 and 1999.

The chairman's statement of 2003 informed Sasol stakeholders that if the prevailing strength of the rand was to persist, it would be unlikely that rand earnings in the 2004 financial year would match those of the 2003 financial year. In the 2004 financial year, high international oil prices and the improvement of some US dollar-based chemical product margins somewhat reduced the serious unfavourable impact that the further strengthening of the rand had on earnings and cash flow. The average rand-to-US$ exchange rate strengthened by about 24 % and resulted in net adverse currency effects amounting to R 6 billion relative to the previous financial year (2003) (Adapted from Sasol, South Africa. Chairman's statement, 2004: 6).

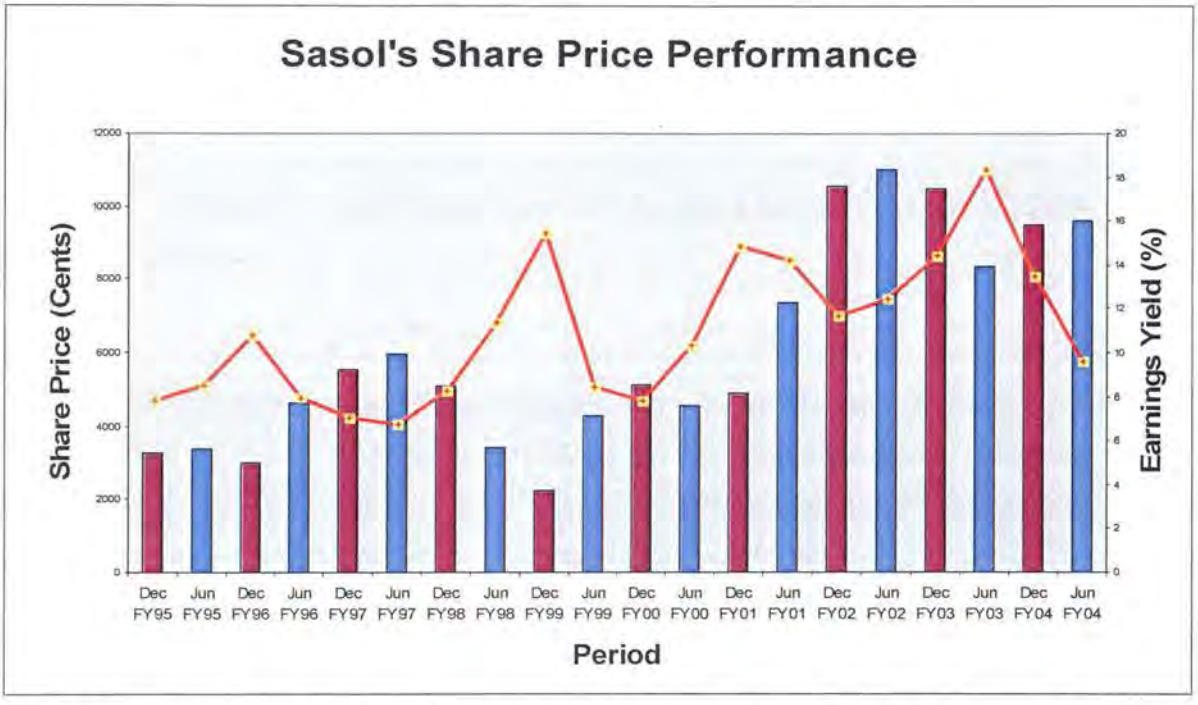


Figure 4.3– Sasol, South Africa share price and earnings yields (JSE), 1995 – 2004. (Source: South Africa, Johannesburg Stock Exchange (JSE). Statistics Department, 2005. Sandton, South Africa).

Source: Own source

Dividends paid per share to shareholders are, apart from the share price, also important from a shareholder wealth perspective. It is pleasing to note that dividend payments remained fairly consistent for the period June 2002 to June 2004 despite fluctuations in operating profit and earnings attributable to the shareholders of Sasol. The interim (December every year) and the final dividends (June every year) paid to shareholders of Sasol are outlined in Figure 4.4, below.

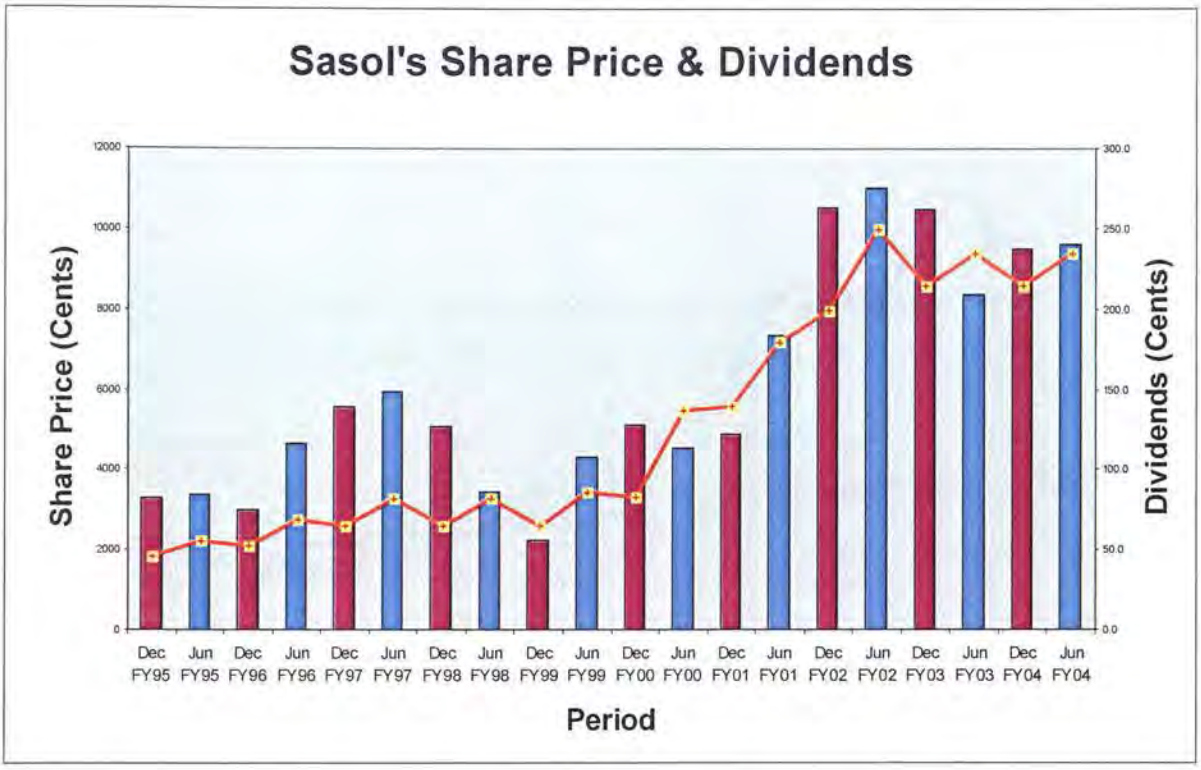


Figure 4.4– Share price and dividend payments for Sasol, South Africa, 1995 – 2004.
Source: Own source

Sasol is now an acclaimed global company, exploring every possible economically viable growth opportunity locally and abroad. The opening bell at the New York Stock Exchange on 31 March 2004 marked the listing of Sasol South Africa on the New York Stock Exchange (NYSE), announcing Sasol's global intent. Ernie Els, world famous professional golfer, was present during the occasion and bought some of the first Sasol shares listed on the NYSE. The purpose of the listing is to unlock the value of Sasol shares and gain access to international capital markets. Shares of listed companies on the JSE were traditionally held by institutional investors such as pension funds, insurance companies and others. The shares were bought and held for long term investment purposes and did not trade freely as they should have. Figure 4.5, compares the Sasol share price performance against the Standards and Poor 500 companies listed on the NYSE (S&P 500).

Unlocking shareholder value and gaining access to broad international capital markets to generate capital to finance future growth projects of Sasol are critical for the enhancement of a high performance value chain driven organisation. The company needs the funds to expand existing businesses and/or to invest in new businesses in order to improve shareholder value.

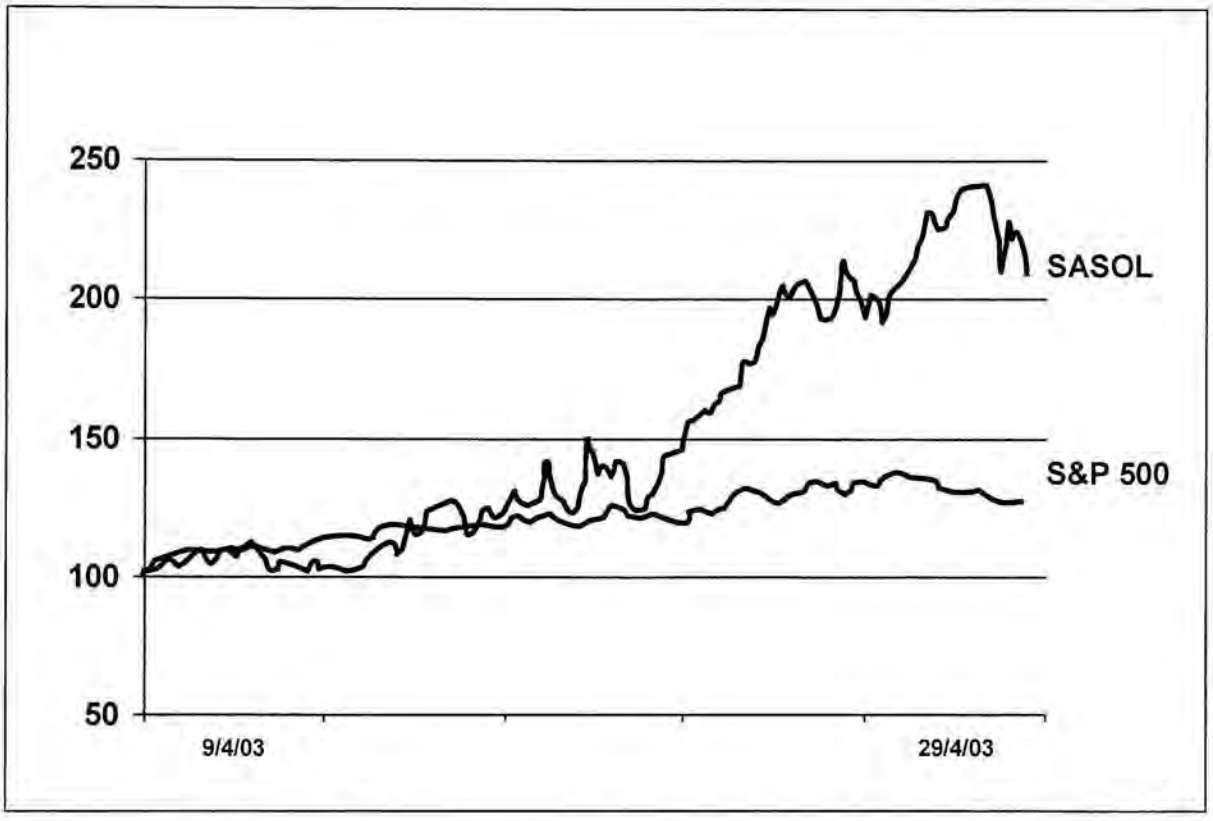


Figure 4.5- Sasol South Africa: New York Stock Exchange (NYSE) relative share performance since listing

Source: Own source

Sasol shareholders can feel fairly satisfied with the performance of their company if compared to BHP Billiton. What makes the performance of Sasol more remarkable is that BHP Billiton (Figure 4.7) is the largest diversified resource company in the world.

Table 4.1 – Sasol, South Africa: Key financial performance indicators, 1995 – 2004.

	June 1995	June 1996	June 1997	June 1998	June 1999	June 2000	June 2001	June 2002	June 2003	June 2004
Turnover (R m)	11 955	13 545	15 810	16 666	19 180	25 762	40 768	59 590	64 555	60 151
Operating profit (R m)	2 805	3 213	3 900	3 121	3 701	6 292	10 619	14 783	11 911	9 314
Earnings attributable to shareholders (R m)	1 860	2 076	2 548	2 075	2 479	4 096	7 125	9 817	7 817	5 940
Cash generated from operations (R m)	3 907	4 508	4 900	4 252	4 528	7 987	14 082	19 457	15 997	15 151
Undiluted attributable earnings basis (cents)	314	367	422	326	409	620	1136	1603	1283	974
Fully diluted attributable earnings basis (cents)	323	350	422	307	384	-	1123	1571	1262	1262
Undiluted headline earnings per share (cents)	-	365 348?	420	324	402	666	1258	1597	1280	934
Fully diluted headline earnings per share (cents)	303	327	393	305	377	-	1243	1565	1259	925
Number of shares in issue	-	603,1	604,7	605,1	606,1	606,8	665,0	666,9	668,8	-
Number of shares repurchased	-	-	-	-	-	27,8	47,1	57,9	59,7	-
Net number of shares in issue	585,6	603,1	604,7	605,1	606,1	579,0	617,9	609,0	609,1	-
Weighted average number of shares in issue (Nr of shares million)	575,6	593,5	604,1	605,0	605,8	604,4	627,3	612,5	609,3	-
Share price end of June (cents)	3383	4650	5950	3435	4305	4550	7360	11000	8355	9610
Earnings yield (%)	9.3 %	7.9 %	7.1 %	9.5 %	9.5 %	13.6 %	15.4 %	14.6 %	15.4 %	10.1 %

4.7.2 Shareholder value and Earnings Yield: BHP Billiton, South Africa

To put share price performance and the value of a listed company further into perspective, the share price performance and earnings yields of BHP Billiton are outlined in Figure 4.6 below. BHP Billiton is listed on the JSE, the NYSE and the London stock exchange.

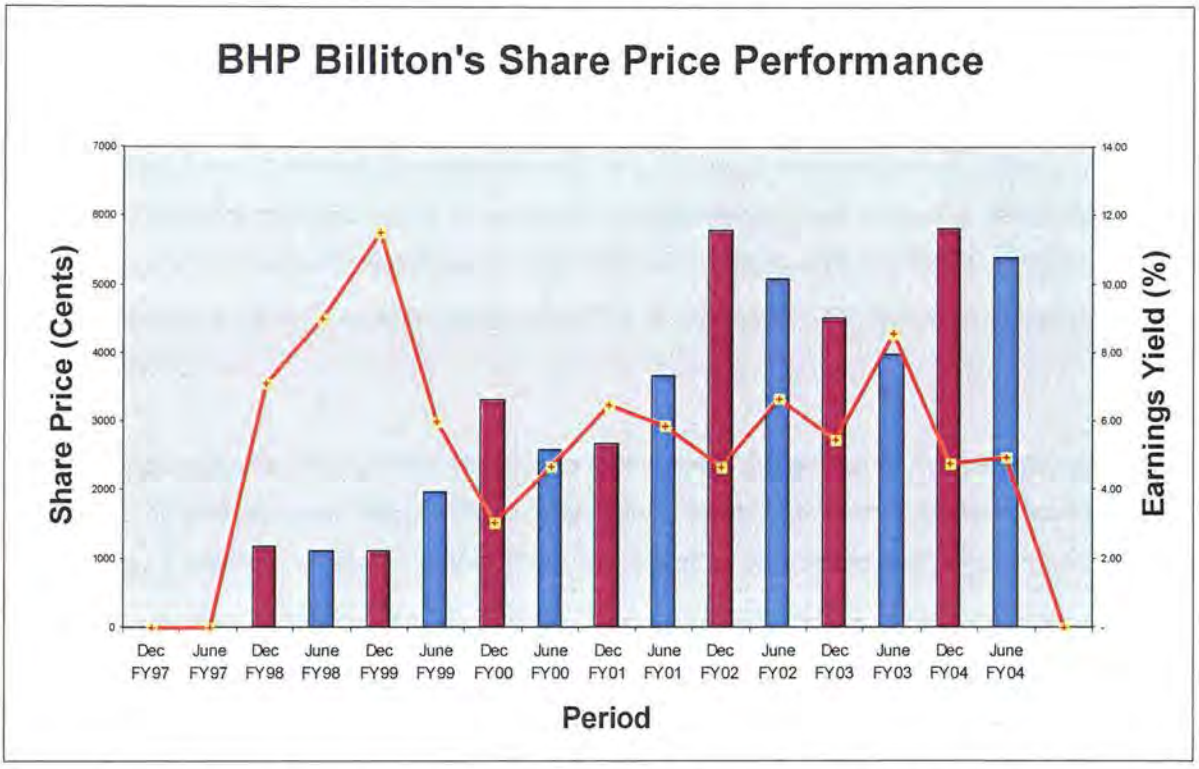


Figure 4.6 – Share price and earnings yields for BHP Billiton, 1997 – 2004 (Source: South Africa, Johannesburg Stock Exchange (JSE). Statistics Department, 2005. Sandton, South Africa).

Source: Own source

4.8 Summary

Management's primary goal is the maximisation of shareholder wealth, which implies the maximisation of the value of ordinary shares held by shareholders in the company. As pointed out before, the maximisation of the share price and dividend payment in a capitalist environment is good for the society in general.

The actions of management to maximise share price performance and dividend payments have

enormous potential to improve the quality of life of millions of ordinary citizens. South Africa is far lacking in this regard, with institutional investors and top management enjoying the cream of the South African economy.

Share price value will be enhanced by increasing the size of the expected cash flows of the company. The size of the net cash flows will increase by speeding up their receipt and reducing the effect of cash payments on the total net cash of the company. The importance of cash flow and the effective management thereof has been emphasised in this chapter.

Various ratios used to assess the performance of a company were identified. Most analysts are still using traditional financial ratios to asses the performance of companies in South Africa. The analyst reports of Impala Platinum and Anglo Platinum, both companies listed on the JSE under resource sector platinum section, revealed some of the traditional measures used to assess performance.

Neither traditional accounting data nor the modified data discussed in the preceding sections bring in stock prices, even though the primary goal of management is to maximise the firm's stock price. Financial analysts in the USA are utilising two more progressive performance measures, MVA, or Market Value Added, and EVA, Economic Value Added to assess performance of a listed company. We explored the EVA and MVA measures in this chapter. EVA and MVA are innovative measures to see who really is the best.

Shareholder concepts received attention prior to discussions on value chain concepts and definitions, in order to create a better understanding of shareholder value and the role of management of a listed company.

The next chapters capsulate the core of the research study, which includes the following topics: value chain concepts and definitions, value chain elements with the focus on the human element and information technology and value chain performance measures.

A company is as good as the sum of its individual parts. The next three chapters provide insight into the value chain approach of management.

CHAPTER 5
VALUE CHAIN CONCEPTS AND DEFINITIONS

5.1 Introduction

Companies must be ever concerned about their costs and alert to how their costs compare with rivals, especially when they have opted for a low cost provider strategy. The basic concept of cost analysis involves comparing how a company's unit costs or activity costs stack up against the unit or activity costs of key competitors activity by activity, thereby pinpointing which internal activities are a source of cost advantage or disadvantage (Thompson and Strickland, 2004: 129).

The primary tool of strategic cost analysis is a value chain identifying the separate activities, functions, and business processes that are performed in designing, producing, marketing, delivering and supporting a product or service. The chain of value-creating activities it takes to provide a product or service starts with raw materials supply and continues on through parts and components production, manufacturing and assembly, wholesale distribution, and retailing to the end user of the product or service (Thompson and Strickland, 2004: 129).

The basic value chain activities of a manufacturing concern were identified and the impact and benefits of value chain analysis were explored. Creating value with the primary focus on vertical integration, which includes concepts such as backward and forward integration, was assessed. Backward and forward integration are two important concepts in the value chain design process. The successful design of an organisation's value chain was examined and the support systems needed for effective value chain management were studied.

A dramatic departure from the conventional structure with its emphasis on steep hierarchies and vertical differentiation is necessary. The movement has been towards creating a horizontally integrated organisational structure. The main focus of the structure must emphasise the primary work output requirements as determined by the customers' perceptions of worth. The implication is that work should be driven by the expectations of the downstream business areas and not by the perceived expectations of the functional or department manager. The horizontal organisation and value-chain concepts have been slow to take off in South African organisations. This is clearly an area for concern and rapid action.

Organisations should strive for the improvement of the effectiveness and efficiency of the total

value chain to meet the needs of their customers and at the same time creating value for shareholders.

Value chain analysis allows managers to analyse the activities in the business and ascertain which of these activities could be explored to potentially create a sustainable competitive advantage. These activities could be broken down further into discrete activities unique to particular companies. The sources of sustainable competitive advantage are all buried in the value chain.

Revamping the makeup of the value chain is necessary for the company to become globally competitive. The primary ways a company can achieve a cost advantage by reconfiguring its value chains were studied. Company strategies cannot be implemented or executed well without a number of support systems for business operations. Innovative, state-of-the-art support systems can be a basis for competitive advantage if they give the company capabilities that rivals cannot match.

Most companies do not know where to start the process of value chain design. They appoint consultants at unreasonably high costs to assist with the analysis and design process without getting the full benefit from implementation. We recommend a project approach to be followed when analysing and redesigning the value chain. The benefit must outweigh the cost of design, enhancing the concept of a High Performance Value Chain Organisation (HPVCO).

5.2 Basic value chain activities

Chapter 4 showed that companies who posted above average annual stock returns are those companies that have the ability to generate cash through excellent innovations. The fundamental question to ask is: do investors benefit from this focus on value chain innovations, people (employees), technology, processes and customers? Shareholder value is the single most important aspect of a company that needs devoted management attention in pursuance of creating a High Performance Value Chain Organisation (HPVCO). Business value chains must be structured to create value for shareholders. In Chapter 4 EVA was defined as a more progressive method to measure shareholder value. Margins and cash flows are the two most important elements of EVA consisting mainly of cash generated from operations (NOPAT) and the amount of capital employed in the company.

One can distinguish between a business value chain and a product or service value chain. This research focuses mainly on the business value chain. An example of a product value chain is the process in which coal undergoes gasification to produce propane gas, which is purified and converted to propylene and then converted to polypropylene (PP)(granuals), with the final product sold to converters, who convert PP into end consumer products, for example cold drink crates, syringes, car body parts (vents) and washing baskets. The washing baskets are eventually sold to consumers at Pick 'n Pay or Hyperama shops for end use purposes. One can argue that it is here that the real value is created.

Figure 5.1 outlines the primary business processes and activities within a business value chain.

The primary processes in a business value chain are:

- Inbound logistics.
- Operations (manufacturing).
- Outbound logistics.
- Marketing and sales.
- Supporting services.
- Business Planning and Control (Planning and Scheduling).

These processes are supported by business support infrastructures such as Enterprise Resource Planning systems (ERP systems). The SAP R/3 system is a typical example of an advanced ERP system. Sasol South Africa has implemented all the basic SAP modules.

Next follow a discussion on value chain processes and activities that are generally supported by SAP R3 (Figure 5.1).

Planning and scheduling are critically important for cash flow planning purposes and lie on top of the system to ensure full integration across the total business value chain. The process begins with the sales demand forecast. From the sales demand forecasts, production volumes are planned as part of the Master Production Schedule (MPS). Product mix, market mix and production throughputs are taken into account in both the demand and production forecasts. This is supported by a profitability ranking per product grade, per customer (local and internationally), per country and per region. Risk, in this case customer and country risks, are taken into account when the final sales decisions are made. It is referred to this activity as Profits per Customer (PPC). From the Master Production Schedule (MPS) forecast, the Material Requirements Planning (MRP) is done. The MRP will indicate to buyers what raw materials or

services should be sourced, where the raw material can be sourced, how much of each raw material should be sourced and when the order for material should be placed. Lead times are critical to the sourcing process. The MRP is underlined by consumption factors and production throughput of each product grade. The process of planning and scheduling is sometimes referred to as Sales and Operations Planning (SOP). Timing is one of the key cost drivers.

The Inbound logistics process commences with the request and the release of quotations for the purchase of raw materials and services to the creation and the release of a purchase requisition (PR). This is followed by the creation and release of a purchase order (PO), the receipt of raw materials into quality inspection (QA), the release of raw materials from QA and the receipt (GR) of raw materials into the raw material stores (MM). Once an order is confirmed and issued by the system, a legal commitment for the supply of goods and the payment for goods evolves between the supplying company and the customer (Sasol). Inbound logistics deals primarilary with the procurement and supply of goods and services (P&SM).

Operations or manufacturing (SAP production or PP module) involves all the plant activities that contribute to the manufacturing of the final product (Make) to Quality Inspection (QI). A product is only released into the warehouse once it passes QI. In the case of Sasol Polymer PP Business, plant maintenance forms part of the operations process.

The outbound logistics (SAP product stock MM and S&D modules) process commences with the receipt of the finished product (Goods Receipt or GR) from production to the finished product warehouse (MM), the Post Goods Issue (PGI) of finished product from the finished product warehouse for dispatch and delivery to customers. Once the PGI is generated, the system automatically prints a customer invoice and Proof of Delivery (POD) documents. Customers are evaluated on a quarterly basis in terms of affordability and credibility by the marketing and sales and the credit control departments. Credit limits are approved for each customer separately and captured in the SAP system. A customer's sales order will be blocked if it exceeds the credit limits. The SAP pricing condition tables are reviewed and updated on a regular basis. Finished product is delivered to the customer through the SAP Sales and Distribution System (S&D). The customer acknowledges receipt of the finished product in a good condition by signing the POD document. By signing the POD, the customer accepts ownership of and liability for the payment of the product. A signed copy of the POD goes back to the supplying company (Sasol) who captures it on the SAP system (ERP system). The signed POD constitutes a transfer of ownership from the supplying company (Sasol) to the customer. The SAP POD box is ticked to

confirm that the signed POD has been received. The system then automatically matches the POD with the sales order and the Post Goods Issue (PGI).

Marketing and sales are involved with the marketing of the company's products and services, the issuing of system generated quotations to customers and the capturing of sales orders on the SAP system. Marketing and sales are supported by the credit control department or section. A legal commitment develops once the customer has confirmed the order.

Quality Management (QM) and Plant Maintenance (PM) are also primary business activities, providing critical support to the business, especially to the plant. QM is responsible for checking the quality of incoming goods (raw materials) as well as outgoing goods (final product).

PM is mainly responsible for maintenance on the plant, but is also responsible for other maintenance such as maintenance on bagging lines and buildings. Simply stated: a mechanic needs to ensure that a bus is in good running condition. The bus driver needs to know how and where to switch it on and how to drive it. Similarly, plant maintenance needs to ensure that the plant is in good running condition by doing pro-active maintenance. Proper maintenance scheduling is required. The plant people need to know how to safely operate the plant. For this reason Plant Maintenance can also be viewed as a core supporting function to the plant, its first and most important task.

The following are supporting services performed in the value chain:

- Financial.
- Information Technology (IT) and IT Infrastructure support.
- Administration services or infrastructure support.
- Legal.
- Human Resource Management (HR).
- Procurement and Supply Management (P&SM).

The importance of HR and IT will be discussed in the next chapter, which explicitly deals with value chain elements.

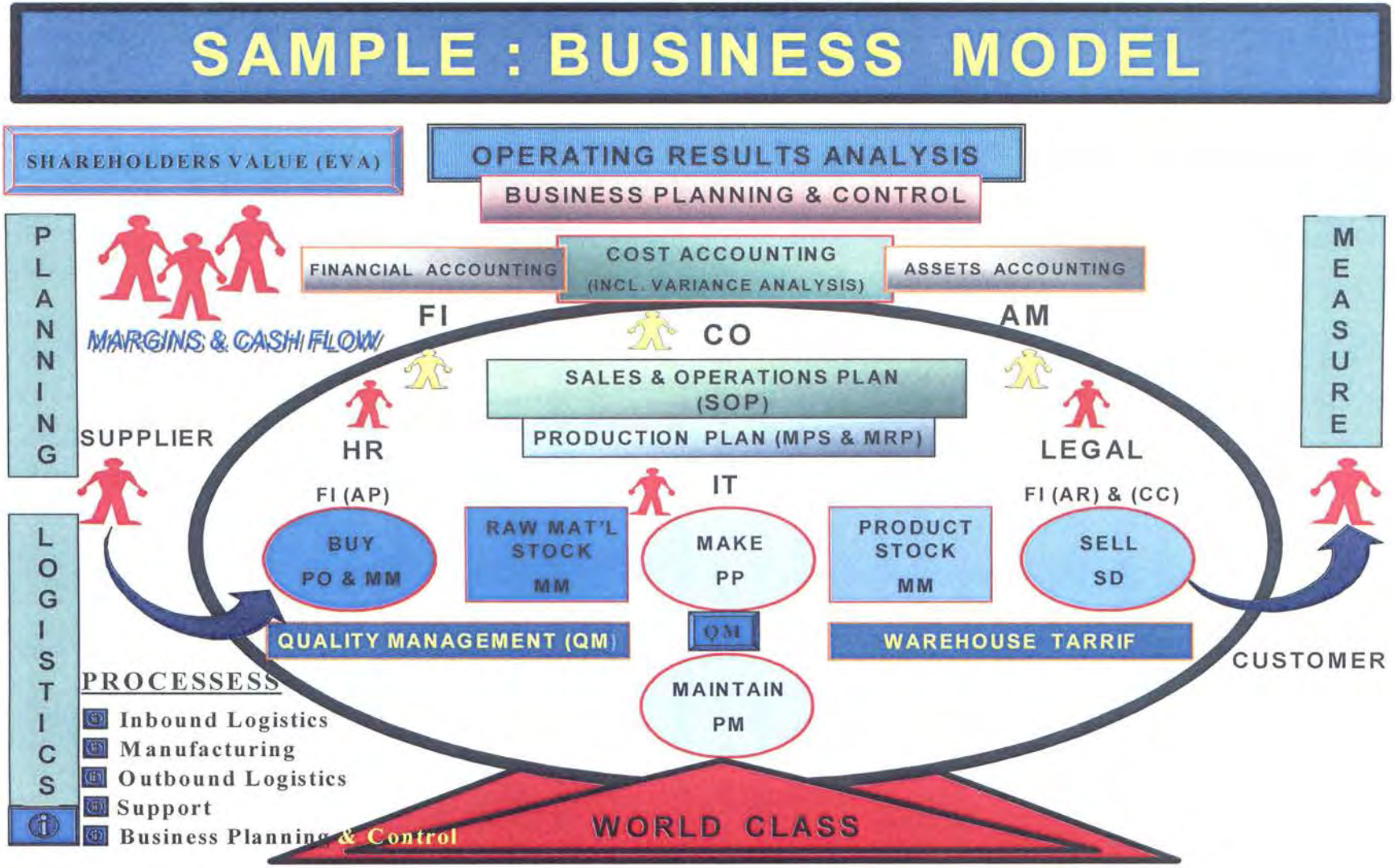


Figure 5.1- Primary business processes and activities within a business value chain

Source: Own source

5.3 Structure to create value

The movement has been to create structures that will add value to an organisation. Structures follow strategy, which implies that structures need to be aligned to the strategy of the organisation. In a company's pursuit of becoming a low cost provider, it should at all times strive to optimise across the total value chain in order to improve value chain efficiency and explore all the possible cost saving opportunities it can to increase shareholder value. A high performance value chain driven organisation/company is one that will take the necessary steps to re-engineer and restructure the business with the purpose of improving value for shareholders.

The concept of a horizontal organisation (developed by McKinsey) has introduced a new dimension to the configuration of organisations today. It reflects a dramatic departure from the conventional deep hierarchical structures, through its emphasis on vertical differentiation and integration. The movement has been towards creating a horizontally integrated organisational structure with the main emphasis on the primary work output requirements as determined by the customers' perceptions of worth. The aim is to create an outward focus on the customer, with backward integration imperative for the company's success. It is important again to take note of the ten-point blueprint for a horizontal company prepared by Frank Ostroff and Doug Smith, consultants in McKinsey & Co organisation-performance group, discussed in Chapter 3.

The positive impact of a limited horizontal focus in large vertically-structured businesses is often underestimated. This is particularly the case with large, established, diversified organisations in manufacturing, chemicals, utilities and services. The research found that many of these organisations are intensifying the search for a new organisational configuration. The new architecture is intended to deal with issues such as management complacency, bureaucratic obesity and a lack of competitive fitness. Process-driven, it intends to remove work that does not create customer value but is driven by functional self-interest.

As a result of the investigation different shared service business models can be considered:

- All supporting services into one Sasol Shared Services Organisation (SSO). A separate private (PTY) company with Sasol Limited 100% ownership. The offices centrally situated in Rosebank, South Africa, close to or in the same building as Sasol Limited. A separate legal entity for company tax purposes.
- Supporting services into one Sasol Shared Services Organisation (SSO). A separate division within Sasol Limited centrally situated in Rosebank, South Africa, close to or in

the same building as Sasol Limited. Not classified as a separate legal entity for company tax purposes.

- A Shared Service Department for each supporting service at different locations, e.g. Financial (FI) in Rosebank and HR in Secunda, South Africa.
- A Shared Services Hub for each supporting service, for instance a Financial Shared Services Hub in Secunda, South Africa, and another FI Hub in China, Europe or in South East Asia (Malaysia).
- All secondary services into one Hub per country, for instance Sasol Group Shared Services South Africa in the Sasol Limited Building Rosebank, South Africa, or in a separate office.

The type of model will depend on the nature of the industry or business within that industry. The following are some of the key issues to be considered before implementation:

- A formal corporate governance structure of proportionate ownership to be put in place.
- Shared services must support the organisation's corporate and business strategies.
- Establish Centres of Excellence, e.g. taxation and others.
- Quantify the benefit versus cost relationship before implementation.
- Infrastructural supporting structures, e.g. IT support.
- Role clarity between shared services and operating businesses.
- Investigate world best practices as part of scoping.
- Define the "as is" and the "to be" clearly.
- Set clear project objectives.
- Decide on an appropriate business model.
- Change management to facilitate change.

The implementation of shared services requires broad base thinking. Think globally and act locally. It is important for organisations to implement key leading practices that have been proven to increase cost savings and enhance the overall performance of an organisation with the explicit objective of increasing shareholders' value.

5.4 Designing a value chain organisation

The successful design of an organisation's value chain requires the analysis and identification of those value streams required for creating superior customer and shareholder value. The horizontal organisation can typically capsulate superior customer and shareholder value if correctly designed and implemented, because of its fundamental design around business

processes. The next challenge is then to establish multifunctional teams that are geared towards managing the entire value chain from start to finish. These teams are managed by team leaders who are responsible for the development of an integrated process approach to meet the required value-output standards expected by the downstream value-chain areas. A ten point blueprint for horizontal organisations has been outlined in Chapter 3, section 3.6.

The best solution to improving the value chain lies in overhauling the vertical functional structures in critical areas of the value chain. This often involves restructuring traditionally separate functions such as customer services, accounts receivable and technical support, into an enlarged process team aimed at a distinctive market segment and specific customer value outputs. Boundaries between functions are removed by establishing common value output areas, linked to specific performance standards, which are negotiated among team members and value chain co-members, and checked with customers. These changes are mostly identified, introduced and implemented by the employees, with managers often merely acting as facilitators. In organisations that adopt the horizontal approach, the shift from a task culture towards a value-driven culture has been more than apparent.

A typical business case to support change is shown in Table 5.1 below.

Table 5.1 – Business case to support change in the organisation

Organisational structure	Organisational competencies	Business case for change
• Leadership structure. • Reporting relationships. • Spans of control. • Roles and responsibilities. • Job designs. • Staffing levels. • Career paths.	• Functional supply chain knowledge. • Analytical/problem solving skills. • Technical/computer skills. • Customer and market knowledge.	• Improved service for customers. • Reduced supply chain costs. • Improved communication within the organisation. • Faster response to market changes.

In order to obtain a better perspective on designing a value chain driven organisation, Figure 5.2 illustrates a range of options available to management. Again, questions develop around centralisation and decentralisation, or this time maybe a hybrid organisation that is a combination of centralisation and decentralisation.

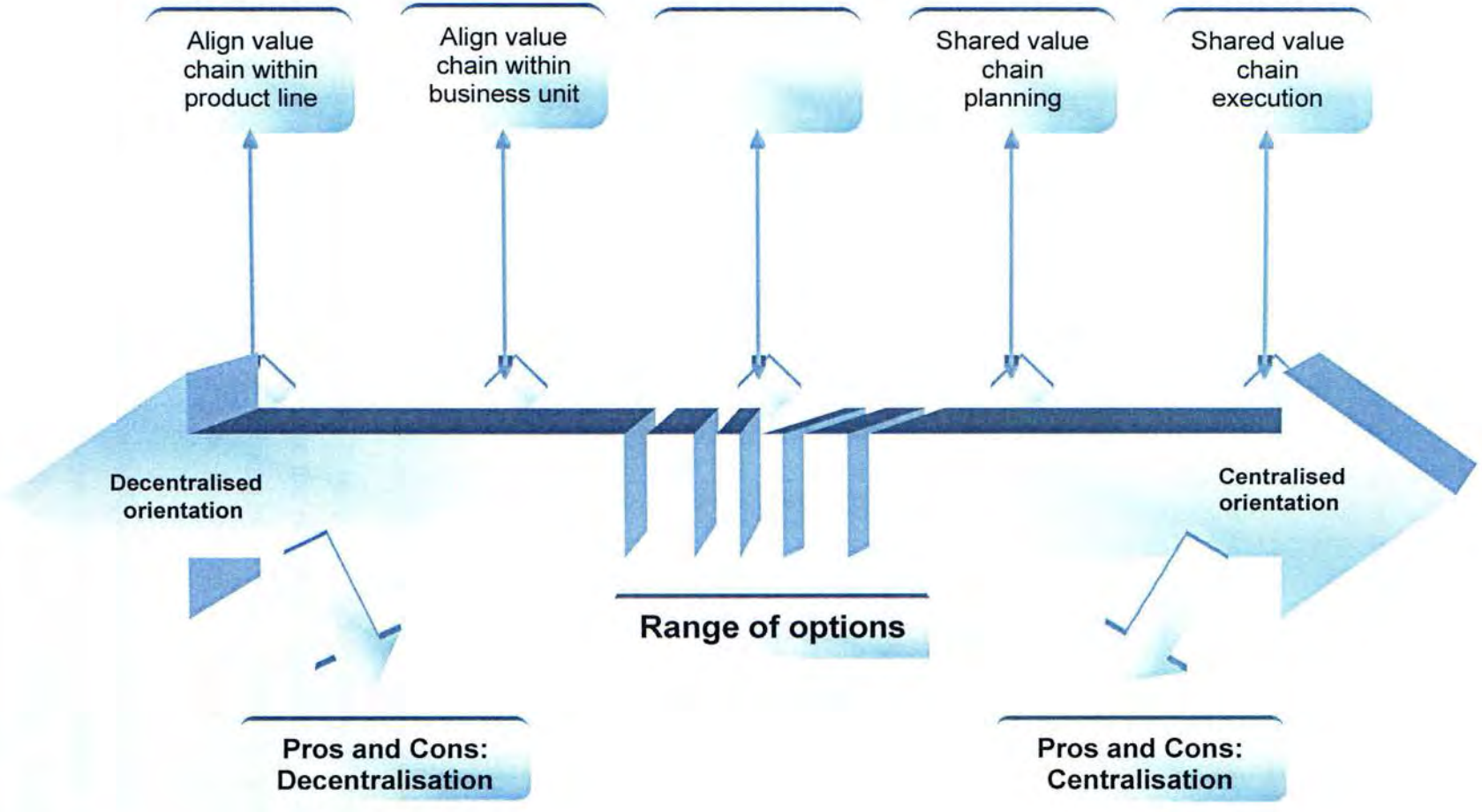


Figure 5.2 - Perspectives on designing value chain organisations: a range of options
Source: Own source

Research shows that there are pros and cons for decentralisation and centralisation. The pros and cons of decentralisation and centralisation are summarised in Table 5.2 below.

Table 5.2 – The pros and cons of decentralisation and centralisation

Decentralisation		Centralisation	
Pros	**Cons**	**Pros**	**Cons**
• Strongly aligns value chain with profit and loss responsibility. • Exploits business and customer knowledge.	• Deep value chain planning skills more difficult to obtain. • Potential to focus on day to day fire-fighting instead of planning. • Organisation is fragmented and sensitive to turnover. • Likely to sub-optimise value chain costs.	• Increased staffing options. • Achieve more efficient use of value chain planning resources. • Greater opportunity for company-wide value chain optimisation. • Standardisation across the value chain.	• Customer or business focus may be diminished. • Value chain costs are not strongly aligned with ownership of profits or losses. • Value chain planning can become disconnected from the business unit goals and objectives.

The outcome of introducing the value chain approach to organisational structure in South Africa has been promising. Although the idea of the horizontal organisation is new to South African organisations, research found that substantial benefits could be gained from horizontal structures.

The value chain is a new phenomenon of boundarylessnes (described in the case of GE discussed in Chapter 3) that symbolises the close integration between the organisation, its employees (Employee Self Service (ESS)), its suppliers, customers, agents or distributors and other secondary stakeholders such as the Receiver of Revenue (ROR), the Reserve Bank and the Department of Trade and Industry (DTI) in South Africa. The approach followed by the Sasol

Polymers, PP Business (product silos at customers) in South Africa, capsulate this phenomenon of boundarylessnes. The business followed a philosophy of co-destiny with all or some of its stakeholders. This entailed a co-destiny with its customers in optimising systems and integrating processes between the business and its customers, and creating value for its stakeholders, primarily the shareholders of Sasol Limited, the mother company. The bond between the business and its customers has been strengthened as a result of this closer integration that has taken place. This has been achieved through:

- Re-engineering the value chain; and
- Creating opportunities for joint organisational learning through such initiatives as Electronic Data Interchange (EDI).

The conclusions drawn from the analyses conducted by the PP Business was that the concept of the value chain had to become the standard philosophy. The focus was to become more customer oriented by Building a Marker Focus Organisation (BMFO) to create value for every customer segment. This required a shift from the traditional focus on functional specialisation towards a more integrated process flow of services across functional departments.

Although there is no right answer, some important criteria can be used in considering whether to centralise or decentralise the value chain organisation:

- Economical scale-cost: What is it worth monetarily to centralise a service?
- Economies of scale-skills: What benefits in the form of enhanced organisational skill sets does the organisation receive through centralisation?
- Degree of complexity: What is the impact of centralisation on accountability, ease of communication, availability to manager and others?
- Difficulty in changing: What are the risks associated with changing the existing organisational structure?
- External factors: How would the customer design the organisation? Also, how do regulatory, environmental and other external factors influence the organisation?
- Future business drivers: How will changes in the business environment affect the organisation?

Regardless of whether the organisation design is highly centralised, decentralised, or a hybrid of the two, a high-level "sanity check" will identify if rewording is needed.

The role of value chain management has increased. Centralised or shared service value chain

organisations have become commonplace. Yet, some companies still do not recognise this new role of value chain management. Some companies, for instance, still use the role of "logistics manager" instead of changing the role to "value chain manager" or even "supply chain manager". The research points out typical areas of focus and examples of supply/value chain management in Table 5.3 below.

Table 5.3 – Areas of focus and examples of supply chain management

Typical areas of focus	Examples
Lead the corporation supply chain planning activities.	• Ensure supply chain plans are consistent with business strategic plans. • Develop and maintain integrated supply chain "strategic" plan (coordination across businesses).
Leverage of synergies in procuring supply chain services.	• Reduced logistics "infrastructure" costs Raw materials Warehousing/distribution services Information systems.
Reduce redundancy in supply chain activities.	• Consolidate freight volumes/shift modes across business units. • Rail fleet management. • Provide point expertise in key logistics areas.
Enhance the effectiveness of business unit supply chain management.	• Facilitate sharing/implementation of best practices. • Maximise utilisation/effectiveness of decision support tools.

One alternative to a "permanent" corporate organisation is called a Centre of Expertise (COE). In a COE modelling and optimisation comprises planning and scheduling, demand forecasting and the optimisation of transportation and distribution networks. Transportation management is involved with shipping, planning and rail fleet management while distribution management is responsible for warehouse selection and design and warehouse management. Logistic relationship management entails outsourcing/third party management, contract and other

negotiations, distributor programmes, value chain performance management and reporting of these measures.

5.5 Vertical integration strategies: backward and forward integration

Vertical integration strategies involve expanding the company's range of activities backward into sources of supply (suppliers) and/or forward toward the company's customers or end users of final products. Vertical integration strategies can aim at full integration, participating in all stages of the industry value chain, or partial integration, building positions in selected stages of the industry's total chain. Investment of company resources in vertical integration only appeals when it significantly strengthens the competitive position of the organisation.

The Sasol Polymer plants located in Secunda South Africa are a typical example of backward integration that enhances Sasol's overall competitive advantage. The Polypropylene Business (PP) is connected via pipe lines from the Monomer plant facilities that supply PP with propylene and ethylene feed material, used in the manufacturing of Polypropylene (PP). Monomers is, on the other hand, connected to Sasol Synfuels, which supplies the Monomer business with propane and ethane gas, also via pipelines. These gasses are converted to propylene and ethylene respectively, two major ingredients for the manufacturing of PP. Carrier gas deriving from the manufacturing of PP is returned via different pipelines to Monomers for purification (recycling) and re-use, thus improving the production capabilities of the Monomer plants. Sasol Synfuels is dependent on the mines for the feeding of coal into the coal gasification unit where coal is converted into gas. Both Synfuels and the coal mines are located in Secunda and form part of Sasol's mainstream operations.

In the case of Sasol, integrating backwards not only generates enormous cost savings for the company but it also reduces lead times significantly. Backward integration enhances production efficiency and increases the capacity of the Sasol plants by purifying carrier gas for re-use in the manufacturing of PP.

The strategic impetus for forward integration is much the same as that for backward integration and is effectively illustrated by the Sasol Polymer, PP Business product silo example. The PP Business, in agreement with their key customers, installed product silos on customer sites and these are electronically linked through Electronic Data Interchange (EDI). The integration benefits are huge for both the PP Business and its customers.

The use of advanced IT, for instance ERP systems and the internet, will enhance operational excellence and will improve the effectiveness of the total value chain.

Vertical integration has some substantial drawbacks. Both backward and forward integration externally might increase a company's business risk and capital investment in the industry, which may in the process lock up cash in projects. This cash should perhaps be utilised for other more worthwhile pursuits.

According to Thompson and Strickland (2004: 181) the big disadvantage of vertical integration is that it locks a firm deeper into the industry. Unless operating across more stages in the industry's value chain builds competitive advantage, it is a questionable strategic move.

The key conclusion is that a high integrated process indicates the degree to which planning, logistics, procurement, manufacturing and customer services are housed in a single organisation.

5.6 Value chain support systems

Support systems that operate both effectively and efficiently is critical for successful strategy implementation and value chain designs. Company strategies cannot be implemented or executed well without a number of support systems for business operations. Innovative, state-of-the-art support systems can be a basis for competitive advantage if they give the company capabilities that rivals cannot match, for example a fully exploited SAP ERP system utilised for proper E-Commerce use.

Many companies have installed software systems on their company intranets to catalogue best practices information and promote faster best practices transfer and implementation, organisation wide. They have created on-line data systems that connect more employees to the Internet and company intranets, use electronic mail as a major means of internal and external communication, and build Web pages to participate in the rapidly expanding world of Electronic Commerce (EC).

Well conceived, state-of-the-art support systems not only facilitate better strategy execution, they also can strengthen organisational capabilities enough to provide a competitive edge over rivals. A company with a differentiation strategy based on superior quality has added capability if

it has systems for training personnel in quality techniques, tracking product quality at each production step, and ensuring that all goods shipped meet quality standards.

5.7 Summary

The fundamental question to ask is: do investors benefit from the extended focus on value chain innovations, people (employees), technology, processes and customers? Shareholder value is the most important aspect of a company and needs devoted management attention in pursuance of creating a High Performance Value Chain Organisation (HPVCO).

Business value chains must be structured to create value for shareholders. The outcome of introducing the value chain approach to organisational structure in South Africa has delivered promising results. Although the idea of the horizontal organisation is new to South African organisations, research found that substantial benefits could be gained from horizontal structures.

The concept of a horizontal organisation (developed by McKinsey) has introduced a new dimension in the configuration of organisations today. It reflects a dramatic departure from the conventional deep hierarchical structures, through its emphasis on vertical differentiation and integration. The movement has been towards creating a horizontally integrated organisational structure with the main emphasis on the primary work output requirements as determined by the customers' perceptions of worth.

Structures follow strategy, which assumes that structures need to be aligned to the strategy of the organisation. In a company's pursuit to become a low cost provider, it should at all times strive to optimise across the total value chain in order to improve value chain efficiency and explore all the possible cost saving opportunities it can to increase shareholder value. A high performance value chain driven organisation/company is one that will take the necessary steps to re-engineer and restructure the business to improve value for its shareholders.

The value chain is a new phenomenon of boundarylessnes that symbolises the close integration between the organisation, its employees (Employee Self Service (ESS)), its suppliers, customers, agents or distributors and other secondary stakeholders such as the Receiver of Revenue (ROR), the Reserve Bank and the Department of Trade and Industry (DTI) in South Africa.

In order to continuously improve, it is necessary to measure performance before and after transformation. The continuous, systematic evaluation of products, services and work processes is thus of critical importance. Knowledge can be turned into opportunities. Information can be turned into inspiration.

The next step is to identify the important value chain elements. The following value chain elements have been identified:

- Human element.
- Technology.
- Processes.
- Information Technology and Communication (ITC).

The next chapter focuses mainly on the human element and IT.

CHAPTER 6
VALUE CHAIN ELEMENTS

6.1 Introduction

According to Michael Porter, dramatic cost advantage can emerge from finding ways to restructure processes and tasks, cut out frills, and provide the basis more economically. Leaders need to understand the value-creating differentiation options and the activities that drive uniqueness to devise a sound differentiation strategy and evaluate various differentiation approaches (Michael Porter, 1985: 124).

According to Michael Porter (1985: 117–118), in an organisation's endeavour to create a high performance value chain culture, it is important to identify a company's strengths and resource capabilities. A company's strength is something a company is good at doing or a characteristic that gives it enhanced competitiveness. An organisation's strength takes on any of several forms.

Business units recognised for their technological leadership and track record in product innovation are usually strong competitors in their industry. Technology leadership provides the critical infrastructural support for the enhancement of a High Performance Value Chain Organisation (HPVCO). Technological support systems are critical for effective value chain management.

In identifying an organisation's strengths and resource capabilities the following value chain elements need devoted management attention and commitment:

- The human element (people).
- Technology.
- Processes.
- Information Technology and Communication (ITC).

The relationships between strategy and the above value chain elements are illustrated in Figure 6.1.

Figure 6.1 - Strategy and value chain elements to value adding performance
Source: Own source

All of the above value chain elements are equally important in an attempt to create a High Performance Value Chain Organisation (HPVCO). At this stage the research is limited to the human element and IT. The research also touches on the process element.

It is important to invest in valuable human assets, an experienced and capable workforce, talented employees in key areas, motivated and energetic employees, cutting-edge knowledge and intellectual capital, astute entrepreneurship and managerial know-how, or the collective learning embedded in the organisation and built up over time.

In this process leaders have to promote a global mindset by aggressively transferring best

practices and new ideas developed in outlets in one part of the world to outlets in other parts of the world.

Many companies find themselves thrust in the midst of two very demanding competitive races:

- the global race to build a market presence in many different national markets and to establish an attractive position among the global market leaders; and
- the technology race to capitalise on today's technological and information age revolution and build the resource strengths and business capabilities to compete successfully in the industries and product markets of the future.

We live in an information age with knowledge, most of the time, freely available and accessible and widely shared amongst people. Therefore, it is important to install adequate information and performance tracking and control systems in striving to create a High Performance Value Chain Organisation (HPVCO).

Accurate information is an essential guide to action. Every organisation needs systems for gathering and stopping data, tracking key performance indicators, identifying and diagnosing problems, and reporting strategy-critical information.

Information systems need to cover five broad areas: customer data, operations data, employee data, supplier/partner/collaborative ally data and financial performance data.

Monthly profit-and-loss statements and statistical summaries, long the norm, are fast being replaced by daily statistical updates and even up-to-the-minute performance monitoring that electronic technology makes possible.

Such diagnostic control systems will allow a company's managers to detect problems early, intervene when needed, and adjust either the strategy or how it is being implemented.

6.2 The human element

Managing the human component of change is often the most difficult task. Behaviours of people have to change. In order to achieve the required result, the organisation has to set out and follow a change management programme that also addresses the change of the culture of its entire workforce (a renewal mindset).

The ability to instil strong individual commitment to strategic success and to create an atmosphere in which there is constructive pressure to perform is one of the most valuable strategy-implementing/strategy-executing skills.

Companies with a spirit of high performance typically are intensely people-oriented, and they reinforce their concern for individual employees on every conceivable occasion in every conceivable way. They treat employees with dignity and respect, train each employee thoroughly, encourage employees to use their own initiative and creativity in performing their work, set reasonable and clear performance expectations, use the full range of rewards and punishment to enforce high-performance standards, hold managers at every level responsible for developing the people who report to them, and grant employees enough autonomy to stand out, excel, and contribute to the organisation's and their own success.

What makes a spirit of high performance come alive is a complex network of people-management practices, words, symbols, styles, values, and policies pulling together and producing extraordinary results with ordinary people. The drivers of a spirit of high performance are a belief in the worth of the individual, strong company commitment to job security and promotion from within (organic growth and succession planning), managerial practices that encourage employees to exercise individual initiative and creativity in doing their jobs, and pride in doing them. A company that treats its employees well generally benefits from increased teamwork, higher morale, greater loyalty, and increased employee commitment to making a contribution towards an environment conducive to future growth.

While promoting and nurturing a spirit of high performance nearly always accentuates the positive, there are negative re-enforcers too. Managers whose units consistently perform poorly have to be replaced. Low-performing workers and people who reject the cultural emphasis on dedication and high performance have to be weeded out or at least moved to out-of-the-way positions. Average performers have to be candidly counselled that they have limited career potential unless they put forth more effort and acquire better skills and work habits.

Creating a results-oriented organisational culture generally entails making champions out of the people who turn in winning performances. This implies human resources management: activities, costs, and assets associated with the recruitment, hiring, training, development, and compensation of all types of personnel; labour relations activities; development of knowledge-based skills and core competencies. Developing people at every level of the organisation should be a strategic priority.

Not all of the measures deliver tangible results. The exact benefit accruing to the company can not be determined as a result of these drivers. In the case of employment equity, in a strategic context companies in South Africa are obliged to comply with employment equity legislation. In the case of safety the company's image was badly damaged due to a series of explosions and other safety incidents at Sasol plants in South Africa. As a result Sasol has implemented several measures to drive the correct safety behaviours of which the PIBS is one tool utilised to meet their strategic objectives of zero incidents.

Figure 6.2 conceptualises an organisational alignment model with corresponding performance solutions.

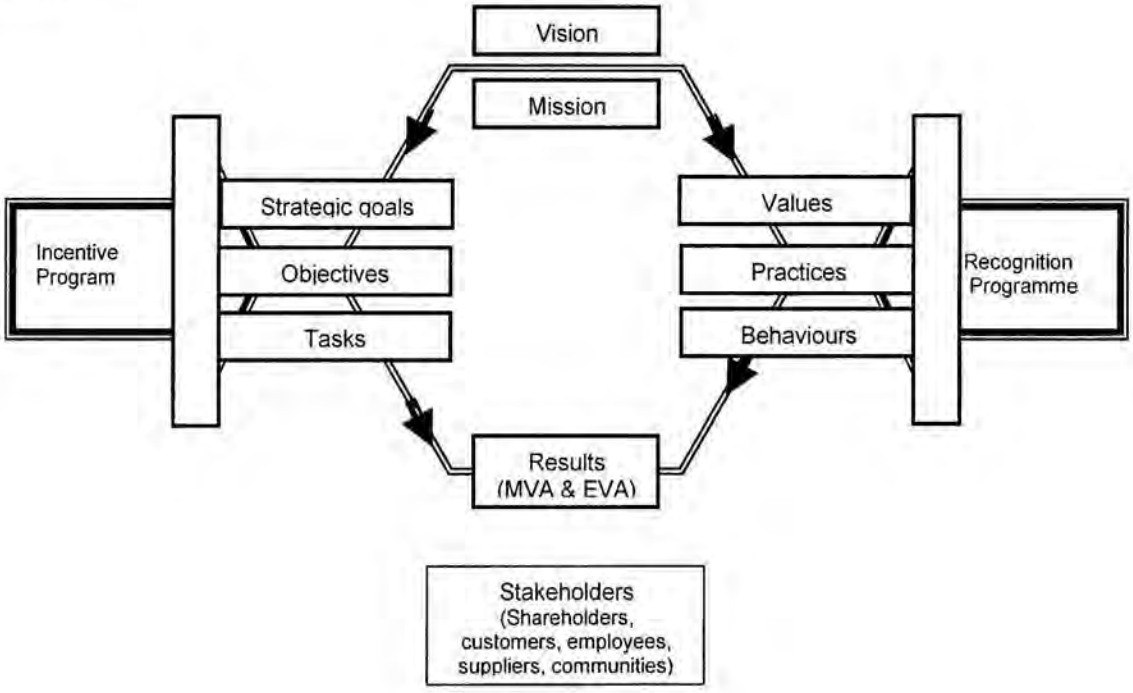


Figure 6.2-Organisational alignment model with corresponding performance solutions
Source: Latter J.C., 2004, Using alignment to make the most of your Incentives. Succeed, May/June: p34-35.

6.2.2 Transforming the value chain: the human element

Many companies face the significant task of building new organisations which provide individuals and teams with the capability of effectively managing the entire value chain. This requires a mindset of winning and exceptional people skills.

6.2.3 High Performance Work Systems (HPWS)

Another aspect that needs serious consideration when designing a High Performance Value Chain Organisation (HPVCO) is the development of a High Performance Work System (HPWS) and a work culture conducive to enhancing stakeholder value. HPWS is a set of design principles that are applied to particular organisational situations.

Ten principles which seem to characterise HPWS:

- Customer and environmentally focused design.
- Empowered and autonomous units.
- Clear direction and goals.
- Control of variance at the source.
- Socio-technical integration.
- Accessible information flow.
- Enriched and shared jobs (broader scope of work and cross trained in a variety of skills).
- Empowering human resource practices.
- Empowering management structure, process and culture.
- Capacity to reconfigure.

HPWS involve the creation of units that are able to learn to collect information, to reflect on the consequences of their actions and to gain insight. The question is: How does an organisation go about to creating a HPWS?

Designing High Performance Work Systems (HPWS)

- Employee selection
  Use of peer selection and information sharing to enable people to self-select into the new type of work environment.
- Design of physical layout
  Employee participation in the design of the physical setting
- Job design
  Individual jobs within the context of the team were designed to increase autonomy
- Pay system
  Rewards tied to skill acquisition for individuals, to encourage multi skill acquisition. Gain sharing plans introduced widely to motivate improved performance.
- Organisational structure

Plants typically designed with fewer levels of hierarchy, with more self-contained or autonomous units, and in support of self-managing teams.

- Training

  Invested heavily in intensive training skills, as well as training to provide the broad background knowledge that supported participation in decision making.

- Management philosophy

  Plants run with an explicit philosophy of partnership between management and the workforce, aimed at a common vision.

Figure 6.3 outlines the High Performance Work System (HPWS) design process.

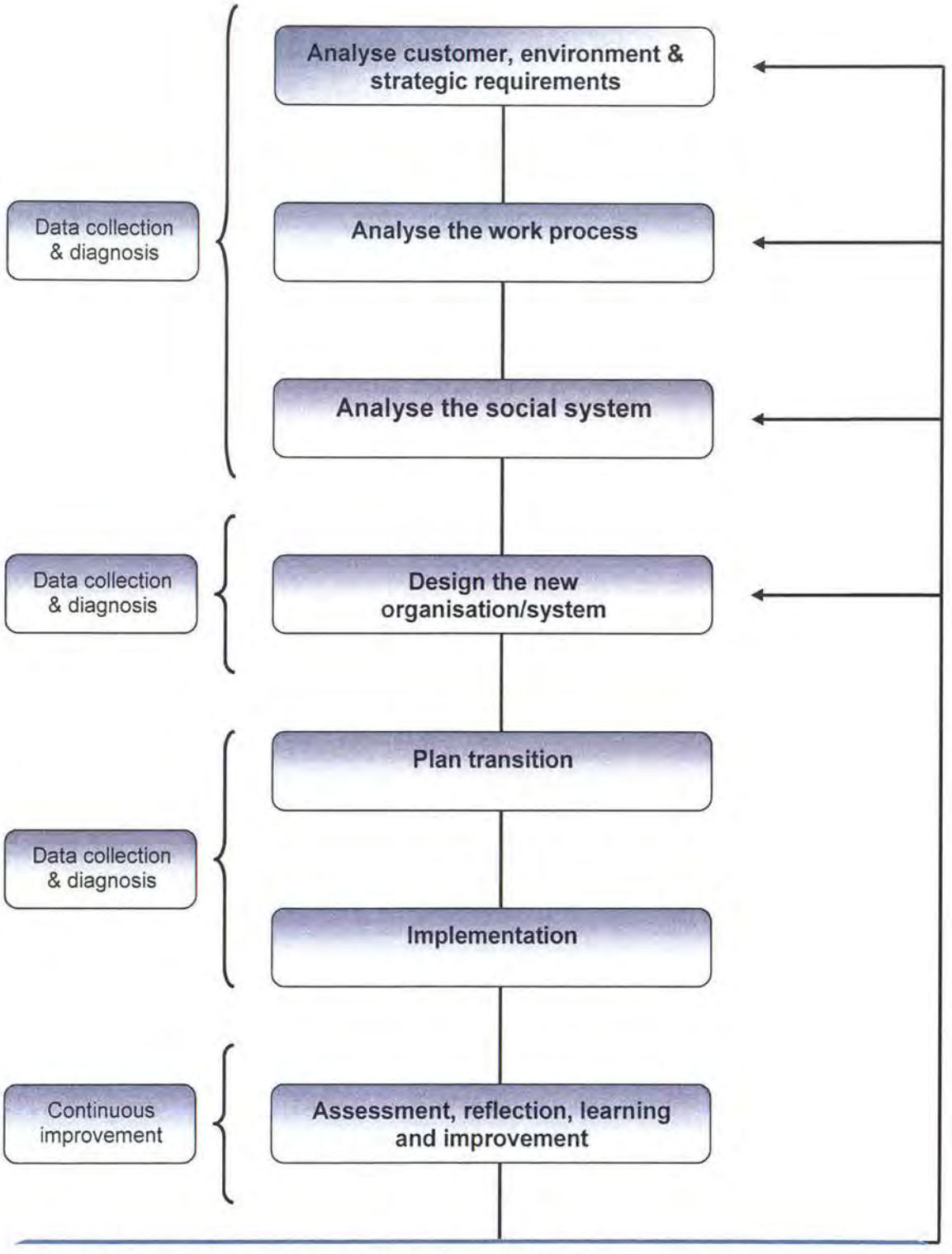


Figure 6.3 - High Performance Work System (HPWS) design process
Source: Own source

6.3 Re-engineering processes

To start the process of re-engineering, a benchmarking team needs to be established that will be responsible for benchmarking activities (internal, competitive and processes). This team then determines the level of effort required to retrofit or re-engineer the best practices to suit their company's unique circumstances. The benefits versus the costs involved with eliminating the gaps between current processes and the best practices are evaluated, and then implementation priorities are established.

Normally it is a minor investment that is required that can result in a major return. Despite the benefits, there are some pitfalls. One should, for instance, have a specific policy, to allow other companies interested in examining the company's best practices to do so. In today's environment, more innovative companies are less concerned with issues like benchmarking numbers (for example, costs or productivity) than they are with focusing on the processes.

If the company focuses on the processes, the numbers will eventually self correct. In fact, if one is serious about benchmarking, one should not waste time with studying the numbers alone. Get right to the processes. The process of filling customer orders accurately and promptly, is a case in point.

The order fulfilment process begins when a customer places an order, ends when the goods are delivered, and typically includes a dozen or so steps performed by different people in different departments.

- Someone in the credit control department assesses the credibility of a customer before approving an account.
- Someone in customer support services creates the customer master data on the ERP systems (Accounts Receivable or AR).
- Someone in customer service receives the order, logs it in, and checks it for accuracy and completeness.
- It may then go to the finance department, where someone runs a credit check on the customer.
- Another person may be needed to approve credit terms or special financing.
- Someone in sales calculates or verifies the correct pricing.
- When the order gets to inventory control, someone has to determine if the goods are in stock.

- If not, a back order may be issued or the order routed to production planning so that it can be factored into the production schedule.
- When the goods are ready, warehouse operations prepares a shipment schedule.
- Personnel in the dispatch department determine the shipment method (rail, truck, air, water) and choose the route and carrier.
- Product handling picks the product from the warehouse, verifies the picking against the order, and packages the goods for shipment.
- Dispatch department releases the goods to the carrier.
- Dispatch takes responsibility for delivery to the customer.

Each handoff from one department to the next entails queues and waiting times. Although such organisations incorporate Adam Smith's division of labour principle, every person involved has specific responsibility for performing one simple task and this allows for tight management control. Everyone in the process is accountable to a manager for efficiency and adherence to procedures, so someone oversees the whole process and its results (Michael Hammer and James Champy, 1993: 26-27).

Accurate, timely order fulfilment, despite its relevance to effective strategy execution, ends up being neither a single person's job nor the job of any one functional department. It is a capability that grows out of the combined pieces of many people's jobs in different units. One obvious solution is to pull the pieces of strategy – critical processes out of the functional silos and create process-complete departments able to perform all the cross-functional steps needed to produce a strategy-critical result (The Reality of Business Reengineering: Pacific Beels Centrex Provisioning Process, "California Management Review 38, no. 3 (Spring 1996)", pp. 57-76).

Many organisational transformation efforts fail to consider process as the main driver of organisation design. In fact, most successful organisation transformation efforts include process design in the scope.

- Roles and responsibilities associated with each value chain process help determine the appropriate level of organisational centralisation/decentralisation.
- Process design determines the capabilities and skills needed in the new organisation.
- Although value chain improvements are enabled by the new organisation, the actual benefits are achieved by improving processes.

An issue faced by most companies is whether to design value chain organisations around each business or create a single organisation to serve all businesses.

6.4 Information Technology and Communication (ITC)

As organisations advance into the new millennium, continued advances will be seen in computer and communication technology, and this will continue to revolutionise the way management decisions are made. Companies are linking networks of personal computers to one another, to the firms' own mainframe computers, to the Internet and the World Wide Web, and to their customers' and suppliers' computers. Thus, managers are increasingly able to share information and to have "face-to-face" meetings with distant colleagues through video teleconferencing. The ability to access and analyse data on a real-time basis also means that quantitative analysis is becoming more important, and "gut feel" less sufficient, in business decision. As a result, the next generation managers will need stronger computer and quantitative skills than were required in the past.

Changing technology provides both opportunities and threats. Improved technology enables businesses to reduce costs and expand markets. At the same time, however, changing technology can introduce additional competition, which may reduce profitability in existing markets.

An even greater threat is the continued development of Electronic Commerce (EC). Electronic Commerce (EC) allows customers and businesses to transact directly, thus reducing the need for intermediaries such as commercial banks. In the years ahead, managers must continue to stay abreast of technological developments, and they must be prepared to adapt to the changing environment.

Accurate information is an essential guide to action. Every organisation needs systems for gathering and storing data, tracking key performance indicators, identifying and diagnosing problems, and reporting strategy-critical information. Information systems need to cover five broad areas:

- Customer data.
- Operations data.
- Employee data.
- Supplier, partner, collaborative ally data.
- Financial performance data.

Management Information Systems (MIS) has been identified as one of the priority initiatives for Sasol South Africa's IT strategy to investigate and optimise. An essential starting point in designing effective MIS is to specify, in appropriate detail, the content and format of management reports that will measure business performance against key strategic objectives of Sasol.

There is also much hype and expectation surrounding the Electronic Commerce (EC) topic. Research has found that most manufacturers were actively working on exploiting the opportunities afforded by e-commerce, and they are at various stages of development. There are already structural changes in the business environment and will take some time to play out. This will reshape the business model of Sasol. The foundation of Electronic Commerce (EC) technology is a sound, well integrated ERP system supporting logical, uniform, efficient and common business processes in the enterprise. Business is not a serial process but an asynchronous process, which requires the foundational processes to be flexible but coherent.

The choice of a business model and the order of implementation will be driven by the corporate, business, functional and operational strategies of a company and what the objectives for the Electronic Commerce (EC) initiatives of these companies are.

The advent of Electronic Commerce (EC) has lent more weight to a single client (Global SAP) argument, for example one face of the company. The challenges posted by enterprises having to integrate with other enterprises, market places and so forth in the Electronic Commerce (EC) environment are considerable and could become the central issue for organisations in the future. This should preferably not be compounded by a complex environment within the enterprise itself. Internet technology use represents a driving force behind proper Electronic Commerce (EC) developments.

This leads to the research of Internet technology and ERP systems as the basis for sound Electronic Commerce (EC) and Management Information Systems (MIS). The lack of integration has been identified with its other consequences such as the lack of communication, lack of standardisation as the core problem in South African businesses today.

6.4.1 Internet technology

The internet and internet technology represent a driving force of revolutionary proportions, fundamentally affecting how business is conducted and how markets function. Leading-edge

Electronic Commerce (EC) capabilities can give a company competitively valuable resource strengths. Failing to make the internet technology an integral part of a company's strategy and business operations can prove to be a competitive weakness. The internet is a powerful enabling technology that can be used, wisely or unwisely, in almost every industry and as part of almost every company's strategy. Internet technology alters the ways in which companies perform value chain activities. It enhances company efforts to gain a sustainable competitive advantage.

The use of the Internet is continuously finding its way into the fabric of everyday households, businesses and the everyday personal lives of ordinary people. A new market place has emerged with the appearance of the so called "Y generation kids", also commonly referred to as the "play station kids". They have a desire to explore computer power and are frequent users of the Internet. Organisations are forced to address the internet as a fundamental part of their business and competitive strategies. Making the Internet a central part of an organisation's strategy holds enormous potential for affecting its competitiveness. It opens up a host of new opportunities for reconfiguring and redesigning an organisation's value chains, unlocking shareholder value.

Internet technology is a powerful tool for facilitating value chain management: procuring items from suppliers, reducing inventory requirements, expediting the design and production of new components, and otherwise engaging in mutually beneficial collaboration with suppliers.

With software from Commerce One, Oracle, SAP, Ariba, and others, company procurement personnel can - with only a few mouse clicks within one seamless system - check the materials inventory against incoming customers' orders, check suppliers' stock, check the latest prices for parts and components at auction and e-sourcing websites, and check delivery schedules.

Electronic Data Interchange (EDI) software permits the relevant details of incoming customer orders to be instantly shared with the suppliers of needed parts and components.

All this lays the foundation for just-in-time deliveries of parts and components and for the production of parts and components to be matched closely to assembly plant requirements and production schedules. Such coordination produces savings for both suppliers and manufacturers.

Via the Internet, manufacturers can collaborate closely with parts and components suppliers in designing new products and reducing the time it takes to get new products into production.

Internet Technology improves distribution channel efficiency as follows:

- It allows manufacturers to bypass wholesale/retailer dealers and sell directly to end users; and
- it permits tighter collaboration between manufacturers and distribution channel partners to wring out distribution cost savings.

6.4.2 Enterprise Resource Planning Systems (ERP)

The most important information technology applications are those that support inventory management and customer service. The value of time and cost are increasing rapidly in today's competitive market place. A company's common database should be built around timely, accurate and complete information to ensure effective decision-making. The GE principles of speed and simplicity are still relevant.

Systems should be built around timely information:

- Time (time to produce 1 ton of a specific product grade with a throughput of 15 tons per hour. It thus takes 4 minutes to produce one ton of product (60 minutes ÷ 15 tons = 4 minutes)).
- Costs (rand per hour converted to rand per ton).
- Productivity (production output per employee).
- Products.
- Production plans.
- Pricing (transfer pricing and import parity prices).
- Inventories (raw material, maintenance material and finished product).
- Purchase releases.
- Replenishment.
- Customer orders (amount of open orders).
- Customer service (customer satisfaction index as %).

6.4.2.1 SAP R/3 system

SAP stands for Systems, Applications and Products in Data Processing. SAP R/3, the latest SAP release is a window-based program and uses menus and icons to navigate through the

system. The R in R/3 stands for real time and the 3 for release 3. SAP is structured in modular fashion, which enables companies to purchase only those modules that are relevant to them, or all modules if required. SAP R/2 was the first release of SAP. It was introduced in 1977. The R/2 release can be compared to the old MS DOS operating system in that it required commands and transaction codes to navigate through the system.

The traditional advantage of SAP has been to provide integration, enabling the organisation to view and report on data across the total organisation, and have the following types of information and capabilities available online real time:

- Management information at various levels in and through the organisation.
- Total sales volumes per customer, division, product group and region.
- Profitability analysis per customer, product, product range, region and distribution channel.
- Total stock quantities and values at group, plant and storage location level.
- Total purchasing values and quantities per supplier, material, material group, plant, purchase organisation or group.
- Integrated planning.
- Immediate information on the availability of spares, raw materials and finished goods.
- Online information on the financial performance of the group, business area, profit centres or company.

The following are the SAP building blocks:

- Strategic Enterprise Management System (SEM).
- Business Warehouse (BW).
- E-Commerce (E-sales and E-Procurement).
- Planning and scheduling.

6.4.2.1.1 SAP best practices and value assessment

A SAP best practices and value assessment before and after the initial SAP R/3 implementation should always be a high priority. The focus should, amongst other things, be on systems and business process issues.

Presented trends and best business practices common to the oil and gas industry can be utilised using an industry print to provide a starting point (Du Pont/Dow template).

In doing a SAP best practice value assessment, the research can be done by carrying out a series of workshops involving representatives from the divisions and businesses, and a team of experienced consultants with SAP and business process skills. Initially one can conduct a high level workshop to establish the organisation's strategic context and high level business model, after which separate process workshops can be carried out for outbound logistics, manufacturing, inbound logistics, support, business planning and control, and technical. An issues workshop must then be held to tie together the themes from the previous workshops, and to prioritise action areas.

Sasol's SAP infrastructure is structured into various clusters. The Polymer businesses within the Sasol Polymer Division and Infrachem (a service division that provides the essential service support to Sasol Polymers) operate for example, on one SAP production box (server) as one IT cluster within Sasol group. The current cluster model implemented and maintained by Sasol and/or a multiple-client environment setup in some cases (every business within Sasol on a server or box) does not allow for the above, and causes many of the issues experienced by companies.

These issues were identified and can be summarised as follows:

- Lack of integrated strategic and tactical planning.
- Business information not transparent and accessible to management.
- Inadequate working capital management (cash management and materials management).
- Lack of common business processes across companies, divisions and businesses.
- Lack of transparency through the total value chain.

In carrying out an analysis of the issues and drivers, a number of observations can be made:

The initial SAP implementation appears to have been based on functions and modules per business, per division or per separate company within the Sasol group, rather than on the underlying business processes of Sasol Limited as a whole and across businesses, divisions and Sasol companies. Sasol's competitive advantage is the backward and forward integration capabilities of its feed stream plants and processes.

The focus of the initial implementation of SAP has been to replace the existing functionality by SAP R/3 rather than to take advantage of process alignment/re-engineering opportunities. This is not necessarily wrong. SAP is an excellent transaction system and Sasol has, through the

initial implementation of SAP, optimised transaction processing and transaction flow. The latter forms the basis for further system exploitations. A system of internal controls has been improved with most of the transaction controls now built into the SAP system rather than executed through manual interventions.

The set of common standards for the SAP implementation is in turn configuration rather than business and business process-oriented. These common standards do not appear to have been consistently applied across the different companies, divisions and businesses within Sasol.

In some cases there appears to have been insufficient understanding of SAP and its ability to deal with business problems. This can be seen in the application of SAP in areas such as Material Requirement Planning (MRP) and Sales & Operations Planning (SOP), the existence of independent parallel spreadsheet systems, and the drive to develop reports in areas where standard SAP reporting could have met the need had the system been appropriately configured.

Many of the issues relate to the decision to use a multiple-client in the case of some businesses rather than a single-client environment or the decision to structure into a cluster business model. The multiple-client structure and the cluster model have a particularly negative impact on integration for the production, logistics, IT, financial (FI), HR and marketing functions.

Each company, division and business appears to be trying to solve its own problems, with little communication between them. A lack of synergy and transparency exist. One of the gratifying aspects of workshops will be the communication that will begin to develop between participants from the different companies, divisions and businesses within the Sasol group on an international scale.

As many of the issues identified are caused by the cluster and/or in some cases a multiple client environment selected by Sasol, the business issues are analysed in more detail. The conclusion is that the advantages of the implementation of the basic building blocks of SAP (referred to in 6.4.2.1) as part of system exploitation and then the roll out of the GLOBAL SAP (GSAP) system, as a last stage of exploitation for Sasol, outweigh the disadvantages. If this was a new implementation all the four building blocks of SAP systems within a single SAP Client environment for the total Sasol group internationally (Global SAP) would be recommended. The implementing of all the SAP building blocks is recommended after which the company can move towards a single SAP client (Global SAP). A further analysis revealed that there is a convincing business case for such a move.

Given that manage the business (planning) was identified as the single most important strategic business component and the one most poorly supported by SAP, the use of SAP's planning functionality was analysed in some detail. It is important to recognise that SAP's planning capabilities are the core of an integrated, closed-loop planning and management approach, the benefit of which is not only effective planning but more importantly more effective management throughout the Sasol group. This is particularly important to Sasol with its integrated feed streams. Sales demand forecasting, the mass balancing of production capacity, the allocation of resources, transfer pricing and Material Requirements Planning (MRP) on a global scale are critical for the enhancement of a High Performance Value Chain Organisation (HPVCO) and consequent improvement of shareholder value.

The IT cluster model and the partly multiple-client environment implemented in some cases prevent Sasol from making use of SAP's integrated closed-loop planning and management for the group as a whole. The implementation at the individual companies, divisions and businesses was researched and it was concluded that Sasol is not taking advantage of this functionality either. However, it was concluded that with guidance Sasol would be in a position to do so, and this would provide considerable benefit.

Recommendations

It is recommended that Sasol aim to establish an integrated SAP environment, including the implementation of common standards and processes across all the companies, divisions and businesses. A typical example is the development of a standard Chart of Accounts (COA) internationally with standard accounting definitions that are based on International Accounting Standards (IAS) and Sasol accounting policies. At the same time policies can be standardised. This does not mean that all the companies, divisions and businesses have to implement the same processes but that all processes are aligned at group level through the necessary standards, policies and procedures.

In order to achieve this, the exploitation of SAP can take place in six phases:

Phase 1	:	Developing a business case for exploitation.
Phase 2	:	Implementing Business Warehouse (BW) and Strategic Enterprise Management (SEM) system into a pilot division.
Phase 3	:	Implement SAP's closed-loop planning and management approach into a pilot division as the foundation for a Sasol-wide model.

Phase 4 : Implement E Commerce into the same pilot division .
Phase 5 : Rollout the Sasol model to all the other companies and divisions of Sasol.
Phase 6 : Continuous business exploitation for Sasol.

The above recommendation is based on a similar approach followed by BHP Billiton with the implementation of all the SAP systems at its Aluminium Customer Sector Group (ACSG) at its five aluminium smelters worldwide.

The appointment of a Business Exploitation Team (BET) consisting of a core group of Sasol business people assisted at each stage of the exploitation programme by the necessary company, divisional and business representatives, and supported where necessary by SAP and Business Process Re-engineering Experts (BPRE), is recommended. The Team will drive and be responsible for the business exploitation of SAP through all Sasol companies, divisions and businesses. This team can report to a SAP R/3 Business Steering Committee (BSC), and the focus of this committee would move from implementation to exploitation. Research of SAP best practices, which may include visits to companies such as SAB Miller and BHP Billiton South Africa, who have implemented all the SAP related systems and modules with great success, would be necessary.

With the standardisation of data, integration of information across companies, divisions and businesses and the continuous exploitation of SAP, Sasol will be able to get the following benefits:

- Increased performance due to the availability of Sasol group-wide management information.
- Group visibility of customer and product profitability.
- Further reduction in inventory levels due to less duplication, group wide visibility and total requirements planning.
- Total visibility of supplier base, performance and volumes.
- Direct cost savings from the reduction of duplicated activities.
- Ability to do total value chain reporting.
- Simplification and integration of cross-divisional processes and hand-offs.
- Enhancement of value chain effectiveness, for instance integrated planning, mass balancing capabilities across all its product and business value chains.

Objective and Scope

The objective is to carry out a SAP best practices and value assessment, focusing on, amongst other things, the systems and business process issues per the approach below. The audit should use the Sasol Polymer division as the pilot case, but focus on Sasol-wide issues rather than the individual divisions. The audit should exclude the Group HR initiative and Group IT for the moment. Representatives of other companies, divisions and businesses within the Sasol group should join Sasol Polymer's Business Exploitation Team (BET) to ensure maximum integration and buy in.

Approach

A consultancy firm that uses a team of experienced consultants for a twenty-day on-site programme over a period of two months, with additional time for off-site research and collation of results in preparing their report on their findings and recommendations, should be appointed. This will include a feasibility study/business case. The assignment should be a joint effort between Sasol Polymers personnel and the consultancy firm.

After project preparation, the team can conduct a High Level Business Process Workshop (HLBPW). This workshop should be attended by key Sasol Polymer people and representatives of other Sasol companies, divisions and businesses representing the group and providing a high level view of the organisation. Five key objectives are defined for this workshop:

- To define and articulate Sasol Polymer's strategic imperatives in the context of this assignment.
- To understand and map the high level business processes.
- To clearly define the business process boundaries.
- To identify problem areas and high level business issues.
- To prioritise the business issues identified in the light of the defined strategic intent.

Following the high level workshop, the consultancy firm should conduct a series of process specific workshops focusing on the processes, sub-processes and activities identified in the High Level Business Model (HLBM). The following workshops can be held:

- Outbound logistics.
- Manufacturing.
- Inbound logistics.

- Support.
- Business planning and control.
- Technical.

The companies, divisions and businesses should be represented by their key resources specific to the process. During these workshops, trends and best business practices common to the oil and gas industry and specific to the process that are dealing with should be presented. One can then also use the DOW/Du Pont Industry Print to provide a starting point in analysing the "as is" and defining Sasol Polymer's business process flow ("to be").

The objectives for the process workshops are as follows:

- To map the "as-is" business processes.
- To define the activities that are SAP supported/enabled.
- To identify process specific issues and develop improvement hypotheses for these.

In conclusion, an issues workshop should be held to bring together all the issues, to develop actions, to deal with them and to prioritise these actions and evaluate their impact on the current process in Sasol Polymers.

Report Format

The report should contain the following:

- Strategic context: discusses the strategic context that SAP is intended to support.
- Business process evaluation: establishes a High Level Business Process Model (HLBM), discusses at a high level the current level of systems support of the high level processes, identifies the major business issues and their drivers and establishes the priority areas and the impact on the level of systems support if the priority areas are addressed.
- Key questions: discusses some of the key questions raised by Sasol Polymers and other Sasol companies represented, including the SAP multiple client structure and the current SAP cluster model, SAP's planning capabilities, the use of standard templates, and costing issues.
- Recommendation for SAP exploitation: provides a number of recommendations for achieving business benefits from SAP.

Strategic Context

In order to evaluate whether Sasol's SAP implementation meets best practice and provides value, begin by identifying the strategic context that it should support. In doing so, the consultancy firm will request Sasol Polymers and other Sasol participants in the initial high level workshop to identify the strategic imperatives and high-level business issues they believed were facing Sasol Polymers and Sasol as a company.

The following may be current global process industry strategic imperatives identified by international research that can apply to Sasol Polymers:

- Breaking the industry cyclicality trap i.e. taking a long-term view of the market to prevent over-investment in capacity in advance of market demand.
- Harnessing the full value of integrated enterprise resource planning.
- Reversing the capital productivity slide – "Asset Sweating".
- Product enhancement with reduced cycle times to the market.
- Strategic sourcing of raw materials to obtain a competitive advantage.
- Effective and integrated management of the supply chain.
- Focus on the core business and not on diversification.
- Retention of key people.
- Flexible production processes to optimise bottleneck constraints and product yields.

In addition, the following key business drivers of Sasol Polymers should be taken into account:

- Financial performance.
- Market performance.
- Asset performance.
- Safety, Health and Environment (SHE) and HR performance.
- Integrated business performance.
- Corporate governance structures and reporting (risk analysis and Sarbanes Oxley Act).

An analysis of the extent to which SAP supports Sasol in this strategic context will be provided later in the report.

High Level Business Process Model

Having defined Sasol's strategic context at a high level, the processes should be identified that enable Sasol to carry on its business. In doing so, the Dow/Du Pont process industry print can

be used. The process industry print is a set of industry specific business processes, sub-processes and activities that accelerates the definition of the processes of a specific organisation by providing a valuable template. By identifying which activities are SAP supported and which are not, it also provides a valuable link from the process maps to SAP.

The following represents the business processes as defined for each of the main components:

- Manage the Business : One central business assumptions database
  Plan and manage the business (planning)
  Sales Operational Planning (SOP)
  Mass balancing across value chains
  Master production schedule (MPS)
  Material requirement planning (MRP)
  Business planning and control (Budgets/forecasts)
- Inbound : Procure materials and services
  Manage material stores (MM)(raw material and maintenance)
  Manage inbound supply chain logistics (incl. transportation modules)
- Manufacturing : Manufacture products (PP)
  Plant maintenance (PM)
  Manage plant, equipment and facilities
- Outbound : Technical support
  Customer service support
  Market research and product development
  Market and sell products and services
  Perform order management
  Manage outbound warehouse (MM)
  Manage outbound supply chain logistics
  Provide customer support
- Support : Manage accounting and control data
  Manage cash management and treasury (CM)
  Provide financial decision support
  Manage capital and risk
  Manage human resources

Manage business support teams (IT) (BPO, BPS and super user)
Manage information and technology (IT)
Manage capital projects (AM)
Manage HR
Manage support services

Business Issues

- Lack of one central assumption database.
- Lack of integrated strategic and tactical planning.
- Business information not transparent and accessible to management.
- Inadequate working capital management (cash management and materials management).
- Lack of common business processes across Sasol companies, divisions and businesses.
- Lack of transparency through the value chains.
- Lack of standardisation. Moving average versus standard costing. No standard Chart of Accounts (C.O.A.).
- Business restructuring/re-engineering after initial implementation.
- Lack of measurement systems (Balanced Scorecard).
- Lack of strategic alignment, communication and articulation of strategy on all levels in the organisation.
- Lack of proper forecasting and budgeting systems.
- Lack of variable compensation systems that create the desired results.
- Lack of using more progressive measures to assess performance throughout the value chain.
- Lack of common data warehouse.
- Lack of proper consolidation systems.
- Lack of proper Management Information Systems (MIS) in general.

SAP Structure

The decision on the SAP hierarchy is one of the most fundamental decisions to be taken at the beginning of a SAP implementation. Sasol request is to be advised on the appropriateness and implications of its current structure.

The cluster model and multi-client SAP structure in some cases chosen by Sasol represents the highest degree of independence within the SAP structure. This was chosen due to the diversified nature of Sasol's businesses, and a desire for company, divisional and business autonomy. Each company, division, and in some cases business, is represented by a separate client, in some cases with multiple-company codes within the Sasol group of companies.

The major advantage of this structure is that the individual clients can be maintained and upgraded independently. However, if the different clients are running on one physical instance, this advantage does not apply. This is the case at Sasol where there are three clients running on each of two physical instances. The disadvantage of the cluster model and/or multiple-clients is that each entity operates in complete isolation from the other and any trading between them is done on an arms length basis as far as SAP is concerned. Sasol Polymers is, for instance, not integrated with Synfuels for purposes of inter-company clearing of accounts and, if so, rather "linked", which is not the same concept as integration. This would not cause a problem if these divisions operated in total isolation from one another. This, however, is not the case in Sasol where there is interaction between the different manufacturing divisions and a high level of interaction on a daily basis between the manufacturing divisions and the Sasol group services divisions.

The structure significantly reduces the benefit of SAP as an Enterprise Resource Planning (ERP) solution for Sasol. In an integrated SAP environment, the organisation should be able to view and report on data across the total organisation.

In contrast, Sasol's SAP system provides a severely restricted view of the group as a whole and does not provide the opportunities that SAP could do if implemented on an integrated basis. As a result:

- It does not facilitate transfer pricing.
- There is no transparency on customer activity and profitability across the group.
- There is no transparency on the flow of products, services and information between the different companies, divisions and businesses.
- It does not facilitate the task of group planning and optimisation.
- Inbound processes are hampered by the fact that there is no online information available on the total requirements of the group. This is true for the planning of major raw materials, engineering spares and other commonly used items.
- Stocks (Raw, Finished and Maintenance Spares) are not visible across companies and divisions, thus affecting plant maintenance and stocks used commonly across divisions.

- Production planning and plant maintenance will be unable to use integration to HR.
- Financial processes are affected through the lack of online reporting for the group and the duplication of accounts payable and receivable.
- It does not facilitate a standard Chart of Account (COA) in order to enhance consolidated reporting within Sasol. Add-on systems like Hyperion are still utilised.
- Inter-company and inter-divisional processes are not facilitated in an integrated real time manner, resulting in significant non-value adding administrative effort.
- It is difficult to implement group wide initiatives or maximise the potential benefits of group synergies.
- Companies, divisions and businesses are encouraged to operate in isolation and seek only to improve their own area.
- The current structure requires more maintenance effort due to the number of physical servers, the number of clients or "production boxes" that need to be maintained and managed, and the need to use Automated Link Enabling (ALE) to achieve a degree of integration.
- The cluster model and in same cases multi-client environment are inflexible to accommodate possible future organisational changes to the current Sasol company, divisional and business structure.
- Integrated Balance Scorecard (BSC) reporting is not provided.
- Proper Material Requirements Planning (MRP) across all value chains minimising risk and reducing costs is not facilitated. There is a lack of mass balancing across value chains.

There is no doubt that the advantages of a single client environment (Global SAP) for Sasol as a whole outweigh the disadvantages. If this was a new implementation, a SAP single client (Global SAP or GSAP) would be recommended for the Sasol group.

SAP Planning Capabilities

Considerable attention should be given to the area of manage the business (planning) as this was identified as the single most important strategic business component, and currently the one most poorly supported by SAP.

It is important to recognise that the planning capabilities of SAP are the core of an integrated closed-loop planning and management approach. Integrating planning and simulation can be done with the support of the Strategic Enterprise Management (SEM) system. The closed loop

planning process is performed on a periodic basis to evaluate the impact of sales driven activities throughout the organisation, and provides the basis for ongoing management.

This planning process is supported by standard planning functionality like:

- Sales and Operations Planning (SOP).
- Forecasting.
- Material Requirements Planning (MRP).

The planning portion of the cycle can be described as follows:

- Planning takes place within the context of the organisation's strategic plan.
- Forecasts can be performed in SAP at just about any level, including per product, per customer per region. These forecasts can also be at an aggregated level per product group but a disaggregated forecast will be more accurate. The Sales Quantity Planning generates sales volumes.
- The sales volumes will drive a production plan that SAP's MRP uses in conjunction with Material Masters, Bills of Material (BOM) and product routings across businesses and products to calculate the required activities needed to manufacture the forecasted production plan.
- By using production volumes and the production standards in the routing, SAP generates cost centre activity volumes. The cost required to produce that level of activity results in the cost centre activity rates for valuing the products.
- In product costing, SAP now calculates the production cost by valuing the activity quantities for the product by the cost centre activity rates, and the raw material cost calculated via the BOM and the standard price in the material master.
- SAP now generates a profit plan at the level that the sales planning was carried out, but subtracts the production cost calculated from the Revenue (Sales Volume x Price).
- The profit plan can now be compared to the organisation's strategic plan.
- This becomes an iterative process until the plan fits the needs of the strategic plan.

The full planning cycle is performed once a year, company, divisional and business wide, to set all the new standards for material costs, sales prices, activity rates, available capacity and cost centre rates, and provides the basis for effective management of the organisation.

However, the benefit is not only effective planning but, more importantly, more effective management throughout the Sasol group, enhancing a High Performance Value Chain Organisation (HPVCO). The plan is no longer a financial plan independent of the operations of

the business but in effect a Sasol operational plan that provides a benchmark for operational management to measure and manage performance throughout the year as follows:

- Comparison of the actual sales volumes and values to plan; provides feedback to management on the accuracy of the sales volume plan, and on profitability, and enables them to improve future planning and to make better business decisions.
- This improvement in planning improves the ability to optimise production at a Sasol company, division, business and plant level, and the comparison of actual production cost to planned production cost enables management to measure and manage production performance.
- The link from planning to responsibility centres on activities and provides a basis for decentralising responsibility for cost, thus leading to tighter cost management throughout the organisation. For instance, where businesses are making use of inter company and inter divisional services where automatic system recovery can be introduced.
- Mass balancing, optimising profits through prioritisation of resource capabilities.

Figure 6.4 below shows the closed-loop planning that is supported by SAP.

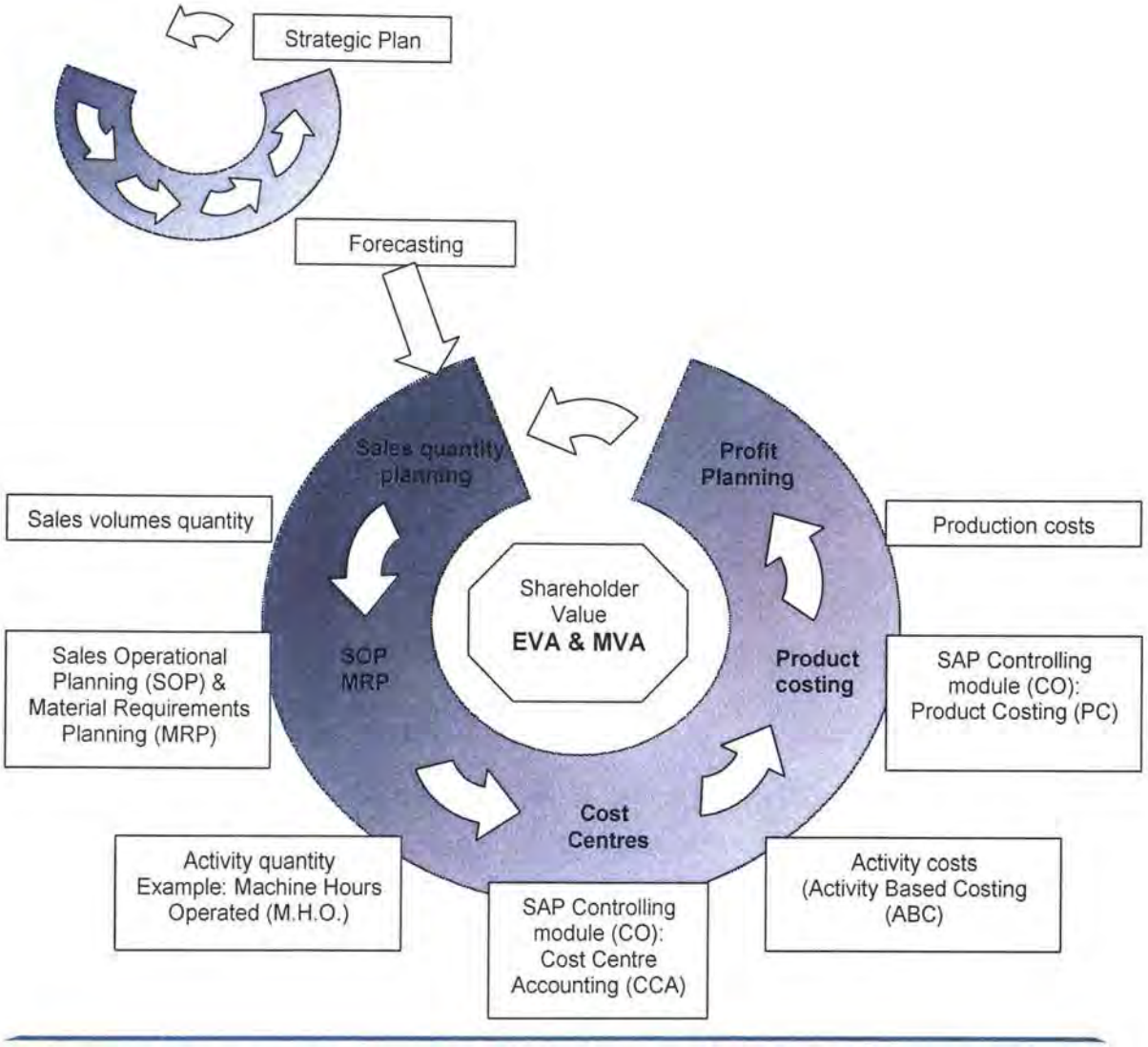


Figure 6.4 – Closed-loop planning and management cycle supported by SAP
Source: Own source

The integrated view of the organisation provides the basis for continual monitoring of performance throughout the Sasol organisation, highlighting significant deviations, and thus enabling management to take the necessary timeous action.

As Sasol has implemented SAP on a cluster basis and in some cases in a multiple-client environment, it is unfortunately not possible to carry out a closed-loop planning and management process across the different companies, divisions and businesses within the Sasol group. The investigation as to whether or not such a process would justify moving to a total single-client environment for Sasol (Global SAP or GSAP) will be an integral part of the business case mentioned above.

Even if this is not currently possible at a Sasol group level, the belief is that the implementation of this approach would have significant benefits for the individual companies, divisions and businesses. Accordingly, the extent to which the SAP R/3 systems as currently implemented at companies, divisional and business level meet the requirements of the approach, was investigated.

Standard Templates

In implementing an integrated system in an organisation it is critical that standards are applied to the correct areas of the business. Standards should be there to ensure data integrity and compatibility. Standards should not necessarily regulate how a company, division or business is doing its business but should regulate how it is recording and reporting this data. Standards should govern things like number ranges, naming conventions, reporting templates and operating procedure guidelines. Procedure guidelines should be used to align process in companies, divisions and businesses but this does not mean that the processes have to be the same.

Given this, procedures and standards are set at a Sasol corporate level but implemented at divisional and business level. Given the Sasol environment, it is critical that standards are set to ensure data integrity and compatibility.

Where an organisation is looking at sharing information or integrating information systems, it is critical that standards are applied and enforced throughout the organisation. This will ensure the compatibility of the data and reduce data redundancy and duplication.

Costing Issues

The implications of Sasol's use of the moving average costing method versus standard costing have been researched and need further investigation. Whichever philosophy is chosen, it is important that it is applied consistently across the Sasol group to provide a basis for effective comparison of product and production cost, and profitability across companies, divisions, businesses and plants.

Although moving average costing is the more advanced method used today and approximates actual values of stock more accurately, it is believed that standard costing as performed by SAP better supports the closed-loop planning and management approach discussed above. Standard

costing forms the basis of responsibility accounting and product costing. It enables the identification of plan deviations and variances, making it possible to take timeous and effective action and to measure and hold people accountable for their performance.

To implement the closed-loop planning cycle successfully, Sasol should consider SAP's standard costing philosophy and implement it using a consistent set of accounting standards (e.g. definition of fixed and variable cost, lifting of assets) across all Sasol companies, divisions and businesses. It is believed that Sasol will get the following benefits as a result:

- A basis for fair comparison of profit and operational performance across the Sasol group.
- Enable management to optimise the allocation of constrained resources and capacity throughout the Sasol group.
- An accurate measure of marginal cost for pricing decisions.
- An accountability culture.

6.4.2.1.2 SAP system exploitation: Business Warehouse (BW) system

One thing certainly lacking at Sasol is the implementation of all the SAP building blocks identified in section 6.4.2.1 of this chapter. As mentioned, BHP Billiton has implemented all the SAP building blocks at its Aluminium Customer Sector Group (ACSG) worldwide and is busy with the role out of the Global Sap (GSAP) system, a project managed from their corporate head office in Melbourne, Australia.

This leads to an investigation of the Business Warehouse (BW) system implemented by BHP Billiton.

Below follows a discussion of the Business Warehouse reporting system as communicated by a SAP FI/CO expert, an article from the SAP Professional journal written by Mitresh Kundalia, who heads the SAP practice division at Quality Systems & Software, which is available on the web address www.QSands.com.

Many factors are involved in deciding which reporting tool to use. Some of the key factors may be the reporting strategy, underlying technology, IT infrastructure of the organisation, data volume, report presentation, content and focus of data, data usage, and business communities served. Also, some factors may be specific to the company-type of industry, organisational structure, and cultural background.

When it comes to reporting Controlling Profitability (CO-PA) information, one should consider three common approaches:

- Reporting in BW only.
- Reporting in CO-PA only.
- Reporting in CO-PA and BW.

BW Reporting

SAP'S future trend is to move all analytical and strategic reporting into BW because of its inherent technological advantages. The R/3 system acts as an Online Transaction Processing (OLTP) system, whereas BW is an Online Analytical Processing (OLAP) system. This means that the underlying processor that executes the commands in each system was designed for two distinct purposes. R/3 is designed to execute transactions, such as sales order creation, whereas BW's processor is meant to analyse data. BW supports complex reporting requirements including cross-application reporting, and it provides significant reporting performance improvement, especially with large data volumes.

CO-PA Reporting

The CO-PA module within the R/3 system allows you to design and develop CO-PA drill-down reports within the SAP R/3 system. Its reports provide profitability information, for example, gross-margin analysis for characteristics such as customers, product lines, regions, and combinations of these characteristics. Since the CO-PA reports reside within the SAP R/3 system, these reports provide real-time profitability information, which may be vital for some industries.

CO-PA and BW Reporting

A third approach is to use both reporting engines concurrently. Although BW is the more powerful tool, CO-PA also offers many useful reporting features, including drill-down, slice-and-dice, sorts, and exceptions. A clever combination of CO-PA and BW may offer the optimal reporting option with the maximum use of existing reporting investments.

Mitresh Kundalia elaborates on these options and then highlights the characteristics of CO-PA in OLTP systems and BW in OLAP systems. He also examines the CO-PA and BW technical structures.

6.5 Summary

In identifying an organisation's strengths and resource capabilities the following value chain elements need devoted management attention and commitment:

- The human element (people).
- Technology.
- Processes.
- IT.

All value chain elements are equally important in an attempt to create a High Performance Value Chain Organisation (HPVCO). The research, however, has been limited to the human element and IT and the process element has only been touched upon.

Companies with a spirit of high performance typically are intensely people-oriented, and they reinforce their concern for individual employees on every conceivable occasion in every conceivable way. They treat employees with dignity and respect, train each employee thoroughly, encourage employees to use their own initiative and creativity in performing their work, set reasonable and clear performance expectations, use the full range of rewards and punishment to enforce high-performance standards, hold managers at every level responsible for developing the people who report to them, and grant employees enough autonomy to stand out, excel, and contribute.

What makes a spirit of high performance come alive is a complex network of people-management practices, words, symbols, styles, values, and policies pulled together, which produces extraordinary results with ordinary people. The drivers of a spirit of high performance are a belief in the worth of the individual, strong company commitment to job security and promotion from within, managerial practices that encourage employees to exercise individual initiative and creativity in doing their jobs, and pride in doing that. A company that treats its employees well generally benefits from increased teamwork, higher morale, greater loyalty, and increased employee commitment to making a contribution. Employee wellness lies at the core of a high performance culture. Strategies without supportive reward systems have little chance of being successfully implemented and executed. Developing the appropriate structure is just the beginning of the organisation transformation process. The critical elements of change that need to be addressed, of which effective leadership practices stands out, were outlined.

Another aspect that needs serious consideration when designing a High Performance Value Chain Organisation (HPVCO) is the development of a High Performance Work System (HPWS) and a work culture conducive to enhancing stakeholder value. HPWS is a set of design principles that are applied to particular organisational situations. Ten principles that seem to characterise HPWS have been discussed.

It is not only people that are important in this drive to create a High Performance Value Chain Organisation (HPVCO). Technology to support management's drive to become a world class organisation is just as important.

As we advance into the new millennium, we will see continued advances in computer and communication technology, and this will continue to revolutionise the way management decisions are made. That is why the main part of the research focuses on the Internet technology and ERP systems as the basis for sound Electronic Commerce (EC) and Management Information Systems (MIS).

SAP as an ERP solution was explored and it was emphasised that the traditional advantage of SAP as an ERP solution has been to provide integration, enabling the organisation to view and report on data across the total organisation, and have the following types of information and capabilities available online real time.

It is important to research SAP best practices, and to conduct a value assessment before and after an initial SAP R/3 implementation. The focus should, amongst other things, be on systems and business process issues. Structures follow strategy. Business re-engineering and restructuring should, therefore, be a high management priority during any SAP (ERP) implementation.

Possible SAP system exploitation opportunities were highlighted and the Business Warehouse (BW) system for implementation at Sasol South Africa was discussed. BW is one of the building blocks that have not been implemented at Sasol. It leads one to investigate the Business Warehouse (BW) system implemented by BHP Billiton. The Business Warehouse (BW) reporting system as a system solution was discussed.

The future trend of SAP is to move all analytical and strategic reporting into BW because of its inherent technological advantages. The R/3 system acts as an Online Transaction Processing (OLTP) system, whereas BW is an Online Analytical Processing (OLAP) system. This means

that the underlying processor that executes the commands in each system was designed for two distinct purposes. Mitresh Kundalia elaborates on these options and then highlights the characteristics of CO-PA in OLTP systems and BW in OLAP systems. The CO-PA and BW technical structures were also examined. The characteristics of the OLTP and OLAP systems were listed.

To measure is to know. How does one assess the successful performance of an organisation? Value chain performance measures are discussed in the following chapter. The research distinguished between enterprise level and functional level measurements and links enterprise measures to EVA, a more progressive measure to assess the performance of a listed company.

CHAPTER 7
VALUE CHAIN PERFORMANCE MEASURES

7.1 Introduction

Traditional measures do not accurately reflect how activities consume resources, measure the cost of those resources or represent how processes affect revenue generation. An appropriate measurement system is one that:

- Adopts a process view to reflect cause and effect relationships between activities and resources.
- Focuses on providing the information managers need for operational and strategic decision-making.
- Provides accurate and timely economic information.

Traditional measures reflect a functional view of the organisation and do not provide information critical to achieving and maintaining a cross-functional, process view.

7.2 Understanding value chain activities and controlling the cost drivers

Any of the below cost drivers can come into play in determining the costs in a particular value chain activity (Michael E. Porter, Competitive Advantage (New York Free Press), 1985, p 97):

- Economies or diseconomies of scale.
- Learning and experience curve effects.
- The cost of key resource inputs.
- Linkages with other activities in the company or industry value chain.
- Sharing opportunities with other organisational or business units within enterprise.
- The benefits of vertical integration versus outsourcing.
- Timing considerations associated with first-mover advantages and disadvantages.
- The percentage of capacity utilisation.

Capacity utilisation is a big cost driver for value chain activities that have substantial fixed costs associated with them. The company can improve its capacity utilisation by:

- Serving a mix of accounts with peak volumes spread throughout the year.
- Finding off-season uses for its products.
- Service private-label customers that can intermittently use the excess capacity.

- Selecting buyers with stable demands or demands that are counter to the normal peak/valley cycle.
- Letting competitors serve the buyer segments whose demands fluctuate the most.
- Sharing capacity with sister units having a different seasonal production pattern.

Knowledge of costs is vital throughout the value chain. Activity Based Costing (ABC) identifies the business activities performed and the costs attracted by each activity. ABC assumes that activities consume resources and products consume activities. ABC tracks the cost associated with each activity, and uses various cost drivers to trace costs of those activities to products.

The cost activities need to be identified within a company's value chain and understood in order to assist with the redesign and cost improvements in the entire value chain. It is imperative to determine the cycle times, and costs, for these activities. This could include the time (in hours, days, weeks, and months) to process, from start to finish, one work product; and the cost (in labour and other expenses) associated with the cycle.

Production throughput is a typical example. In order to calculate the direct factory cost associated to a specific product, one should first calculate the production cost per hour. In this case time (hours) is the cost driver. Production line Y for example has 8,520 hours available for production during a financial year (365 – 10 days x 24 hours). The total direct factory cost for the year is R 34.0 million after all internal assessments are done. Thus the cost per hour is R 4,000 per hour (R 34.0 million ÷ 8,520 hours). If one assumes the throughput of product X as 15 tons per hour, the direct factory cost allocated to product X will be R 60,000 per hour (R 4,000 x 15 tons).

With the above in mind, cost/cycle time profiles should be developed for all the activities within:

- Ordering.
- Order processing.
- Storage inventory or any activity not associated with flow, packaging or labeling.
- Warehousing.
- Transportation/delivery.
- Information support.
- Customer visits.

ABC is only useful if the measurements are accurate. An understanding of where, when, why and how costs occur is imperative for measuring value chain performance. It is important to

utilise the accuracy of process costing information provided by ABC to re-engineer business processes.

"The cost that matters for competitiveness and profitability is the cost of the total process, and that is what Activity Based Costing (ABC) records and makes manageable – it gives not only much better cost control but also result control." – Peter Drucker

"Activity Based Costing (ABC) focuses attention on those products and processes with the most leverage for increasing profits – so that you can understand precisely where to take actions that will drive profits." – Robin Cooper and Robert Kaplan

The design of a value chain performance measurement system should take responsibility and accountability into account, beginning at the lowest possible level and flowing up to top management. It should also incorporate both enterprise-level measures (e.g. total company costs) and unit-level measures (e.g. activity costs).

Enterprise-level measures include:

- Productivity (tons per employee produced).
- Quality (ISO standards).
- Costs (Cash fixed cost per product per hour).
- Market share (55 %).
- Cash flow.
- Cycle times (Overseas sales cycle 5 weeks lead time).
- Return on Capital Employed (ROCE).
- Profits (Revenue and Operating expenses)(Net Operating Profit after Tax (NOPAT)).
- Innovation.
- Customer satisfaction (Customer Satisfaction Index (CSI) = 73 %).
- Level of Investment: Working Capital (% of turnover).
- Level of Investment: Fixed Capital spending.
- Capital Structure (Debt/Equity ratios).
- Revenue split (Local versus Foreign source).
- Safety measurements.
- BEE targets.
- Diversity Targets.

Unit–level measures include:

- Return on Capital Employed (ROCE) per Business Unit (BU).
- Diversity targets.
- Activity costs.
- Order – fill rates.
- Full Order on Time delivery (FOOT).
- Activity cycle times.
- Days of inventory in stock (per product category or product grade).
- Throughput per product grade.
- Cash cycle (Debtor's days + stock days – creditor's days).
- Outstanding Proof of Deliveries (POD).

The enterprise measures and unit level measures discussed above are mainly for internal business reporting and control.

In order to instil an outward focus to the customer from a logistics point of view, the following Customer Service Success Factors (CSSF) are critical in the measurement of the performance of the value chain:

- Accurate information on order and shipment status (tracking system).
- Ease of placing a sales order.
- Product availability (inventory holding – safety stock levels).
- Immediate notification of stock out (exception report).
- Quick response for customer product replenishment (Consignment stock filling).
- Matching the quantity delivered with invoices (billing).
- Ability to fill orders at once.
- Top quality carrier services people.
- Service level agreements (SLA) management: transport carriers and shipping lines.
- Customer Satisfaction Surveys (Index %) on satisfactory levels.
- Accurate planning and scheduling. Local and export sales as well as production planning accuracy.
- Invoicing (billing) at quoted prices.
- Limited customer complaints reported and accepted.

The frequency for each measurement must be determined and reported accordingly to the correct audience. System reporting is required, reporting the exceptions by flagging using the

colours of a robot. Yellow puts the warning signs on, green means that everything is OK and red indicates that there is a problem that needs serious management attention.

Targets must be set in respect of each measurement. Benchmark the measures against the industry standard, best in class. Budgets must take benchmarking information and set targets into account. Actual results should be compared against industry standards, own targets and budgets. Benchmarking as an analytical management tool has been extensively discussed as part of the literature review in Chapter 2.

By measuring the above accurately one can manage activities better, which leads to a system of continuous improvement. The challenge is to determine the relative importance of these factors in the organisation's value chain for each product, customer and distribution channel.

7.3 High level enterprise performance measurements

The following are examples of high level enterprise performance measures:

Net Operating Profit after Tax (NOPAT)

- Revenue
  - Return on supply chain
    - Sales revenue (export and local split or by region, e.g. South East Asia).
    - Stock (Incl. Strategic Maintenance stock reported as Capital).
    - Fixed and Variable cost (Logistics and Production).
    - Full order on time (FOOT).
    - Delivery performance.
    - Customer service levels.
    - Sales and production planning accuracy.
    - Total Profitability (Local, Export by Region).
    - Price.
    - Volume.
    - Cost of sales (Variable and Fixed).
    - Contribution by product grade for the PP business unit and the total value chain, which includes the backward integrated units.
      Local (#70).
      Export (#70 and #288) (Hong Kong separate).

Margins per product grade.
    - Market share and growth (RSA, Near Africa).
    - Customer complaints (amount of tons affected/total sales volumes).
- Operating expenses
    - Operating expenses.
    - Cash cost benchmark ($ based)(Dow, Chemical Systems).
    - Total and cash cost R/ton (Production Volumes).

It is important to focus on costs and revenues simultaneously.

Employment of capital

- Fixed operating assets.
    - Net asset turnover (sales/net assets) (asset sweating).
        - Investments e.g. product silo's.
        - Current assets (Incl. strategic maintenance stock).
        - Current liabilities.
        - Fixed assets.
    - Return on net assets (PBIT/Net Assets).
    - Fixed asset turnover (Sales/Fixed Assets).
- Working capital.
    - Cash to cash cycle (days).
        - Creditor's days.
        - Inventory days of supply.
        - Debtor's days.
    - Working capital percentage of turnover.
    - Acid test ratio (values).
    - Current ratio (values).

Other

- Return on intellectual capital (ROIC).
    - Turnover per employee (value and volumes).
    - Turnover per employee (value and volumes).
    - Tons per employee (value and volumes).
    - Labour cost % of turnover.
    - Training cost % of total labour cost.
    - Profit per employee.

- Diversity targets and performance against targets.
  - Gender, race, age groups.
- Employee wellness (temperature gauge).
  - Overtime worked (legal requirements).
  - Garnishing orders.
  - Motivational index (bi-annually).

7.4 High level functional measures

It is important not to overload management with information. Certain measures can be measured and controlled on a functional level. These measures can be included in the performance contracts of employees and taken into account during individual and team performance assessments.

The following are some examples of high level functional measures:

- Inbound logistics (commercial)
  - Creditors days.
  - Raw material inventory turns (volumes).
  - Purchase order cycle time.
  - Maintenance stock turns.
  - Maintenance stock provisions % of total maintenance stock.
  - Maintenance stock % of fixed assets (plant and equipment and building capital).
  - Training cost as percentage of labour cost.
  - Employee wellness (temperature gauge).
    - Overtime worked (legal Requirements).
    - Garnishing orders.
    - Motivational index (bi-annually).
  - Diversity targets and performance against targets (Gender, race, age groups).
  - BEE targets.

- Manufacturing and plant maintenance
  - Production volumes
  - Production planning accuracy
  - Raw material usage (propylene efficiency and five main additives)
  - Wide spec or off spec product
  - Cash fixed cost r/ton

- Maintenance cost % of fixed assets
- Utility efficiencies
- Training cost % of labour cost
- Employee wellness (temperature gauge)
    - Overtime worked (legal requirements)
    - Garnishing orders
    - Motivational index (bi-annually)
- Diversity targets and performance against targets (gender, race, age groups)

It is important to set realistic targets that are achievable for each of the above measures. Management control systems must be implemented to measure and report performance against targets, budgets and forecasts. Great emphasis should be put on exception reporting, which focuses management's attention on those activities and/or measures that deviate from targets or budgets and therefore require serious management attention.

7.5 Summary

Traditional measurements are not enough to assess the performance of a company. An appropriate measurement system is one that:

- Adopts a process view to reflect cause and effect relationship between activities and resources.
- Focuses on providing the information managers need for operational and strategic decision making.
- Provides accurate and timely economic information.

Traditional measures reflect a functional view of the organisation and do not provide information critical to achieving and maintaining a cross functional, process view.

Knowledge of costs is vital throughout the value chain. ABC identifies the business activities performed and the costs attracted by each activity. ABC assumes that activities consume resources and products consume activities. ABC tracks the cost associated with each activity, and uses various cost drivers to trace costs of those activities to products.

The design of a value chain performance measurement system should take responsibility and accountability into account, beginning at the lowest possible level and flowing up to top management. It should also incorporate both enterprise-level measures (e.g. total company

costs) and unit-level measures (e.g. activity costs). A few examples of enterprise-level and unit-level measures were listed and an attempt made to link enterprise-level measures to EVA.

Value Chain Performance Indicators (VCPI), logistics performance measures and benchmarks must be linked to the overall business strategy and performance goals and objectives of the company. Once established, these measures cannot remain fixed, they must be measured weekly, daily, and monthly. This enables the management team to correct any errors or make the necessary adjustments to enable the organisation to meet the targets with more ease than if the figures are only gathered and acted on at the month end. Appendix 4 is attached as an example of a Value Chain Intelligence Scorecard (VCIS).

As the respective targets are met, measures and goals must be adjusted accordingly. Stretch targets must be set. The principles of continuous improvement must apply – it must be relentless, making value chain excellence the ongoing goal.

A management control system must cover the company's entire value chain. Linking with other parties should be provided through electronic data interchange (EDI). Tracking of sales orders, purchase orders and stock movements per product grade is essential. The system must be on-line real time and integrated across the total value chain of the company, ensuring broad access and synergy across the company. It requires a management control system that is database-oriented in a distributed processing environment, across the company's value chains.

Managers were traditionally concerned with the management of results. It is important in today's environment to manage activities and results. The activities and costs that are measured must be managed to attain the highest level cost saving possible without sacrificing customer service.

The Balanced Scorecard (BSC) is one of several tools that can be utilised as a management control system in order to manage activities and results. The Balanced Scorecard (BSC) is discussed comprehensively in the next chapter.

CHAPTER 8
BALANCED SCORECARD (BSC) AND PERFORMANCE MEASUREMENTS

8.1 Introduction

The Balanced Scorecard (BSC) is based upon work done by Robert Kaplan and David Norton, the two creators of it. An organisation called Balanced Scorecard Collaborative was founded by Kaplan and Norton.

The Balanced Scorecard is a proven framework for executing strategy that has helped organisations achieve breakthrough performance results. "Measurement motivates and what gets measured gets done", says Robert Kaplan. David Norton observes that "the Balanced Scorecard is the best means to execute strategy". According to Kaplan and Norton a Strategy-Focused Organisation translates strategy into action through a strategy map framework of cause and effect between its strategic objectives. The outcomes of action are then evaluated to assess results and determine whether the organisation is on track. The BSC is a vital tool to enable the organisation to improve the understanding of objectives, and the implementation of strategy throughout the business, thus making strategy a core competency (Source: Kaplan, R. S. Norton, D.P., 2000. The Strategy-focused Organisation: How Balanced Scorecard Companies thrive in the new Business Environment, Boston: Harvard Business School Press).

A Strategy-Focused Organisation achieves strategic alignment when the whole of the organisation exceeds the sum of its parts. This is only assured if the BSC is satisfactorily integrated with the key management processes. Recent corporate scandals have led to a varied re-examination of the role of executives and boards in providing effective oversight. Companies are improving their corporate reporting and management on issues relating to corporate social responsibility. The BSC is supporting such activities.

There is a new process for creating value in organisations based upon the conversion of intangible assets such as skills and information, to tangible outcomes such as customer retention or financial results. The BSC can be used to create strategic readiness for human capital, information capital and organisational capital.

The strategic vision of the organisation affects everything else. It steers the organisation in the right direction and helps to determine the architecture of the organisation. Strategic visioning is unique to each organisation, partly due to the nature and geographical spread of different

organisations. Visioning is greatly dependent on the views of the chief executive and his advisors. At the highest level, every organisation experiences different problems and can offer unique solutions to these problems. Strategic visioning is normally formulated on a corporate level and provides the framework for the development of lower level visions in the organisation. A vision should include elements of excitement to energise the employees and mobilise the capacity in an organisation. The great transition of organisational engineering to align people, technology and strategy should be conducted in a disciplined and structured way. The Balanced Scorecard is an effective management tool that can be utilised to do just that.

The BSC is the means through which organisations can implement strategy successfully to achieve breakthrough performance results. The BSC comprises four strategic management processes:

- Building a strategic map, which translates the vision and strategies to operational terms.
- By cascading the BSC down to various levels in the organisation, the entire organisation is aligned to the strategy, which creates focus and commitment by all.
- Strategy becomes a continuous process and not a once in a year exercise where certain top officials are involved allowing corrective action to take place on a continuous basis.
- By cascading the BSC, support and commitment are obtained at all levels in the organisation making strategy everyone's responsibility.

The ultimate purpose of the BSC is to create a map in order to plan the journey, a compass to keep the organisation on course and a knowledge base to explore new opportunities.

The Balanced Scorecard's fundamental premise is that measurement motivates behaviour:

- What you measure is what you get.
- It is not what you expect...it's what you inspect.
- If you can measure it, you can manage it.
- To measure is to know.

8.2 The Balanced Scorecard (BSC) translates strategy into action

In order to achieve its vision and mission, an organisation needs to do things differently, things that create a culture of excitement and commitment throughout the organisation, things that will unleash the energy in its people and move the organisation to another level of performance and a sense of great achievement. It is important to know where the organisation is presently and where or what it wants to become in the distant future. A fundamental question to ask is how a

vision and mission can be formalised to unleash a sense of excitement and commitment throughout the organisation. Where is the organisation presently "as is" and how does it envisage itself in the future gaining the full commitment of all its employees? What are the strategic actions it needs to take to achieve its vision? In other words, how does one close the gap between where the organisation is ("as is") and where it wants to be? Vision without action is no vision.

The BSC translates vision, mission and strategy into four dimensions of performance, which are described and discussed below. The four perspectives/dimensions are (1) financial perspective, (2) business partner perspective (suppliers and customers), (3) internal business process perspective and the (4) learning and growth perspective which has more to do with the people of an organisation. The linkage between the four perspectives is critical in ensuring long-term success for all stakeholders. The linkage is illustrated in Figure 8.1 below.

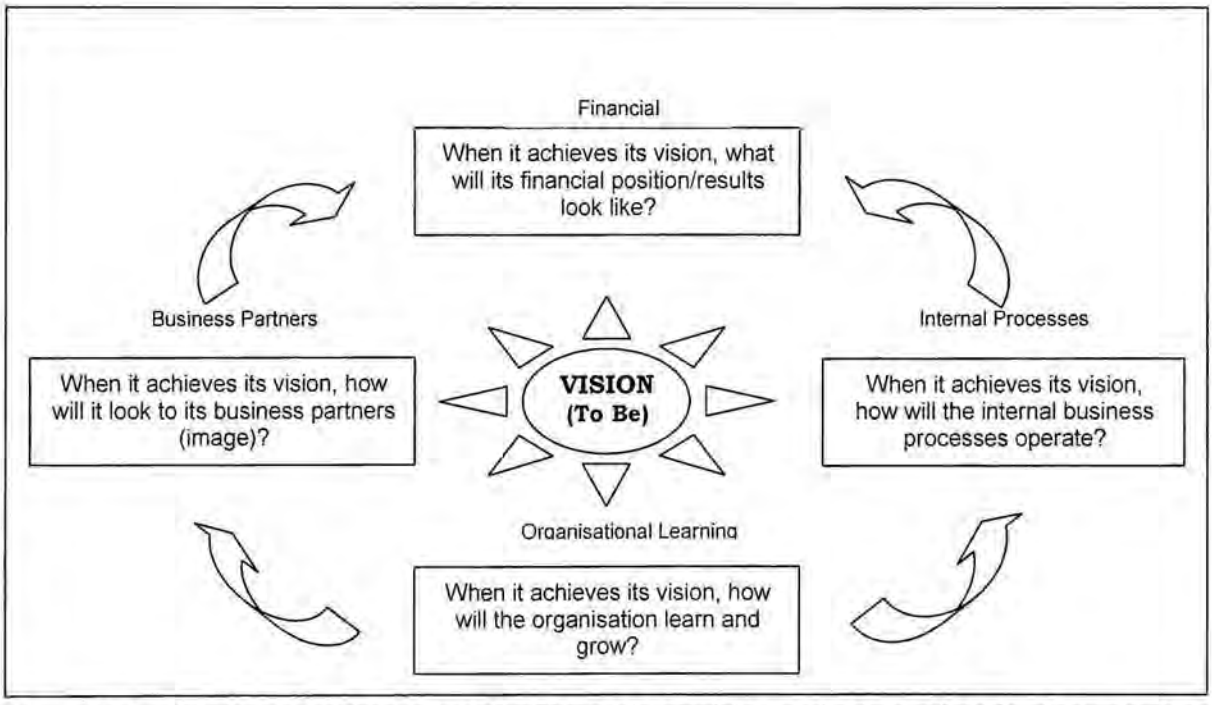


Figure 8.1 – The Balanced Scorecard (BSC) translates vision and strategy into four perspectives
Source: Own source

According to Kaplan and Norton one can build a powerful strategic story using strategy maps and scorecards. Many organisations that had trouble with the effective implementation and institutionalisation of strategy opted to implement a BSC as a tool to map and communicate its strategy. Strategy maps provide logical architecture for describing strategy by developing it into a linked set of objectives across the four perspectives (Figure 8.1).

In light of the collapse of Enron, one of the USA's largest corporations, and due to extensive research, the Business Ethics and Corporate Governance were added as a separate perspective to the existing four identified by Kaplan and Norton. Corporate Governance is certainly a topic that is extensively discussed and debated in boardrooms today. It encompasses the other four perspectives and should not only be dealt with as part of the values of an organisation. It requires separate strategic thinking, for example how to communicate and report to stakeholders on the organisation's social responsibility and the protection of the environment.

Objectives and targets are set for each strategy task. Setting of objectives as the second strategy-making and implementing task was discussed as part of the literature review in Chapter 2. The scorecard activates those objectives by translating them into meaningful measures, targets and initiatives.

8.3 Operational Excellence

Before exploring the implementation of the BSC, it is important to understand what operational excellence means. Operational excellence is a philosophy and an improvement methodology that enables organisations to respond better to an increasingly complex and competitive business environment.

Operational excellence as a philosophy:

Alignment	:	clear direction, aligned workforce and strong active leadership
Process	:	process orientation and elimination of variation
People	:	development and engagement of all employees and managers
Customer	:	both external and internal customer focus
Results	:	strong bias for results and accountability

Operational excellence as a methodology:

Tools	:	the skilled application of both technical and cultural tools
Data	:	focus on data for better analysis and decision-making
Commonality	:	both language and tool sets
Discipline	:	rigorous discipline for improved project completion

Research has shown that many organisations incorporate operational excellence at least in one or more of their values. Sasol, an integrated oil and gas company with substantial chemical interests in South Africa and abroad is a typical example. Sasol is listed on both the JSE in South Africa as well as the NYSE in the USA. Sasol's global business principles and conduct are for instance founded on, and inspired by, five shared values: customer focus, winning with people, excellence in all it does, continuous improvement and integrity. One can assume that excellence in all they do and continuous improvement enhances operational excellence. Through its values, an organisation can inspire certain behaviour, which can lead to improved operational excellence.

Operational excellence is important because the economic realities of business are very different today and are changing rapidly. Competition increases and become stronger and more fierce all the time. Sasol is a high risk business and therefore shareholders require a high return on their investment. Cost of capital is high and it is difficult to attract capital into the oil and gas industry. The need for better and faster decision-making is increasing and a common language and methodology are needed to bring the Sasol companies together.

Through operational excellence, costs can be saved and production output increased in order to generate higher cash flows from operations. Positive cash flow in turn can be utilised for expansion and will reduce the financial risk of the organisation.

BHP Billiton is the world's largest diversified resources group, operating an unique mix of high-quality assets across the globe. They structure their portfolio of assets into seven customer-oriented groupings called Customer Sector Groups (CSG). These are Petroleum, Aluminium, Base Metals, Carbon Steel Materials, Diamonds and Speciality Products, Energy Coal and Stainless Steel Materials. The following is a typical mission regarding operational excellence for BHP Billiton, South Africa:

Enable Excellence in Minerals by:

- Improving identification by analysing the value-chain; benchmarking processes and metrics; assessing potential technology application and carrying it out.
- Improving execution by developing a superior technical solution, addressing root causes and engaging people in the improvement process.
- Improving capture by measuring both tangible and intangible asset value-add; distilling critical success factors and lessons learned.

- Organisational learning – by replicating practices and sharing knowledge via the BHP Billiton networks through workshops, forums, newsgroups using proven Knowledge-Centred Learning techniques.
- Institutionalisation – by instilling standards for control and improvement into new and existing businesses and auditing for behaviours consistent with the standards. Setting the pace in our industry.

8.4 Balanced Scorecard perspectives

Table 8.1 comprises an overview of the Balance Scorecard perspectives and provides a framework for discussions that will follow (Adapted from Kaplan, R.S. and Norton, D.P., 2000. The Strategy-focused Organisation: How Balanced Scorecard Companies thrive in the new Business Environment, Boston: Harvard Business School Press).

Table 8.1 - Balanced Scorecard (BSC) perspectives framework

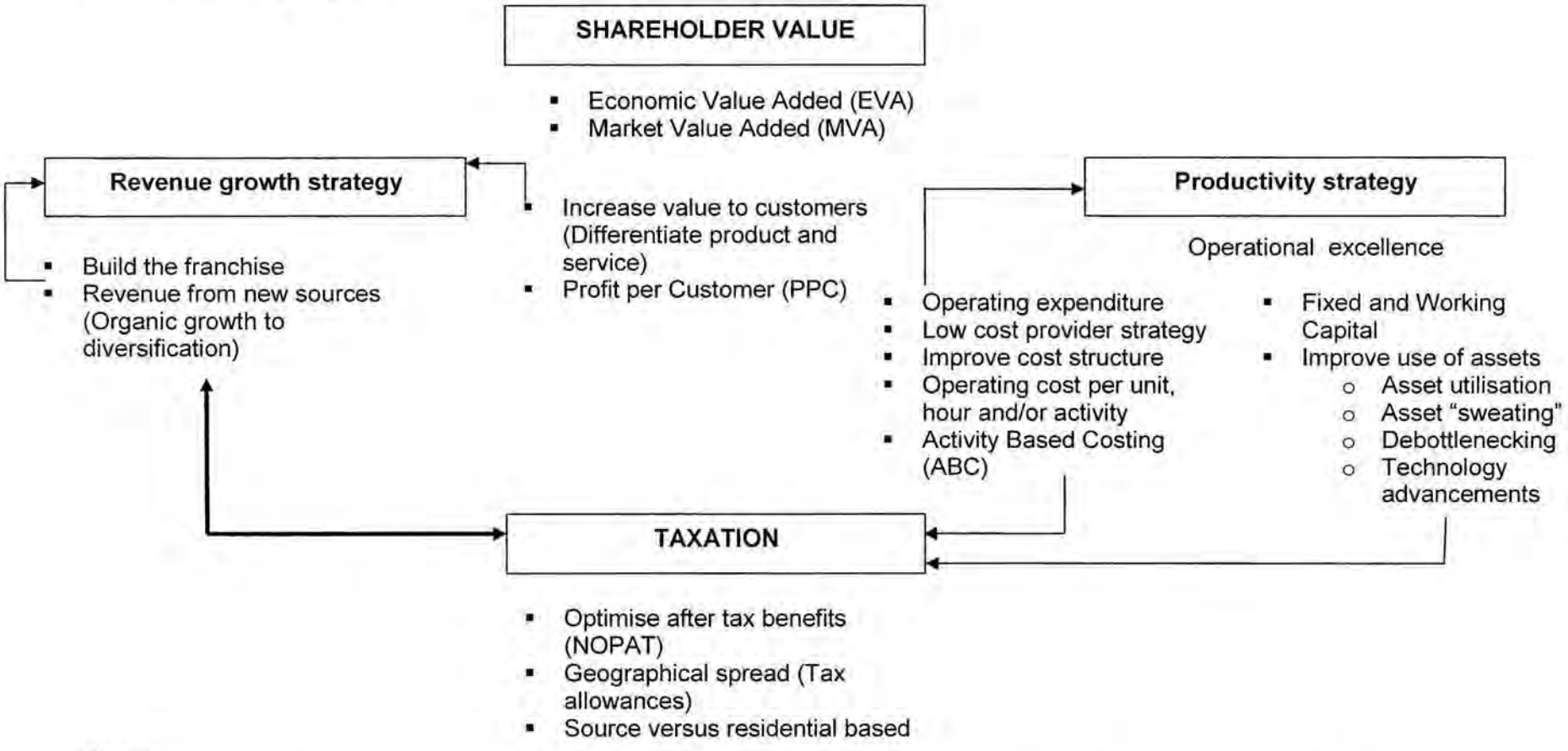
A. Corporate governance perspective

- South Africa : King 2 report on Corporate Governance
- USA : Sarbanes Oxley Act (SOX)

STAKEHOLDER VALUE

Risk management	**Internal controls**	**Financial statements/Annual reports**
▪ Integrated Risk Management Process (IRMP) ▪ Risk policies and procedures ▪ System solutions (Live Link system, SAP R/3 and others)	▪ Financial Reporting Controls Sarbanes Oxley Act (SOX) ▪ Internal Control Frameworks (COSO Framework) ▪ System Solutions (Live Link or SAP R/3)	▪ Disclosures ▪ International Accounting Standards (IAS) ▪ International Financial Reporting Standards (IFRS) ▪ USA General Accepted Accounting Practice (GAAP) ▪ RSA GAAP ▪ Tax Legislation (Strategy to optimise tax)
Public Relations (PR)	**Good corporate citizenship through regulatory and environmental processes**	
▪ Stakeholders ▪ Communication strategy ▪ Branding strategies ▪ Media communication strategies	▪ OSH Act (Safety, health, environment) ▪ Environmental and labour laws ▪ Corporate social responsibility programmes	

B. Financial perspective



Notes :

(1) Revenue - Operating expenditure – tax (deferred and normal) = Net Operating Profit After Tax (NOPAT) (Rand Value)
(2) Fixed and working capital = Employment of Capital
(3) NOPAT ÷ Employment of Capital x 100 = Return on Capital Employed (ROCE) (%)
(4) ROCE (%) – Weighted Average Cost of Capital (WACC %) x Capital Employed = EVA (Rand)

C. Business partner perspective (customers and suppliers)

Operational excellence	Customer value proposition	Customer acquisition, retention and satisfaction
Customer Viewpoint : ▪ Product attributes are price, time (response), quality and selection ▪ Forward integration strategies ▪ E Commerce : E Sales (e.g. electronic ordering) ▪ Portray an image of a "smart shopper" ▪ Competitive pricing, product quality and on-time delivery Supplier Viewpoint : ▪ Service attributes are price, time (response), quality, selection and overall reliability of supply ▪ Material Requirements Planning (MRP) ▪ Funding capabilities ▪ E-Commerce : E-Procurement (e.g. electronic sourcing, self invoicing)	▪ Service relationship ▪ Excellent customer relations ▪ Portray an image of a reliable and trusted brand ▪ Personalised, service offering and building a long-term relationship with customers ▪ Differentiate service offering ▪ Technical support	▪ Product attributes are time (response) and functionality ▪ Portray an image of best in class ▪ Aesthetic value of product ▪ Creating unique products that push the envelope ▪ Value for money

D. Internal business perspective

Operational Excellence through operations and logistics process	Innovation and creativity	Customer management process
▪ Integrated Supply Chain Management (ISCM) ▪ Quality management processes (TQM, ISO)	▪ Entrepreneurship culture ▪ Technology innovations ▪ New product development (Market push, e.g. fuel from gas) ▪ Technology centre, development equipment	▪ Customer Relationship Management (CRM) ▪ Customer service index

E. Learning and growth perspective – people

Corporate culture	Technology	Employee job profiles
▪ Build on trust and respect ▪ Openness and transparency ▪ Value driven ▪ Employee motivational index ▪ Employee wellness	▪ Computer Based Training (CBT) ▪ Use of computers – software and hardware ▪ Internet use ▪ Use of integrated business systems (ERP systems)	▪ Job requirements ▪ Functional and behavioural competencies ▪ Competency Based Training (CBT)

8.4.1 Business ethics and corporate governance perspective

The Balanced Scorecard can be utilised as a viable corporate governance framework. The collapses of companies like Enron and Worldcom and numerous corporate accounting scandals have caused a re-examination of the role of senior management and the board of directors in achieving effective governance of the business. New regulations and industry guidelines are providing some direction, but they are only part of the equation. The other part is implementing improved corporate governance processes and evaluating their success. How can the Balanced Scorecard support good governance processes? What degree of integration is necessary between your accountability and reporting requirements and the scorecard? Using the Balanced Scorecard approach will enhance strategic oversight, ensuring accountability and evaluating the performance of senior management.

A point in case is how to put financial reporting controls and sound governance structures throughout the organisation in place to create a protected environment in which business can be conducted. The implementation of ethics policies and procedures and the establishment of an independent ethics line are typical examples. This may require a system solution for instance.

Risk analysis, both financial reporting risks and normal business risks are critical for long-term survival of the organisation. Risk analysis results can be separately reported as part of the BSC framework. The reporting level of the risk results will depend on the risk type. Risks are categorised according to impact and probability and recorded in a risk register. A risk owner, who maintains a risk inventory, is identified for each risk. The level of reporting will depend on the impact and probability of each risk and who is responsible for the maintenance of that risk in terms of a proportionate ownership model. Risk analysis should be conducted before developing the strategic framework.

The goal of maximising stock prices is consistent with high standards of ethical behaviour and social responsibility. Many socially responsible firms have created enormous value for their owners, and many unethical firms now are bankrupt.

Ethics is defined in Webster's dictionary as "standards of conduct or moral behaviour." Business ethics can be thought of as a company's attitude and conduct toward its employees, customers, community, and stockholders. High standards of ethical behaviour demand that a firm treat each party that it deals with in a fair and honest manner. A firm's commitment to business ethics can be measured by the tendency of the firm and its employees to adhere to laws and

regulations relating to such factors as product safety and quality, fair employment practices, fair marketing and selling practices, the use of confidential information for personal gain, community involvement, bribery, and illegal payments to obtain business.

Despite many reported cases of unethical behaviour by executives and employees of companies, results of studies indicate that the executives of most major firms in the United States do try to maintain high ethical standards in all of their business dealings. Africa, of course, is an exception where high levels of unethical business dealings are demonstrated. Studies also revealed that there is a positive correlation between ethics and long-term sustainability. Ethical behaviour can increase profitability because it (1) builds public confidence, (2) attracts business confidence from suppliers and customers with regard to the company's policies and procedures, (3) supports economic stability and viability of the communities in which it operates by enhancing continuous wealth creation, (4) attracts and retains employees of the highest calibre who earn respect and trust, (5) minimises unnecessary risk and media exposure, which damages company image in general, and (6) minimise cost by avoiding unnecessary fines and legal expenses.

Ethical behaviour is sometimes capsulated in an organisation's corporate values. At Sasol worldwide employees are measured in terms of the five corporate values of the company with the help of 360° questionnaires. The 360° evaluation system is fully computerised and the questionnaire easy to complete, providing effective feedback to the employee. Apart from utilising the 360° evaluations as a development tool, values now contribute 20% towards an employee's performance merit rating.

Most firms today have strong codes of ethical behaviour in place, and they also conduct training programmes designed to ensure that employees understand the correct behaviour in different business situations. Many companies have implemented ethics lines that are managed by an independent audit or professional consultancy firm. Companies promote their ethics lines on web sites, posters and through the distribution of pamphlets.

The King 2 report on corporate governance in South Africa is available from the Institute of Directors website (www.iodsa.co.za) for additional reading.

8.4.2 Financial perspective

The ultimate objective of a listed company is to improve shareholder value. Shareholder value

has been extensively discussed in Chapter 4. The more progressive measures to assess financial performance of a company are the EVA and MVA measures. EVA and MVA concepts and definitions were also discussed in Chapter 4. Below, a demonstration of how the financial perspective of the Balance Scorecard (BSC) can be directly related to EVA. It is important to understand the key components of an EVA calculation as outlined below.

Key components of EVA:

- NOPAT = Revenue less operating expenses and taxes.
- Capital Employed = Fixed capital and working capital.
- Return on capital employed (ROCE) = NOPAT/Capital Employed x 100.
- EVA = ROCE (%) less WACC (%) x employment of capital.

The key components used to calculate EVA and EVA in itself are important elements of strategy and are reported under the financial perspective of the BSC. The financial section incorporates two important strategies: a revenue growth strategy and a productivity strategy. Both of these strategies contribute to the improvement of shareholder value.

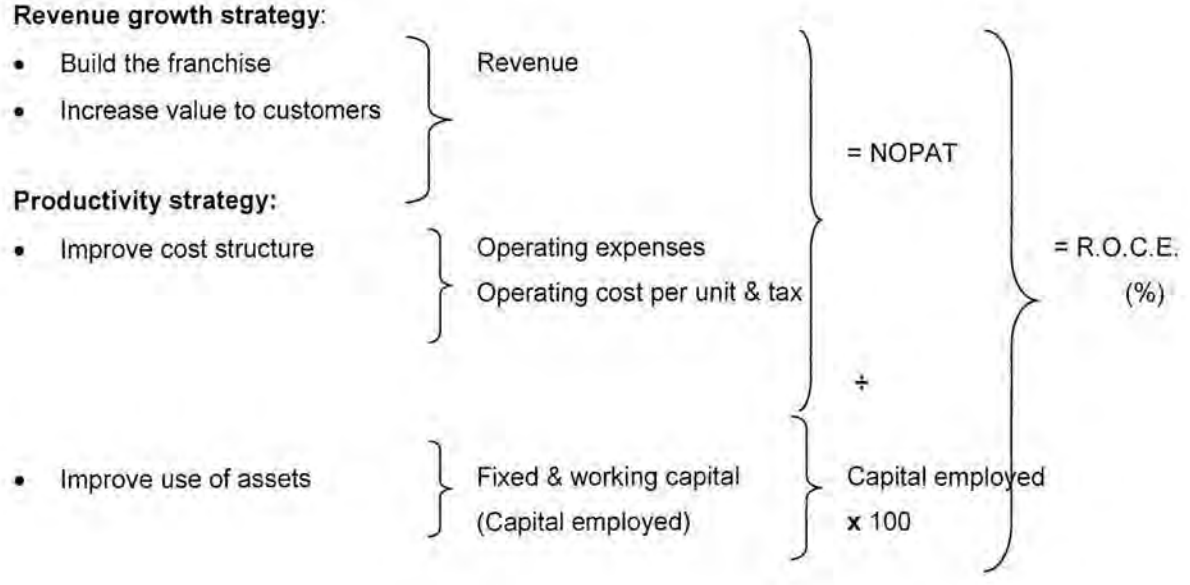
Revenue growth strategy:

- Build the franchise.
- Build the brand image.
- Generate revenues from new sources. Change organic growth into growth through diversification.
- Increase value to customers by applying a differentiation strategy and/or a cost leadership strategy that will benefit both the company and the customer. Revenues will ultimately improve and the increase in revenue may consequently lead to improvement or at least sustainment of financial results (refer to example Sasol Polymers, PP Business silo's at key customers).
- Improved customer satisfaction. Client satisfaction, efficient and effective delivery of service and quick response will deliver the financial results. Customer satisfaction survey can be conducted at least once a year to determine the level of customer satisfaction. Follow up and feedback to the customers and adjustments where applicable will demonstrate the commitment from the company. In this way revenue income will at least be sustained or will grow into the future.
- Improve customer profitability. Rank customers in terms of Profitability per Customer (PPC). Rather rank customers in terms of contribution per ton or other unit of measure over a range of products taking into account a full year's sales.

Productivity strategy:

- Improve the cost structure. For instance, cost values and cost per unit in nominal and real values both in rand and dollar terms. Operating cost per unit produced or operating cost per activity can be calculated and used to benchmark against the world's best (leaders) and/or laggard company's in the same industry. Important, however, is how to improve the cost structure of the company.
- Improve the use of the assets of the company. Asset sweating is a terminology that should be carefully used. In a chemical company the safety risks are extremely high. A push towards achieving unrealistic volume targets may result in safety been ignored. De-bottlenecking the plant is probably a better option as long as a reasonable return can be achieved on the capital invested. Identify and try to remove any constraints that may exist in the process. Typical measurements will be production output per hour for each product range or production output per day or production output per employee.
- Asset utilisation. What product grades will be produced on which production line and when. In which mode will the product be produced, for instance in tandem mode or in single mode. Measurements will be production output for a specific product produced on each line. One would prefer to produce the product on the line that delivers the higher output per Machine Hours Operated (M.H.O.).

Elements of both the revenue growth strategy and the productivity strategy, except the WACC figure, effectively represent all the elements that are used in the calculation of the EVA for a company as illustrated below:



The end result:

- Revenue - Operating Expenses - tax = Net Operating Profit After Tax (NOPAT), expressed in rand value terms
- NOPAT/Employment of capital x 100 = Return on Capital Employed (ROCE), expressed as a percentage
- R.O.C.E. (%) – WACC (%) x Employment of capital = EVA (Rand value)

Long-term sustainable growth is critical for the survival of the company. The ultimate purpose of a company is to generate profits and a positive cash flow. The fundamental question to ask is how will the cash be utilised in order to improve value for the shareholders or the owners of the company? It is important that the company creates wealth for shareholders and does not destroy wealth because of how it utilises the cash.

Financial performance is measured and reported monthly in management reports and the key business measures reported through the BSC to all levels in the organisation. It is important to understand the relationship between financial performance, the business partner perspective, internal business process perspective and the organisational learning perspective. The relationship is illustrated in Figure 8.1. They all contribute to the long-term financial success of the company. The ethics and corporate governance perspective encompass the other four perspectives.

8.4.3 Business partners perspective: customers and suppliers

Excellent processes and people enhance client satisfaction. Client satisfaction, efficient and effective delivery of service will in turn deliver financial results.

The IT support systems ensure that the integration links are sound and operative at all times. This ensures that product is delivered online real time all the time in the customer's silo on site. An electronic order is created on the ERP system (SAP R/3) once a certain safety stock level is reached. The finished product stock is treated as consignment stock.

Service Level Agreements (SLA's) are set up between the customer and the supplying company and managed properly at all times. Performance against the SLA's is measured and tracked through Balanced Scorecard (BSC) reporting, for example Full Order on Time (FOOT) delivery as %. Customer Satisfaction Surveys are conducted periodically to obtain feedback from customers. The satisfaction survey results are captured and reported in the Balanced Scorecard.

The FOOT is seen as a logistics functional measure and the customer satisfaction index a marketing functional measure.

The Sasol Polymer, PP Business silo example referred to in Chapter 5 constitutes a typical differentiation strategy that delivers financial benefits to both the customer and the company. The customers pay for the silos by means of the difference between the price of product packed in bulk bags and the price of 25 kg packaging. The customer is still invoiced at the 25 kg packed product price, which is more expensive than the bulk packing product. After the silo is paid back, the customer will get the full cost saving benefit of the bulk packing delivery. Payback trends supported by graphs are reported at marketing and logistics forums as part of their Balanced Scorecard mapping exercise (functional level). Customer accounts are monitored monthly to ensure that they do not exceed the five year payback period.

The customer perspective and how it relates to strategy and financial performance is contextualised in Figure 6.1, Chapter 6.

Operational excellence from a customer perspective.

Operational excellence as a philosophy and a methodology has been explained in Section 8.3 of this chapter.

Excellent processes and people will enhance customer satisfaction. The product service attributes for achieving operational excellence from a customer perspective are price, time, quality and selection. All of the latter are "tickets to the ball game". Companies excel at competitive pricing, product quality and on-time delivery. A wide range of products from which customers can select through product differentiation and customised attributes are provided.

Operational excellence portrays an image of the "smart shopper".

Customer Value Proposition

Create customer intimacy through cost effective service differentiation and building the customer relationship model of trust and respect. Service is also "a ticket to the ballgame". The question however is, how do you differentiate your service offering? Companies excel at offering personalised service to customers and at building long-term relationships with them. They portray an image of a trusted brand.

Customer acquisition, retention, and satisfaction

Establish the company in product leadership through product differentiation. Customised functionality and quick response to the market is essential. Companies excel at creating unique products that push the envelope.

Portray an image of "best in class".

8.4.4 Internal business perspective

Good people in efficient processes support effectiveness. Build the franchise through innovations. Create effective organisational structures that enhance the decision-making and communication capability of the company.

Increase customer value through customer management processes. The Sasol Polymer, PP Business silo example:

- Detailed statements with graphs illustrating the volume offtake and pay back trends. Effective communication to customers is essential.
- The effective use of online real time systems, utilising the internet and electronic access to the company's ERP systems through internet links.
- Customers have online access to their account details. Access to the company's reporting systems, for example reporting of Full Order On Time (FOOT) delivery. Be open and transparent.

Achieve operational excellence through operations and logistics processes. An example of this is the telematic system in operation at Sasol Polymers, PP Buisness. It includes online ordering, electronic receipt by providing Proof of Delivery (POD) online, electronic self-invoicing and an electronic collection and payment system. It also include an online planning and scheduling system, taking customer buying trends, climate and other factors such as seasonal demands into account (a stochastic forecasting model), obtaining electronic forecasts from the client, comparing the two forecasts and ensuring a communication feedback system to the customer is in place whereby agreement can be reached on the final forecast. The latter will ensure effective planning of production and raw material purchases (Materials Requirements Planning - MRP).

Put processes in place to manage Safety, Health, Environmental and Risk (SHER) effectively. Ensure compliance audit procedures are in operation. Create an effective organisation to ensure

smooth communication and reporting with quick response mechanisms. This is especially important for companies operating in a high risk environment, for example an oil, gas and chemical company. Put effective communication and reporting channels in place. Become a good corporate citizen through regulatory and environmental processes, for example compliance to the OSH ACT (Occupational, Safety and Health Act).

8.4.5 Learning and growth perspective

A company needs good people, people processes and structures to achieve high performance. The question is how to unleash the potential in people and how to energise people and mobilise capacity.

The development of key competencies is important for employees to excel in each job. Competency Based Education (CBE) focuses on the development of each competency necessary for a specific job, for example a course to develop the negotiation skills of marketing people. Utilise technology by purchasing or developing customised computer based training programmes, allowing training in front of a desktop computer in the employee's office. This training is called Computer Based Training (CBT).

Encourage the use of computer technology, hardware and software for example the use of ERP systems such as SAP R/3 and the internet. It is important to distinguish between functional competencies (example: auditing skills) and behavioural competencies (example: critically evaluate ideas or sense for detail). Capture job profiles on the ERP system within the Human Resource module to allow for automatic integration to other ERP modules and sub modules. The system should automatically generate a job advertisement from information captured onto the job profiles for electronic accessibility world wide.

With the support of Employee Self Service (ESS), the employee should access a report that details what is required in terms of the next job level or any other job to which he or she aspires in the organisation world wide. The report must indicate what level of development is required for each competency needed for a specific job in the company. He/she then ticks in the block next to the level of competency that he/she thinks he/she has already achieved. The system should then identify the gaps and capture all the relevant information on a report that is electronically available to employees anywhere in the world. The report must show the qualifications and years of experience required in order to excel to the next job level. But more importantly, the system should identify courses that can be attended for the development of a specific

competency. The system must be menu driven containing all possible courses for the development of a specific competency, an indication of the duration and dates of the course and an estimated cost associated with a specific course. The development profile report is directly linked to the training menu, which runs in the background. The employee selects the course and/or workshop that he/she wants to attend. Once he/she has selected the course, a course scheduling confirmation report will be printed for his/her record. The course is electronically scheduled via the training centre responsible for all administration regarding training and development.

A learning organisation is created through the utilisation of systems and other programmes like mentorship and accelerated development programmes. The creation of a High Performance Value Chain Organisation (HPVCO) is enhanced when knowledge is enthusiastically shared between employees and an open and transparent organisation is created where people can thrive. An organisation with an unique corporate culture will evolve, a culture built on mutual trust and respect, an organisation with a common set of values earning the buy in and support of all employees throughout the organisation. Through values the organisation addresses the soft issues of business that assist with the building of a unique corporate culture, a distinctive competency that cannot be copied by the organisation's competitors.

8.5 Alignment through the organisation by cascading the Balanced Scorecard (BSC): The important communication and reporting links.

The top-level Balanced Scorecard has to be cascaded down into the organisation. It is recommended that the Balanced Scorecard be implemented at least on the levels indicated in the strategic pyramid of a diversified company (Figure 2.2). It is important to build the links between the corporate, business, functional and operational levels.

The higher level objectives always prevail. The higher level indicates which objectives/ measures have to be cascaded to the next level(s). The higher level provides definition of measures, whenever aggregate measures from the lower level(s) are needed. The higher level defines some non-negotiable objectives, measures and targets for the lower level(s). The lower level BSC's are aligned to the higher level BSC. Lower level measures will be more detailed and more in quantity than the higher levels measures. Outstanding P.O.D. controls are measured, reported and controlled on a functional level rather than on a business or corporate level. The FOOT delivery (%) measure for each customer or group of customers and the average FOOT delivery (%) for the business are measured, reported and controlled on a functional level

(logistics function). However, although controlled by the logistics function, the average FOOT for the business may also be reported on a business level due to the overall impact it has on the business.

Organisational alignment is created by linking scorecards (Figure 8.2). Sasol Limited, a South African listed company, will for instance define the overall strategic priorities for the company as a whole on a corporate strategic level. The objectives of each company, division, business unit and functional department (production department) are in turn aligned with the corporate strategic agenda of the company and mapped on the different scorecards. Divisions will develop their own strategic agendas in line with the Sasol corporate agenda and individual business units within a division will develop their strategic agendas in line with the divisional agenda. The strategic agenda of a functional department (e.g. production) within a particular business unit will be aligned to the strategic agenda of the specific business unit.

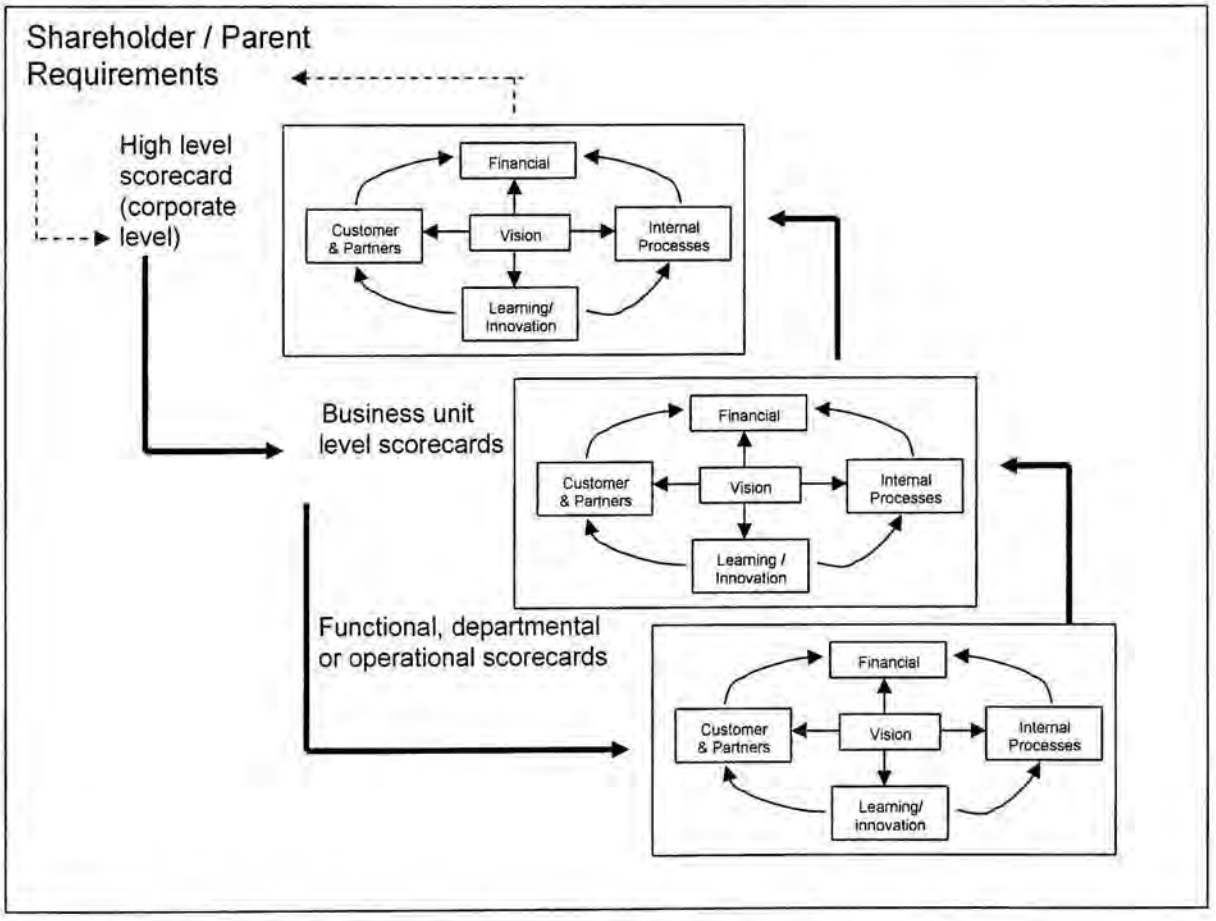


Figure 8.2 - Cascading the Balanced Scorecard (BSC) down to all levels of the organisation
Source: Own source

Organisational alignment is achieved by cascading the BSC down into the organisation and linking scorecards (Figure 8.2). It helps to clarify roles, responsibilities and accountabilities on all levels in the organisation and to establish commitment towards the strategy of the company. The Balance Scorecard is one of several tools that help management to energise the people and mobilise the human capacity in the organisation.

8.6 Reasons for Implementing a Balanced Scorecard (BSC)

The following are reasons for implementing the Balanced Scorecard (BSC):

- The BSC as a strategic map to plan the journey.
- The BSC as a compass to keep the company on course.
    - A tool to translate strategy into action.
    - A tool to communicate strategy throughout the company.
- Help get consensus between management and board, between management and employees and between management on key drivers, objectives and measurement targets.
- Have a clear scorecard for reference at meetings and between meetings and for all employees to strive for.
    - Creates focus in the company on all levels.
    - What gets measured gets noticed.
    - What gets monitored gets done.
- Serve as an instrumentation panel like a cockpit of an aeroplane (a management cockpit).
- Serve as a scorecard, just like a scorecard to follow a cricket game.
- Provide management with instrumentation to navigate the company into the future.
- Provide a framework for strategic measurement and management system.
- Can link measurable objectives and targets to performance contracts.
- Help all teams at all levels understand what the key drivers of the business are.
- Help improve key business processes.
- Can be a more scientific basis for incentives. Incentives can be based on key business drivers.
- Can be used as a basis for visual management. Trends illustrated in graphs, user friendly reporting.
- If you can't measure it you can't manage it.
- Enhance team work. Teams produce better results than individuals.
- Focused cohesive teams produce better results than disparate uninformed teams.

- Needs unqualified support or drop it.
- Group indicators into logical clusters.
- SMART criteria for objectives:
    - Specific.
    - Measurable.
    - Attainable.
    - Reliable and relevant.
    - Timeous.
- Best practices are identified that capture and reflect the strategic mission of individual departments.
- The Balanced Scorecard creates and empowers self-managed work teams and increases staff buy-in into company strategies.
- The BSC shifts focus from short-term strategy to long-term strategy realisation.
- It consolidates the company's communication strategy by rolling the BSC out to all levels of the organisation.
- An automated BSC facilitates the sharing of information and the ease of strategic decision-making processes.
- Ease of reporting.
- Integration to other business processes like quality management.

8.7 Critical Success Factors (CSF) for successful implementation

Successful implementation and institutionalisation of the BSC depends on the following factors:

- Top management buy in and commitment both before and after implementation success.
- The BSC must be driven from the top.
- The BSC is cascaded down into the organisation. On corporate, business, functional and operational strategy levels (see strategy pyramid for a diversified company (Figure 2.2)).
- All management and other employees to live the values of the organisation.
- Management teams needs to take ownership of their responsibilities.
- A sense of ownership and accountability throughout the organisation, which incorporates a changed management programme before implementation.
- Leadership/management long-term buy-in and commitment to the Balanced Scorecard process.
- The scorecard needs to be a living document:
    - Modified/reviewed in line with business/environmental changes.
    - Scorecard modification/review in conjunction with a strategic review process.

- Key significant drivers of business success to be measured. Agree on a final limited set of key objectives:
    - Too many objectives will "de-focus" the organisation and spread resources too thin.
    - Differentiate between nice-to-have and must-have objectives.
    - Measures must be carefully selected to reflect/determine the objective's core intent.
    - As system is developed, put time frames to the delivery of each measure and add a responsibility to it. Identify a process owner and the control owner for each measurement. A proportionate ownership model.
- Use the BSC as a management/leadership tool to assist with the execution or institutionalisation of the strategy. It does not replace strategy per se, but just acts as a compass to give direction and a map to guide the organisation to where it wants to be. Like driving from Cape Town to Cairo.
- All scorecards must be designed to deliver value to the internal and external customer.
- All cascaded scorecards are owned and driven by the corporate management teams, business management teams, functional teams (department/section heads) and operational teams where applicable (Figure 2.2).
- Management at different levels in the organisation must be aware of the significant time and energy commitment they must dedicate to the BSC.
- An enabling culture needs to be created.
- All scorecards must have senior management's sponsorship.
- The strategic initiatives need to be budgeted for.
- Understand the customer requirements before developing the customer scorecard.
- Measures must be relatively straight forward and easily understood by the relevant employee.
- The implementation of the BSC should ideally be facilitated by an external facilitator who is familiar with the BSC or performance management systems.
- The implementation/automation of the BSC is the responsibility of business and not the IT function. IT needs to support the business.
- BSC training needs to be given to all applicable participants.
- The process of the model needs to be followed to develop a BSC.
- All BSC documentation needs to be kept in a central file so that it is accessible to all employees of the organisation.
- All BSC documentation needs to be standardised (an electronic BSC would be the ideal solution).

- Once the BSC has been developed, regular review sessions need to be scheduled and occur within a month of BSC implementation.
- The feedback forms are to be updated by the responsible individuals on a monthly/ predetermined basis.
- Relevant coaching sessions need to be given to individuals by the meeting owner if the required standard is not met.
- The BSC coach should initially evaluate the BSC meetings and coach where applicable.
- Requires user friendly reporting structures. Must have a helicopter view of the processes and results.
- Exception reporting and management to prevail. An analogy of a traffic light that indicates when the light is green (go), yellow (be careful) or red (danger) can be used. Exceptions should be flagged according to this.
- Automation of the BSC and the integration to other business systems for example ERP systems.
- Quick response times. Electronic messaging to the control owner of measurement. Speed and simplicity.
- Mobile office enabled. Enable sales representatives or management to access information anywhere in the world. Wireless or internet (plugged in) connected.
- Confidentiality issues addressed. Security controls for example access controls to be addressed as part of the implementation scope of such a project. Treat as competitive intelligence centre.
- Online real time solutions.
- Training to be provided and scoped together with the project.
- Test authentication of the system before the sustainment phase.

The key words are speed, reliability and simplicity.

8.8 Integrate the Balanced Scorecard (BSC) with key business management processes

Management becomes a very complex issue in large companies like Sasol and BHP Billiton. Both are respected global companies. Sasol has its routes in South Africa while BHP Billiton's international headquarters are in Australia. Business leaders and government are facing many new challenges in South Africa today. The South African economy has been reshaped and South Africans are exposed to many changes both on the political and the economic front. The only thing that is constant today is change.

Leaders have to stay abreast of these changes and keep cool during times of turbulence. Leaders have to lead by example and create an environment of trust and respect. They have to lead in an open and transparent way to ensure effective communication and an understanding of the company's vision and the direction the company is taking. Objectives must be specific, measurable, achievable, realistic, time bound (SMART) and effectively communicated throughout the organisation in order to get the buy in and commitment of its entire workforce. A leader's task can be made easier by integrating key management processes into the Balanced Scorecard. This will help to ensure alignment throughout the organisation.

Integrate strategic planning, operations planning, budgeting and forecasting into the Balanced Scorecard. The organisation's Balanced Scorecard can be used to align strategic planning, operations planning, budgeting and forecasting to drive breakthrough business results. Break free of traditional budgeting. Short and long-term business objectives can be balanced by accurately forecasting quarterly results whilst ensuring that organisational resources are allocated to the actions that will drive the strategy. Leaders have to move their organisation towards strategy-focused business planning. They have to redefine their corporate planning and budgeting processes to drive strategy execution. They have to examine best practices in planning, budgeting, forecasting and management initiatives and integrate corporate planning and budgeting with the Balanced Scorecard. Organisations should move away from a fixed budget and an annual forecast, to a rolling three or five year forecast. This will be possible with effective utilisation of the company's Enterprise Recourse Planning (ERP) systems.

Research at Sasol, South Africa has shown that individual businesses are making use of separate planning and scheduling systems and are not utilising SAP R/3 to its full extent. The Sasol Polymers business implemented the MIMI system at a cost of ± R 15 million. Each of the businesses within Sasol Polymers utilise MIMI separately and not as a division, which makes mass balancing of its feedstock difficult. Toyota South Africa also uses SAP R/3 as an ERP system. Research at Toyota revealed that a company-wide planning and scheduling system has been developed that runs on top of SAP R/3. It is also not the ideal situation, but at least Toyota utilises their system company wide.

Whichever system is used, the important issue is to integrate budget and forecast information into the Balanced Scorecard. Map information to the relevant Balanced Scorecard perspective. Example: report the actual Return on Capital Employed (ROCE) of the company to the budgeted and forecasted ROCE under the Financial Perspective. Compare with historic data and develop standard graphs to demonstrate trends. Key economic business assumptions such as oil price,

Rate of Exchange (R.O.E.), RSA Consumer Price Index (CPI), USA CPI, and international polymer prices (e.g. Hong Kong CFR) can also be included into the Balanced Scorecard (BSC) under a separate heading "Business Assumptions and Trends". The actuals can again be compared to the historic, budgeted and forecasted assumptions. Valuable information should be provided in a user friendly format for easy use.

Embed the Balanced Scorecard into performance measurement, performance management, quality programmes and other management processes.

The scorecard is not implemented in a vacuum. Most organisations have dozens of ongoing continuous improvement and operational management programmes in place, including:

- CIFR (Safety at Sasol Polymers, Classified Injury Frequency Rate, a safety measurement).
- ISO.
- NOSA.
- Total Quality Management (TQM).
- Activity-Based Management (ABM).

The scorecard serves as a central managing framework to integrate these programmes and link them to strategy. It is about setting targets into actionable objectives and measures. The scorecard provides a strategic focus for these tools by identifying the internal processes most critical for success. Sasol Polymers, Polypropylene (PP) Business reports safety (CIFR) under the internal business perspective of the Balanced Scorecard by comparing the actual recorded result against a measurable target, against its key competitors, against other Sasol Polymer businesses and against a world benchmark "best in class". Sasol Polymer's Productivity Incentive Bonus Schemes (P.I.B.S.) encompass all key business measures of which CIFR is one. Safety (CIFR) is measured and reported monthly on an ongoing basis. Safety is, however, an annual measure for PIBS purposes. By reporting CIFR in the Balanced Scorecard, management's attention is focused on safety as a high business priority. It allows for ongoing debate and discussion in every board meeting of Sasol. Strategy becomes a continuous process and not a once a year event ("bosberaad"). Results are benchmarked and discussed in a strategic context. Adjustments are made to strategy on an ongoing basis. Safety results are communicated in a strategic context through the Balanced Scorecard to all levels within the organisation. Safety is even incorporated into Sasol's values as the number one corporate value due to the fact that Sasol is an oil, gas and chemical company with high safety and environmental risks.

Through the help of the Balanced Scorecard (BSC), safety awareness is created on all levels of the company, making leadership's task much easier.

BHP Billiton, South Africa, implemented the Balanced Scorecard (BSC) on four levels of the organisation. The SAP R/3 system is fairly well utilised, information integrated to the Balanced Scorecards and performance measures in turn linked to the performance contracts of employees. SAP R/3 as an effective ERP system has been more extensively discussed in Chapter 6 as part of the value chain elements.

BHP Billiton utilises the full range of SAP related systems and modules to enhance online real time integration, making leadership's task easier. Essentially, more time is available to focus attention on value added initiatives enhancing a high performance value chain culture.

8.9 Balanced Scorecard (BSC) as a management tool to achieve long term sustainable results – BSC Based Management

Balanced Scorecard Based Management (BSM) helps a company to achieve long-term sustainable results. The BSC creates a strategic framework, aligning the organisation with a common vision and objectives, driving the attention of all employees towards achieving long-term sustainable growth. It combines best practices in executing strategy and achieving results into a common framework engaging the energy of leaders and their employees with those tasks that create long-term sustainable value for all its stakeholders - standing on the shoulders of giants.

The Strategic Management Office (SMO) and International Strategic Intelligence Centres (ISIC)

The Balanced Scorecard has evolved to become the world's leading tool for executing strategy and achieving breakthrough performance results. It is important for companies to create a Strategic Management Office (SMO) in the organisation – the people, processes, and tools – to make strategy execution a core competency and to sustain results over time.

How does one establish a Strategic Management Office? Create a Central Intelligence Centre, known as the International Strategic Intelligence Centre (ISIC). The Strategic Management Office or ISIC should be accommodated in the same office building as the top executives of the company from where they manage the company strategically on a day to day basis. The ISIC

serves as a Strategy Centre of Excellence (SCE). The model can be based on the "Shared Services" model, which is a form of centralisation with decentralised responsibilities and accountabilities, built on federal principles. Sasol's International Strategic Intelligence Centre (ISIC) should for instance be based in Rosebank, South Africa where its top executives reside. The BSC must be driven from this intelligence centre ensuring the international security of all company data – Competitive Intelligence (CI). All Intellectual Properties (IP) and other company securities can reside in these offices.

It is important that the Strategic Management Office (SMO) or the ISIC and Information Technology and Communication (ITC) shared service headquarters are in the same office building. The ISIC can be compared to the USA Pentagon. The Pentagon served as the war intelligence centre during the war in Iraq. From here the war was planned and monitored. Both the International Intelligence Centre and ITC can be managed by the same top executive and his deputy. The Chief Information Officer (CIO) should rather be called the Chief Intelligence Officer (CIO). The concepts of a Centre of Excellence or Shared Services Organisation (SSO) have been thoroughly discussed in Chapter 5 under "design of a value chain organisation". The federal model is based on the assumption of creating an intelligence office and ITC centre on a business level, which reports with a dotted line to the divisional intelligence hub who in turn reports to the intelligence headquarters, an established link between the business and the Corporate ISIC. Different shared services models can be explored. The important issue is to provide the businesses with the supporting structures and tools to govern themselves, without duplicating structures.

The ISIC must be equipped with state of the art technology, e.g. satellite links, internet connections, LAN & WAN communication networks effectively structured across the globe, satellite conferencing, telephone and video conferencing facilities, electronic white boards and other equipment needed in a boardroom situation. Balanced Scorecards must be supported by state of the art technology infrastructure. Some of the boardroom discussions can be communicated on a need to know basis through the Balanced Scorecard to the people throughout the entire organisation internationally in any language. Communicating through pictures is nowadays very effective. "A picture speaks a thousand words". Assume walking into a big auditorium surrounded by big screens electronically equipped, on the sides and the front of the auditorium, portraying through graphs and pictures business assumptions, results and business trends.

Sufficient backup should always be in place if technology fails. Every business unit in the

company must have a proper Disaster Recovery Plan (DRP) in place. The main ISIC together with the smaller centres and ITC across the globe are critical for giving the support to the businesses when implementing the Balanced Scorecard. The businesses can be grouped in clusters, per region, for example Africa, South East Asia. A cluster is defined by the Cambridge International Dictionary of English as "a close group of usually similar things, often surrounding something", for instance businesses that use the same IT servers (boxes) from which to operate their ERP systems from. Businesses can alternatively be grouped per country, for example South Africa and China or per sub-region of a country, e.g. Mpumalanga (Secunda, South Africa). Similar businesses can form a cluster for example all Polymer businesses in Sasol's case and all the aluminium businesses (Aluminium Customer Sector Group (ACSG) in the case of BHP Billiton.

Research at Sasol revealed that their HR functions are organised into a HR Shared Services Organisation (SSO). The HR SSO at Sasol is centralised in Secunda, South Africa where Sasol's main production facilities currently are, with certain HR resources allocated to the individual businesses. This is a combination of centralisation and decentralisation (hybrid organisation). Each business unit has a HR manager who is a full member of the business management team. The business HR manager reports directly to the General Manager (GM) of the specific Business Unit (BU). The business HR manager attends Sasol Polymers HR forums and is extensively involved in the overall HR strategy formulation of the Sasol Polymer Division, within the broad Sasol HR strategy framework. The HR manager of Sasol Polymers attends Sasol HR Shared Services forums and is extensively involved in Sasol HR strategy formulation in a global sense. The HR Shared Service model at Sasol typically constitutes a federal system and may form the basis of consensus for future Shared Service Organisations within Sasol, for example the ISIC (Business Intelligence and ITC) who will be instrumental in the implementation and maintenance of Balanced Scorecards at Sasol.

8.10 Engage intangible assets into change management processes

People are a company's greatest asset. Human Capital is an intangible asset. An intangible asset is something valuable that a company possesses that is not material, such as a good reputation. Common sense and creativity are some of the intangibles a company is looking for in an employee. Organisations must be able to measure the contribution that its employees make in order to properly manage human capital as a strategic asset in the organisation.

The question to ask is how do organisations measure the value of an intangible asset such as Human Capital? What dimensions of Human Capital are most critical to the organisation's strategies and how can these dimensions be measured? Executives most frequently mobilise their organisations through five factors:

- Leadership traits/development.
- Skill sets (Competencies required).
- Strategic alignment (Vision, values, mission and objective setting).
- Learning and growth.
- Conducive organisation culture.

The BSC can be utilised to create awareness of change and communicate change and the affects of it throughout the organisation. Diversity in South Africa is governed by new labour legislation to benefit previously disadvantaged groups who suffered under apartheid. Diversity is one of several examples of transformational change in South Africa. Diversity affects everybody in the organisation. Human Capital strategy alignment can be articulated in a HR Balanced Scorecard. The HR Balanced Scorecard forms an integral part of the corporate, business and functional scorecards.

The Balanced Scorecard is designed to explicitly link intangible assets – the drivers of strategy - with tangible business results. Strategy maps describe the value creation process, and how tangible results are achieved by focusing intangible assets on the customer value proposition. Parallels can be drawn with financial reporting and their impact on value-creating processes evaluated. The BSC methodology can be applied to the three major classes of intangibles:

- Human Capital.
- Information Capital.
- Organisational Capital.

By identifying the jobs, technologies and organisation variables with the greatest impact on strategic processes, one can focus one's energies and resources on the vital few, and optimise the return on one's intangible investments.

One can harness the power of organisational capital to drive the strategy. Organisational capital is the ability of the organisation to mobilise and sustain the process of change required to execute the strategy. Most executives do not have a general framework for focusing on organisational culture and climate and aligning it to strategy.

Research has shown that organisational capital is typically built on four components:

- Culture.
- Leadership.
- Alignment.
- Teamwork.

A new strategy requires an organisation to define new behaviours and values needed from the workforce. The resulting "change agenda" identifies the three or four most important behavioural changes required for the new strategy to be implemented.

Leadership excellence can also be developed through the Balanced Scorecard. Developing effective leadership – as opposed to simply good management – is crucial in the 21st century enterprise. Enhancing the performance of leaders and leadership systems must be an ongoing business imperative.

Selected examples of successful corporate leadership where it has been supported by the BSC elements will include:

- Exploring the new leadership paradigm and the role of leaders in a successful business.
- Practicalities of effective leadership in a rapidly changing business environment.
- Determining the right model(s) for leadership in the organisation.
- Assessing the key leadership skills necessary to deliver the organisational change required by strategy.
- Using leadership skills to effectively manage through the gradients of change.

8.11 Developing and implementing the Balanced Scorecard (BSC)

To build a successful BSC a basic process needs to be followed in a step-by-step format. It is important to complete each step before commencing.

How to build a BSC?

- Phase 1 - Set the Vision
- Phase 2 - Build a Strategy Map
- Phase 3 - Define Mission statements and Values
- Phase 4 - Complete BSC detail template

The implementation and automation of the BSC are outlined in three case studies that are available from the case study data base of "Research Collaborative". Copies of these can be made available on special request.

8.12 Summary

The Balanced Scorecard is a proven framework for executing strategy that has helped organisations achieve breakthrough performance results. "Measurement motivates and what gets measured gets done", says Robert Kaplan. David Norton observes that "the Balanced Scorecard is the best means to execute strategy". According to Kaplan and Norton a strategy-focused organisation translates strategy into action through a strategy map framework of cause and effect between its strategic objectives.

The Balanced Scorecard translates vision, mission and strategy into four dimensions of performance, which are described and discussed below. The four perspectives/dimensions are (1) financial perspective, (2) business partner perspective (suppliers and customers), (3) internal business process perspective and (4) the learning and growth perspective, which has more to do with the people of an organisation. The linkage between the four perspectives is critical in ensuring long-term success for all its stakeholders.

The individual Balanced Scorecard (BSC) perspectives have been individually discussed and put into context with business strategy and shareholder value.

The five perspectives of the BSC, which now also includes the corporate governance perspective, are outlined in a framework that summarises the key aspects surrounding BSC reporting.

The Balanced Scorecard can be utilised as a Viable Corporate Governance Framework with reference to the collapses of companies like Enron and Worldcom and numerous corporate accounting scandals. Alignment through the organisation by cascading the Balanced Scorecard (BSC), the communication and reporting links are important. The top-level Balanced Scorecard has to be cascaded down into the organisation.

The reasons for implementing a Balanced Scorecard as well as the critical success factors (CSF) for successful implementation and institutionalisation of the BSC were identified.

The BSC should be integrated with key business management processes. The organisation's Balanced Scorecard can be used to align strategic planning, operations planning, budgeting and forecasting to drive breakthrough business results. Break free of traditional budgeting.

The BSC can be utilised to engage intangible assets into change management processes, for instance the human capital. An intangible asset is something valuable that a company possesses that is not material, such as a good reputation. The Balanced Scorecard is designed to explicitly link intangible assets – the drivers of strategy - with tangible business results. Strategy maps describe the value creation process, and how tangible results are achieved by focusing intangible assets on the customer value proposition.

Creating a High Performance Value Chain Organisation (HPVCO) is also about business ethics and sound corporate governance and corporate governance structures that should be in place. That is why it is important to include the Business Ethics and Corporate Governance perspective into the Balance Scorecard framework as a fifth perspective.

The collapses of companies like Enron and Worldcom, and numerous other corporate accounting scandals, have caused a re-examination of the role of senior management and the board of directors in achieving effective governance of the business. New regulations and industry guidelines are providing some direction, but they are only part of the equation. The other part is implementing improved corporate governance processes and evaluating their success.

The research is concluded with Chapter 9, which summarises the most important findings with regard to the key business issues identified during the research and the recommendations thereof.

CHAPTER 9
RESEARCH FINDINGS AND RECOMMENDATIONS

9.1 Introduction

Accelerating international competition creates situations requiring turnaround on a scale not witnessed before in South African business history. Organisational renewal together with job creating economic growth becomes the key to economic success and long term political stability in the country.

In recent years there have been an increasing number of organisations caught flat-footed by the rapid political and commercial changes in South Africa. They changed only incrementally and on an ad hoc basis, largely because past successes came about by doing more of the same.

As the pace of change accelerated, a complete rethink of the assumptions that have characterised South African organisations and their competitive success has become necessary. Most of these organisations now face major upheavals due to the introduction of last-resort corrective strategies (reactive crisis management), strategies ranging from downsizing and rationalisation, to the more drastic merger and take-over activity that has become common in South Africa during the last ten years.

This chapter contains a summary of the research findings with regard to the major business issues identified during the research with recommendations to management in order to assist them in their endeavour to create a High Performance Value Chain Organisation (HPVCO) and consequently build a world class competitive organisation.

9.2 Research findings

Research revealed that SAP'S future trend is to move all analytical and strategic reporting into BW because of its inherent technological advantages. The SAP R/3 system acts as an Online Transaction Processing (OLTP) system, whereas BW is an Online Analytical Processing (OLAP) system. This means that the underlying processor that executes the commands in each system was designed for two distinct purposes. SAP R/3 is designed to execute transactions, such as sales order creation, whereas BW's processor is meant to analyse data. BW supports complex reporting requirements including cross-application reporting, and it provides significant reporting performance improvement, especially with large data volumes.

Sasol has a need to implement a reliable data warehouse system. There are basically two options, the Business Warehouse (BW) system or CO-Profitability Analysis (PA). Research revealed that BHP Billiton has implemented the full range of SAP systems, including Business Warehouse (BW).

To appreciate the strengths of each system, the typical characteristics of OLTP and OLAP systems as outlined in Appendix 6 must first be understood. CO-PA falls within the OLTP system, whereas BW is an OLAP reporting tool.

BW's strengths make it the more powerful OLAP tool for consolidated reporting for the whole organisation. However, just because BW offers very flexible reporting tools, it may not be advisable to move all reporting to BW. Many factors are involved in deciding which reporting tool to use, and many of these may be specific to an organisation. Factors to be considered when choosing the reporting tool are outlined in Appendix 7. It is important to fully evaluate these factors so that the organisation gets the most out of its reporting tools, be it CO-PA or BW, or, in certain situations, a combination of both tools. For example, for fairly simple profitability reporting CO-PA should be used. If the requirements demand more flexible reporting across a multiple-system landscape, BW should be used.

For real-time profitability reporting with complex reporting requirements, a combination of CO-PA and BW should be used.

Apart from the Business Warehouse (BW) system, the implementation of converting from a multi client to a SAP single client and the roll out of the Global SAP system has also been explored. Research revealed several advantages and disadvantages of a single client and a Global SAP system. A list of advantages and disadvantages are presented in Table 9.1.

Table 9.1 – Advantages and disadvantages of a SAP single client and Global SAP system

Advantages	Disadvantages
▪ No duplication of data through SAP's four tiered data structure. Data in the first tier, client, are available to all hierarchy objects and changes to this tier would be available to all hierarchies below it e.g. material number, description and unit of measure. ▪ Real-time visibility of all data across all hierarchy objects. ▪ Authorisation objects to control the view and maintenance of data at different organisational levels. ▪ Flexible analysis of data across or specific to an organisational level. ▪ Alternative reporting structures through the standard use of cost centre reporting structures e.g. standard cost centre hierarchy representing a divisional view with an alternative hierarchy representing a value chain view. ▪ Real integration of data in and across different SAP modules e.g. resources created and maintained in HR are available for planning in PM and PP. ▪ Users have access to all data relevant to them through a single system logon. Access controlled via authorisations. ▪ Physical and system standardisation of data, number ranges, naming conventions and processes.	▪ Possible conflicts in configuration where extreme differences exist between different organisational units. ▪ No physical and logical data separation between different organisational units. ▪ All organisational units are operating from the same physical and logical SAP system. ▪ Central control of configuration and development due to the integrated nature of the system e.g. changes to tolerance limits could affect all plants in a company code. ▪ All organisations units are affected by the downtime of the physical system. In a multi-client environment all clients on the same physical system will be affected by the downtime of the system but the maintenance of one client (logical system) will not affect other clients.

▪ Process and business improvements possible through the real-time availability of data in and across divisions e.g. shared services centre for all accounting and accounts payable or central planning due to the cross divisional demand visibility. ▪ Cost savings through the effective use of SAP's cross-organisational process enablers. ▪ No reliance on external applications to facilitate data integration. ▪ Transparent business information accessible anywhere in the world ▪ Standardisation of accounting conventions and definitions, policies and procedures throughout the group.	

Sasol is not currently getting the full value from its original SAP system implementation. SAP does not provide the appropriate support to the areas that are identified as strategically important to Sasol nor does the company take advantage of many of the opportunities that SAP can provide.

Research conducted at Sasol further revealed a limited implementation of the Balanced Scorecard (BSC) approach.

Systems are not fully integrated, which makes the alignment of the business, functional and operations strategies to the overall corporate strategy difficult. In individual cases where businesses are making use of the BSC, BSC's are not automated. Through observations and enquiries the research concluded that a common problem is the inability to communicate and implement the strategy throughout the organisation.

Research at BHP Billiton, Richards Bay South Africa revealed the following important aspects with regard to ERP systems and Balanced Scorecards (BSC):

- BHP Billiton is currently on one SAP client, with five separate company codes.
- The Aluminium Customer Sector Group (ACSG) consists of five aluminium smelters with two smelters situated in Brazil and three situated in the Southern African region, of which

one smelter is the MOZAL plant in Mozambique and the other two are situated in Richards Bay, South Africa.

- The Bayside Aluminium smelter in Richards Bay is the oldest smelter in South Africa. The Hillside smelter was more recently constructed.
- BHP Billiton's goal is to implement Global SAP (GSAP) throughout BHP Billiton by 2008. The GSAP project is currently driven from BHP Billiton's head office in Australia.
- The Superintendent Management Accountant (Chris Morkel) formed part of the team that implemented Business Warehouse (BW) & Strategic Enterprise Management (SEM) systems at the MOZAL plant in Mozambique.
- The BW and SEM system implementation at MOZAL was the first of its kind at BHP Billiton plants world wide. Chris was the project leader of the MOZAL systems project and was ably assisted by various consultants from Deloittes Consulting, SAP and other independent consultants.
- BPS (Business Planning and Simulation) is utilised as a sub module of the SEM system. BHP Billiton MOZAL opted to utilise BPS for planning purposes and did not implement a separate planning system outside the SAP environment. All the planning is done on SAP as part of a fully integrated SAP solution.
- Each smelter (company) consists of 5 plants. The ACSG uses a process costing system.
- BHP Billiton utilises SAP to conduct a rolling 5 year forecast on a monthly basis. It refers to the process as 5 year continuous forecasting. BHP Billiton conducts a rolling 5 year forecast concurrent with a budget cycle. BHP Billiton's financial year ends at 30 June each year. The 2005/2006 year is its next business planning cycle. It will be the first time that the rolling 5 year forecast will become the plan. The forecast is done monthly and requires minimum inputs. Refer to the GE concepts of speed, simplicity and self-confidence.
- The Cost and Management accountant completes the economic assumptions sheet by extracting the data from the BHP Billiton website. International Prices forms part of these assumptions. The final product prices are, for instance, linked to the London Metal Exchange prices.
- On screen Balanced Scorecards (BSC's) are available from SAP. The Balanced Scorecard (BSC) is presented in an online, real time, integrated user-friendly manner. The BSC at BHP Billiton is fully automated.

The BSC has been implemented at each of the aluminium smelters on the following 4 levels:

- Asset level, e.g. Bayside Aluminium.

- Departmental levels, e.g. financial, commercial and production. In the case of production on for instance the carbon plant level. Each smelter has 5 plants.
- Section levels for example management accounting and financial accounting. The carbon sections are for instance the Anode Plant/Paste Plant, Bake Furnace, Rodding Shop.
- Individual performance scorecards.

Key business drivers are measured. These are then linked to the performance contracts of individuals. Objectives are set first, for instance to produce 50,000 tons of aluminium, a measurement determinant for example tons and then actions formulated to achieve the objective. The key measurements (business drivers) are linked through Balanced Scorecard (BSC) reporting to the performance contracts of employees.

BHP Billiton benchmarks against its competitors and world class best practices on a continuous basis. Benchmarking information is obtained from Brooke Hunt who passes graphs with other benchmark information and analysis on to BHP Billiton. MOZAL has been the number one aluminium smelter in the world for the last four years. There are more than 2000 aluminium smelters in the world with a huge number of them situated in Russia and China.

9.3 Recommendations

From the research it became clear that the implementation of both the Business Warehouse (BW) and the Strategic Enterprise Management (SEM) systems are a strategic imperative for Sasol to assist it with the creation of a High Performance Value Chain Organisation (HPVCO).

After careful consideration of all the factors that needed to be considered when choosing the reporting tool (Appendix 7), the Business Warehouse (BW) reporting tool was identified as by far the most appropriate system solution for Sasol's complex reporting environment.

System demonstrations attended at BHP Billiton revealed extra-ordinary results. The system capabilities of both BW and SEM are astonishing. The development and implementation of both these systems are strongly recommended in order to get the full benefits from its ERP systems.

The roll out of the Global SAP system throughout all Sasol businesses is important to ensure full integration between Sasol business operations worldwide. A Sasol Single client system or Global SAP system can be proceeded with after the development and implementation of BW

and SEM systems at Sasol's businesses across the world. Research revealed that BHP Billiton is currently rolling out its Global SAP system from its offices in Melbourne, Australia. The recommended implementation approach for Sasol is outlined in Chapter 6, section 6.4.2.1.1.

Process areas that will be impacted are outlined in Table 9.2 below.

Table 9.2 – Process areas that will be impacted

Action	Benefit	Impact	Processes
Long Term Improvements:			
Investigate and justify the feasibility of optimised group-wide, divisional, strategic and Sales Operations Planning (SOP). It includes market segmentation and actual versus planning.	12.6	11.4	Plan and manage Inbound Manufacture Outbound
Business case for implementing a Single Client environment (Global SAP) or an umbrella option to facilitate cross-company and cross-divisional planning and reporting.	10.9	14.2	Plan and manage Inbound Manufacture Outbound Support
SAP consolidation of all businesses to different levels, e.g. business level, divisional level, company level and Sasol Limited level. May require restructuring of businesses or getting rid of non core businesses or removing middle layer companies, divisions.	10.7	12.1	Plan and manage Inbound Manufacture Outbound Support
Implementation of performance measurement tools for example the Balanced Scorecard (BSC) on all levels of the business to enhance communication and articulation of strategy throughout the organisation. Using the BSC as a strategic framework.	10.6	11.8	Plan and manage Inbound Outbound Manufacturing Support
Improve company-wide strategic decision making by implementing Activity Based Costing (ABC)/ Management (ABM). Products, customers, distribution channels and regions.	9.2	8.4	Plan and manage Manufacture Outbound Support
Justify integrated value chain reporting and decision making.	9.2	10.4	Plan and manage Manufacture Support

Action SAP business improvement initiatives.	8.8	7.9	Plan and manage Inbound Manufacture Outbound Support
Implement standard costing company wide.	8.8	10.0	Plan and manage Manufacture Support
Investigate and justify centralised purchasing and supply management under, for instance, a Shared Services Organisation (SSO) world wide.	8.6	9.4	Inbound Manufacture Support
Standard policies and procedures using standard accounting definitions and conventions.	8.3	9.0	Manufacture Plan and manage Outbound Inbound Support
Implement a common data warehouse (Business Warehouse) for Sasol.	8.1	8.8	Manufacture Plan and manage Outbound Inbound Support
Investigate budgeting and forecasting systems: ▪ Rolling 5 year forecast, replacing budget. ▪ Integrate and do away with spreadsheets.	7.5	8.6	Manufacture Plan and manage Outbound Inbound Support
Implement a standard Chart of Accounts (C.O.A.) for Sasol globally.	7.4	8.4	Manufacture Plan and manage Outbound Inbound Support
Utilise SAP for consolidation group wide, replacing the Hyperion system.	7.4	8.2	Manufacture Plan and manage Outbound Inbound Support

Sasol should aim to establish a group wide integrated SAP environment, including the implementation of common standards and processes across all the companies, divisions and businesses. This does not mean that all the companies, divisions and businesses have to implement the same processes but that all processes are aligned at Sasol group level though the necessary standards, policies and procedures.

A number of potential re-engineering opportunities were also identified, some of which are independent of SAP and deserve further investigation (Table 9.3 below).

Table 9.3 – Potential re-engineering opportunities

Process	Opportunity
Procurement	In an international context Sasol currently still manages a large portion of procurement on a decentralised basis. The assumption is that company, divisional and business needs are unique. There are, however, input materials that are common to all companies, divisions and businesses world wide with Sasol (particularly maintenance materials), evidenced by the need for internal stock transfers. Furthermore, procurement expertise e.g. vendor management, contract negotiation and others are common to all divisions. Therefore, there exists an opportunity to centralise procurement from the point of view of buying power (fewer vendors with longer term contracts) as well as procurement expertise. From a product/commodity knowledge point of view it makes sense to decentralise if the need is unique to the company, division and business. In short, therefore, there are three focus areas in terms of opportunity: ▪ Increase the procurement process efficiency e.g. reduce order to delivery cycle times, reduce transaction processing costs and others. ▪ Reduce input costs, by transforming procurement across Sasol companies, divisions and businesses. Group contracting provides a better base for negotiating prices and other service requirements. ▪ Reduce the vendor base.
Logistics Management - Warehousing and Distribution	There exists significant opportunity to optimise logistics across the Sasol companies, divisions and businesses. Currently cross-company and cross-divisional optimisation is informal. Cross-company and cross-divisional optimisation could take two forms: ▪ Centralised warehousing and distribution.

	▪ Logistics expertise centre serving all the companies , divisions and businesses.
E-Commerce	Explore E-Commerce solutions. Pre requisite is one Single Client environment (Global SAP).
Internet web enabled technology	Revisit technology applications for accessibility of information world wide (Speed and simplicity). Explore for example wireless communication interfaces with SAP.
Financial management	Significant opportunity exists to optimise the financial support functions and other support functions into one Shared Services Organisation (SSO). To be investigated and opportunity explored.
Materials Management	Currently company or divisional. There are opportunities for both outbound and inbound consolidation. There is a need for a central Sasol materials management strategy on a global scale to optimise inventory holding costs. Opportunities exist through the use of vendor managed stock and vendor consignment stock on an international group level base.
Maintenance	Company or divisionalised and not linked strongly to demand planning. Opportunity to optimise maintenance across the different Sasol companies, divisions and businesses with the establishment of a strong link to the demand planning.
Processes	Reengineer the total Sasol value supply chain across all companies, divisions and businesses. Revamp the total value chain.
Restructuring	Restructure the total organisation. Sell off non-core businesses, make dormant companies redundant. Consider delayering of reporting levels. Grouping of logical business units together, example Sasol Polymers chemicals to be grouped under Sasol Chemical Industries (SCI).

Once all the companies, divisions and businesses have been migrated and integrated to the Sasol model (Sasol Polymers as pilot company), the business exploitation team will be able to focus its attention on those improvement opportunities created by having integrated business information, including :

- Group-wide closed-loop planning and management.
- Shared Services Centres, including Centre of Expertise (COE).
- Centralised purchasing or decentralised purchasing with central contract negotiation.
- Customer call centres.
- Implementing of an automated Balanced Scorecard (BSC).
- Budgeting and forecasting philosophies (Replace budgets with a rolling five year forecast updated bi-monthly or quarterly).

The above recommendations with regard to Business Warehouse (BW) and Enterprise Resource Planning (ERP) systems should be read with the discussions and recommendations outlined in Chapter 6 as well as the research findings summarised in section 9.2.1 of this chapter.

The implementation and automation of the Balanced Scorecard (BSC) becomes critical, once the Business Warehouse (BW) and Strategic Enterprise Management (SEM) systems are in place.

The use of the Balance Scorecard (BSC) perspectives provided within the framework outlined in Table 8.1 to assist Sasol with the translation of its strategy and the communication thereof throughout all levels of the organisation is essential. It is important to cascade the Balanced Scorecard (BSC) down to all levels of the organisation (Figure 8.2). Ensure implementation of the BSC on all four strategic levels: corporate, business, functional and operations strategy levels (Figure 2.2). Link the key Balanced Scorecard (BSC) measures to the performance contracts of individual employees and/or teams.

Case studies were developed to assist the organisation with the development and implementation of a Balanced Scorecard (BSC). The automation of the Balanced Scorecard (BSC) is probably the most important step towards the enhancement of a High Performance Value Chain Organisation (HPVCO). There will always be a quest for speed and simplicity. It requires one information data base from which data can be extracted for reporting purposes. One must ensure that sufficient backup resources and systems are in place. Again it has to be emphasised that the development and implementation of the Business Warehouse (BW) and Strategic Enterprise Management (SEM) systems are a prerequisite for the automation of the Balanced Scorecard (BSC).

Whichever system is used, the important issue is to integrate budget and forecast information into the Balanced Scorecard (BSC). Map the information to the relevant Balanced Scorecard perspective. For example, report the actual Return on Capital Employed (ROCE) of the company against the budgeted and forecasted ROCE under the financial perspective. Compare with historical data and develop standard graphs to demonstrate trends. Key economic business assumptions such as oil price, rate of exchange (R.O.E.), RSA Consumer Price Index (CPI), USA CPI, and international polymer prices (e.g. Hong Kong CFR) can also be included into the Balanced Scorecard (BSC) under a separate heading "Business Assumptions and Trends".

The above recommendations with regard to Balanced Scorecard (BSC) implementation should be read with the discussions and recommendations outlined in Chapter 6 as well as the research findings summarised in section 9.2.2 of this chapter.

9.4 Implementation

Implementation of the BSC will occur after the implementation of BW, SEM and other minor SAP exploitations. The automation of the Balanced Scorecard will be dealt with as a separate project and a business case will be prepared for approval by the Group Management Committee (GMC) and Board at the appropriate time.

To build a successful BSC a basic process needs to be followed in a step-by-step format. It is important to complete each step before commencing.

How to build a BSC?

- Phase 1 - Set the vision
- Phase 2 - Build a strategy map
- Phase 3 - Define mission statements and values
- Phase 4 - Complete BSC detail template

Three case studies were developed that outlines the implementation and automation of the Balanced Scorecard (BSC) which forms part of a special case study report available on request.

With regard to system development and implementation the following overall project approach is recommended:

- Business Warehouse (BW) implementation.
- A central assumptions database where all economic, competitive information is stored, probably with the help of SAP'S BW system.
- Strategic Enterprise Management (SEM) system implementation. Includes business planning and control (forecasting and budgeting).
- Business planning and simulation as part of SEM. Includes MPS and MRP. Refer to SAP's closed-loop planning system, Chapter 6, section 6.4.2.
- Balanced Scorecard (BSC) automation.
- Full E-Commerce implementation, including roll out to Sasol's key customers.
- Shared Services Organisations (SSD) after full SAP system implementations when the infrastructural support is adequate.

- Global SAP rollout.

The following developments and implementations can coincide with system implementations:

- Business restructuring and process re-engineering simultaneously with the other implementations.
- Development and implementation of a complete new International Competitive Intelligence Centre (ICIC) structure, known as the International Strategic Intelligence Centre (ISIC), the strategic management office from where all business intelligence related issues are managed from.

9.5 Areas for further research

The following needs to be further researched:

- Assessment of the business readiness of Sasol to take system development and implementation to a much higher level.
- Assessments of Sasol's leadership profiles to determine whether it has the suitable leadership skill sets to take Sasol on its journey of becoming a fully recognised world class company.
- Mobile commerce.
- E-Commerce (E-Procurement and E-Sales).
- Wireless communication for accessibility of information anywhere in the world.
- Satellite connection.
- Technology infrastructure required to support the software solutions, for instance bandwidth and server capabilities.
- Shared Services Organisations (SSO) in general after full system developments and implementations.

9.6 Conclusion

The actions of management to maximise share price performance and dividend payments have enormous potential to improve the quality of life of millions of ordinary citizens. South Africa is far lacking in this regard with institutional investors and top management enjoying the cream of the South African economy. The gap between the rich and the poor in South Africa is unacceptably high as outlined in the human development report issued by the United Nations (Appendix 3).

In the USA and elsewhere shares are owned by members of society. Years ago most share ownership was concentrated in the hands of a relatively small segment of society, comprised of the wealthiest individuals who went on to create big family businesses later. In recent years there has been explosive growth in insurance companies and pension funds that invest some of their proceeds into shares, today called the institutional investor. In the USA these institutions own more than 60% of all shares and more than 40% of all USA adults now own shares individually, compared with only 22% in 1990. In the USA most people with retirement plans have indirect ownership interests in shares. Moreover some of these interests are from a widely spread international source base.

South Africa on the other hand is far lacking in terms of productivity. The key to wealth in South Africa is job creating economic growth with increased productivity levels, which will in time allow for the implementation of more advanced gain sharing programmes like the programmes implemented in many USA corporate companies today. Leaders play an important role in this regard. The formulation of and the intention to carry out growth strategies are for the first time visibly evident in South African companies today, judging from the share price performance of listed companies and media releases.

A vision is outlined below to assist leaders with the entrenchment of an ethics and high performance value chain culture in their organisations. The vision was formulated a couple of years ago by the members of a formidable management team under the competent leadership of Koos Brandt who was at the time Managing Director of the then Sasol Polymers, Polymer Division. This was before the joint venture was formed between Sasol Polymers and AECI, a new company listed as Polifin on the JSE. The vision will hopefully encourage the creation of a High Performance Value Chain Organisation (HPVCO), an organisation with the ultimate goal of being recognised as a credible world class company, creating superior value for all its stakeholders around the globe. This is an organisation that is proudly branded "South African".

The vision reads as follows:

"The organisation becomes the preferred supplier of goods and services, producing cost effective, quality products from facilities locally and abroad using state of the art technology. The organisation's reliable, long-term sustained service to customers has added value to the organisation's ability to improve its competitive edge over rivals locally and abroad.

Earnings are substantial. The organisation's ongoing commitment to remain at the forefront of technology has consolidated its position as the leading producer or provider of service, adopting new standards for best practices. Both domestic and international stakeholders applaud the benefits of this preferred investment.

The backbone of the organisation's operations is its stable and empowered work force, fully supported by organised labour. Fired up by a great sense of ownership, they eagerly take up new challenges, knowing that they too will benefit from innovative gain sharing programmes. Multi-discipline teams are sharing in the decision-making of every level, setting objectives and providing identity to everyone in the workplace. Coming to work is an exciting and meaningful experience.

The benefit of these bold efforts is sustained profit, unparalleled growth and a steady enhancement of their shareholder's value. Well-positioned for the future they carefully assess offers for mergers and alliances from across the world. They can afford to associate with the best.

At the helm of this world class organisation stands a management/leadership team of highest repute, renowned for their transparent and innovative style. With their genuine concern for advanced technology and their obsession with creating enthusiasm in the workplace, they have fused together a formidable force, challenging the markets of the future".

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APPENDIX 1

GE QUESTIONNAIRRE: HOW BOUNDARYLESS IS AN ORGANISATION

GE QUESTIONNAIRRE: HOW BOUNDARYLESS IS AN ORGANISATION?

Complete this exercise by assessing the extent to which each statement characterizes your company, circling a number from 1 (not true at all) to 5 (very true) for each of the sixteen entries. To score the questionnaire, total your scores across the rows and down the columns. Each row and column score ought to be a number between 4 and 20.

Column scores reflect your organization's relative achievement of the new success factors. If you obtained a score of 12 or less on any single factor, this indicates work may be needed, particularly if the factor is critical to your industry or kind of organizations. If you obtained a score of 16 or more, this suggests that your organization has already acquired significant strength in the factor, but building on that strength is still important.

Row scores indicate your organization's relative success in achieving permeability of the four boundaries. A score of 12 or less on any one boundary indicates a chance for significant improvement, and a score of 16 or more indicates an area of strength.

Stepping Up to the Line: How Boundaryless is Your Organization?

Instructions: The following sixteen statements describe the behaviour of boundaryless organizations. Assess the extent to which each statement characterizes your current organization, circling a number from 1 (not true at all) to 5 (very true).

	Speed	Flexibility	Integration	Innovation	Total Score
Vertical Boundary	Most decisions are made on the spot by those closest to the work, and they are acted on in hours rather than weeks. 1 2 3 4 5	Managers at all levels routinely take on frontline respons-ibilities as ell as broad strategic assignments. 1 2 3 4 5	Key problems are tackled by multilevel teams whose members operate with little regards to formal rank in the Organisation. 1 2 3 4 5	New ideas are screened and decided on without fancy overheads and multiple rounds of approvals. 1 2 3 4 5	
Horizontal Boundary	New products or services are getting to market as an increasingly fast pace. 1 2 3 4 5	Resources quickly, fre-quently, and effortlessly shift between centers of expertise and operating units. 1 2 3 4 5	Routine work gets done through end-to-end process teams; Other work is handled by project teams drawn from shared centers of experience. 1 2 3 4 5	Ad hoc teams repre-senting various stakeholders sponta-neously form to explore new ideas. 1 2 3 4 5	

External Boundary	Customer requests, complaints, and needs are anticipated and responded to in real time. 1 2 3 4 5	Strategic resources and key managers are often "on loan" to customers and suppliers. 1 2 3 4 5	Supplier and customer reps are key players in teams tackling strategic initiatives. 1 2 3 4 5	Suppliers and customers are regular and prolific contrib.-utors of new product and process ideas. 1 2 3 4 5	
Geographic Boundary	Best practices are disseminated and leveraged quickly across country operations. 1 2 3 4 5	Business leaders rotate regularly between country operations. 1 2 3 4 5	There are standard product platforms, common practices, and shared centers of experience across countries. 1 2 3 4 5	New product ideas are evaluated for viability beyond the country where they emerged. 1 2 3 4 5	
Total Score					

GE QUESTIONNAIRE: RESPONSES SASOL, SOUTH AFRICA

In time, Jack Welch, former CEO of GE came to view boundaryless behaviour as his most important business strategy (Robert Slater, 1999: 77). We search for answers to the following question: How boundaryless is an organisation.

In order to get answers to above question, we distributed GE questionnaires electronically to employees of Sasol. The sample selection included employees on all four strategy levels: corporate, business, functional and operations levels. We deliberately grouped the respondents in these four categories to illustrate how the responses differ depending on what level the person operates in the organisation.

Part of the research dealt with the concepts of a renewal organisation with the focus on boundaryless behaviour. Boundaryless behaviour was one of GE's most important strategies.

Apart from reporting on the results of the survey in the research report, the intention of the questionnaire was also for employees to do their own assessment of boundaryless behaviour in their environment.

The respondents had to complete the exercise by assessing the extent to which each statement characterises their company, circling a number 1 (not true at all) to 5 (very true) for each of the sixteen entries. They had to score the questionnaire, total scores across the rows and down the columns. Each row and column score ought to be a number between 4 and 20.

Column scores reflect the organisation's relative achievement of the new success factors. If the company obtains a score of 12 or less on any single factor, this indicates work may be needed, particularly if the factor is critical to that industry or kind of organisations. If the company obtained a score of 16 or more, this suggest that the organisation has already acquired significant strength in the factor, but building on that strength is still important.

Row scores indicate the organisation's relative success in achieving permeability of the four boundaries. A score of 12 or less on any one boundary indicates a chance for significant improvement and a score of 16 or more indicates an area of strength.

The responses were generally poor. However, we did attempt to make something out of that what we have received. To make the analysis easier we grouped the responses into two categories, the corporate and business level as group 1 and the functional and operations level as group 2. The results can be summarised as follows:

Group 1: Questionnaires were distributed amongst 11 respondents of which 4 replied, 36% response

Group 2: Questionnaires were distributed to 40 respondents of which 21 replied, 53% response

GROUP 1

	Vertical	Horizontal	External	Geographical
≥ 16 (significant strength required)	2	1	1	-
Between 12 and 16 (work may be needed)	-	2	1	1
≤ 12 (chance of significant improvement)	-	-	-	-
≤ 10 (not acceptable)	2	1	2	3

GROUP 2

	Vertical	Horizontal	External	Geographical
≥ 16 (significant strength required)	-	2	4	1
Between 12 and 16 (work may be needed)	5	7	6	3
≤ 12 (chance of significant improvement)	9	7	5	8
≤ 10 (not acceptable)	7	5	6	9

GROUP 1

	Speed	Flexibility	Integration	Innovation
≥ 16 (significant strength required)	-	-	1	-
Between 12 and 16 (work may be needed)	-	2	1	-
≤ 12 (chance of significant improvement)	3	-	1	2
≤ 10 (not acceptable)	1	2	1	2

GROUP 2

	Speed	Flexibility	Integration	Innovation
≥ 16 (significant strength required)	-	-	2	2
Between 12 and 16 (work may be needed)	2	6	6	7
≤ 12 (chance of significant improvement)	13	11	8	9
≤ 10 (not acceptable)	6	4	5	3

The areas of concerns were highlighted. At the time of the research, the feedback was not particularly positive. From the responses it is clear that Sasol is far away from becoming a fully recognised world class company. However, verbal discussions with several employees confirmed that Sasol is certainly moving in the right direction at an accelerating pace.

APPENDIX 2

GE QUESTIONNAIRRE: HOW HEALTHY IS AN ORGANISATION'S HIERARCHY?

GE QUESTIONNAIRRE: HOW HEALTHY IS AN ORGANISATION'S HIERARCHY?

A second exercise related to boundaryless behaviour asks: "How healthy is your organization's hierarchy?"

Stepping Up to the Line: How Healthy Is Your Organization's Hierarchy?

Part 1: Success Factors

Instructions: Determine how critical the four new paradigm success factors in your organization, circling High, Medium, or Low for each factor.

1. Speed	High	Medium	Low
2. Flexibility	High	Medium	Low
3. Integration	High	Medium	Low
4. Innovation	High	Medium	Low

Part 2: Red Flags

Instructions: Evaluate how often the following five danger signs appear in your organization, circling a number from 1 (too often) to 10 (seldom).

	Too often				Sometimes					Seldom
1. Slow response time	1	2	3	4	5	6	7	8	9	10
2. Rigidity to change	1	2	3	4	5	6	7	8	9	10
3. Underground activity	1	2	3	4	5	6	7	8	9	10
4. Internal employee frustration	1	2	3	4	5	6	7	8	9	10

Part 3: Profile of Vertical Boundaries

Instructions: Assess where your company stands today on the four dimensions of information, authority, competence, and rewards, circling a number from 1 (traditional) to 10 (healthy).

	Traditional Hierarchy										Healthy Hierarchy
Information closely Held at top	1	2	3	4	5	6	7	8	9	10	Information widely shared
Authority to make	1	2	3	4	5	6	7	8	9	10	Authority to make decisions

Decisions centralized at top											distributed to wherever appropriate
Competence specialized And focused – people Do one job	1	2	3	4	5	6	7	8	9	10	Competency widespread – people do multiple tasks as needed
Rewards based On position	1	2	3	4	5	6	7	8	9	10	Rewards based on skills and accomplishments

APPENDIX 3

UNITED NATIONS HUMAN DEVELOPMENT REPORT (HDR) 2004: HUMAN DEVELOPMENT INDEX (HDI)

HDI rank[a]		Life expectancy at birth (years) 2002		Adult literacy rate (% ages 15 and above) 2002[b]		Combined gross enrolment ratio for primary, secondary and tertiary schools (%) 2001/02[c]		GDP per capita (PPP US$) 2002		Life expectancy index	Education index	GDP index	Human development index (HDI) value 2002	GDP per capita (PPP US$) rank minus HDI rank[d]
High human development														
1	Norway	78.9		..	e	98	f	36,600		0.9	0.99	0.99	0.956	1
2	Sweden	80		..	e	114	g,h	26,050		0.92	0.99	0.93	0.946	19
3	Australia	79.1		..	e	113	g,h	28,260		0.9	0.99	0.94	0.946	9
4	Canada	79.3		..	e	95	f	29,480		0.9	0.98	0.95	0.943	5
5	Netherlands	78.3		..	e	99	f	29,100		0.89	0.99	0.95	0.942	6
6	Belgium	78.7		..	e	111	f,g	27,570		0.9	0.99	0.94	0.942	7
7	Iceland	79.7		..	e	90	f	29,750		0.91	0.96	0.95	0.941	1
8	United States	77		..	e	92	h	35,750		0.87	0.97	0.98	0.939	-4
9	Japan	81.5		..	e	84	h	26,940		0.94	0.94	0.93	0.938	6
10	Ireland	76.9		..	e	90	f	36,360		0.86	0.96	0.98	0.936	-7
11	Switzerland	79.1		..	e	88	f	30,010		0.9	0.95	0.95	0.936	-4
12	United Kingdom	78.1		..	e	113	f,g	26,150		0.88	0.99	0.93	0.936	8
13	Finland	77.9		..	e	106	f,g	26,190		0.88	0.99	0.93	0.935	6
14	Austria	78.5		..	e	91	f	29,220		0.89	0.96	0.95	0.934	-4
15	Luxembourg	78.3		..	e	75	f,l	61,190	j	0.89	0.91	1	0.933	-14
16	France	78.9		..	e	91	f	26,920		0.9	0.96	0.93	0.932	0
17	Denmark	76.6		..	e	96	f	30,940		0.86	0.98	0.96	0.932	-12
18	New Zealand	78.2		..	e	101	g,h	21,740		0.89	0.99	0.9	0.926	6
19	Germany	78.2		..	e	88	h	27,100		0.89	0.95	0.94	0.925	-5
20	Spain	79.2		97.7	e,f,k	92	h	21,460		0.9	0.97	0.9	0.922	5
21	Italy	78.7		98.5	e,f,k	82	f	26,430		0.89	0.93	0.93	0.92	-3
22	Israel	79.1		95.3		92		19,530		0.9	0.94	0.88	0.908	5
23	Hong Kong, China (SAR)	79.9		93.5	f,k	72		26,910		0.91	0.86	0.93	0.903	-6
24	Greece	78.2		97.3	e,f,k	86	f	18,720		0.89	0.95	0.87	0.902	5
25	Singapore	78		92.5	i	87	m	24,040		0.88	0.91	0.92	0.902	-3
26	Portugal	76.1		92.5	e,f,k	93	f	18,280		0.85	0.97	0.87	0.897	6
27	Slovenia	76.2		99.7	e	90	f	18,540		0.85	0.96	0.87	0.895	3
28	Korea, Rep. of	75.4		97.9	e,f,k	92	h	16,950		0.84	0.97	0.86	0.888	9
29	Barbados	77.1		99.7	f,n	88	f	15,290		0.87	0.95	0.84	0.888	11
30	Cyprus	78.2		96.8	i	74	f	18,360	f	0.89	0.89	0.87	0.883	1
31	Malta	78.3		92.6		77	f	17,640		0.89	0.87	0.86	0.875	3
32	Czech Republic	75.3		..	e	78	h	15,780		0.84	0.92	0.84	0.868	7
33	Brunei Darussalam	76.2		93.9	i	73		19,210	f,o	0.85	0.87	0.88	0.867	-5
34	Argentina	74.1		97		94	h	10,880		0.82	0.96	0.78	0.853	14
35	Seychelles	72.7	m	91.9	i	85		18,232	p,q	0.8	0.9	0.87	0.853	-2
36	Estonia	71.6		99.8	e,i	96	f	12,260		0.78	0.98	0.8	0.853	10
37	Poland	73.8		99.7	e,f,k	90	h	10,560		0.81	0.96	0.78	0.85	13
38	Hungary	71.7		99.3	e,f,k	86	h	13,400		0.78	0.95	0.82	0.848	3
39	Saint Kitts and Nevis	70	r	97.8	r	97	f	12,420		0.75	0.98	0.8	0.844	6
40	Bahrain	73.9		88.5		79		17,170		0.81	0.85	0.86	0.843	-4
41	Lithuania	72.5		99.6	e,i	90	f	10,320		0.79	0.96	0.77	0.842	10
42	Slovakia	73.6		99.7	e,i	74	h	12,840		0.81	0.91	0.81	0.842	1
43	Chile	76		95.7	i	79	f	9,820		0.85	0.9	0.77	0.839	11
44	Kuwait	76.5		82.9		76	f	16,240	q	0.86	0.81	0.85	0.838	-6
45	Costa Rica	78		95.8		69		8,840	q	0.88	0.87	0.75	0.834	14
46	Uruguay	75.2		97.7		85	h	7,830		0.84	0.94	0.73	0.833	16
47	Qatar	72		84.2	f,i	82		19,844	f,s	0.78	0.83	0.88	0.833	-21
48	Croatia	74.1		98.1	i	73		10,240		0.82	0.9	0.77	0.83	4
49	United Arab Emirates	74.6		77.3		68		22,420	f,q	0.83	0.74	0.9	0.824	-26
50	Latvia	70.9		99.7	e,i	87	f	9,210		0.76	0.95	0.75	0.823	6
51	Bahamas	67.1		95.5	f,k	74	f,t	17,280	f	0.7	0.88	0.86	0.815	-16
52	Cuba	76.7		96.9		78		5,259	f,s,u	0.86	0.91	0.66	0.809	39
53	Mexico	73.3		90.5	i	74	h	8,970		0.81	0.85	0.75	0.802	5
54	Trinidad and Tobago	71.4		98.5		64		9,430		0.77	0.87	0.76	0.801	1
55	Antigua and Barbuda	73.9	r	85.8	f,n	69	r	10,920		0.82	0.8	0.78	0.8	-8
Medium human development														
56	Bulgaria	70.9		98.6		76	f	7,130		0.77	0.91	0.71	0.796	10
57	Russian Federation	66.7		99.6	e	88	h	8,230		0.69	0.95	0.74	0.795	3
58	Libyan Arab Jamahiriya	72.6		81.7		97	h	7,570	v	0.79	0.87	0.72	0.794	6
59	Malaysia	73		88.7	i	70	h	9,120		0.8	0.83	0.75	0.793	-2
60	Macedonia, TFYR	73.5		96	w,x	70	f	6,470		0.81	0.87	0.7	0.793	15
61	Panama	74.6		92.3		73	f	6,170		0.83	0.86	0.69	0.791	18
62	Belarus	69.9		99.7	e	88		5,520		0.75	0.95	0.67	0.79	24
63	Tonga	68.4		98.8	i	82		6,850	q	0.72	0.93	0.71	0.787	5
64	Mauritius	71.9		84.3	i	69		10,810		0.78	0.79	0.78	0.785	-15
65	Albania	73.6		98.7	i	69	f	4,830		0.81	0.89	0.65	0.781	31
66	Bosnia and Herzegovina	74		94.6		64	y	5,970	f,o	0.82	0.84	0.68	0.781	15
67	Suriname	71		94	w,x	74	h	6,590	p,q	0.77	0.87	0.7	0.78	6
68	Venezuela	73.6		93.1		71		5,380		0.81	0.86	0.67	0.778	21
69	Romania	70.5		97.3	i	68	f	6,560		0.76	0.88	0.7	0.778	5
70	Ukraine	69.5		99.6	e	84		4,870		0.74	0.94	0.65	0.777	25
71	Saint Lucia	72.4		94.8	f,n	74		5,300		0.79	0.88	0.66	0.777	19
72	Brazil	68		86.4	i	92	h	7,770		0.72	0.88	0.73	0.775	-9
73	Colombia	72.1		92.1		68		6,370	q	0.78	0.84	0.69	0.773	4
74	Oman	72.3		74.4		63		13,340		0.79	0.71	0.82	0.77	-32
75	Samoa (Western)	69.8		98.7		69		5,600	q	0.75	0.89	0.67	0.769	10
76	Thailand	69.1		92.6	i	73	f	7,010		0.74	0.86	0.71	0.768	-9
77	Saudi Arabia	72.1		77.9		57		12,650	q	0.79	0.71	0.81	0.768	-33
78	Kazakhstan	66.2		99.4	e	81		5,870		0.69	0.93	0.68	0.766	4
79	Jamaica	75.6		87.6	f,n	75	h	3,980		0.84	0.83	0.61	0.764	28
80	Lebanon	73.5		86.5	f,k	78		4,360		0.81	0.84	0.63	0.758	21
81	Fiji	69.6		92.9	f,i	73	h	5,440		0.74	0.86	0.67	0.758	7
82	Armenia	72.3		99.4	e,i	72		3,120		0.79	0.9	0.57	0.754	33
83	Philippines	69.8		92.6	i	81	h	4,170		0.75	0.89	0.62	0.753	22
84	Maldives	67.2		97.2		78		4,798	f,p,q	0.7	0.91	0.65	0.752	13
85	Peru	69.7		85	z	88	h	5,010		0.74	0.86	0.65	0.752	7
86	Turkmenistan	66.9		98.8	f,i	81	f,t	4,300	f	0.7	0.93	0.63	0.752	16

HDI rank[a]		Life expectancy at birth (years) 2002		Adult literacy rate (% ages 15 and above) 2002[b]		Combined gross enrolment ratio for primary, secondary and tertiary schools (%) 2001/02[c]		GDP per capita (PPP US$) 2002		Life expectancy index	Education index	GDP index	Human development index (HDI) value 2002	GDP per capita (PPP US$) rank minus HDI rank[d]
87	Saint Vincent and the Grenadines	74		83.1	f,n	64		5,460		0.82	0.77	0.67	0.751	0
88	Turkey	70.4		86.5	i	68	h	6,390		0.76	0.8	0.69	0.751	-12
89	Paraguay	70.7		91.6	z	72	h	4,610	q	0.76	0.85	0.64	0.751	9
90	Jordan	70.9		90.9		77	h	4,220		0.76	0.86	0.62	0.75	14
91	Azerbaijan	72.1		97	w,x	69		3,210		0.78	0.88	0.58	0.746	23
92	Tunisia	72.7		73.2		75	h	6,760		0.79	0.74	0.7	0.745	-23
93	Grenada	65.3	f,n	94.4	f,n	65	f	7,280		0.67	0.85	0.72	0.745	-28
94	China	70.9		90.9	i	68	f	4,580		0.76	0.83	0.64	0.745	5
95	Dominica	73.1	n	76.4	f,n	74	f	5,640		0.8	0.76	0.67	0.743	-11
96	Sri Lanka	72.5		92.1		65	h	3,570		0.79	0.83	0.6	0.74	16
97	Georgia	73.5		100	e,w,x	69		2,260		0.81	0.89	0.52	0.739	29
98	Dominican Republic	66.7		84.4		77	h	6,640	q	0.7	0.82	0.7	0.738	-27
99	Belize	71.5		76.9	i	71	f	6,080		0.78	0.75	0.69	0.737	-19
100	Ecuador	70.7		91	i	72	f,i	3,580		0.76	0.85	0.6	0.735	11
101	Iran, Islamic Rep. of	70.1		77.1	f,k,z	69		6,690		0.75	0.74	0.7	0.732	-31
102	Occupied Palestinian Territories	72.3		90.2	m	79		..	j	0.79	0.86	0.52	0.726	21
103	El Salvador	70.6		79.7		66		4,890	q	0.76	0.75	0.65	0.72	-9
104	Guyana	63.2		96.5	f,n	75	f	4,260	q	0.64	0.89	0.63	0.719	-1
105	Cape Verde	70		75.7		73	h	5,000	q	0.75	0.75	0.65	0.717	-12
106	Syrian Arab Republic	71.7		82.9		59		3,620		0.78	0.75	0.6	0.71	4
107	Uzbekistan	69.5		99.3	e	76		1,670		0.74	0.91	0.47	0.709	35
108	Algeria	69.5		68.9		70	h	5,760	q	0.74	0.69	0.68	0.704	-25
109	Equatorial Guinea	49.1		84.2	f,k	58		30,130	f,q	0.4	0.76	0.95	0.703	-103
110	Kyrgyzstan	68.4		97	w,j	81		1,620		0.72	0.92	0.46	0.701	33
111	Indonesia	66.6		87.9		65	h	3,230		0.69	0.8	0.58	0.692	2
112	Viet Nam	69		90.3	f,i	64		2,300		0.73	0.82	0.52	0.691	12
113	Moldova, Rep. of	68.8		99	e	62		1,470		0.73	0.87	0.45	0.681	36
114	Bolivia	63.7		86.7	i	86	h	2,460		0.64	0.86	0.53	0.681	6
115	Honduras	68.8		80	i	62	f,i	2,600	q	0.73	0.74	0.54	0.672	3
116	Tajikistan	68.6		99.5	e,i	73		980		0.73	0.9	0.38	0.671	45
117	Mongolia	63.7		97.8	i	70		1,710		0.64	0.89	0.47	0.668	21
118	Nicaragua	69.4		76.7	z	65	h	2,470	q	0.74	0.73	0.54	0.667	1
119	South Africa	48.8		86		77		10,070	q	0.4	0.83	0.77	0.666	-66
120	Egypt	68.6		55.6	f,i	76	f,t	3,810		0.73	0.62	0.61	0.653	-12
121	Guatemala	65.7		69.9		56	h	4,080	q	0.68	0.65	0.62	0.649	-15
122	Gabon	56.6		71	w,x	74	h	6,590		0.53	0.72	0.7	0.648	-50
123	São Tomé and Principe	69.7		83.1	m	62		1,317	f,s	0.75	0.76	0.43	0.645	29
124	Solomon Islands	69		76.6	m	50	m	1,590	q	0.73	0.68	0.46	0.624	21
125	Morocco	68.5		50.7		57		3,810		0.72	0.53	0.61	0.62	-17
126	Namibia	45.3		83.3		71		6,210	q	0.34	0.79	0.69	0.607	-48
127	India	63.7		61.3	i	55	f	2,670	q	0.64	0.59	0.55	0.595	-10
128	Botswana	41.4		78.9		70		8,170		0.27	0.76	0.73	0.589	-67
129	Vanuatu	68.6		34	m	59		2,890	q	0.73	0.42	0.56	0.57	-13
130	Cambodia	57.4		69.4		59		2,060	q	0.54	0.66	0.5	0.568	1
131	Ghana	57.8		73.8		46		2,130	q	0.55	0.65	0.51	0.568	-3
132	Myanmar	57.2		85.3		48		1,027	v	0.54	0.73	0.39	0.551	26
133	Papua New Guinea	57.4		64.6	f,k	41		2,270	q	0.54	0.57	0.52	0.542	-8
134	Bhutan	63		47	w,x	..		1,969	f,s	0.63	0.48	0.5	0.536	0
135	Lao People's Dem. Rep.	54.3		66.4		59		1,720		0.49	0.64	0.47	0.534	2
136	Comoros	60.6		56.2		45		1,690	q	0.59	0.53	0.47	0.53	4
137	Swaziland	35.7		80.9		61		4,550		0.18	0.74	0.64	0.519	-37
138	Bangladesh	61.1		41.1		54		1,700		0.6	0.45	0.47	0.509	1
139	Sudan	55.5		59.9		36		1,820	q	0.51	0.52	0.48	0.505	-3
140	Nepal	59.6		44		61		1,370		0.58	0.5	0.44	0.504	11
141	Cameroon	46.8		67.9	z	56	h	2,000		0.36	0.64	0.5	0.501	-9
Low human development														
142	Pakistan	60.8		41.5	f,i	37	f	1,940		0.6	0.4	0.49	0.497	-7
143	Togo	49.9		59.6		67		1,480	q	0.41	0.62	0.45	0.495	5
144	Congo	48.3		82.8		48	h	980		0.39	0.71	0.38	0.494	17
145	Lesotho	36.3		81.4	z	65		2,420	q	0.19	0.76	0.53	0.493	-24
146	Uganda	45.7		68.9		71		1,390	q	0.34	0.7	0.44	0.493	4
147	Zimbabwe	33.9		90		58	h	2,400	f	0.15	0.79	0.53	0.491	-25
148	Kenya	45.2		84.3		53		1,020		0.34	0.74	0.39	0.488	11
149	Yemen	59.8		49		53	f	870		0.58	0.5	0.36	0.482	16
150	Madagascar	53.4		67.3	f,k	45		740		0.47	0.6	0.33	0.469	20
151	Nigeria	51.6		66.8		45	f,t	860		0.44	0.59	0.36	0.466	15
152	Mauritania	52.3		41.2		44		2,220	q	0.45	0.42	0.52	0.465	-25
153	Haiti	49.4		51.9		52	f,i	1,610	q	0.41	0.52	0.46	0.463	-9
154	Djibouti	45.8		65.5	f,k	24		1,990	q	0.35	0.52	0.5	0.454	-21
155	Gambia	53.9		37.8	f,k	45	h	1,690	q	0.48	0.4	0.47	0.452	-15
156	Eritrea	52.7		56.7	f,k	33		890	q	0.46	0.49	0.36	0.439	8
157	Senegal	52.7		39.3		38	h	1,580		0.46	0.39	0.46	0.437	-11
158	Timor-Leste	49.3		58.6	f,m	75		..	€	0.41	0.64	0.26	0.436	19
159	Rwanda	38.9		69.2		53		1,270	q	0.23	0.64	0.42	0.431	-6
160	Guinea	48.9		41	w,x	29	f	2,100		0.4	0.37	0.51	0.425	-30
161	Benin	50.7		39.8		52	h	1,070		0.43	0.44	0.4	0.421	-5
162	Tanzania, U. Rep. of	43.5		77.1		31	f	580		0.31	0.62	0.29	0.407	12
163	Côte d'Ivoire	41.2		49.7	f,k	42		1,520		0.27	0.47	0.45	0.399	-16
164	Zambia	32.7		79.9		45		840		0.13	0.68	0.36	0.389	3
165	Malawi	37.8		61.8		74	h	580		0.21	0.66	0.29	0.388	9
166	Angola	40.1		42	w,j	30	f	2,130	q	0.25	0.38	0.51	0.381	-38
167	Chad	44.7		45.8		35	f	1,020	q	0.33	0.42	0.39	0.379	-8
168	Congo, Dem. Rep. of the	41.4		62.7	f,k	27	f,i	650	q	0.27	0.51	0.31	0.365	4
169	Central African Republic	39.8		48.6	z	31		1,170	q	0.25	0.43	0.41	0.361	-15
170	Ethiopia	45.5		41.5		34		780	q	0.34	0.39	0.34	0.359	-1
171	Mozambique	38.5		46.5		41		1,050	q	0.22	0.45	0.39	0.354	-14
172	Guinea-Bissau	45.2		39.6	f,k	37	f	710	q	0.34	0.39	0.33	0.35	-1
173	Burundi	40.8		50.4		33		630	q	0.26	0.45	0.31	0.339	0
174	Mali	48.5		19	f,i	26	f	930		0.39	0.21	0.37	0.326	-11
175	Burkina Faso	45.8		12.8	f,i	22	h	1,100	q	0.35	0.16	0.4	0.302	-20
176	Niger	46		17.1		19		800	q	0.35	0.18	0.35	0.292	-8
177	Sierra Leone	34.3		36	w,x	45	f	520		0.16	0.39	0.28	0.273	-1

HDI rank[a]	Life expectancy at birth (years) 2002	Adult literacy rate (% ages 15 and above) 2002[b]	Combined gross enrolment ratio for primary, secondary and tertiary schools (%) 2001/02[c]	GDP per capita (PPP US$) 2002	Life expectancy index	Education index	GDP index	Human development index (HDI) value 2002	GDP per capita (PPP US$) rank minus HDI rank[d]
Developing countries	64.6	76.7	60	4,054	0.66	0.71	0.62	0.663	..
Least developed countries	50.6	52.5	43	1,307	0.43	0.49	0.42	0.446	..
Arab States	66.3	63.3	60	5,069	0.69	0.61	0.65	0.651	..
East Asia and the Pacific	69.8	90.3	65	4,768	0.75	0.83	0.64	0.74	..
Latin America and the Caribbean	70.5	88.6	81	7,223	0.76	0.86	0.72	0.777	..
South Asia	63.2	57.6	54	2,658	0.64	0.57	0.55	0.584	..
Sub-Saharan Africa	46.3	63.2	44	1,790	0.35	0.56	0.48	0.465	..
Central and Eastern Europe and the CIS	69.5	99.3	79	7,192	0.74	0.93	0.72	0.796	..
OECD	77.1	..	87	24,904	0.87	0.94	0.92	0.911	..
High-income OECD	78.3	..	93	29,000	0.89	0.97	0.95	0.935	..
High human development	77.4	..	89	24,806	0.87	0.95	0.92	0.915	..
Medium human development	67.2	80.4	64	4,269	0.7	0.75	0.63	0.695	..
Low human development	49.1	54.3	40	1,184	0.4	0.5	0.41	0.438	..
High income	78.3	..	92	28,741	0.89	0.97	0.94	0.933	..
Middle income	70	89.7	71	5,908	0.75	0.84	0.68	0.756	..
Low income	59.1	63.6	51	2,149	0.57	0.59	0.51	0.557	..
World	66.9	..	64	7,804	0.7	0.76	0.73	0.729	..

Note: Aggregates from columns 5-8 are based on all data in the table. For detailed notes on the data, see Statistical feature 2, Note to table 1: About this year's human development index.

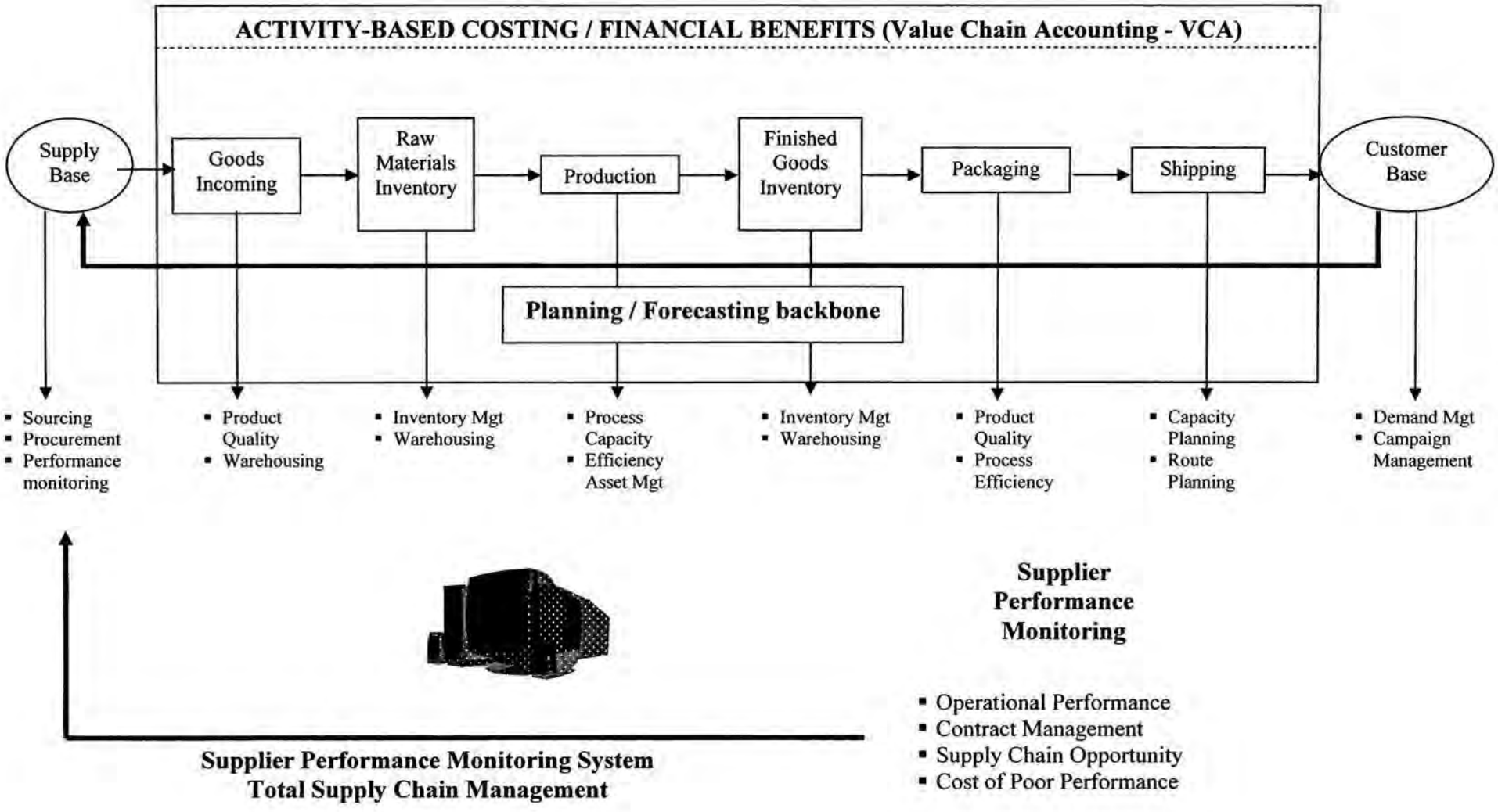
a. The HDI rank is determined using HDI values to the fifth decimal point.
b. Data refer to estimates produced by UNESCO Institute for Statistics in July 2002, unless otherwise specified. Due to differences in methodology and timeliness of underlying data, comparisons across countries and over time should be made with caution.
c. Data refer to the 2001/02 school year, unless otherwise specified. Data for some countries may refer to national or UNESCO Institute for Statistics estimates. For details, see http://www.uis.unesco.org/. Because data are from different sources, comparisons across countries should be made with caution.
d. A positive figure indicates that the HDI rank is higher than the GDP per capita (PPP US$) rank, a negative the opposite.
e. For purposes of calculating the HDI, a value of 99.0% was applied.
f. Data refer to a year other than that specified.
g. For purposes of calculating the HDI, a value of 100% was applied.
h. Preliminary UNESCO Institute for Statistics estimate, subject to further revision.
i. The ratio is an underestimate, as many secondary and tertiary students pursue their studies in nearby countries (see Statistical feature 2, Note to table 1: About this year's human development index).
j. For purposes of calculating the HDI, a value of $40,000 (PPP US$) was applied.
k. UNESCO Institute for Statistics. 2003a. Correspondence on adult and youth literacy rates. March. Montreal. Data are subject to further revision.
l. Census data.
m. Data are from national sources.
n. Data are from the Secretariat of the Caribbean Community, based on national sources.
o. World Bank. 2003. World Development Indicators 2003. CD-ROM. Washington, DC.
p. Preliminary World Bank estimate, subject to further revision.
q. Estimate based on regression.
r. Data are from the Secretariat of the Organization of Eastern Caribbean States, based on national sources.
s. Aten, Bettina, Alan Heston and Robert Summers. 2002. "Penn World Tables 6.1." University of Pennsylvania, Center for International Comparisons, Philadelphia. Data differ from the standard definition.
t. Data refer to the 1999/2000 school year. They were provided by the UNESCO Institute for Statistics for Human Development Report 2001 (see UNESCO Institute for Statistics. 2001. Correspondence on gross enrolment ratios. March. Paris.).
u. Efforts to produce a more accurate and recent estimate are ongoing (see Statistical feature 2, Note to table 1: About this year's human development index).
v. Aten, Bettina, Alan Heston and Robert Summers. 2001. "Penn World Tables 6.0." University of Pennsylvania, Center for International and Interarea Comparisons, Philadelphia. Data differ from the standard definition.
w. Data refer to a year or period other than that specified, differ from the standard definition or refer to only part of a country.
x. UNICEF (United Nations Children's Fund). 2003. The State of the World's Children 2004. New York: Oxford University Press.
y. UNDP (United Nations Development Programme). 2002. Bosnia and Herzegovina Human Development Report 2002. Sarajevo.
z. Survey data.
{. UNESCO Institute for Statistics. 2003. Correspondence on combined gross enrolment ratios. March. Montreal.
|. In the absence of an estimate of GDP per capita (PPP US$), the Human Development Report Office estimate of $2,302, derived using the value of GDP in US dollars and the weighted average ratio of PPP US dollars to US dollars in the Arab States, was used.
}. UNICEF (United Nations Children's Fund). 2000 The State of the World's Children 2001. New York: Oxford University Press.
~. Because the combined gross enrolment ratio was unavailable, the Human Development Report Office estimate of 49% was used.
□. Estimates are based primarily on information for northern Sudan.
€. The estimated value of $478 was used (UNDP 2002b).

Source:
Column 1: UN (United Nations). 2003. World Population Prospects 1950-2050: The 2002 Revision. Database. Department of Economic and Social Affairs, Population Division. New York, unless otherwise noted.
Column 2: UNESCO Institute for Statistics (United National Educational, Scientific and Cultural Organization). 2004. Correspondence on combined gross enrolment ratios. March. Montreal, unless otherwise noted.
Column 3: UNESCO Institute for Statistics. 2004. Correspondence on gross, net enrolment ratios and survival rate to grade 5. March. Montreal, unless otherwise noted.
Column 4: World Bank. 2004. World Development Indicators 2004. CD-ROM. Washington, DC., unless otherwise noted; aggregates calculated for the Human Development Report Office by the World Bank.
Column 5: calculated on the basis of data in column 1.
Column 6: calculated on the basis of data in columns 2 and 3.
Column 7: calculated on the basis of data in column 4.
Column 8: calculated on the basis of data in columns 5-7; see technical note 1 for details.
Column 9: calculated on the basis of data in columns 4 and 8.

APPENDIX 4

VALUE CHAIN INTELLIGENCE SCORECARD (VCIS)

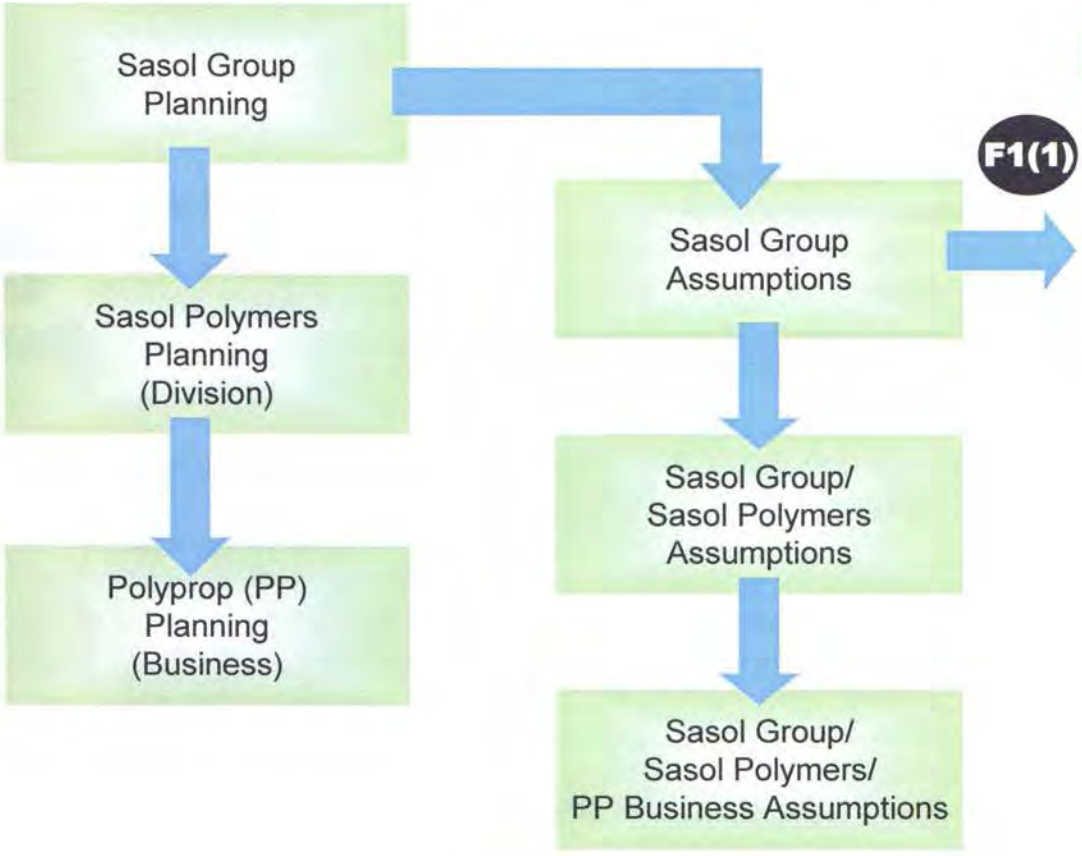
VALUE CHAIN INTELLIGENCE SCORECARD (VCIS)



APPENDIX 5

AN EXAMPLE OF A BUDGET PROCESS: SASOL POLYMERS, PP BUSINESS

SASOL POLYMERS PP BUSINESS
BUDGET PROCESS



F1(1)

SASOL POLYMERS

- R.O.E. (R/$, R/DM, R/Euro)
- Oil Prices (Dubai/Brent)
- Inflation (RSA/USA)
- Interest Rates (Nominal/Real)
- Effective Tax Rates
- International PP/PE/PVC Prices (USA/SEA Spot and Contract)
- World Supply and Demands of Polymers (Including Plant Capacities/Capabilities/New Projects)

PP PRODUCTION

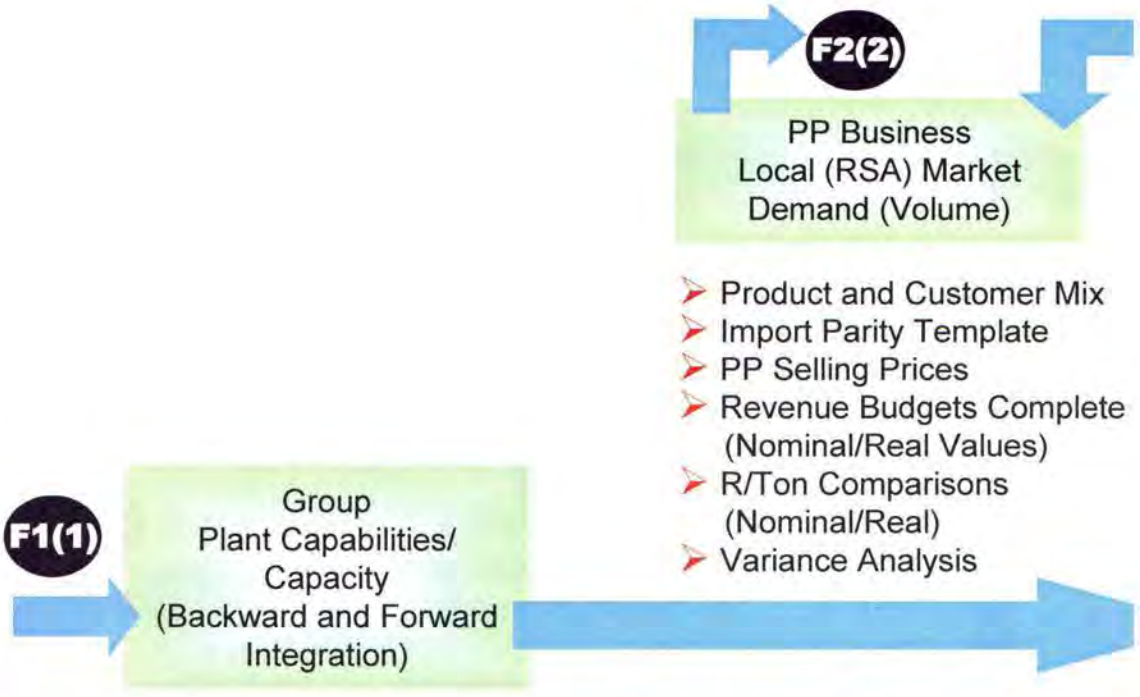
- Plant Capacity/Capabilities
- CAPEX/New Projects
- Raw Material (Feed and Process Mat'l BOM'S)
- Product Throughputs for Routings
- MPS
- Wide Spec Factors
- Utilities Fix and Variable

PP MARKETING

- RSA Market Mix (Local) (PP, SAFRIPOL, IMPORTS)
- Export Volume Mix (By Country/Region)
- Local and International Volume Mix
- Import Parity (Basis and %)

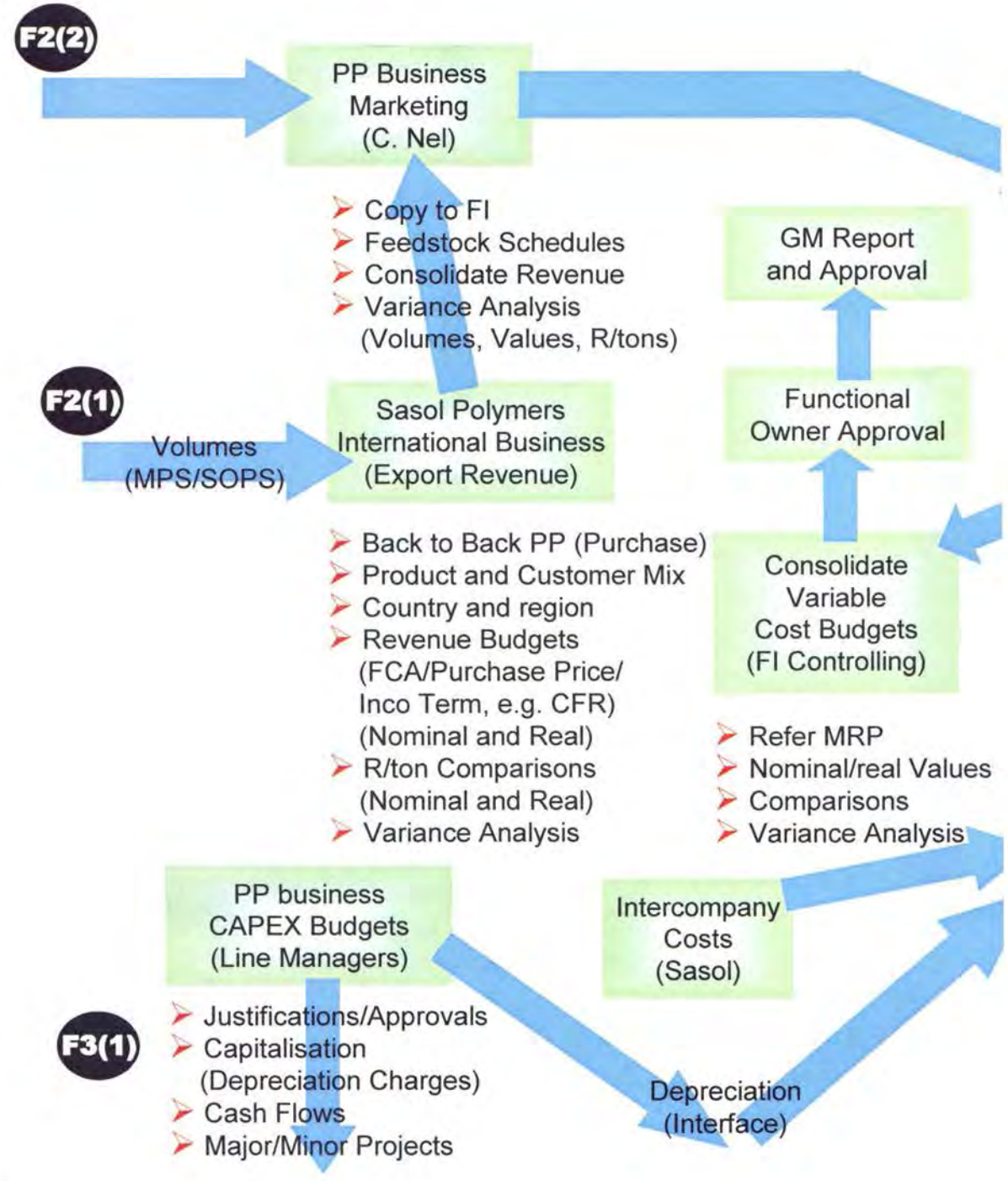
PP LOGISTICS

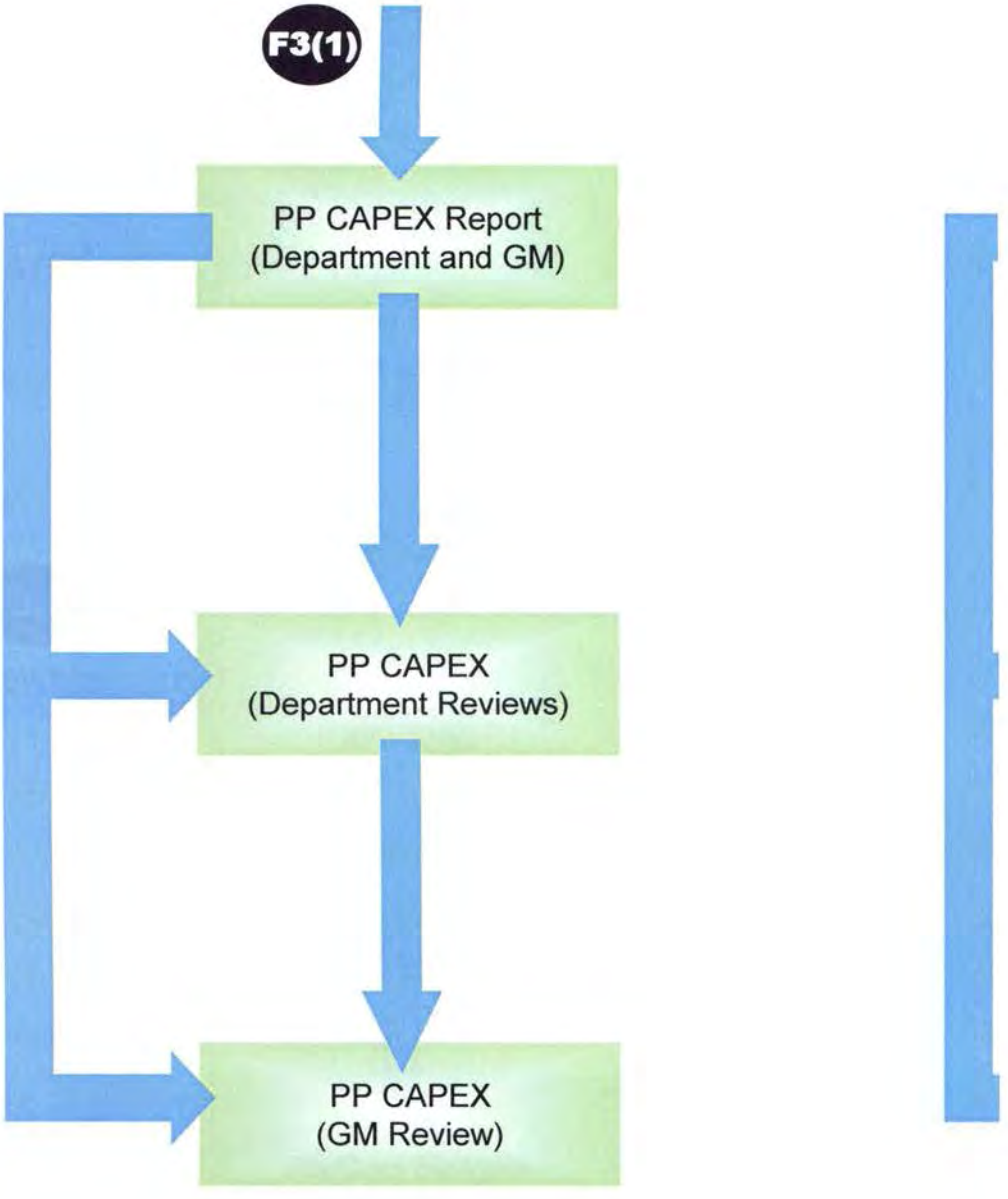
- Packing (Bulk/25kgs, etc.)
- Bagging Line (Capacity/Capabilities)
- Distribution Networks
- Stock Levels (Including Safety Stock)

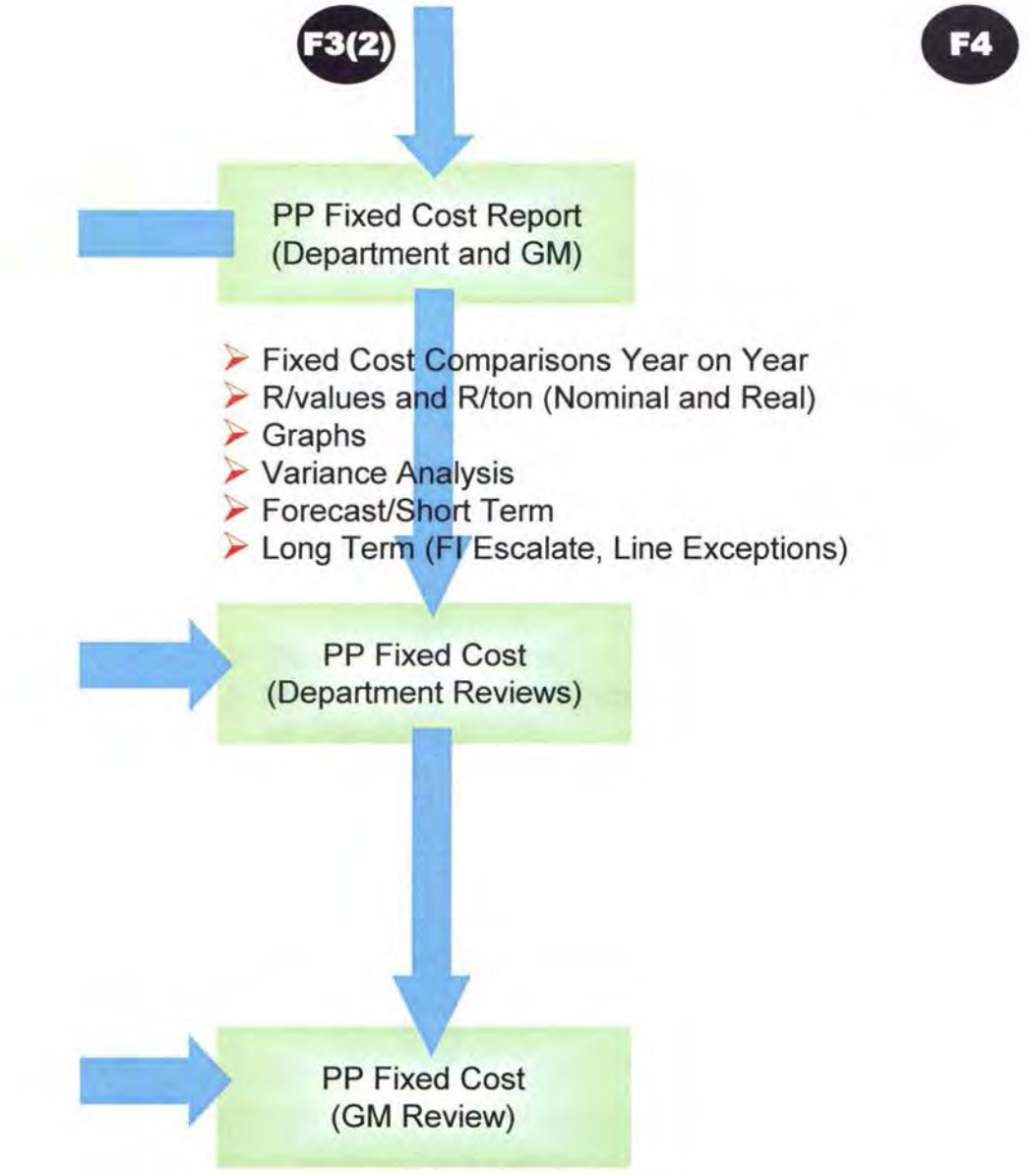


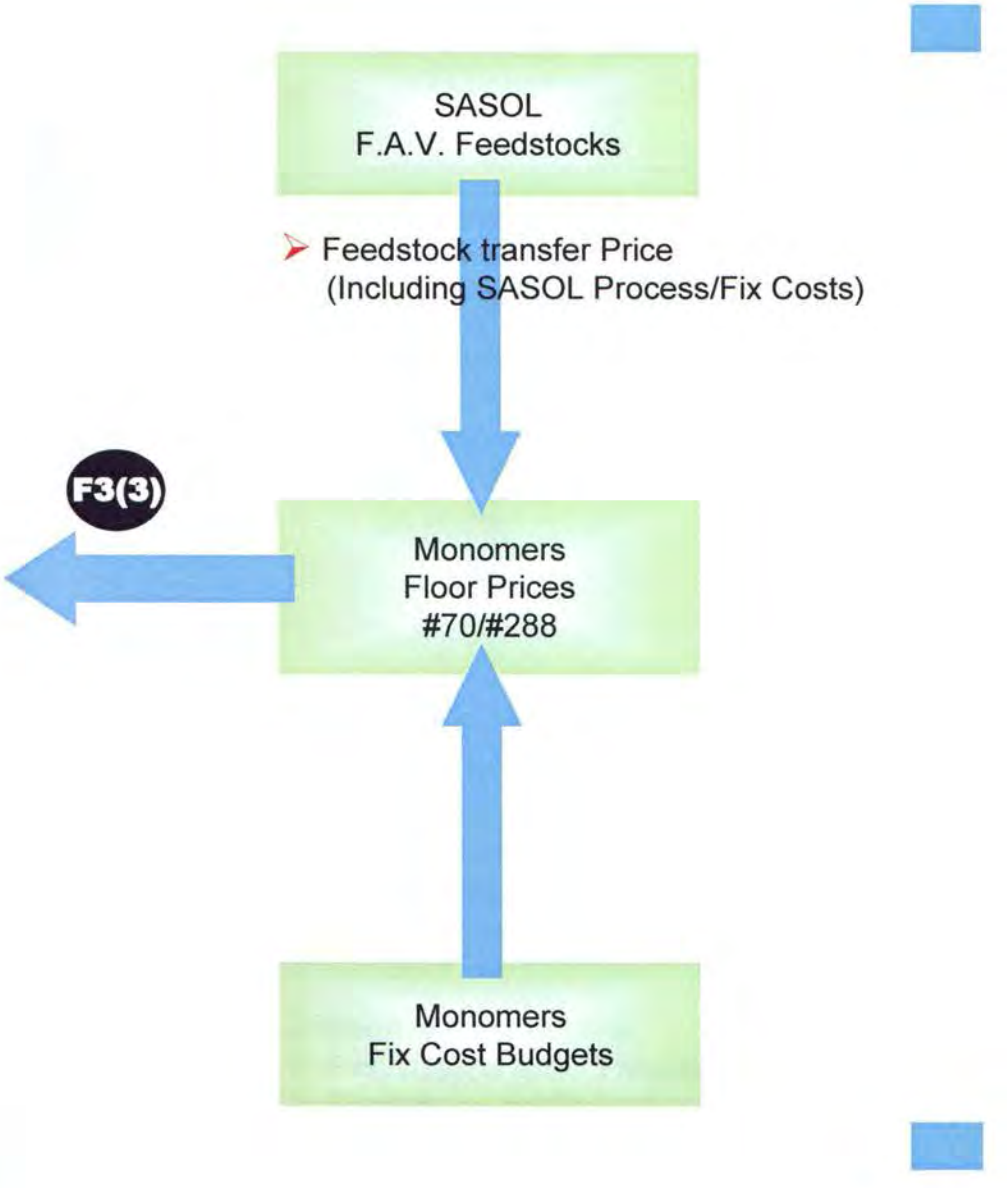
- Match World Supply and Demand (Current and Future)
- CAPEX Expansion/New Projects (Refer Mass Balancing)
- Plant Constraints
- Plant Efficiencies/Utilisation
- Mass Balancing (Current and future) (Refer Sasol Group) (Propylene and Ethylene) (Coal, Gas, Utilities and Feed Material)
- Shut Downs/Down Times
- Production Volumes
- Feedstock Qualities (Purity Levels from Monomers)
- Utility Feeds (Volumes)
- Consider Margins for Various Products (Fuel Pool, Polymers, etc.)

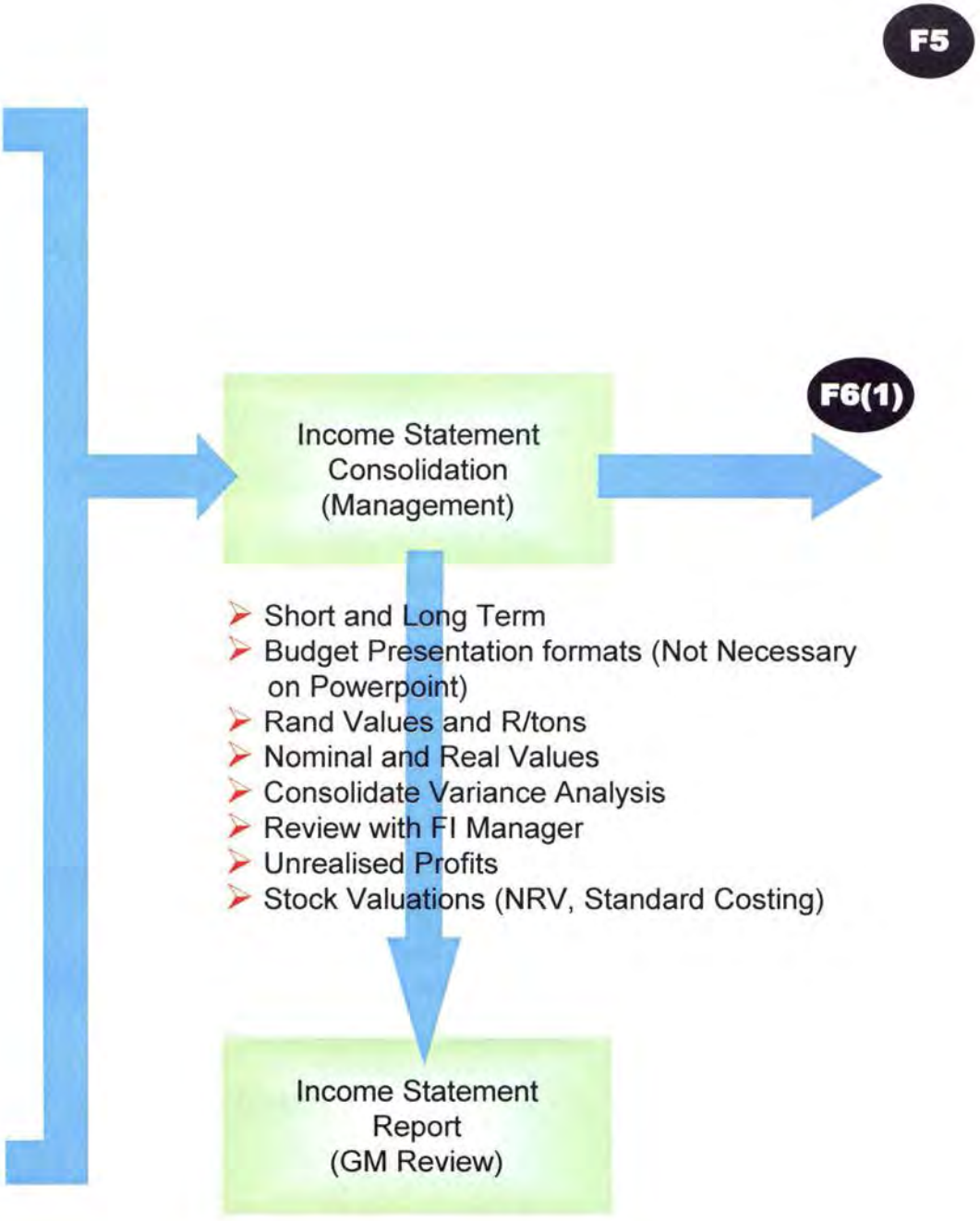
- Feedstock Supply from Monomers via Sasol (# 70, # 280, # 288, # 24) (Propylene and Ethylene Feed)
- Utility Supply and Demands (Sasol)
- Feedstock Qualities (Purity Levels)
- Production Efficiencies
- Production Volumes (MPS) (Availability)
- Feed Material Usage Calculation for Mass Balancing
- Production Throughputs } Synchronise
- Bagging Plant Throughputs }
- Raw Material BOMS (Feedstock and Process Material)
- Carrier Gas Capacity/Capabilities
- CAPEX Expansion/New Projects Impact
- Plant Constraints/Debottlenecks, etc.
- Mass Balancing (Backward and Forward Integration) (Feed material and Utilities)

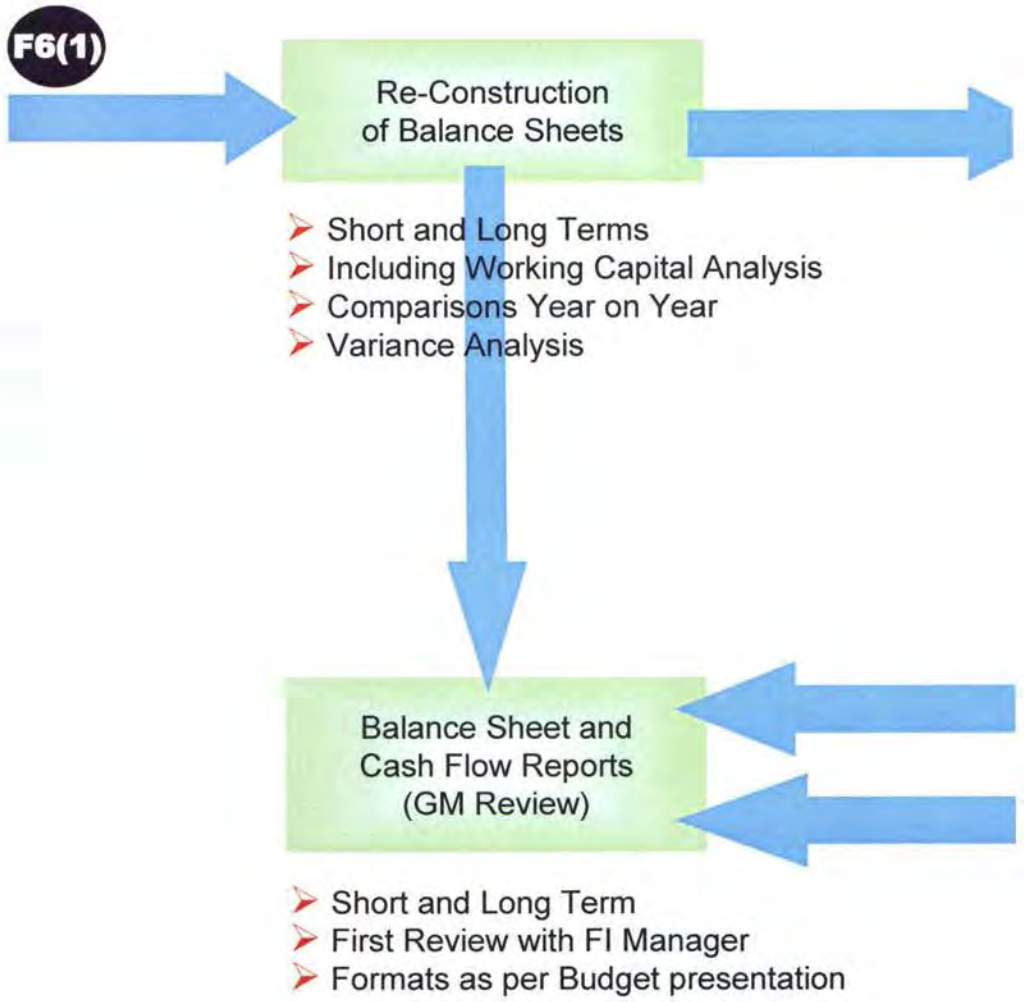


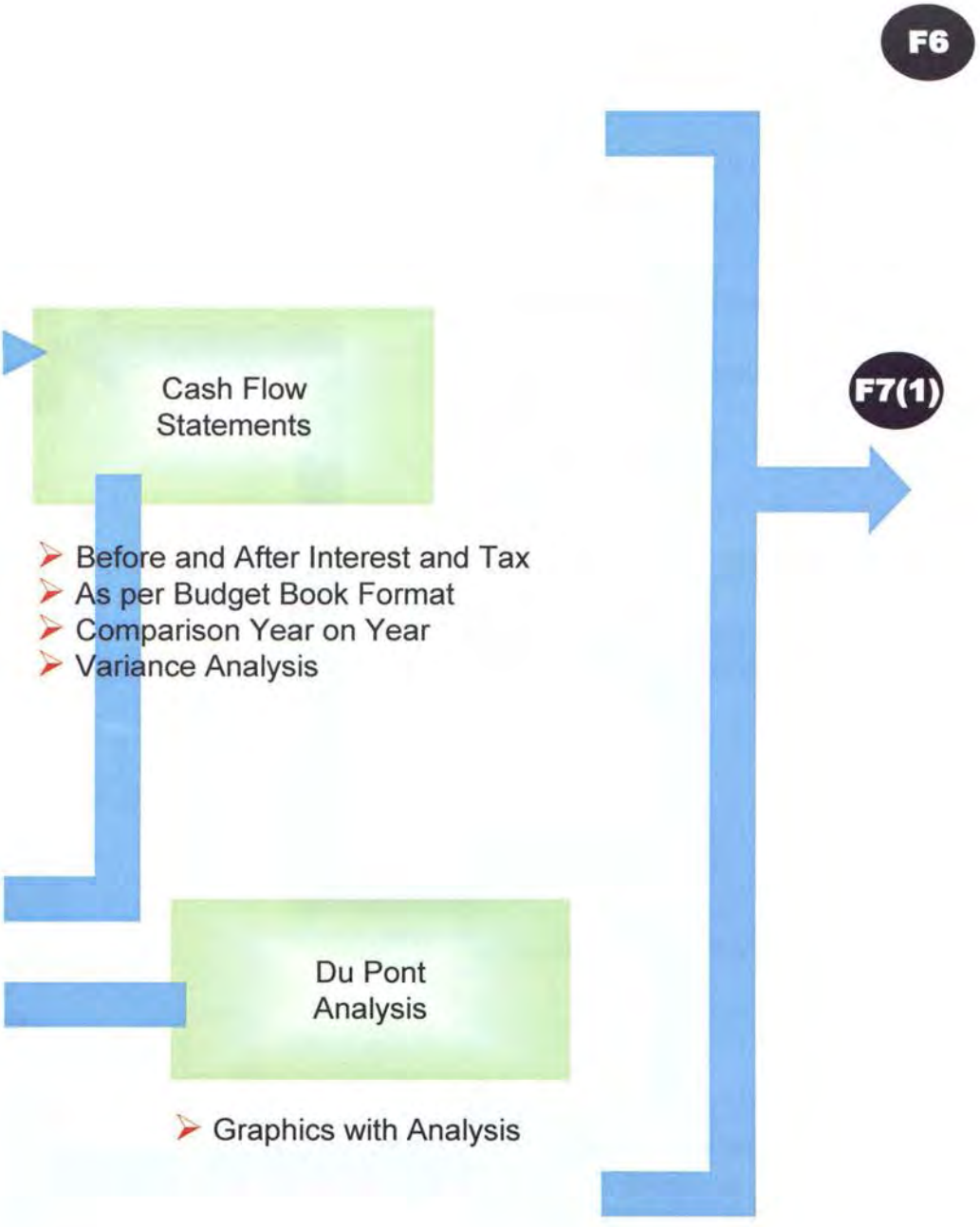


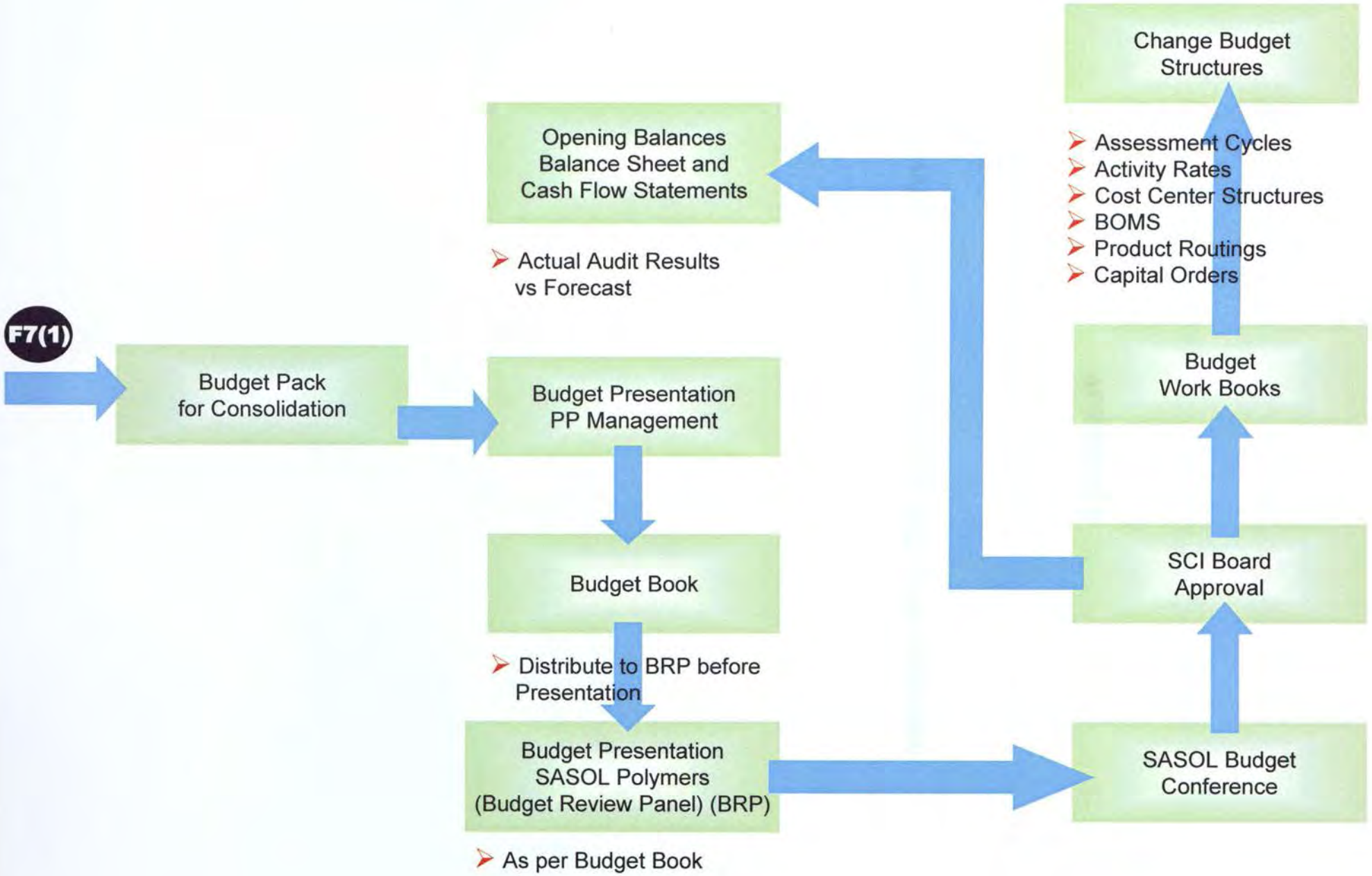












APPENDIX 6

CHARACTERISTICS OF OLTP AND OLAP SYSTEMS

CHARACTERISTICS OF OLTP AND OLAP SYSTEMS

OLTP systems (CO-PA)	OLAP systems (BW)
Focus is on business processes and consistency of transactions, so that the same transactions are performed consistently	Focus is on the analysis of vast amounts of data
Very detailed transaction data required for reporting and analysing. It is very common to retrieve transaction-level details like sales order number, purchase order number, and delivery/shipment number	Most of the time, summary data is required for reporting and analysing. It is not common to have transaction-level details, through some extractors support line-item details if required. Mostly pre-summarised information is required, such as sales organisation, customer, and region
Business users mostly focus on current/recent data from one day to one year of data. Business users have most predictable pattern of processing. Transactions like order processing and invoicing are standardised and repeated with the same methodology	Business users mostly focus on more historical trends from one to five years of data. Business users have the most unpredictable pattern for querying. Mining of data varies on a case-by-case basis
Data is constantly changed, transactions insert/update/delete data records. OLTP systems are highly normalised for transaction processing so that performance is recorded properly	Data is more or less constant, mostly read only transactions used for querying. OLAP systems are designed to optimise performance for fast display of query results

APPENDIX 7

FACTORS TO BE CONSIDERED WHEN CHOOSING THE REPORTING TOOL

FACTORS TO BE CONSIDERED WHEN CHOOSING THE REPORTING TOOL

Factor	CO-PA or BW	Why
Reports require much flexibility	BW	BW offers very strong OLAP functionality
Reporting requirements are relatively simple and predictable	CO-PA	Standard CO-PA drill-down reporting functionality is strong enough for routine requirements with simple setup
All data fields are not within SAP. There is cross-application reporting where data is required from multiple data sources	BW	If all the information is not within the SAP R/3 system, BW can retrieve and collect information from various systems and display consolidated query results. Note that CO-PA is not an option in this situation
Complex business processes across multiple systems	BW	BW's robust architecture and its own administration tools are well suited to handle complexities in business processes

Extracting, transforming, and loading (ETL) efforts are huge	CO-PA	The costs of transferring data to BW can outweigh the benefits of BW reporting
High-volume reporting with large amounts of history	BW	BW's technical design based on data warehouse concepts makes it suitable for handling
Performance degradation of the SAP R/3 system	BW	BW's inherent reporting capabilities make it a strong candidate to take the query load away
Custom reporting or interface within SAP R/3 system	CO-PA	Custom ABAP reports/interface may require transaction data from SAP R/3 system